Contributions to operative surgery : operations about the face / by Maurice Henry Collis.

CONTRIBUTIONS

TO

OPERATIVE SURGERY:

OPERATIONS ABOUT THE FACE.

BY

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PLATE I.

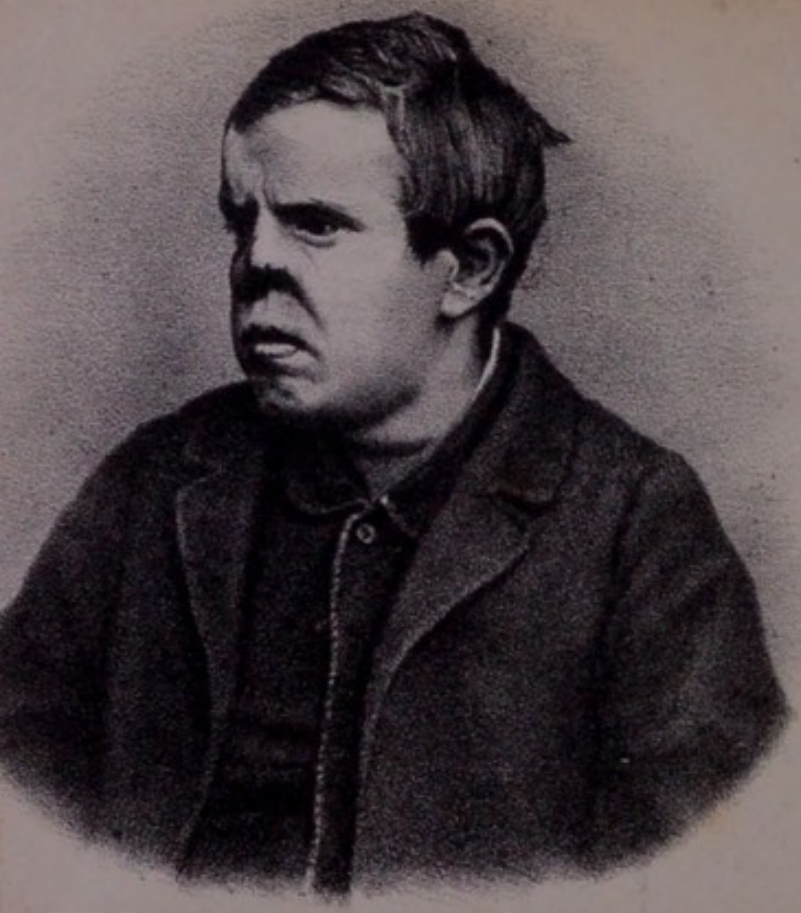

Fig. 1.

Fig. 2.

MR MAURICE COLLIS'S CONTRIBUTIONS TO OPERATIVE SURGERY

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CONTRIBUTIONS TO OPERATIVE SURGERY.

PART I.

OPERATIONS ABOUT THE FACE.

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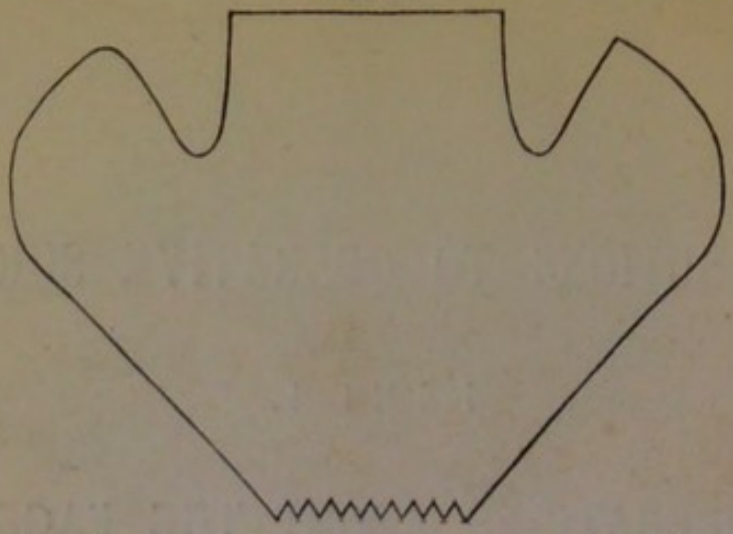
1. *Lupoid Destruction of Nasal Cartilages, with Occlusion of the Remainder of the Nostrils, and great Deformity; Rhinoplasty.*—Peter Leahan, aged twenty, was admitted into the Meath Hospital early in March, 1865. He had suffered for many years from lupoid ulceration of the nose, and to a slight extent also of the cheeks. By a varied line of treatment I checked the spread of the disease, and ultimately got the ulcerated parts to cicatrize. Lupus requires much patience, as all surgeons know, and I fear we too often do not pay it a sufficiently close attention; we weary of it, and the patient perceives this, and wearies of us. It is certainly a most tiresome ailment; but yet, by patient watching of its varying phases, and adaptations of remedies to suit each change in its condition, we shall generally succeed in curing it in the long run. In the present case I used iodine locally during the cold weather, and changed my hand for soothing applications according as the harsh winds of Spring subsided. I finally healed the ulceration with a lotion or paint composed of a drachm of watery extract of opium to an ounce of water. This was applied frequently through the day; by the beginning of May there was complete cicatrization of the ulcer and entire absence of new pimples or tubercles in the surrounding skin. Accordingly on the 12th of May I set about repairing the deformity of the nose. I first cut a piece of adhesive plaster into the form of flap, which I purposed raising

from the forehead. The outline of this flap is given in Fig. 1.

Fig. 1.



I measured this flap accurately, so as to adapt it afterwards to supply the deficiency of the nose, allowing for the subsequent shrinking of the material by absorption of the subcutaneous adipose tissue. I now pared the edges of the nose, or rather of its stump. I found but little of the cartilages left, except in the median line, where a very fair amount of cartilage still remained, compared with what was left of the alæ. I now placed the piece of adhesive plaster upon the forehead, the expanded and deeply-notched margin being laid as close to the hair as possible, so as to leave a long pedicle. This mode of outlining the flap has an advantage over ink or other materials, inasmuch as it does no harm to the flap or its margins, nor does it stain the cicatrix as ink will do. I now cut out my flap, removing only the integument and subcutaneous fatty tissue, and such muscular and aponeurotic fibres as were intimately connected with the skin. I did not require any new bone in the nose, as the nasal bones were not implicated, and consequently Langenbeck's plan of raising the periosteum in the flap was not needed. The flap was now twisted round and applied to the raw surface prepared for its reception. This part of the arrangement is facilitated, and the healthy circulation of the flap ensured, by prolonging the incision an one side down towards the angle of the eye, along the wrinkle or groove which is made in that spot during the action of frowning. I always make this cut towards the patient's left eye, turning the flap round by the right; this is simply more convenient to my hand, but either side will do. The flap was now fixed in its place by a number of fine sutures placed from two to three lines apart. On one side I used fine silk, on the other silver wire. I did this to test their relative value. The

There were two large ulcers running into one another, with the usual

PLATE 3.

Fig 2

Fig 1.

Mr MAURICE COLLIS'S CONTRIBUTIONS TO OPERATIVE SURGERY

result was that I had to remove the silk threads in forty-eight hours from rapid ulceration, while the wire remained in for a week or longer without producing anything beyond the most trivial suppuration; but in the end there was no mark along the side where silk was used, while the cicatrix on the side where wire was used was marked, and remained red and elevated so long as the patient remained under observation. This point is deserving of note.

It will be perceived that the centre of the flap (the portion which was to complete the columna) was made much broader than usual. This is an improvement for the knowledge of which I am indebted to my young colleague, Mr. Stokes, whose interesting paper on Rhinoplasty will be found in the pages of this Journal for May, 1865. The object of this breadth is to enable us to form a substantial columna at the same time as the rest of the nose. All went on well in this case; the flap adhered throughout, and except that there was a tendency in the nostrils to contract, the new organ could be said to be almost perfect; however, an occasional plug of seaweed kept the nostrils patulous. On the 14th June I divided the pedicle, and in a few weeks after he left the hospital exceedingly proud of the improvement in his personal appearance. In Plate I., Figs. 1 and 2, there is a faithful delineation of the appearances in this case before and after the operation. The drawings are from photographs by Forster, of Westmoreland-street, who has on many occasions assisted me signally in preserving records of my cases in this necessarily accurate manner. Copies of these photographs are deposited in the Meath Hospital and in the library of the College of Surgeons.

2. *Epithelioma of the Nose; Third Stage, Frightful Deformity; Removal of Diseased Portion, and Indian Rhinoplasty.*—Mrs. Shea, aged seventy-five, was admitted into the Meath Hospital early in March, 1866, for extensive epithelioma, which had caused destruction of the alæ of the nose, and great deformity (Plate II., Fig. 1). She stated that nine months before her admission into hospital a small wart upon the side of her nose began, after years of quiescence, to annoy her. She picked it, and it rapidly grew larger. In a wonderfully short time it had destroyed much of the skin, and had commenced to spread under the margins of the ulcer thus formed. The drawing gives a good idea of its condition when I first saw her. There were two large ulcers running into one another, with the usual

warty floor and irregular hypertrophied margins. The amount of hypertrophy was very remarkable. Fortunately the ulcerative process had spared the very tip of the nose, so as to leave an appreciable amount of the columna sound, and a small piece of each ala nasi. The disease was as yet local; the glands about the parotid region and the neck were free from contamination. She suffered much pain and occasional hemorrhage to a slight extent; the purulent discharge, as usual, was foul and profuse. The spread of the disease was rapid; the woman's general health was excellent, and in spite of her advanced age I gave her the chance of a prolonged life and freedom from much misery which an operation afforded. She was most urgent for the removal of the disease, independent of any idea on her part that I could restore the organ to a tolerably respectable condition, so that when I promised to give her a new nose I had no peace until I redeemed the promise. March 14, having chloroformed her, I removed the entire mass, sparing the extreme tip of the nose and the free margin of each ala. The infiltration of epithelial tissue had extended deeply into the cartilages, so that with the exception above stated all had to go. Upwards my incision extended to the middle of the nasal bones. I had thus a triangular gap one inch and a quarter in length to fill up by a flap taken from the forehead. Owing to her forehead being very low I had some difficulty in getting enough skin free from hair; however, by taking it a little obliquely I managed to get what did very well; and twisting the flap round I fastened it in its new berth by horsehair sutures inserted very close together—not more than three lines apart, and in some places as close as two lines. The flap, which became very blue and cold, was covered with the softest cotton; wine and opium were administered, and a little hot punch. I should mention that in dissecting up the flap the greatest care was taken not to handle it needlessly. Had it experienced any rough handling I have no doubt it would have sloughed. As it was, it recovered its colour and warmth in a few hours, and in the end united throughout without the smallest sloughing. The sutures were removed according as they seemed to have done their work—some in a week and others not for a fortnight. The pedicle was divided on the 13th April, and soon afterwards the patient left hospital with a remarkably fine nose. The wound in the forehead healed rapidly, and had almost closed by the time the photograph was taken, five weeks after the operation. See Plate II., Fig. 2.

It may be objected that such an operation was uncalled for at the patient's advanced age, and that from the rapid growth of the disease relapse was more than probable; also that at her age the risk of failure was great, owing to the low vitality of the skin. Of these objections the last is the only one that seriously touches the question. As regards the patient's age I found that she considered it no obstacle; and indeed from her hale appearance and the rapidity of the healing process, I think she is as likely as not to live to ninety. Certainly she was as anxious to be rid of her disease as any girl of nineteen. Looking on epithelioma of the skin as a perfectly local disease at the commencement, and only in a very minor degree liable to relapse if freely and perfectly removed, and seeing that there were no glandular enlargements, I deemed it improbable that we should have any relapse. I have often removed epithelial growths even at advanced ages, and I have seen so few cases of relapse while the disease was confined to the skin that I have not the dread of relapse which some who have written upon the subject appear to have. In the present case relapse could hardly make matters worse than they were, and to refuse to operate lest a relapse should occur would have seemed weak and cowardly. I do not know if there be a difference between the epithelioma of England and that of Ireland. Certain it is, that we seldom have relapses from epithelioma of cutaneous or border tissues in this country. I have operated on a man of seventy-two, who is now in his eighty-sixth year, and on many others nearly as old, who remain free from relapse for periods varying from five to ten years, so that age or fear of relapse would not prevent my operating if general health was good. As regards the risk of the flap sloughing, no doubt in the aged this accident is more likely to happen, but this only makes it more incumbent on us to handle the flap as gently and as little as possible during the operation. By supplying stimulants freely and by covering the parts well with soft cotton the heat of the flap is soon restored; nor should such a flap be too early disturbed by attempts to dress it, or by too curious inspection. The result of this case proves that plastic operations of much delicacy will succeed in the aged if due care be taken.

3. *Destruction of part of Upper Lip and Cheek by Cancrum Oris; Great Deformity; Plastic Operation.*—Owen Graham, aged six years, a fine intelligent child, was admitted into the Meath Hospital in June, 1865. When an infant he had suffered severely from cancrum

oris. The entire thickness of the cheek had been destroyed from the angle of the mouth backwards beyond the molar teeth, and upwards, so as to expose the cavity of the mouth and the gums and teeth. Even when the mouth was closed the deformity was very great. On the 23rd of June I vivified the edges of the gap, detached its margins from the bones so as to give the boy greater power of moving his jaw. Dissecting a long triangular flap from the side of the chin, I turned it up so as to complete the upper lip and close the gap in the cheek. Numerous points of suture held the flap in its place; and as the pedicle contained the main trunk of the superior coronary artery it was well nourished, and it rapidly united. The deformity was very much diminished, and as the boy grows up it will scarcely be remarked. The space from which flap was taken was covered over by drawing the edges together, and owing to the flexibility of the young skin there was no difficulty in bringing about primary union. Similarly the flap, which was of a long triangular shape, accommodated itself to the irregular outline of the gap, and became capable of filling a space much broader and somewhat shorter than the flap had originally been. The drawings give an excellent idea of the appearances before and after operation (Plate III.).

4. *Epithelioma of the Angle of Mouth and of the Cheek—Third Stage; Extensive Destruction; Removal of Diseased Mass; Recovery, and Freedom from Relapse to the Present Date* (*Eleven Years*).—
—— Byrne, a baker and gardener, from the town of Arklow, aged about forty-five, was sent to me in the year 1855, by Mr. L'Estrange. He had an extensive ulceration of the left cheek and angle of the mouth; the disease was plainly epithelial, and had gone on to the third stage, namely, ulceration and infiltration. One fourth of the upper and nearly as much of the lower lip was destroyed, and a square aperture in the cheek allowed the teeth to be seen. The edges of the ulcer were thickened and warty, prone to bleed on the least touch, and pouring out a copious and very fetid discharge. The skin all round was infiltrated to the distance of two or three lines; yet the glands were free from enlargement. The disease had commenced in the usual manner, by a fissure with hardened edges at the angle of the mouth; it had taken several months to reach its development at the date of the man's admission into hospital. I removed it early in November, 1855, by an incision which formed three sides of a square. The cut edges when brought

PLATE 3.

Fig 1.

Fig 2.

M.R MAURICE COLLIS'S CONTRIBUTIONS TO OPERATIVE SURGERY.

Pim Bro.s & C.o Lith. Dublin.

PLATE 4.

Fig. 2.

Fig 1.

Mr MAURICE COLLIS'S CONTRIBUTIONS TO OPERATIVE SURGERY

together by hare-lip pins formed a kind of leech-bite wound. They healed rapidly and without any ulceration. The cicatrix, at first firm and thick, became gradually fine, and the cheek and lips, at first somewhat puckered and restricted in mobile power, became in course of years relaxed and capable of almost as much motion and distensibility as before the disease attacked him. He came to see me from time to time, dreading a relapse; it is only within the last two or three years that his mind has been at rest upon this point. In this case I used no special treatment after operation to prevent relapse; he continued to follow his occupations as before, and has been free from illness of any kind up to the present date. The second portrait, taken a few days ago, shows the absence of deformity and the freedom from relapse which signally characterizes this case (Plate IV., Fig. 1). For the great accuracy of these lithographs I am much indebted to Mr. Lewis.

5. *Epithelioma of Angle of the Mouth and Inside of Cheek; Removal of a portion one inch and a quarter square; Appearance of the Disease in a portion of the Lip distinct from that first attacked; Removal of Surface of Lip.*—John Neal, aged sixty-six, also from Arklow, a fisherman by occupation, has had epithelioma of the angle of the mouth for some months; this has gradually extended so as to destroy a large portion of the cheek and to leave a space through which the teeth can be seen. The amount of destruction is about the same as in Byrne's case. April 17, 1863, I removed a mass of disease by three incisions, forming three sides of a square one inch and a quarter along each side, the fourth side being represented by the irregular margin and warty masses of the diseased structure at or about the angle of the mouth. The margins were brought together by several pins, and by interrupted sutures in the intervals. All healed well and rapidly, and the man returned to his work. In October, 1864, he returned to hospital, as epithelioma had appeared along the margin of the lip. I found the new growth scattered along the surface of the margin of the lip, not extending deeply and not in a continuous line, but here and there in fissures or cracks along the surface. There was a perceptible space of sound skin between the old cicatrix and the nearest part of the new growth; and the old cicatrix was thin and healthy, and there was no appearance of infiltration in its neighbourhood. I looked upon the disease in the lip as a new outbreak and not as a relapse, and I counselled its removal. I

accordingly shaved off the margin of the lip in the usual manner and so relieved him from the pressing danger of extensive ulceration of the lip and infiltration of morbid matter into the chin and submental glands. The parts healed kindly, and all has gone on well since.

6. *Fibroplastic Ulcer of the Angle of Mouth and Cheek; Removal of Diseased Mass.*—James Igoe, aged thirty-five, from the neighbourhood of Kilcock, came to me in May, 1863, for advice relative to a very peculiar form of ulcer at the angle of the mouth. It had not the ordinary warty appearance of epithelioma, nor was it a syphilitic ulceration. The margins were ragged and overhanging, but not capable of sub-division into papillæ, as the epithelial growths are. The floor of the ulcer was even; the secretion not very copious, not peculiarly offensive, and the pain was excessive.

The disease had originated in a fissure at the angle of the mouth, which had extended more especially on the mucous surface of the lips and cheek. The skin was affected, but not as extensively. The ulcer was not epithelial, nor was it syphilitic, nor did it resemble any form of lupus I had ever seen. I removed it freely with a knife, on the 20th May, 1863, by a four-sided incision. Inspection of the growth under the microscope showed it to be a fibroplastic ulcer. The subsequent progress of the case was satisfactory; the wound healed, and the disease did not reappear. Various caustics had been applied without effect before I had recourse to the knife.

7. *Fibroplastic Growth from the Periosteum of the Nasal Cavity; Removal by a New Operation of Great Simplicity.*—Margaret Biron, aged fifty, was brought to me in January, 1864. She had some obstruction of the nasal passages from childhood, and had consulted the late Mr. Carmichael and other surgeons. They appear to have recognized her disease as something more than ordinary polypus, and advised her to let it alone. Gradually the tumour enlarged, expanding the bones of the nose, especially on the left side, and completely blocking up the cavity of the left nostril; the vomer also was pushed to the opposite side. Of late she suffered from headaches, sometimes also from severe pain about the region of the frontal sinus; her memory became weak, and indeed her whole mental powers were below par. Breathing was impossible through either nostril. Numerous dilatations of the angular and other veins showed themselves about the root of the nose, the eyebrows, and neighbouring parts of the cheeks; all these evidenced a state of

considerable pressure. On inspecting the tumour through the nostril, it showed itself quite close to the aperture of the left nostril; its surface was smooth and polished, of a red colour, somewhat brighter than the ordinary mucous polypus: a probe could be passed up on the inner and under sides with tolerable ease. All round the outer and upper surfaces of the tumour the probe was stopped at distances varying from an inch to a couple of lines. As far as one could feel, this was caused by the attachment of the growth to the walls of the nostril in these situations. I resolved to remove as much of the growth as I could include in a wire snare. It was evident that a disease which had lasted for at least thirty years could not be very malignant, and I considered it possible to obtain by this measure at least temporary relief, as well as an opportunity of ascertaining the minute structure of the growth. Accordingly, on the 6th January, 1864, I removed a portion about the size of a walnut, by the snare; and further, by means of the forceps, compressed those parts of the growth which I could seize; smart hemorrhage resulted from this rough handling, and on its cessation much relief was experienced from the frontal pain and headache; and in a few days a considerable amount of breathing power was restored through the nostrils. The piece removed was hollow, like a shell, covered on its external surface with thin mucous membrane, and lined with a curious mammillated growth; its basis was made up of an expansion of the lower spongy bone. The shell of bone was thin, hard and brittle, and under the microscope presented the ordinary appearance of bone. The mucous membrane covering it was perfectly healthy. The internal growth was of the fibroplastic or myeloid type. I have frequently seen this form of growth in connexion with tumour of the jaws; this is remarked by Mr. Paget. The patient got so much relief by this partial operation that she went home; and it was not until January, 1865, that I again saw her. The tumour had grown again so as to fill the entire nasal cavity as before, and the pressure upwards was greater. Her mental condition was lower than before, and appeared to those about her almost hopeless. On the 25th January I proceeded to operate after a new method, by which I hoped to remove all the diseased structure without destroying any of the bone that was healthy. Such a tumour would generally seem to call for complete removal of the superior maxillary bone; whereas by the method about to be described the disease was easily removed without serious injury to the sound

bone. An incision was made along the side of the nose where it joins the cheek; the incision reached from a point just below the inner canthus to the nostril. On the one side the cartilage of the nose was severed from its attachment to the superior maxilla, and the skin of the nose was dissected up along with the cartilage, so as to leave the nasal process of the maxillary bone and the greater part of the nasal bone exposed almost to the mesial line of the nose. On the outer side a flap of skin was lifted so as to lay bare the bone as far out as a line drawn from the centre of the lower margin of the orbit to the most external part of the nasal aperture. By means of a strong bone scissors the bones were cut in the lines referred to, namely, from a little external to the raphe or junction of the nasal bones below, across the nasal bone and the nasal process of the superior maxilla to the union of the latter with the frontal bone; and, secondly, in a line from the outer margin of

Fig. 2.

the bony nostril to the centre of the orbit. Fig. 2 represents alike the deformity which this patient suffered under, and the lines of incision above referred to. The black line beside the nose is the line of incision of the soft parts; the two dotted lines represent the extent to which the cutaneous flaps were reflected and the lines of incision through the bones. The flap of bone loosened by these incisions was irregularly four-sided, about an inch wide below and one and a quarter above. It was simply turned up, lifted on its hinge, like the lid of a snuff-box, and held so, without impairing its attachments above at the margin of the orbit. This manœuvre enabled us to see the left nasal cavity and its contents. The tumour seemed to have extensive attachments to the walls of the nose; the periosteum of the superior maxillary and spongy bones and of the vomer were continuous with its covering. These were freely divided with the knife, and then, partly by cutting and partly

by tearing, the morbid growth was removed piecemeal. It was very friable in texture, unless where it had a basis of bone, so that we were not able to form any idea of its shape from its fragmentary remains. Having cleaned out the cavity, and stuffed it lightly with pledgets of lint with strings attached to them, I closed the wound by restoring the bony lid to its place, and by bringing the flaps of skin across it, and uniting them with numerous points of suture. Considerable consecutive hemorrhage arose in the course of the day, which was checked by the local use of perchloride of iron in solution. She subsequently had a very severe attack of erysipelas, but recovered, and I saw her in excellent health and restored mental power in September, 1866, having had no return of the disease so far.

The operation is an eminently satisfactory one; it is simple and effective, and leaves little mark; this poor woman is scarcely marked—the line of cicatrix is no more than barely perceptible (Plate IV., Fig. 2). Above all, the operation is eminently and truly conservative, as it prevents the necessity for extensive removal of sound bone. The flap of bone united firmly and without deformity; this was mainly owing to my having left plenty of soft tissues in connexion with it when raising the skin from its surface. Another reason for keeping the knife closer to the skin than to the bone was the desire to leave unimpaired such branches of nerve as lie near the bone in this situation.

8. *Exostosis of Vomer; Removal by the New Operation; Immediate Relief from the Sufferings of Years.*—Jane Owens, aged fifty-three years, residing in No. 10, Fitzwilliam-lane. This woman got a blow on her nose eight or nine years ago. Four years afterwards she noticed a white track on the right side of the nose, just at the junction of the cartilage and nasal bone. Three years ago a piece of dead bone came out of her mouth, and other bits she picked out of her nostrils. Besides this, she got a kick of a cow on the left malar bone, which caused extensive abscess, loss of bone, and lachrymal fistula on the left side. These latter mischiefs, however, have nothing to say to the state of disease which we have now to relate.

She came to me about the 1st of July, 1866. Her nose was greatly increased in width, and probably also in height of bridge; the cartilaginous parts of the nose were not altered in form (Fig. 3). On inspection of the nostrils a white shining tumour appeared almost

Fig. 3.

at the orifice of the right nostril. A similar appearance was seen in the left, but not prominent. There was a copious purulent discharge from both nostrils, and also down the throat from the posterior nares; this pus was most offensive to her as well as to those about her. She is a person of most cleanly habits, and did her best to keep down the fetor, but she said it constantly made her sick. The sense of smell was not diminished. Touching the tumour with a probe it felt hard, and rang like a stone. The probe could not be passed along the inner side at all upon the right side, and only a short way along the outer, catching against projections of the growth; on the left the probe passed rather more freely; touching it in this way gave no pain; it was not movable. Of its nature and connexions I could form but an imperfect idea. It was connected with the septum on the right side, and probably also on the left. It was some form of exostosis, but from which bone it had originally sprung was not clear. On looking into the mouth no change in the bony vault could be made out. The chief alteration in the bones was at the root of the nose, where the space between the eyes was much increased, and downwards along the bony prominence made by the nasal bones. All things considered, I felt disposed to look upon it as some irregular form of necrosis or exostosis of the vomer.

As the amount of hypertrophy was greater on the right side, I determined to attack the growth on that side, and to be guided by circumstances as to the extension of the operation on the left. On the 4th July I performed the operation described in the preceding case—namely, the incision of the soft parts from nearly

the angle of the eye to the nostril, cutting off the cartilage from its attachment to the superior maxilla, and turning it up along with the skin on both sides of the cut off the right nasal bone, and the nasal process of the right maxillary bone, and off the side wall of the nose (facial surface of maxillary bone) outwards as far as a line drawn through the centre of the orbit. The bones were then cut with the bone forceps so as to leave a flap of bone nearly square, free on its inferior side, loosened by the forceps on its inner and outer sides and still attached above. This flap of bone was turned up and held out of my way by one of my colleagues. I then seized the bony growth with Fergusson's lion forceps, and partly by force and partly by manipulation I got it out entire. There was a copious flow of pus, with shreds of lymph and dead periosteum in abundance, and but little bleeding. The size and shape of the tumour and the outline of the cavity from which it was extracted showed at a glance that the masses in each nostril were parts of one growth, and that we had got it all out. This was no small relief to all parties; for although the patient was partially chloroformed, she had begun to be unruly, and it was not easy to keep up the chloroform, as she was in a semi-erect posture. I plugged the cavity with lint, soaked in the muriated tincture of iron, and bringing down the flap of bone I stitched across it the two flaps of skin with horsehair sutures. All went on well. The lint was removed the next day. Injections of a five-grain solution of chloride of zinc kept the cavity clean. The sutures held nicely, and were removed from day to day, the last so late as the 16th July, a fortnight after the operation. She left hospital that day, exposed herself to cold, and got a large abscess in the tonsil, but without injury to the parts operated on. She had a slight ectropium of the lower lid, which necessitated a trifling operation for its removal.

Her appearance is as yet but slightly altered. There is some diminution in the width of the upper part of the nose, and no doubt in time the bones will return to somewhat of their proper form.

Fig. 4 represents (with Mr. Oldham's usual accuracy) the appearance of the growth in profile; the projecting spur, shown to the right of the figure, is the only part in which the natural structure of the bone appeared unaltered; by this point it was attached above. To the left and lower part of the figure are seen two masses which projected, respectively, into the right and left nostrils; the cartilage of the septum fitted into the space between these projections.

Fig. 4.

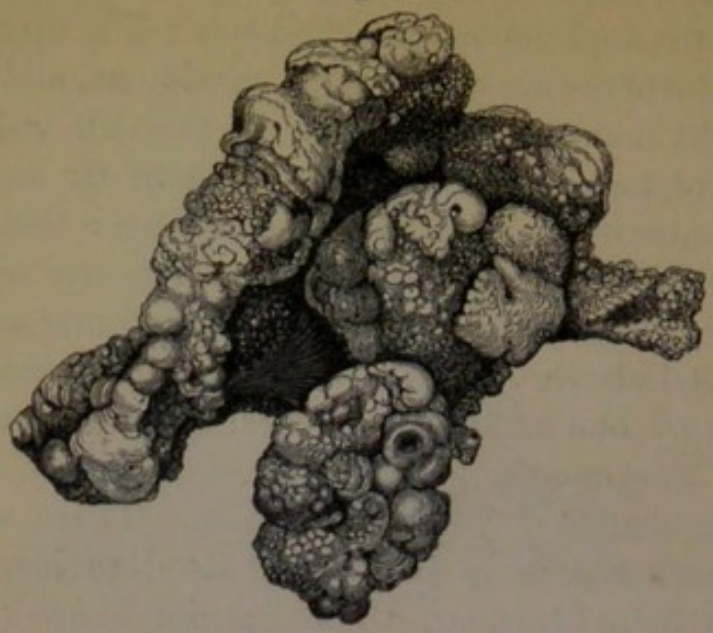
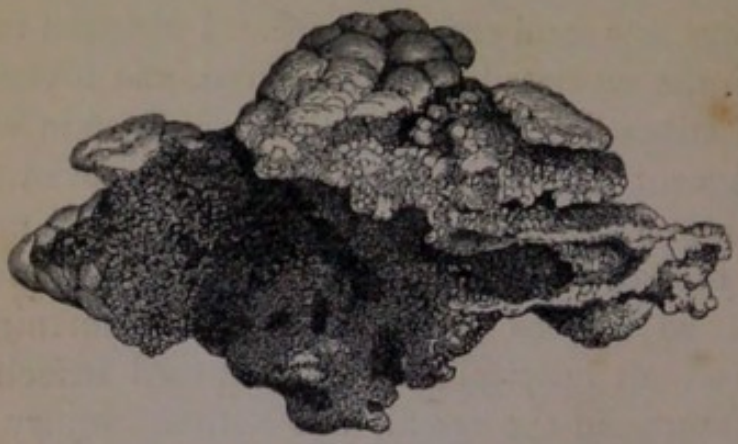


Fig. 5 represents the tumour as seen from below. The tumour was composed of shell-like masses of bone, very hard, and by no means brittle. Exostosis of the vomer must be a rare disease—I cannot remember ever to have read of a case at all resembling this.

Fig. 5.



9. *Necrosis of a Large Portion of Superior Maxillary Bone; Removal by Incisions in the Mouth.*—This case—one of many similar—exemplifies the mischief from exposure to cold after the loss of a tooth, with more than usual severity. The operation for removal of the bone was trivial, and is one that most surgeons have had to perform many times.

John Cunningham, about twenty years of age, living in the county Wicklow, had a large upper molar, which became carious. In extracting it much violence was done to the jaw with the key, and one of the fangs of the tooth was left behind. He walked some miles that day in wet and cold, and as a natural result he got inflammation of the jaw. Abscess followed; and on its breaking a large piece of bone was found to be loosened; three teeth fell out,

or were pulled out by himself as they became loose; and finally, after several weeks, he came to me suffering from constant irritation and discharge of matter. The removal of the dead bone was easily effected by a single incision in the mouth. It was a large piece of bone, and had carried four teeth; in shape it differed from those I had previously seen perish in a similar way, as it ran up to a point in the centre of the outer plate opposite the fang which had been left in. Generally the necrosis, when incomplete, is limited to the alveolar processes, and the piece which perishes is of an oblong outline. This was the only peculiarity of the case, and the only reason why I include it in this series.

10. *Epithelial Disease of the Tongue near the Root; Removal of the Disease; Respite for Two Years.*—Patrick Gallagher, aged fifty, by trade a baker. Three months before his application for admission into hospital he observed a sore spot on the left side of his tongue, far back. I found he had a gap in his teeth where he carried his pipe, and that the end of the pipe used to be steadied against the tongue at or near the point where the sore began. This sore ran the usual course, not extending much in superficial extent, but steadily becoming deeper, and as it deepened producing hardness of the tongue from epithelial deposit all round its margins and involutions. The usual round of caustics had been tried with the usual baneful effect. The disease had been aggravated, and in three months had come to implicate about a fourth of the tongue. It extended forwards rather more than half way, leaving about the anterior third of the organ quite free; it came quite to the mesial line, but not beyond it; below, it could just be isolated from the lower jaw and its periosteum, and, posteriorly, it went as close as possible to the soft palate and to the folds which connect the epiglottis with the upper surface of the tongue. It was manifest that in a very short time the epiglottis and larynx must be attacked, when death would inevitably ensue from œdema glottidis. I therefore determined to remove the disease if possible. On the 28th January, 1863, having partially chloroformed him, I made an incision through the cheek from a point a little below the angle of the mouth back to a point opposite the last molar tooth in the lower jaw. I did not commence the incision from the exact angle of the mouth, because such a cut always leaves an ugly pucker by interfering with the orbicular tendon and the insertion of the muscles at the angle of the mouth, while a cut made

above or below this point produces much less deformity. This opening in the cheek gave room to get a strong Liston's needle through the base of the tongue behind and under the disease. The double ligature with which this needle was armed enabled me to pull through the opening the chains of two ecraseurs by which the diseased mass was isolated before and behind, and slowly separated; the division of the inferior attachments was effected partially by the knife before the ecraseurs were tightened. The chains were kept from slipping by hooks and strong needles plunged into the diseased part until they had begun to cut it. Fully ten minutes was taken in working the ecraseurs home, when the piece came out easily, and with scarcely any hemorrhage. Some solid perchloride of iron was passed over the raw surface of the tongue, and the wound in the cheek was closed with pins and sutures. All healed quickly. The tongue swelled very little, and the cicatrix, which subsequently resulted, was firm and healthy. The tip of the tongue pointed rather towards the left, but the articulation was perfect, and the relief from pain and salivation was complete. The disease did not begin to reappear for a twelve-month, when it slowly showed itself in the gland under the ramus of the jaw; and upon inspection, in a slight degree far back near the under surface of the base of the tongue, in the cicatrix. I saw the patient alive in January, 1865, two years after the operation. He was then not likely to live many months, as the disease had extensively spread through the cervical glands; the pain was severe, and in all probability killed him soon after. There was no external ulceration.

11. *Epithelial Disease of the Tongue; Similarly treated.*—Darby Sullivan, aged sixty, from Listowel, in the county Kerry. This man had an epithelial ulcer on his tongue which implicated the greater part of the left half of the organ from near the root to the tip. It was by no means so favourable a case as the last, but he wished to have the chance of operation, and I accordingly performed a perfectly similar one to that which Gallagher underwent. The same incision was made in the cheek, and two ecraseurs were employed. Considerably more of the tongue was removed, but with all the care I could use I was not satisfied that all the diseased parts on the floor of the mouth were removed. All healed up well for the time, but in August, 1863, four months after the operation, I heard that the disease had returned in the neck, and

with severe suffering. He got rapidly worse, and died within the year 1863.

Comparison of these cases proves, as far as they go, that the more completely the disease is removed the longer is the respite. I have in these pages and elsewhere so often given forth my views on the local nature of epithelioma that it is unnecessary to repeat them at any length. This disease is essentially different from cancer, in its origin being superficial and not interstitial, in its rate of progress being slower, in its longer limitation to the place of origin, and in its far greater curability. It is not cancer of the skin—which is a well-known and easily-recognized variety of tubercular scirrhus; nor has it a right to be called cancer any more than the fibroplastic, recurrent fibroid, or other lymph growths, which are more analogous to cancer in their mode of origin, and which are yet distinguishable from cancer, and distinguished from it by all scientific surgeons of the day. That epithelioma of the tongue is more virulent and rapid in its progress than the same disease on the lip is intelligible from the higher vascularity and moisture of the tongue: but we may surely accept this fact without asserting, as a most illogical consequence, that because it is here exceptionally rapid and destructive, it is therefore cancer. Yet to what else do the arguments in favour of its being cancer come.

12. *Epithelioma of the Right Side of the Tongue; Removal by Section of the Jaw and Knife; Death from Pyemia.*—John Young, aged sixty-five, had been suffering from epithelial disease of the tongue for about five months. The right half of the tongue was diseased from tip to base, and the floor of the mouth very much ulcerated also; the disease came quite up to the mesial line in the middle of the tongue, and nearly so at the tip. I found it would be impossible to take all away without section of the lower jaw, so on the 21st June, 1865, having chloroformed the man, I divided the lower jaw at the symphysis, by saw and bone forceps, having previously split the soft parts from the lip to the os hyoides in the mesial line. Having seized the tongue, and drawn it forwards, with a strong hook, I split it rapidly down the centre to the base, going as near the epiglottis as possible. Hitting the exact raphe the operation was very easy, the least touch of the knife splitting it fairly down the centre. Before detaching the diseased part I had a very strong ligature passed as far back as possible behind the diseased parts, and tied with the utmost tightness. I then carefully

cut across the base, and removed the mass without arterial hemorrhage. On the stump I picked out and tied a couple of arteries, which was a fortunate precaution, as the strangulating ligature loosened and slipped off very shortly. The parts were brought together, the teeth tied together with wire; sutures were put into the lip and chin, and an aperture was left below the chin through which the ligatures were brought, to serve as a drain for saliva, blood, or pus. The man had a rigor, but rallied under stimulants. However, a bad style of discharge always came from the wound, which looked grey and sloughy. In spite of antiseptic lotions, good diet, stimulants, and quinine, this continued; he became yellow and pinched, and finally died with symptoms of what is termed pyemia, on the 5th July, a fortnight after the operation.

There is no doubt the mouth is a locality most favourable to the direct absorption of foul secretions; to this I think we must attribute the great fatality of operations such as this.

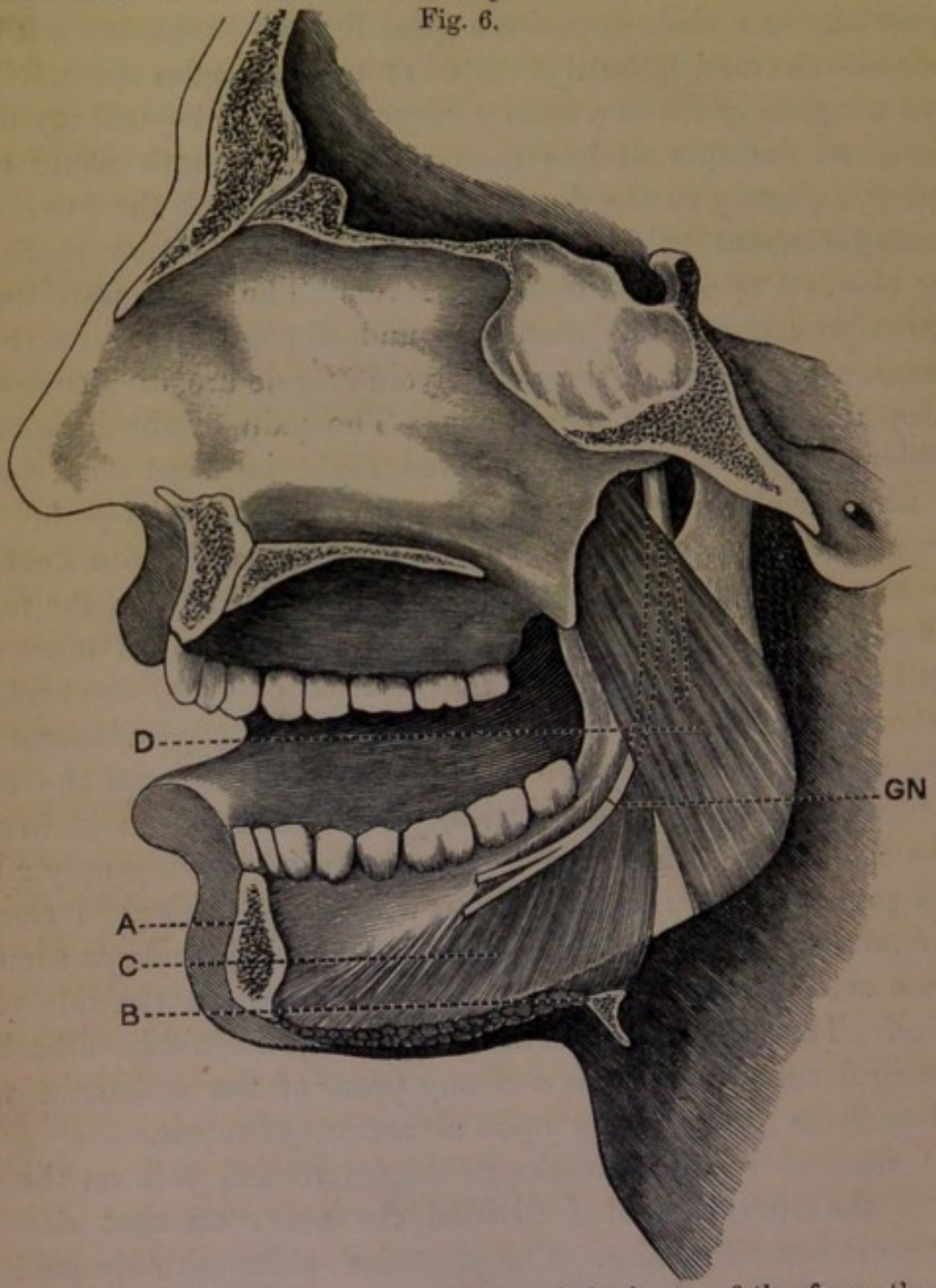
13. *Epithelioma of the Tongue; Division of the Gustatory Nerve, with Unusual Benefit; Repetition of the Operation on the other Side, with Relief.*—Michael Kennedy, aged about fifty, had been for fourteen months the subject of a severe ulceration of the left side of the tongue. This was originally produced by the irritation of a ragged tooth—the first molar in the lower jaw. The ulcer extended from the apex of the tongue back to a line beyond the last molar tooth; it was also broad, occupying not only the side, but the under surface, and much of the dorsum of the organ. The teeth indented it deeply, especially the first molar. The sub-maxillary and lymphatic glands about the angle of the jaw were much enlarged; the ulceration extended slightly to the right of the mesial line, and deep infiltration had occurred in the body of the tongue, giving it a nodulated appearance and a hard feel, such as might have made it difficult at first to say whether the disease was scirrhus or epithelioma; but the early history clearly pointed to the latter affection. The pain was constant and intense, precluding proper sleep, and incapacitating the poor man for any work. This pain had been an early symptom, dating in fact from the very commencement of the ulceration, and arriving at a distressing intensity at the beginning of 1863. The man had been the round of the principal London Hospitals, and had suffered much from caustics of various kinds. Narcotics of all sorts had been used ineffectually, or with transient benefit. Strange to say no one had suggested the

division of the gustatory nerve as a palliative, although it was quite the case for it, the disease being still limited to the region supplied by this nerve. I proposed it to him, and he acceded at once. Indeed his sufferings were so acute that he would have borne anything for relief. There was little difficulty in the operation, which I performed on December 8, 1863, in the following manner:— placing him in a chair opposite a good light, I passed my left index finger into the mouth, until it rested on the last molar tooth. Then, introducing the point of a strong curved bistoury beyond my finger, I made an incision of less than an inch in length along a line running obliquely in the direction of the angle of the jaw. This incision lay about half an inch beyond the last molar tooth, and three-quarters of an inch below its level. The parts were divided down to the bone. By such a wound, the gustatory nerve and, perhaps, a few fibres of the mylo-hyoid muscle are divided, as they lie beneath the mucous membrane. The pain of the incision was considerable, but momentary. That night he slept well, for the first time for eleven months enjoying rest unbroken by pain. The ulcer next day was insensible when touched, and quite devoid of pain, and it so continued for six weeks. This was only the natural effect of division of the nerve; but in a few days an unexpected benefit arose to the parts from the absence of pain; the surface of the ulcer lost its vivid angry hue, while the edges became of a bright healthy red, and were evidently closing in. In the course of a week the ulcer was considerably reduced in size, and in three weeks the upper surface and side had healed, leaving only a small warty patch on the under surface raw, but not tender. I removed the obnoxious tooth about the end of the second week, as soon as it became evident that if left there it would press on the side of the tongue. That so large a portion of the ulcer should have healed in this singular manner affords a strong proof of the assistance which freedom from pain confers upon all actions of repair.

At the end of three weeks he began to feel pain on the right side of the tongue, and I divided the nerve on that side also, with great benefit to him. The operation, although only palliative, was of great benefit to the poor man, so long as the disease was limited to the anterior part of the tongue. From the amount of glandular infiltration it was plainly impossible to remove the disease by any surgical operation, and under those circumstances it was a great point to be able to afford even temporary relief in this simple manner.

The operation of dividing the gustatory nerve was first performed by Hilton, whose case is given in the seventh volume of the second series of *Guy's Hospital Reports.* From his paper I have taken the liberty of copying the accompanying woodcut, which explains the steps of the operation.[a] Mr. C. H. Moore has also drawn attention to it in the *Medico-Chirurgical Transactions.* There are

Fig. 6.



[a] *Description of Fig.* 6.—A vertical section of the bones of the face; the inner surface of the lower jaw is partly hidden by the internal pterygoid and mylo-hyoid muscles; between these the gustatory nerve may be seen descending forwards.

A—Symphysis of the lower jaw.
B—Mesial section of the os-hyoides.
C—Mylo-hyoid muscle, upper surface.
D—Internal pterygoid muscle, inner surface.
G N—Gustatory nerve marked at the spot where it should be divided.

many advantages to be derived from this operation besides the relief of pain; the flow of saliva is diminished materially, and this, as is well known, is a most distressing source of annoyance in malignant disease of the tongue. Again, patients often suffer in health, and become emaciated, not so much from the primary effects of the disease as from the unwillingness or even inability to take proper or sufficient food. The ulcer is not only painful, but sore to such a degree as to render the attempt at swallowing almost impossible, and in the case of solid food quite so. The division of the gustatory gets rid of this soreness; and the improvement in the patient's appearance after the operation is due in a great measure to his increased capacity for taking food. Again, if the tumour is to be removed, the previous division of the nerve is a positive advantage, inasmuch as the use either of knife, ecraseur, or ligature will then be almost painless. I have not, however, found the ecraseur so painful as to make it necessary to divide the nerve. Besides I find that chloroform is given just as safely in operations on the mouth as in other cases, and that it positively makes them easier of performance, the supposed difficulty from accumulation of blood and mucus not occurring. I now use it even in operations on the cleft palate, and find it facilitates the operation most materially. Still the advantages of dividing the gustatory in cases of malignant disease of the fore-part of the tongue are very manifest; and I think so simple a palliative might be frequently adopted with advantage.

I have performed the operation five or six times; it is sometimes a little difficult to hit the nerve, in cases where the tongue is much swollen, but by a little management I have always succeeded. The relief afforded by it lasts to the full for five or six weeks, and in a slighter and gradually decreasing degree for two or three weeks more. By that time the divided nerve becomes again capable of transmitting the nervous current. The operation may then be repeated, if the disease has not by that time extended too far back, as will be most likely. I have been asked why I did not cut out a piece of the nerve. In the first place that would make the operation tedious, painful, and probably very difficult; the nerve should be exposed, and seized with forceps before a piece could be excised, while simple division of it in the way described above can be done without seeing it. Secondly, the interval taken by the nerve to unite and become perfect as a channel of sensation is about equal to the time which it takes the disease to spread to parts supplied by the glosso-pharyngeal nerve. Still, if a case occurred to me where

the disease was slight but painful, and where the patient refused to allow the removal of the disease, I should advise the excision of half an inch or so of the nerve.

Operations for Removal of the Tongue.

In a standard work on surgical practice, published four years ago, the removal of the tongue is condemned in the following terms:— "The result of ablation of the entire tongue may easily be imagined. So cruel a procedure could hardly have any other than a fatal termination; death occurring, if not from shock and hemorrhage, from œdema of the glottis, pneumonia, erysipelas, or pyemia. As to any ultimate or even temporary good it might produce it is difficult to perceive it. There is a possibility, it is true, that the patient's life might be prolonged for a few days, nay, perhaps, a few weeks or even months; but this would hardly compensate him for so terrible an ordeal."[a] If the writer of the above sweeping condemnation were now to reconsider his verdict, with a full knowledge of what has been achieved in this direction, he should, perforce, modify his opinion not a little.

The operation cannot now be called cruel; in fact the idea of cruelty in connexion with it is a singular example of the force of old associations. Of itself the operation is milder than multitudes of others which are daily resorted to; especially as all the otherwise painful stages can be gone through under chloroform. In ancient times of semi-barbarism mutilation by ablation of the tongue was a terrible form of punishment. In most bodily tortures it was still permitted to the sufferer to give vent to his misery in cries and exclamations of distress; whereas in this no such pitiful solace was left the victim—lacerated and bleeding, he was popularly supposed to be incapable of uttering a sound; and, as silent agony is ever considered most intense, this punishment came to be viewed as one of the severest which malice could devise and cruelty inflict. To the traditional remembrance of these times of lawless violence we are indebted for the horror with which many surgeons shrink from an operation not specially severe in itself, and in certain cases most merciful in its results.

Ablation of the tongue will be undertaken almost exclusively for epithelioma. I use this term advisedly, for of the existence of scirrhus or encephaloid of the tongue we have no certainty. I have never met with a case of what is commonly called cancer of

[a] Gross' System of Surgery. Philadelphia: 1862. Vol. ii., p. 555.

A–B line of incison for Syme's operation.

C–D ditto Regnoli's operation.

E–F ditto Collis's operation.

the tongue which did not commence on the surface. A primary cancerous infiltration unconnected with and unpreceded by ulceration must be very rare.

The description of such a case, as far as my reading goes, is not to be found; nor have I ever met with a museum or *post mortem* specimen of it. Errors of diagnosis have, no doubt, caused syphilitic hardening to be mistaken for cancer, but even in these a sore on the surface is mostly, if not always, found. Now, epithelioma of the tongue is rapid in its progress, as a rule, owing to the favouring moisture of the mouth and vascularity of the tongue. Once it has reached its third stage (of infiltration) the pregnant germs spread themselves with fatal rapidity through the tissues, and in a brief space they pervade the organ in its entire extent. Not only do they cross from one side of the tongue to the other, but they spread even more eagerly along the central raphe, where at the line of junction of its two halves the tongue possesses a layer of fine vascular and absorbent tissue, the most favourable nidus possible for the propagation of this disease. Hence it comes that partial removal of the tongue, be it ever so free, is apt to be ineffectual as a means of permanently eradicating the disease. All that is hard may seem removed, and yet enough may be left, unfelt, in this mesial line to perpetuate the mischief. In a few months, or even less, it breaks out afresh, or appears insidiously in the submental or submaxillary region, and the case becomes hopeless. The opinion is daily gaining ground with those who have operated on the tongue that complete removal is a better and more merciful operation than partial, unless in peculiar cases. The benefits of removal of the tongue are not, however, to be measured by the cases which remain free from permanent relapse. These as yet are but few, for no long time has elapsed since the operation came to be considered feasible, and still less, since it became simplified and safe. Independent, however, of complete immunity from relapse, other important advantages accrue. Relief from great distress, and often from extreme pain, greater ability to breathe and swallow, diminution or total cessation of salivary or purulent discharges, offensive and wearing to the patient; finally, strange to say, decided improvement in articulation; these are some of the valuable results, short of cure, which follow the removal of the tongue when affected with epithelioma. Rescue from imminent starvation and great increase of comfort, even for a few months, are results not to be despised, where they can be obtained at an easy rate; and there are

ample materials to prove that relief from pain alone, not to speak of the diminished drain on the system, and restored power to eat, are sufficient to ensure a comparatively longer life. For these reasons the removal of the tongue has come to be considered not only a feasible, but what is more important, a justifiable operation; and although but few surgeons have as yet adopted it, the feeling of many is in favour of giving it a more extended trial. My personal experience in the matter is not worth naming as yet. I have operated, one way or another, in four cases, and the results are sufficient to justify the repetition of the operation in similar cases.

Several methods of operating have been practised for removal of the tongue, in whole or in part. The depth at which the root of the tongue lies, its broad attachment to the os hyoides, its tapering form, and the difficulty of seizing it, the still greater difficulty of passing a ligature round it (especially when distorted by disease), so that the ligature shall not slip—all these combine to render removal of the organ wonderfully embarrassing. Hence the ingenuity of surgeons has been exerted to overcome these obstacles, and the difference of the methods suggested is somewhat remarkable. A short *resumé* of the principal operations may not be out of place, inasmuch as the surgeon of large experience in these cases will have at one time to select one and again another, as most suitable.

Mr. Syme's method is entitled to precedence of notice, both for his eminent position and because of its intrinsic importance. It is a severe and serious operation, and will only be required where the disease extends far back and deeply into the base and root of the tongue—even if then. Mr. Syme did not administer chloroform in his cases, but there seems no reason against its use. I have given it when operating after his method, and in many other surgical proceedings about the mouth and fauces, and I never found any inconvenience in its use; the blood is as easily removed as in a state of consciousness; the patient is able to breathe with perfect freedom, and I need hardly say the operator is much more at his ease. Premising, then, that the patient may be chloroformed, I shall take the description of Mr. Syme's operation from his paper in *The Lancet* of February 4, 1865:—

"Having extracted one of the front incisors, I cut through the middle of the lip, and continued the incision down to the os hyoides; then sawed through the jaw in the same line, and insinuating my finger under the tongue as a guide to the knife, divided the mucous lining of the mouth, together with the attachment of the

genio-hyoglossi; while the two halves of the bone were held apart I dissected backwards, and cut through the hyoglossi, along with the mucous membrane covering them, so as to allow the tongue to be pulled forward, and bring into view the situation of the lingual arteries, which were cut and tied, first on one side and then on the other. The process might now have been at once completed had I not feared that the epiglottis might be complicated in the disease (which extended beyond the reach of my finger), and thus suffer injury from the use of the knife, if used without a guide. I therefore cut away about two-thirds of the tongue; and then, being able to reach the os hyoides with my finger, I retained it there while the remaining attachments were divided by the knife in my right hand, close to the bone. Some small arterial branches having been tied, the edges of the wound were brought together, and retained by silver sutures, except at the lowest part, where the ligatures were allowed to maintain a drain for the discharge of fluids from the cavity."

In Mr. Syme's earlier operations, two in number, death ensued from inflammation of the lungs. This was attributed by him to irritation propagated from the larynx, and led him to modify the operation as originally performed by him. The above description gives, I believe, his latest published account of this mode of operating. In it the os hyoides is not altogether deprived of its muscular supports, the genio-hyoid and mylo-hyoid muscles being left untouched; hence the unrestrained admission of cold air into the lungs is checked, and the larynx is supported. The result was that Mr. Syme's third case recovered. A fourth case upon which he subsequently operated did not, however, end so fortunately, the woman dying of inflammation of the lungs or pyemia. It should be mentioned, however, that two cases operated on by Syme's older method recovered in the hands of Dr. Fiddes of Jamaica.

In Mr. Syme's third case, operated on two years ago, the disease has not returned. "The patient, after recovering from the operation, and while travelling in the highlands, had dined at *tables d'hôte*, and entered into conversation without betraying the deficiency under which he laboured; he could swallow fluids and finely-divided food as well as ever, and could masticate solid substances, although a difficulty was sometimes experienced from their getting into awkward parts of the mouth. In ordinary speech his words were wonderfully clear and distinct, and he could sing without difficulty."

He writes, on December 25th, 1866:—"I am as well as I ever was

in my life; in my own opinion I continue to improve in my articulation, and in this opinion I am borne out by many; it is a common remark, when I meet a friend, after not seeing him some time, for him to say, how much you have improved in speaking. I can also say that I have improved much in mastication, and can now enjoy my food better than I have done for some two and a-half years, or more, for whereas I used to eat with pain, I now eat with pleasure."

This result of a case that was in an apparently hopeless state prior to operation is most encouraging.

I have performed Mr. Syme's operation once, for removal of half the tongue. The case is given in the former part of this paper. Should I have occasion again to resort to it, I should adopt a modification of it suggested by Sedillot. It consists in dividing the bone in a zigzag or notched manner, so that there may be less difficulty in keeping the edges in apposition. This is a valuable hint, as all surgeons will know who have divided the lower jaw for any cause. It is a matter of immense difficulty to retain the edges in immovable contact if they are sawn through smoothly, whereas if their edges are serrated ever so slightly, this difficulty diminishes. By using a narrow-bladed saw, and inclining it a little to the right, until we go half way down through the bone, and then turning it slightly to the left as we complete the section, a sufficient irregularity will be obtained, and we shall find it easy to keep the edges in contact by tying the teeth together with a fine wire, and by the external dressings, without being obliged to bore holes in the bones and tie them together with wire.

Regnoli, of Pavia, made a semilunar incision along the under part of the chin, reaching back almost to the angle of the jaw at either side. This incision extended through the integuments and muscles, and was deepened until the mouth was laid open, when the tongue was seized and drawn through the aperture. If it were too large to admit of this, a vertical incision should be made in the median line down to the os hyoides. The tongue can then be removed either by knife or ecraseur; or a strong ligature may be tightly tied round it, at its base, prior to its removal by the knife, when the vessels can be picked up seriatim, and tied at leisure—the provisional ligature being then removed. This operation, very admirable on the dead subject, or when the tongue is of natural dimensions, would become difficult and inconvenient in cases of extensive disease. It is not free from the subsequent dangers of

purulent infiltration and pyemia. I do not know if it have been performed on the living.

In the year 1839, Mr. James Arnott performed an operation by which he was enabled to encircle the root of the tongue with ligatures. He only removed a portion of the organ, but by his operation the entire might be included in the loops of ligatures or ecraseurs. He made a short incision (1½ inch) in the mesial line, from the os hyoides forwards towards the chin; rooting with the handle of the knife between the muscles he made a space for the finger. Along the finger he passed a strong Liston's needle, and drawing the tongue forward by a tenaculum, he pushed the point of the needle backwards behind the diseased parts, and in front of the epiglottis. The loop of the ligature was caught (not an easy task), drawn forwards, and divided; one half was then, by means of a curved needle, brought round the root of the tongue, and then out at the wound in the neck. The other half could, in like manner, be passed round the other portion of the root, and the entire tongue be cut off from its basal attachments. Any remaining sublingual attachments could be snipped by scissors or divided by a wire ecraseur.

In Mr. Arnott's case ligatures were used, and it required seventeen days to complete the separation. This shows forcibly the value of *ecrasement lineaire*, by which the same end is accomplished in the same number of minutes, and the long dangers of putrid absorption are avoided.

Mr. Arnott may fairly claim the parentage of many of the more modern improvements, of which I shall now proceed to give some account.

To Mr. Nunneley, of Leeds, I think, we are indebted for proving that the greater part of the tongue may be removed by ligature or ecraseur, through an incision which scarcely goes beyond a puncture. His operation as at present performed, I take from his paper read before the British Medical Association, at Chester, and published in the Association Journal:—

"I take a sharp-pointed curved blade, about four inches long, and of just sufficient thickness and breadth to carry the wire-rope of the ecraseur. This rope I have made somewhat thicker than those ordinarly supplied by Messrs. Weiss, with Hick's instrument; and I always have a second in reserve in case the first one should

give way.[a] The middle of the rope should be attached by a piece of string to an eye made in its broad end. The patient reclining on his back in a semi-recumbent position, this blade is plunged exactly in the median line, between the base of the jaw and the os hyoides, but somewhat nearer to the latter than to the former, into the mouth, and brought up at the frenum linguæ, and so out of the mouth, the wire rope following. A good sized loop of the rope must be drawn through, and the needle cut off. The rope must now be carried well back and spread over the base of the tongue, the tip of which being then drawn through the loop, is seized with Luer's tongue-forceps, and pulled forcibly outwards and somewhat upwards. Two or three long and strong hare-lip pins, somewhat curved towards their points, should next be carefully thrust from the under side of the anterior attachment of the tongue, through its substance, and brought out on its upper surface as near to the base as possible. One of these pins should pass on each side; and if a third be used, it should traverse the median line. Their points should just appear on the upper surface, and over them the rope should be carried. They will thus serve to prevent its slipping forward when it begins to be tightened, as it might otherwise do. They are not absolutely necessary, but I think are useful, and give rise to very little pain; besides which they serve to indicate the exact portion which has to be removed. Of course, the larger this is, the more carefully must the pins be carried well back. The screw of the instrument should now be turned so as to gently fix the wire, that it may not move from the line in which it is intended to cut.

"Hitherto very little pain has been inflicted, and the voluntary efforts of the patient have been useful in facilitating the proceedings; but at this stage he should be put fully under the influence of an anesthetic so that he may not feel, and the screw of the ecraseur be steadily, but very deliberately, turned, the tongue being forcibly extended. It speedily becomes strangulated, and is cut off."

"[a] A certain amount of strength is required, or the rope will break from the resistance of the tongue. While on the one hand it must not be too thick to increase this resistance to too great a degree, so on the other it must not be too thin, or it will act too much as a cutting instrument, and thus give rise to a danger of hemorrhage, to avoid which alone it is employed. I am by no means sure that a chain made of small hexagonal pieces jointed together in alternately opposite directions would not be an improvement. It would make a chain equally flexible in all directions, and be somewhat serrated, by which it would be easily introduced, and when fixed easily cut its way through the parts. One of these chains I am now having made."

Mr. Nunneley adds, in a letter to myself, that he has operated in six cases, and that all have recovered from the operation without a bad symptom, except one who had diffuse inflammation of the lungs, from which he recovered after a few days; Mr. Nunneley attributed this attack rather to the mode in which the operation was performed, chiefly by ligature, than to any inevitable sequence on removal of the tongue. The small submental wound healed in all by the first intention. Of the results it is satisfactory to learn that one man remained free from relapse for three years, and then died from hereditary phthisis; two died from the development of the disease external to the mouth, and in the abdominal viscera; the other three have been too recently operated on to judge of the amount of permanent benefit. From each and all, however, the lesson can be drawn that the immediate dangers of Mr. Nunneley's operation are but small, and that for removal of the greater part of the tongue it is an effective proceeding. I am not so satisfied of its being the most efficient operation for removal of disease extending far back or deep into the tongue. It will be seen by his description that the needle comes out at the frenum linguæ, the loop of wire is brought from that back over the tongue, and an oblique section is then made of the tongue. No thought seems to be taken of the sub-lingual attachments to the jaw which form no inconsiderable portion of the tongue, and which are very often the seat of some infiltration. Certainly, in Mr. Nunneley's first case, there was a complete removal of the tongue, but the steps of the operation were different, owing to the chain of the ecraseur breaking, and the necessary substitution of ligature, and the slow process of sloughing. Nor do I see very well what is gained by the submental puncture. If the needles are first fixed in position, the chain, or rope, can be fastened with just as little difficulty from the mouth, without this preliminary puncture; although under no circumstances is this manœuvre very easy of performance. Still it can be done without this puncture, if we use Liston's fixed needles, either straight or curved. The handles of these needles enable us to pass them exactly where we wish; and if we select them with large curves, and strong, they will include most of the tongue, and even of the sub-lingual attachments, and they will guide the ecraseur to the deeper parts of the roots, far back. However, to Mr. Nunneley is due the credit of reducing the cutting operation to a minimum; and, in certain cases, his method may be found the most suitable.

Mr. Paget has operated in a manner which seems to me better

than Mr. Nunneley's. He avoids the submental puncture, substituting for it the division of the sub-lingual attachments by the knife. The following description of his operation is taken from *The Medical Times and Gazette* for Feb. 10, 1866. The man having been put under chloroform, his "mouth was drawn open, and firmly fixed so, and the tongue was drawn forward. To facilitate this latter step the mucous membrane and the soft parts on the floor of the mouth, including the attachment of the genio-hyo-glossi muscles to the inner side of the symphisis, were cut through close to the bone. The tongue was thus in great measure released from its anterior and inferior attachments, and could readily be drawn forward, so that the wire of an ecraseur was, without difficulty, passed around its root, including the entire organ to its connexions with the larynx. The wire was tightened by degrees, and there was some free but not dangerous bleeding when the mass was detached.

"The man's recovery was uninterrupted and very rapid; indeed, he regained his power of swallowing in so short a time that he soon ceased to require special attention in feeding, and before the end of a week he could make himself intelligible by imperfect speech, so much so that it would have been hard, without actual inspection, to have believed that the entire tongue had been removed."

Mr. Paget writes me that the man returned to his work, that of a butcher, in three weeks, and was active in it for rather more than a year. Then he died with cancer in the sub-maxillary lymphatics.

A second patient, upon whom he operated early in January, 1866, similarly recovered, and has, as yet, had no return of the disease.

He has operated lately in a third case; and this patient, equally with the others, recovered without a bad symptom. Mr. Paget's observations upon the operation are of much value, and I shall readily be pardoned for quoting them:—

"In remarking upon the operation, Mr. Paget said he believed that what he had just done was suitable in the very great majority of cases in which it was necessary to remove the tongue for cancerous disease. Two points, however, must be attended to in performing it. (1.) The attachments of the tongue to the jaw, both in front, where there were the genio-hyo-glossi muscles, and at the side, where it was connected by the mucous membrane, must be thoroughly divided, so that the organ could be well drawn for-

ward; and (2) care must be taken that the tongue was divided perpendicularly through its thickness; unless there was a definite provision to prevent it, the section would pass obliquely from behind, downwards and forwards, and thus parts that had better be removed might be left. An efficient plan was to transfix the tongue perpendicularly with stout needles at the part at which the division was to be made, and to place the ecraseur-wire behind these, so that it was made to cut vertically. There might, doubtless, occasionally be found cases in which the disease was situated so near the hyoid bone that it would be advisable to perform the larger operation recommended by Mr. Syme. Nevertheless the ecraseur operation allowed of complete removal of the sides and upper part of the tongue, and was, therefore, appropriate in the greater number of cases. The operation, besides, was attended with scarcely any risk to life."

The following is an extract from a clinical lecture lately given, on the subject of cancer of the tongue, by Mr. Paget:—

"The motive to operate here, as in other cases, is either to prolong life, or, without shortening, to comfort what remains. For the first there is, I believe, some advantage—not a great prolongation of life, yet enough to justify an operation which is attended with very little suffering or risk. But the chief motive is in the hope of comfort; and the comfort that may be gained is, in many cases, so great as to justify a greater risk of life than is incurred in any of the ordinary operations for the removal of cancer of the tongue. The risk is really very small. I have not had a fatal case, or witnessed one—there are few of even the minor operations of which I could say so much—and the comfort given is that the patient is delivered, for the time, from all the misery of one of the most distressing and disabling conditions of disease, and, till the cancerous growth is renewed, may enjoy complete health, and do all his work. Doubtless the disease will return after operation, but it is as unreasonable to refuse a painless operation, and one free from risk of life, because the disease will return at some time soon after it, as it would be to refuse a course of medicine because it gives only temporary relief. When a man has only, suppose, two or three years to live, it is no small advantage if at least half the time can be spent in comfort rather than in misery, and in profitable work rather than in painful idleness. Looking back on the many cases of cancer of the tongue that I have had to do with, I should

be disposed to say that there is no organ on which operations for cancer are more justly performed, or are more to be urged, even in extreme cases."

His latest expression of the value of the operation is as follows:—"I have not yet seen anything to make me believe that the operation will materially lengthen life; but being, as I believe, attended with very little risk, it is justified by the great comfort which it gives. It releases patients from the greater part of the misery belonging to one of the most miserable diseases of which a man can die. And this it does, not only at little risk, but with very slight pain, and so partial a loss of speech that the defect is scarcely noticed by ordinary observers." This strong expression of opinion from a man so calm and judicious as Mr. Paget, must tend largely to modify the general opinion of surgeons upon this important subject

In a case, to be related further on, I performed a modification of Mr. Paget's operation, suggested by Mr. Holt, who has used it on two occasions. In place of cutting the sublingual attachments with the knife—which some might be timid of attempting, lest serious hemorrhage should ensue—I divided them by the wire ecraseur; in order to pass the wire it was only necessary to insinuate a curved needle under the tongue as far back as could be reached, and to attach the wire to the loop of the ligature which the needle carried. The remainder of the operation did not differ from Mr. Paget's.

For most cases of epithelioma of the tongue this operation will, probably, suffice; for a few rare and extreme cases Mr. Syme's may, perhaps, still be resorted to; but there are cases in which the disease, without being so extensive as to call for this latter-named procedure, may be situated so far back as not to be within reach by the milder methods of Paget or Nunneley. For these I venture to propose a mode of operation which I adopted four years ago in two cases, and which is described in my work on cancer, published in 1864. By it I was able to go farther back than could possibly be done by any other method short of Mr. Syme's. The ecraseur was worked immediately in front of the epiglottis, and with an ease that was most surprising. The steps of the operation are as follows:—An incision is made through the lower lip, at a distance of a quarter of an inch from the angle of the mouth; this incision passes downwards nearly half an inch, and then turns backwards,

and slightly upwards (in a line towards the orifice of the external ear), until it reaches as far back as a point corresponding with the last molar tooth in the lower jaw. This incision goes through all the tissues—first of the lip, and then of the cheek. The object in making the incision at first downwards is to avoid the ugly pucker which results from all incisions that spring directly from the angle of the mouth. This incision gives ample room to enter a strong Liston's needle under the very root of the tongue, and to push it on until the point appears at the other side, close to the bone; a hook or forceps can now be brought to bear upon the loop of the ligature in the eye of the needle, and when it is firmly seized the needle may be withdrawn; the loop is now divided; the chain of an ecraseur is fastened to one of the strands, and is pulled through; it is brought round the base of the tongue, as far back as is desired, and is slowly tightened; when the screw has been worked for a minute or so, and enough cut through to leave room for a second ecraseur, this is passed by help of the second strand of cord; by its means the sublingual attachments are divided; and, when both ecraseurs are worked home, the tongue is found to be entirely severed from its attachments. It is easy to guide the ecraseurs, and prevent their slipping from what we wish them to cut, by a few strong pins, or by needles in fixed handles; pushing these in here and there we can guide the ecraseur, whether chain or wire-rope, into the line best suited for our purpose. Should it be advisable to remove only a part of the tongue, it is easy to enter the needle as far back as we wish, to push it on to the central line, and then to turn it up, so that the point shall make its exit on the upper surface of the tongue. The needle is best entered while the tip of the tongue is simply raised towards the roof of the mouth; the tongue is then allowed to fall quietly into its place, and the needle is pushed on to the central line, or thereabouts; the tongue is now seized, and drawn forward as far as possible out of the mouth; the needle point can then be directed, so as to make its appearance as far back as is desired. The only difference in the subsequent steps of the operation is, that the ecraseur may be required to cut in three directions instead of two. I have, however, found it possible to remove half the tongue with two ecraseurs by the help of strong guiding needles.

For the removal of the entire tongue, or for removal of any segment which reaches far back, I venture to think that this operation will be found to combine the greatest ease to the operator with the least danger to the patient.

All operations which include section of the bone, or even incisions among the sublingual muscles and fasciæ, are prone to be followed by purulent infection and by inflammatory congestions of the lung. On the other hand it is not easy to get a needle under the tongue far enough back to divide the sublingual attachments efficiently; and until that is done the important ligature round the base of the organ cannot be got into its place. The needle must first be got under and round the base of the tongue before the other attachments can be effectually dealt with, and this can be done most easily by my operation. When the tongue is removed, a few points of interrupted suture will hold the flap of the cheek in its place, and in a few days there will only remain a line of cicatrix, which will scarcely be perceived, in the male, among the hairs of the whisker, and which, even in the female, will leave but a trifling scar. It is, however, remarkable that epithelial disease of the tongue is comparatively rare in the female—a fact, perhaps, to be attributed to their general avoidance of the fragrant weed.

Mr. Oldham's woodcut gives the outline of Mr. Syme's, Regnoli's, and my own operations, and shows the spot where Mr. Nunneley's needle enters.

The galvano-caustic wire has been used by Dr. Alexander Simpson, of Edinburgh, to remove segments of the tongue; and it is quite possible that occasions may arise in which this method may be found to possess peculiar advantages. I have seen Dr. Bennett use the galvano-caustic for the removal of epithelial disease of the nose; it removes the part rather slowly, but without hemorrhage. However, it labours under a serious disadvantage—it is impossible to be sure that the entire disease is removed. The cautery confounds all tissues, whether sound or diseased, in a similar and undistinguishable eschar. This will, I fear, be a fatal bar to its use, unless in very special cases.

I shall now proceed to detail a case of epithelioma of the tongue, which is remarkable for its slow progress, and in which I removed the entire organ, without using the knife, after the method of Mr. Paget, as modified by Mr. Holt.

Donohue, aged sixty-five, a pensioner, of middle size and healthy aspect, though rather pale. He tells me that six years ago he noticed, for the first time, a small sore on his tongue, of a warty appearance, not painful, except for occasional stings or darts of pain through it. This ulcer lay on the dorsum of the tongue, to the

right of the mesial line and about midway between the root and tip. It did not grow appreciably larger for more than three years, when, in consequence of the pain, he had recourse to some persons who applied strong acid caustics to it. From that out it grew larger, but at a slow rate, until last May, when it suddenly increased more rapidly, and continued to grow steadily from that until the date of his admission into the Hospital. It occupied a large irregular space on the right side of the dorsum, and along the margin of the tongue; it had also crossed the central raphe and was extending itself to the left of the mesial line. The ulcer had, properly speaking, hardly any visible floor; it was almost entirely margin. The peculiar mushroom-like margins, which characterise epithelioma everywhere, are most marked on the tongue, and in this case they so encroached upon the floor of the ulcer as almost to conceal it from view. The outline of these masses was curved or scalloped, showing the coalescence of three or four centres of infiltration. The entire patch might have been covered by one of the larger florins. There was much deep hardness of the tongue as far back as the finger could reach, as also on each side and in front of the ulcer. One of the upper molars pressed upon the centre of the sore; as it was also loose, I extracted it. The disease was epithelial, unusual from its slow rate of growth, and from the persistent freedom from infection of all the glands. There was no trace of syphilis, and no history of anything beyond a simple gonorrhea, twenty years, or more, before. The man, moreover, is married, and has healthy children grown up. I examined him carefully and I had further proof of his freedom from syphilis in the history of his case, as supplied me by Dr. R. Kerans, of Banagher, who sent him up to me. I put him on bark and muriate of mercury, as a further test, but it had no beneficial effect on the sore, and I finally concluded to remove the tongue. As the greater part of the left side was healthy, I wished to save some of it; but subsequent events showed that in this case, as in all epitheliomata, implicating both sides of the tongue, the entire organ must be sacrificed if we are to expect any benefit. The reason of this is not so much from the rapidity with which the infiltration spreads through the muscular structure of the tongue, as from the susceptibility of the fine areolar tissue in the raphe to become diseased. I have found that the disease quickly runs back in the raphe, far beyond the line of infiltration in the muscle. Hence it comes that we often seem to remove all, while there is left behind a most serious centre for propagation of the disease with redoubled

virulence. Lymphatic vessels abound in the raphe, and the fine areolar tissue around them becomes quickly poisoned.

Having chloroformed Donohue, on the 17th of October, 1866, I passed a strong curved Liston's needle under the tongue, so as to include as much of the sublingual attachments as possible in the wire ecraseur which I pulled through when withdrawing the needle. The wire was slowly tightened, and worked home; the tongue was now somewhat loosened, and capable of being drawn forwards. I found it impossible to pass a single loop of wire rope round the base of the tongue sufficiently far back to include all the disease. Accordingly I passed a very strong doubled curved needle through the tongue, entering the point on the dorsum beyond the disease, as I thought, and bringing it out in the sublingual wound. The double ligature which this needle carried was separated and two ecraseur-chains were successively pulled through the tongue. These were tightened, right and left, and the greater part of the right side and more than half of the left were removed. A small suspicious piece in the centre was snipped off with the scissors; and the entire wound was then mopped well with a 30 grain solution of chloride of zinc. The finger did not recognize any disease in the fragment of tongue which was left behind; but in a very few days the man began to perceive that one point in the stump was the source of the old stinging pain; this spot was freely rubbed with the solid chloride of zinc, on more than one occasion, and the man was sent to the country for a couple of weeks to recruit. His articulation was wonderfully good; all the sounds of the alphabet were distinct, with the exception of d, g, h, j, n, and t; and most words could be made out, even from two days after the operation.

At the end of November, Donohue returned from the country recruited in strength. Examination of the stump showed that the left side had healed—the greater part of the right also; but in the centre was a fissure of uncertain depth, running obliquely upwards to the left, and partly hidden by the overhanging fragment of muscle; to the right of this was an ulcer, with mushroom edges, the size of a grain of rice, shallow, flat, and pale; it was the seat of constant pain, as was also the fissure. Accordingly, I proceeded to remove all the remains of the tongue, and by a nearly similar operative measure; when the attachments of the stump to the floor of the mouth had been freely divided by the ecraseur, two strong needles were pushed through the tongue from below upwards and backwards; by the help of these the chain of the ecraseur was kept from slipping forwards, and the entire of the disease was, at length,

removed. The chloride of zinc was freely used; one or two vessels which bled slightly were twisted, and the solid chloride of iron was rubbed over the stump to check a little surface-oozing; this it did most effectually; ice was freely supplied.

The surface of the wound looked sloughy next day, and for two days resisted every effort for its improvement. Chloride of soda was freely used, but without effect. I began to fear for the man's health, as his appetite was failing, from the foul taste and smell of the sloughs; however, by painting the stump with an eight-grain solution of permanganate of potash, in water and glycerine, the sloughs vanished as if by magic; and in twenty-four hours a healthy surface was obtained. Cicatrization went on rapidly, and all is now healed.

In conclusion, I think, we may look upon the ablation of the tongue as an established operation, to be resorted to as a valuable palliative, in cases otherwise destined to suffer fearful misery. It is to be viewed as an occasional method of prolonging life, to a considerable period, or perhaps even of saving it entirely from the ravages of one of the worst diseases. That even partial removal of the tongue may be followed by a very long interval of freedom from relapse, is proved by a case long since recorded by Mr. Tufnell. In this instance after removal of a segment of the tongue by the now exploded method of ligature, upwards of eight years elapsed before death took place from a return of the disease. This result was no doubt exceptionally favourable; but let us suppose for a moment that the disease had, in this case, been left to run its course without a check, and we cannot but conclude that long before the half of these eight years had passed over the patient's head she would have died in misery.

It cannot be too strongly impressed on the mind that the operation is now painless, almost free from risk, and that the relief is immediate and immense. The impairment of articulation is by no means great—nay, it is often diminished; and though death must occur, it is much less painful, and is not preceded by the agonies of a protracted starvation.

I append here a table of such cases of removal of the entire tongue, or of considerable portions of it, as I have found recorded in the journals, and of some which have been communicated to me. I take this opportunity of thanking those who have answered my enquiries on the subject for their courtesy. The table is, no doubt, very imperfect; but it will be, at least, of some assistance towards ascertaining the results of the various operations, and may help as a basis for future and more extended statistics:—

Name	Age	Duration	Cause	Extent of Disease	Glandular Poisoning	Operator	Operation	Date	Result
Sarah K., - -	74	9 months,	Smoking,	From base to tip,	Tonsil and palate,	Mr. King, of Hull,	Mr. Syme's older operation,	March, 1862,	Death, in nine days, from gangrene, pyemia, congestion of lungs.
Sarah V., - -	38	20 years,	..	Tumour 8½ inch. × 7½, non-cancerous,	..	Mr. Folker, Stafford,	Abscission by knife,	July 8, 1862,	Recovery; tumour weighed ½ lb.
G. S., shoemaker,	47	5 months,	..	All but the very root,	None,	Mr. Syme,	Mr. Syme's older operation,	Dec. 9, 1857,	Death, on seventh day, from inflammation of the lungs.
A man, - -	58	6 years, [But had undergone an operation by ligature 4 months back.]	..	Ditto,	None,	Mr. Syme,	Ditto,	July 31, 1858,	Death, on fourth day, from same cause.
Mr. W., - -	52	Many years; seriously from 3 years,	..	Entire tongue,	Not stated,	Mr. Syme,	Modified Syme's	Dec. 29, 1864,	Perfectly well at present date (Jan. '67).
Female, - -	56	2 years,	..	Nearly all,	Not stated,	Mr. Syme,	Ditto,	May 10, 1865,	Died after 9 days.
James Burke, -	60	1 year,	Wart, going on to epithelioma, a smoker,	Anterior third,	Not enlarged,	Mr. Wharton,	Ecraseur,	Jan. 6, 1865,	Relapse in a few months in submental glands.
W. C. (male), -	72	14 years,	..	More than anterior half,	Not,	Mr. Holt,	Ecraseur (Holt's modification of Paget's),	March 5, 1866,	No return in tongue as yet.
G. B. (male),	57	2 years,	..	Right half,	Slight,	Mr. Holt,	Ditto,	Not given,	Died, after 6 months, of cancer of œsophagus.
Rawling, railway guard,	35	Upwards of 12 months,	..	..	Glands not involved,	Mr. Nunneley,	By submental puncture and ecraseur. The entire tongue removed in each case,	Oct. 1, 1861,	Died, 3 years after, from phthisis—mouth quite sound.
Cross, printer, -	54	2½ years,	..	..	Submental glands involved. Had two previous operations,	Mr. Nunneley,	Ditto,	Feb. 29, 1862,	Died, some months afterwards, from internal cancer—probably of liver.
Wm. Steel, painter,	35	12 months,	..	..	Not involved,	Mr. Nunneley,	Ditto,	Oct. 30, 1865,	Now perfectly well.

Name	Age	Duration	Cause	Extent of Disease	Glandular Poisoning	Operator	Operation	Date	Result
Mrs. Macleod, -	44	10 months,	..	..	One gland enlarged and indurated,	Mr. Nunneley,	Ditto,	Jan. 15, 1866,	Much relieved by the operation; died, four months after, from submental cancer; stump of tongue quite well.
Ann Lomas, -	57	18 months,	..	..	Glands not affected,	Mr. Nunneley,	Ditto,	May 4, 1866,	Perfectly well.
Charlotte Thompson,	48	6 months,	..	..	Glands not affected,	Mr. Nunneley,	Ditto,	Nov. 21, 1866,	Perfectly well.
A butcher, - -	50	Under 1 year,	..	About three-fourths,	None,	Mr. Paget,	Through mouth by knife and ecraseur,	October, 1865,	More than a year able to work at his trade, then died of disease in submaxillary lymphatics.
Female, - -	49	9 months,	..	Ditto,	None,	Mr. Paget,	Ditto,	Jan. 6, 1866,	Still well a year after.
Omnibus driver, -	45	Under 1 year,	..	About half,	Not cancerous,	Mr. Paget,	Ditto,	A month ago.	
Pat. Gallagher, -	50	3 months,	Smoking,	Left half, near the root,	Not engaged,	Mr. Collis,	Two ecraseurs and incision through cheek,	Jan. 28, 1863,	Alive in January, 1865; not since seen; supposed to be dead, as disease had appeared in submaxillary glands and rest of tongue.
Darby Sullivan, -	60	..	..	Left half,	Ditto,	Mr. Collis,	Ditto,	May, 1863,	Relapse, August, 1863—Died.
John Young, -	65	5 months,	..	Right half,	Floor of mouth engaged,	Mr. Collis,	Syme's operation,	June 21, 1865,	Died—pyemia, gangrene of wound, July 5.
Philip Donohoe, -	60	6 years,	Smoking,	Centre and right half,	Not,	Mr. Collis,	Holt's modification of Paget's,	Nov. 27, 1866,	Doing well.
A gentleman, -	58	Doubtful,	Cancer, supervening on syph. fissures,	Anterior two-thirds,	None,	Mr. Hutchinson,	Screw ligatures (made for the purpose),	1858,	Good recovery. Remained well a year. Died of cancer of glands of neck, without return in the cicatrix.

Name	Age	Duration	Cause	Extent of Disease	Glandular Poisoning	Operator	Operation	Date	Result
Fanny M'Cartney,	35	12 months,	..	The centre and right side of the tongue only, and not far back,	None,	Mr. Fiddes, of Kingston, Jamaica,	Mr. Syme's older operation—entire tongue removed,	Sept. 2, 1858.	Perfectly sound after 7 months, but died in 12 from recurrrence of the disease.
A man, - -	Mid. age,	..	..	Small, limited to right side, and not far back,	..	Mr. Fiddes,	Ditto,	Dec. 1860,	Well in May, 1861; suffering from recurrence in 1863.
..	..	..	..	..	..	Mr. Hutchinson,	Two-thirds of tongue removed,	..	Died, after 18 months, from disease in glands.
J. M'D., - -	44	2 years,	Smoker,	Very considerable, with almost fatal hemorrhage,	Not stated,	Dr. Nottingham, (Liverpool)	Sedillot's ecraseur,	April 14, 1863,	Discharged, to all appearance well, May 14.
Mrs. M'Millan, -	50	3 months,	..	Ulcer on right side of tongue size of shilling,	None,	Dr. Geo. Buchannan,	Knife,	June 18, 1865,	Rapid relapse, necessitating a second operation.
The same,	..	Relapse,	..	Nearly all right half of tongue,	Right sublingual gland,	Dr. Geo. Buchannan,	Syme's,	Aug. 12, 1865,	Union of jaw in a month; freedom from return up to present date, Jan., 1867.
D. M'Donald,	43	2 years,	..	Entire tongue, removed—greater part diseased,	Sublingual	Dr. Geo. Buchannan,	Syme's,	Dec. 11,	Death from pyemia on ninth day.
Elizab. Aitchison,	64	1 year,	..	Right half removed,	Not affected,	Pat. Heron Watson,	Three needles and ecraseur, under chloroform	Nov. 1, 1865,	Perfectly well, able to articulate.
A woman,	30	..	..	Right half,	Not affected,	Dr. Reddy, Montreal,	Ecraseur,	May 10, 1858,	Relapse, as under.
The same,	..	Relapse,	..	Left half,	Not affected,	Dr. Reddy,	Ditto,	July 2, 1858,	In good health up to Oct. 1863, when disease appeared in tonsil.
L. K, L..	61	At least 10 months,	..	Mainly affecting dorsum and left edge.	Left floor of mouth slightly affected. Tonsils and palate sound, also extreme base of tongue sound.	Mr. Cowper,	Syme's,	May 8, 1866.	Death on ninth day from erysipelas.

I have been in the habit, of late, of using the solutions of chloride of zinc, sponged freely over the fresh surface in all operations for epithelioma and cancer, as recommended by Mr. Campbell de Morgan. It is yet too soon to judge of the effect of this treatment, which, however, I am disposed to look upon as beneficial. It can do no harm, and not improbably it does good, by destroying lingering fragments or stray germs of disease.

As an example of the occasional benefits which result from partial removal of cancerous tumours, I may here mention a case of cancer of the tonsil, which came under my care in 1862. The man was seventy-five years of age, and otherwise healthy; a tumour had formed on his left tonsil which grew rapidly downwards and inwards. As long as he refrained from the act of swallowing it gave him no special distress, but when the larynx moved upward the point of the tumour came against the rima glottidis. At first, as the pressure was but slight, the irritation was also slight, but soon, as the tumour continued to grow, the difficulty of swallowing became extreme from the spasm which was set up. I removed a large piece of the tumour, which appeared to be of a cancerous nature; the operation was not easy to effect, as the least touch brought on spasmodic efforts to swallow, followed by threatened suffocation. So urgent were the symptoms that I contemplated tracheotomy on the instant; but fortunately I was, at last, able to seize the tumour firmly, and by pushing it forcibly back I kept it from irritating the larynx, and I then removed it. The old man had immediate ease, and a respite of three months, after which time I repeated the operation with similar advantage. After that I lost sight of him, and I suppose he died either of suddem spasm or of extension of the disease to the glands. However, I had the satisfaction of prolonging his life, for a few months, by rescuing him from starvation on the one hand, and spasm of the glottis on the other.

I shall now give an account of a vascular tumour of the tongue in which ligature was used, after a different fashion from that usually adopted when dealing with this organ:—

Case of Vascular Tumour of the Tongue, Cured by a Temporary Ligature.—In the year 1854, a child, named Doyle, aged two years, was brought to me with a vascular tumour of the tongue. It had appeared at birth as a red point at the left side of the tip of the tongue. From this it grew steadily, and when brought to me it had reached the size of a small walnut; it had extended into the

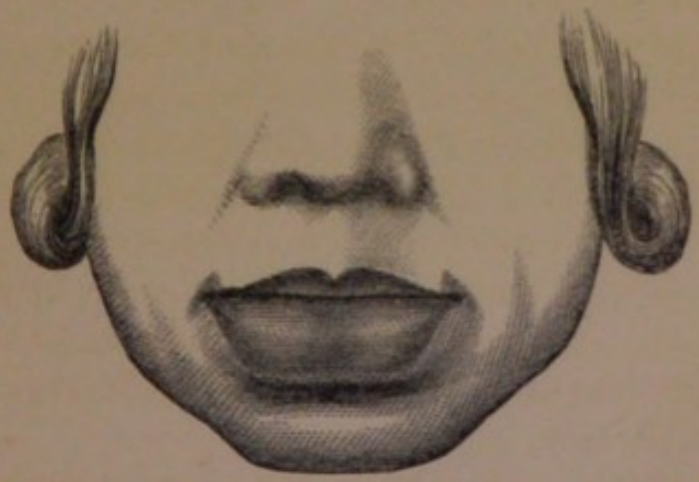
substance of the tongue as far as the mesial line, and backward so as to implicate altogether about one-third of the left half of the tongue. It was blue in colour, with bright red dots here and there on the surface. When compressed firmly it became much smaller, but filled again the moment the fingers were removed. The feel of it was just like a bag of live worms. It had bled violently on one occasion, when the child had bitten it in falling; with much difficulty the parents had stopped the bleeding. They were much alarmed at this, and at its rapid growth. Nevus of the tongue is not very common, and this happened to be the first case I had seen. I treated it as I have often treated nevus of the lip, or elsewhere on the skin. I included the entire growth in two ligatures, tied with some force, so as to compress the larger vessels, and stop the circulation in them, without completely strangulating the mass. In twenty-four hours I cut these ligatures, and removed them. The tumour then shrunk to half its former dimensions, and was little larger than the portion of healthy tongue should have been whose place it occupied. It was firm and solid ; a blue grey on the surface, and slimy ; with a line of superficial ulceration separating it from the sound parts. Still its heat was good. Next day it had recovered some redness; and, to be brief, in a few days' time the line of ulceration had healed, the tongue became of normal size, and but for the blue colour of the affected part, nothing unusual would have been noticed. The consolidation of the part advanced from day to day, and I have the satisfaction of knowing, after twelve years, that the cure has been permanent. The boy is now fourteen years of age, and is serving his time in a shop in the Liberties. He has never had hemorrhage from the tongue, nor is it now at all larger than it ought to be; his articulation, as might be supposed, is satisfactory.

I conceive that this method of treating nevi deserves some attention. It is quite practicable to tie a nevus so tightly as to cause its consolidation without necessarily causing it to slough. The ligature can be removed in from twenty to forty-eight hours, according to the density of the integument and the size of the nevus. Small ones will slough off in half the time that a large one will take to consolidate; that is, if they are tied equally tight. It is impossible to give any rule for gauging the tightness in any given case. This is just one of the points where each man must learn by experience. This, however, can be inculcated, that it is better to tie too loosely than too tight, where a mark is of

consequence. A repetition of the ligature is a lesser evil than a large cicatrix.

I may here give details of a singular example of erectile tumour in the lip.

Erectile Tumour of the Lip.—This tumour was not a common nevus, but rather a genuine erectile tumour, composed of a mass of hypertrophied veins and fibro-elastic tissue. It grew, without any assigned cause, on the lower lip of a middle-aged woman, named Honor Reynolds, a native of Arklow. She denied having a habit of biting her lip; nor could she say when she first observed the enlargement. When I saw her, in November, 1864, the lip was about four times as large as it should be, projecting like a large red sausage. It was firm, not very much reduced by pressure, and had no pulsation in it; it was bright red in colour, like the natural lip, and devoid of pain. It caused her no uneasiness other than mental; but she was most urgent to be rid of it. Wishing to spare her looks, I made two transverse incisions, including an elliptical



portion of the lip between them, and removed a wedge-shaped piece from the centre of the growth, I so arranged the lines of incision, and subsequent sutures, that the line of union was hidden. It did not heal kindly, and in two months the lip had grown as large as ever. I had then nothing for it but to extirpate the entire of the parts to which any morbid material extended. Accordingly, on January 20, 1865, I took out a very large V shaped piece, as for epithelioma of the lip, and this time with the result of a complete and permanent cure.

I have met this form of tumour in the groin, prepuce, and scrotum, nymphæ, both greater and lesser, on the nose, and, as in this case, on the lip. It is composed of the ordinary elements of skin, with an excess of the venous and elastic tissues in varying proportions. As far as my experience goes, it is liable to return if not wholly extirpated. I have never seen it degenerate into any worse form of growth; but there is no reason why it may not be sometimes a nidus for cancer or epithelioma. When it is inclined to grow it is certainly best abolished.

PLATE 5.

Fig 1

Fig 2

Mr MAURICE COLLIS'S CONTRIBUTIONS TO OPERATIVE SURGERY

REMOVAL OF AN ENORMOUS OSSIFIED-ENCHONDROMA FROM THE FACE.

To the records of operations which have for their object the complete removal of the superior maxillary bone, I should hesitate to make additions. In the pages of this Journal and elsewhere enough has probably been written on the subject for some time to come. I have less hesitation, however, in presenting to the profession a detailed account of an operation which has another interest, inasmuch as it differs from those to which I have alluded in being of a more conservative character. As will be seen, I was able in this instance not only to preserve the palate, nostril, and floor of the orbit intact, and so to lessen to the utmost the deformities and inconveniences which would otherwise have resulted, but I further was able to preserve the periosteum of the bone throughout, and along with the periosteum, the attachments of the muscles. Hence, in addition to the preservation of intelligible speech, the muscular movements of the face, so essential to expression, have been preserved. This application of sub-periosteal resection is but a further extension of those principles which many years ago were put in practice by the writer in operations upon the hard palate—principles which the profession owes first to Mason Warren, of Boston, and in their present enlarged application to Langenbeck, of Berlin. The former, whose lead I had unconsciously followed, merely proposed to himself to make use of the periosteum, combined with its mucous covering, for ordinary plastic purposes; while to the German surgeon is due the higher praise of perceiving that the firmness, which this method of operating gave to the new palate, was due to some deposits of bone springing from the periosteum. Hence, he quickly applied this method to other parts, with a view of obtaining

a regeneration of bone from the retained periosteum, and with the greatest success. In resections of joints, in operations on shafts of bone, and generally in all cases demanding the removal of bone for disease, this sub-periosteal method is now followed by all truly conservative surgeons. It must, however, be remembered that it has the further advantage, above noted, of preserving, along with the periosteum, much of the attachments of muscles which spring from, and are continuous with this membrane. A moment's reflection will show the wide utility of the proceeding, viewed from this point, and how important its application, whether in operations which interfere with muscles of power, as in the limbs, or with those more delicate, but scarcely less important muscles of expression, which have their attachments to the surface of the facial bones. With these prefatory observations I shall proceed to the details of my case of sub-periosteal resection of the greater part of the superior maxilla.

Early in the present year I was consulted by a gentleman, well known in this city, with reference to a tumour, which produced much deformity of the left side of his face. This gentleman is somewhat under fifty years of age ; is of active habits, and has always enjoyed excellent general health. The history which he gave me of the gradual development of his tumour was to the following effect:—

" The first indication of the tumour on my face was a slight hard swelling on the gum just by my front teeth [left incisors], which I noticed when I was probably twelve or fourteen years of age. Since that period the swelling continued to grow steadily, but almost imperceptibly, until within the last three or four years, when it developed itself with singular rapidity, and attained such formidable proportions that I became anxious for its removal.

" Ever since the first appearance of the tumour it was carefully watched by Mr. Adams, and frequently examined (at his request) by almost every eminent surgeon in Dublin, including the late Sir Philip Crampton, Mr. Carmichael, Mr. Cusack, Mr. Colles, Mr. Maclean, the eminent dentist, and others.

" The general opinion at that period seemed to be against an operation, on the ground that there was nothing malignant in the growth ; that it never would be otherwise than harmless, and because some, including Mr. Cusack, thought ten or twelve years since that it had ceased to grow. However that may be, the fact is

now undeniable that within the last ten or twelve years it has increased more than in all the previous period.

"Some years before Sir Philip Crampton's death, Mr. Adams, Mr. J. Smyly, and I were with him in Merrion Square, and he then made a puncture from the inside of the nostril into the interior of the tumour, and inserting a small tube, got out a trifling quantity of fluid, not more than a drop or two. He first endeavoured to bore through the gum, but failed, apparently from the solidity of the bone. About the same time Mr. Maclean extracted a tooth near the front [left canine], and then made some ineffectual examination with a probe, or some such instrument. I did not feel the extraction of this tooth. I may add I was always deficient by a tooth on this side. The sight of my left eye left me very gradually. It evidently went as the tumour extended, and about fifteen years ago it became completely extinct."

Such is the simple history of this growth, as written down at my request by the gentleman. I have only to add to it a very few particulars, elicited on conversing with him. In the first place the tumour from the very outset was always firm and hard to the touch, showing that, at least, its covering was bony; further, there was no pain either in the tumour itself or resulting from its pressure during the greater part of its progress; even the loss of the eye was so gradual as to be painless, any sensation amounting only to uneasiness. Within the last two years the tumour has grown rapidly forwards, and has distended the soft parts of the cheek. Browache, with shooting pains of a dull nature, have been felt rather constantly during that period. Hearing on that side has also become somewhat dull. The pressure on the left nasal cavity has made it quite impervious. Breathing is impossible through the left nostril, nor can air be forced through it to any appreciable amount. The sense of smell is necessarily in abeyance as regards this side. Even the other nostril participates in the inconvenience, so that when the gentleman is in a warm, dry atmosphere, his comfort is much impaired by reason of a dryness and stuffiness in the nasal passages, and the immediate occurrence of ache in the frontal sinus. With these exceptions he has no physical inconvenience from the tumour, nor until lately did his moral courage fail to support him in bearing, with equanimity, the deformity with which he was afflicted. Cotemporaneous, however, with the rapid increase of the growth and its commencing pressure in new and important directions, came

sensibility to observation ; and although he continued to go about the city as freely as ever on matters of business, he assured me, and his assertion was corroborated by the observation of his near friends, that the effort was painful, and that, as far as possible, he had withdrawn from positions of prominence which formerly afforded him pleasure. This is an interesting psychical phenomenon—for it must be remembered, that as far as the public are concerned, the impression produced by the size of the tumour has been at all times much the same. The sensibility to the increase of the tumour was practically limited to the patient himself, to the immediate members of his family, and to those professional friends who had him under observation. And yet, along with a development of the tumour, which, as we shall see, threatened life, there arose in the patient's mind, all unconscious of his danger, first a dislike to be observed, and as that increased, a desire and determination to get rid of the deformity. This acquiescence in the necessity for operative interference, or its opposite condition, a repugnance to the same, may be taken, in reasonable people, as a valuable aid to the surgeon where the propriety of operation is wrapped in more than usual doubt. Without laying too much stress upon it, I would certainly give it in such cases, due consideration. In the present instance the feeling was strong that the time had come when, at all hazards, the tumour must be removed.

I shall now show, by a description of the growth and its relations to surrounding parts, how well founded was this feeling, and how just these apprehensions.

Placing the patient almost in profile, and looking at him from the right side, as in the position shown in Plate I., it was observed that the tumour projected in an even curve from the floor of the orbit to the mouth, so that the prominence of the tumour extended a full inch beyond the outline of the nose. The two nostrils looked directly towards the observer, so great was the distortion of the nose. The left nostril was somewhat dilated. The outlines of the mouth were much altered, owing to the left side of the mouth being depressed, and the left side of the upper lip was much distended over the lower part of the tumour. The lower lip and upper part of the chin were thrown deeply into shadow, and also somewhat out of drawing. Upon reversing the position, as in No. 2, the great prominence of the tumour came fully into view. It occupied the whole region of the cheek, and bore upon its surface evidence of two distinct epochs of growth. If a line be drawn from the

inner angle of the left eye to the angle of the lower jaw on the same side, two distinct types of growth will be noticed, the one occupying the face above, and to the outer side ; the other below and internally. I shall take the former first, as it represents what, for want of a better term, I may call the more chronic condition of the tumour. We observe here a distinct elevation of the floor-line of the orbit; this is not due merely to an elevation or pushing up of the lower eyelid or other soft parts; the finger and even the eye could detect that the bony ridge itself was higher than that on the right; otherwise the bone in this spot was not altered in texture or outline—it was simply pushed upwards. On the outer side the junction of the maxillary and malar bones is prominently seen ; the bones here were expanded, but the body of the malar was not altered in size—it was plain, therefore, that the disease was limited in that direction. Altogether, then, it appeared evident that there was no present active extension of the growth above or outside the line I have imagined to be drawn from the inner angle of the eye to the angle of the jaw. Within this line matters were far different. Reaching high up on the nose, almost to the angle of the eye, and to the central line, a rounded mass of bony hardness, was formed. On the inner side it passed down as far as the lower margin of the ala nasi, where it was joined by a second mass which reached far down into the mouth, and which bore upon its buccal extremity two incisor teeth. Passing outwards these two portions, separated by a fissure on their nasal aspect, became consolidated together, and formed by their union a mass of great size, still rounded in outline, and of firm inelastic nature. The growth pushed the nose out of the mesial line to an extreme degree, and extended outwards and forwards, so as to distend the soft coverings of the cheek to a huge extent. On opening the mouth it was found to have extended backwards to the palate bone, and to have pushed down the palate process of the maxillary even to a greater degree than it had pushed up the floor of the orbit. Along the alveolar ridge it had grown to a greater degree than at any other part, except towards the nose. It was evident that its progress in these directions was fast reaching the utmost limits compatible with any approach to comfort, and that a little more increase would soon threaten existence. This extension downwards, and threatened extension backwards, was likely to lead sooner or later to the filling up of the cavity of the mouth. In Hey's works will be found the drawing of such a case, where the tumour developed in this direction to an enormous amount.

As it was now clear that an operation was unavoidable, I arranged to meet, in consultation, Mr Adams and Sir William Wilde. After careful examination, and a prolonged discussion, a plan of operation was agreed to, which offered the prospect of removing all the active portion of the growth with as little interference as possible with the function of speech. The gentleman's occupation rendered this proviso essential. I was under the impression that this latter object might be attained by simply preserving the muco-periosteal coverings of the palate plate and palate bone; but in this I was overruled, and I finally resolved to attempt to preserve a thin layer of bone along with the periosteum in this locality. Before the details of the operation were conclusively arranged the eye was carefully examined by Mr. Wilson, who reported that there was hopeless disorganization of the vitreous humour, and displacement of the retina, to such an extent as to show that no operation could restore sight. Blindness, in fact, resulted from the remoter effects of pressure, so that the removal of that pressure could not now restore vision. Mr. L'Estrange examined the palate for me, and came to the conclusion that the layer of bone immediately above the periosteum was sound, and that it might safely be retained.

All things being arranged, the operation was performed, on the 7th February, in the theatre of the Meath Hospital, in presence of a very large concourse of surgeons and students. This was due not so much to the severity of the expected operation, as to the personal popularity of the patient, who is extensively known and highly respected as a citizen of Dublin. Chloroform was administered throughout by Professor Macnamara, and during the long and tedious operation, the patient only once became for an instant partially conscious. When I state that the removal of the body of the tumour occupied twenty-seven minutes, and that during nearly half of that time I was engaged at the palate, this result was highly satisfactory.

The patient was laid upon an operating table which admitted of his head being raised to any required degree. I stood in front and to the left side, Mr. Porter close beside me, and Mr. Smyly opposite to him. I have to acknowledge most gratefully the unwearied assistance they gave me during the progress of this most trying operation. My other colleagues, Mr. Wharton and Mr. Stokes, also rendered valuable aid, and Mr. Adams and Sir William Wilde, were close at hand to assist in carrying out the plan we had agreed upon. As a preliminary step Mr. L'Estrange

extracted the two incisors and a bicuspid which alone remained on that side of the jaw. I then plunged a trochar into the tumour above and parallel to the palate, with the two-fold object of ascertaining the density of the bone and of making room for a strong metacarpal saw. The bone was dense enough, but not so dense as to make it hopeless to work the saw. By slow degrees a layer of bone was separated from the floor of the tumour, partly by sawing and partly by the elevator—once it was necessary to use a chisel and mallet to free the saw. I tried two or three saws, but discarded all for the simple straight metacarpal saw. Having effectually separated this layer of bone from the floor of the mouth, I made a vertical incision from the inner angle of the eye to the ala nasi, skirting the attachment of the cartilage, and continued it down through the lip along the curved ridge which separates the outer portion of the lip from the filtrum or central part. I followed this line in preference to a straight cut through the lip, either vertically from the ala nasi or in the mesial line; and for this reason, that the subsequent contraction of the cicatrix in these lines leaves a more ugly pucker than when it follows the line of the natural ridge. By the help of Langenbeck's instruments the periosteum of the tumour was easily detached and turned aside along with the skin and muscles of the cheek. These being held strongly aside by my two chief assistants, I divided the malo-maxillary symphysis by a strong bone forceps. In the same manner the frontal process of the maxillary was divided, the periosteum peeling off with even greater ease, so that I was able to push it and the nose completely to one side. I now, with the bone forceps, divided the attachment of one maxillary bone to the other as near the mesial line as possible. Thus the tumour was detached on three sides. There remained the difficult task of sawing through the connexions of the tumour with the floor of the orbit. The bone was here dense as ivory, and the labour of sawing through it was severe and prolonged. At length, however, after breaking one saw this was completed, and the posterior attachments of the tumour alone remained; powerful traction by the lion-forceps caused these to yield, and a large mass was removed. Above and behind it some of the less dense portions of the tumour still lay; these were scooped out with the gouge, until all was removed which showed the least deviation from soundness. The large piece weighed over four ounces; and as I removed upwards of an ounce of smaller fragments, the weight of all fell little short of six ounces. This, with the drawing of the section, will give some idea of its size. A couple of small vessels required ligature; and

three which bled freely from the surface of the bone, and which could not be ligatured, were stopped by platina wire, heated to a white heat by a galvanic current. The battery for this purpose was kindly brought by Dr. Bennett. I found it both simple and effectual. All active hemorrhage being thus checked, I plugged the cavity with some half dozen small pledgets of lint, tightly rolled and fastened to cords which were allowed to hang out of one corner of the wound. The soft parts in the mouth were first brought together by numerous points of interrupted suture, horse hair being used for the purpose. In a like manner the wound in the lip and cheek were closed. Two points were left for the escape of pus, and for the withdrawal of the plugs and ligatures. One point corresponded to the former situation of the incisor teeth, and the other to the groove beside the ala nasi. With these exceptions the entire track of the wound was brought accurately in contact; no external dressings were applied. The patient bore the operation remarkably well; his pulse was 70 at its close, and very good in quality ; he woke up quickly from the chloroform, and had no sickness of stomach. On being removed to bed he was ordered thirty drops of Battley's sedative, and as much ice as he might wish for.

3 p.m.—He has slept well since 12; pulse 72, and full. There is a little sanious oozing only. He is suffering a good deal of pain, but feels inclined to sleep again. He expressed a wish for some beef-tea, which was ordered ; also to have tea whenever he wished, and ice. Iced water applied to the face.

8 p.m.—Pulse 92, full and strong—no further sanious oozing, but some discharge of saliva. He has slight nausea, attributed by himself, and rightly, to his having swallowed some blood during the operation. Ice, which relieves this sickness, to be continued. He passed water freely. The upper lip is swelling fast, and there is a good deal deal of pain about the orbit To have ice or whey through the night.

10.30 p.m.—Pulse 90—sleeping calmly

Feb. 8th, 1.30 a.m.—Has slept quietly for periods of ten minutes—the lip a good deal swelled.

He continued to sleep off, and on, until 4 a.m., when his stomach rejected the whey; his feet became cold, and he had a slight rigor for about five minutes. Mr. Sibthorpe, who sat up with him, put a hot jar to his feet, gave him ice, and a draught, with twenty-five drops of chlorodyne, and two grains of quinine, in camphor mixture; this had the desired effect; he slept quietly until 8 a.m., and had no return of sickness or rigor.

At 9 a.m. his pulse was 100, full and strong; at 10.30 I found his face a good deal swelled, especially about the lower part of the cheek. The eyelids were much ecchymosed, but could still be opened voluntarily. He made no complaint of pain, only of discomfort from the swelling, and from lying on his back. I allowed him to turn on his right side. As the bowels had not been moved, I ordered three grains of calomel, with one of quinine, and one of extract of hyoscyamus; these were taken at once, and operated in the course of the day freely, but not excessively.

At 2 p.m. his pulse was 96, and less full. He had beef-tea through the day.

5 p.m.—Stomach again slightly sick—ordered a gargle of permanganate of potash to clean the mouth. Ice as before.

His pulse went up to 100 in the evening, and remained at that rate through the night. He slept well, waking but seldom, and in the morning of the 9th his pulse was again at 96, but much less full and strong. The bowels were again moved.

At 10.30 I removed, one after another, all the plugs and the two ligatures, pulling them through the aperture left in the month for the purpose. There was no consecutive hemorrhage, and very little fetor; the discharge which accompanied the plugs was moderate in quantity. I syringed the cavity with tepid water, to which I had added spirit of ammonia in the proportion of a drachm to the pint. He had no headache, and was inclined to eat. Ordered—beef-tea, some light claret, and a mixture of chlorate of potash.

3 p.m.—Pulse ran up to 120; wine stopped.

7 p.m.—Pulse down again to 96—no further signs of feverish ness; has slept.

Feb. 10.—Very moderate discharge of pus from the cavity through the mouth. The discharge from the nasal cavity, which, it will be remembered, was not opened in the operation, is simply viscid mucus. The swelling is already diminishing. Pulse, 90.

Feb. 12.—Sitting up in the bed for some hours—able to eat a mutton chop cut small—going on most satisfactory. The sutures in the lip removed. This portion had healed with little mark.

Feb. 15.—Daily improving—swelling much abated—appetite and sleep good—pulse, 76. The greater number of the sutures were removed from the external part of the wound. All has healed by first intention, except a spot at the ala nasi, which is purposely left open for the convenience of syringing out the cavity; this is done once a day—the discharge is not profuse. He was allowed to sit up for half an hour to-day (9th day). Already some power is returning

in the muscles of the cheek; the levator anguli oris is especially under the control of the will.

From this date to the 25th, when he left the hospital, he continued steadily to improve. In fact, he could scarcely be said to have had a serious symptom from the first. The slight rigor in the course of the first twenty-four hours was evidently due to his having swallowed some blood. This, slight as it was, formed the only check in the even progress of the case, while he remained in hospital. Subsequently to his return home he suffered from a small anthrax on the back of the neck; this, however, yielded to the mild, yet effectual treatment by pressure, which I have now for six years uniformly adopted, and with unvarying success, in every phase and variety of anthrax. I may here state incidentally that since I adopted treatment by pressure, or support, I have never met with an anthrax in which the disease continued to spread after the strapping was once properly applied; and I believe I have met with them in almost every possible stage and locality. In some rare cases of utterly broken down diabetics it may possibly fail to stop the gangrenous inflammation of the fascia, areolar tissue, and skin; but I presume that in such cases the knife would be equally ineffectual as a remedy. Even in such cases the combined action of the opium and of pressure would probably check, if it could not entirely control, the destruction of tissue.

Plates III. and IV. show the appearance of this gentleman about the middle of March, six weeks after the operation was performed. Some of the delicacy which necessarily resulted from so serious an operation, is visible in these drawings, which are accurate copies of photographs, taken by Mr. Forster of Westmoreland-street. Since then he has greatly improved. The œdema of the nose and lower part of the cheek has subsided still further, and the cicatrix is less remarkable. The cavity is completely closed, and there is no discharge from it. Power is returning to the muscles of the face.

I shall now proceed to describe the tumour, and its appearance on section. Much of its posterior part was removed piecemeal, but what remained was composed of two kinds of bone. The centre, which may be supposed to correspond to the antrum, is remarkably hard and close—white, with fine concentric rings, like ivory, which it also resembled not a little in its hardness. All round this, except above, lay a much larger mass of bone, distinctly and coarsely laminated, softer in texture, and enveloped in a very thin and strong layer of hard bone. This external mass was divided into

PLATE 6

Fig. 3

Fig. 4

Mr MAURICE COLLIS'S CONTRIBUTIONS TO OPERATIVE SURGERY

two by a fissure which ran in an oblique curve upwards and outwards into a very small, irregular space, filled with a mass of lining membrane, gathered up and jammed together. These two masses evidently corresponded to the middle and inferior spongy bones; and the fissure and cavity represented that portion of the nostril which normally lies between these two bones. The growth commenced in the antrum, filled it, implicated its walls, extended to the spongy bones, developed itself layer over layer, until the entire nasal cavity was filled. It then continued to grow, producing the immense deformity already described. Originally it had probably been an enchondroma, but as years advanced it ossified, beginning from the centre. The outer layers of the new growth were probably the most recent, as they contained some fragments of imperfect or degenerate cartilage. The whole was enclosed within a real bony layer, derived from the proper tissue of the spongy bones and of the walls of the antrum. I had a section of the tumour made by my friend Dr. John Barker, and I have preserved one half in the Museum of the College of Surgeons. The other half I broke up for the purpose of microscopic examination. It contained a large quantity of animal matter. When this was removed the laminæ of bone were readily separated. They lay one inside the other, either smooth, or here and there folded together, imbricated and crushed, like the unopened petals of a rosebud, showing evidently the compressing forces which

opposed their growth and development. Had these been removed, by rupture of the enclosing bony cyst, and by ulceration of the soft parts, I have no doubt a rapidly growing and fungating tumour would have been the result. I have found this happen in every form of growth, even in the simplest. Under the microscope the bony plates differed little from ordinary bone; they were a little less regular as regards the arrangement of the blood-vessels.

As regards prognosis, this may be said, that the tumour grew slowly, and had a tendency to become inert in its older parts by a process of ossification. Like the Autumn leaf, its vessels and cells became gradually filled or narrowed by increasing deposits of earthy material, and less and less capable of active growth. We may, therefore, fairly hope that as we have removed all the active parts of the growth there will be no reproduction of the disease from the hard, bony floor of the orbit. Already the margin where the saw was used has fined down and rounded away. The layer which was left with so much care along with the periosteum of the palate, vanished in a few days. I had my finger in the cavity, and found that this bony layer was absorbed five days after the operation, leaving only the ordinary periosteum thickened and granulating, but without a trace of bone. The palate, however, is now perfectly firm and efficient for all its uses. The huge cavity has been filled with soft granulations, which at first caused the cheek to bulge forward a little; but with the natural contraction and consolidation of these soft granulations the cheek has gradually fallen in to its proper level, and neither by touch nor in any other way can I detect any sign of disease. I have, therefore, good reason to hope that this tumour, which took thirty-five years to grow, may never be reproduced. The patient may reasonably look forward to a long life, free from the distress and deformity which this enormous growth formerly gave rise to.

I cannot conclude this rather lengthened detail without a word of thanks to the many friends, professional and others, who evinced an unusual interest in the progress of this case. Next to those who personally assisted in the operation, my especial thanks are due to the resident pupils of the hospital, Messrs. Russell and Tredennick, and to my apprentices, Messrs. Scott and Sibthorpe, all of whom watched the case, and noted the particulars for me almost from hour to hour. Nor can I omit to add that the quiet determination and great patience of the gentleman himself tended very much to his freedom from dangerous symptoms, and to his rapid recovery.