Cases illustrating the diseases of the upper and lower jaws : with remarks / by Thomas Bryant.

CASES

ILLUSTRATING THE

DISEASES OF THE UPPER AND LOWER JAWS,

WITH REMARKS.

By THOMAS BRYANT.

In the following paper I propose to illustrate some of the diseases of the upper and lower jaws; to show their origin, course, and results; not forgetting to point out any peculiarities in the histories of the cases quoted, and the treatment that appeared applicable to each.

The cases may be accepted as types of the different classes they represent.

The inflammatory affections, as ending in necrosis, will primarily occupy our attention; the subject of tumours of the jaws claiming a subsequent notice.

PART I.

On necrosis of the bones entering into the formation of the jaws.

Cases of inflammation of the jaws terminating in necrosis are by no means uncommon. In hospital experience many such come under observation, and although they cause much anxiety to the patient, from the severity of the local symptoms they produce, and the deformity they sometimes cause, to the surgeon they produce no such feeling; for, as a general rule, their consequences are not very serious, nor is their treatment difficult.

As a broad fact, also, they seem to be quite unconnected

with dentition, or with diseases of the teeth; for the experience of dentists seems to be well borne out by that of surgeons, that necrosis of the alveolar processes is rarely the result of disease of the teeth, and when it is, is of a very limited nature. There may be exceptions to this rule, but in general it is a sound and reliable one; for daily experience seems to show that long continued suppuration may continue about a carious tooth without exciting inflammation and death of the alveolar process in which the tooth rests. Inflammation of the bones of the upper or lower jaw has, therefore, other origins, which we propose now to consider.

The most acute and most general in its influence is, without doubt, the phosphorus poison; the disease so produced is now generally recognised as the "phosphorus necrosis," and according to Dr. Bristowe's report to the Privy Council (1863), appears confined to the use of the common phosphorus in the making of lucifer matches. As a Guy's man I may be pardoned for mentioning that the earliest notice of this disease in this country was by my colleague, Dr. Wilks, in the volume of these Reports for 1846-47. At the present time, however, it is so well known as hardly to need a detailed description.

The disease may involve a part only or the whole of the upper or lower jaw, both jaws seeming to be equally liable to the affection; but in the majority of cases the teeth of the affected bone are more or less diseased or deficient, it being a rare thing to find the disease in subjects who have sound teeth, or in any who have a complete set; some openings down to the bone, either through carious or deficient teeth, appearing to be necessary for the phosphorus fumes to affect the bone.

In the following case the teeth that existed in the jaw appeared to be sound, although many were deficient, the boy being at the age when the permanent teeth were coming forward and the temporary teeth were being shed. It is quoted as a good example of the disease.

Case 1.—*Acute necrosis of the lower jaw from the fumes of phosphorus.*

On November 23rd, 1863, James S—, æt. 8, was brought to me at Guy's Hospital with an acute disease of his lower jaw.

He was a match maker, and was constantly inhaling phosphorus. He had been employed at that work for about one year.

The disease began two months previously with a general aching of all his lower teeth, which were said to have been quite sound; this was rapidly followed by enlargement of the jaw and intense constitutional disturbance. Suppuration followed within one week, and abscess, which burst into the mouth. He had had many of his teeth removed—and these were said to have been sound—before I saw him; the remaining ones were sound. When I saw the boy the soft parts about the jaw were enormously swollen, and profuse suppuration existed within the mouth. The whole jaw-bone appeared to be necrotic and loose, for it could be moved in its bed. I wanted the parents to leave the boy, to have the necrosed bone taken out, but they refused, and I never saw him again. The bone could, doubtless, have been lifted out of its bed. It seemed to have died as a whole.

Remarks.—This case is a good typical example of the phosphorus-necrosis. Its commencement by a general aching of the teeth of the affected bone, and the rapid suppuration and necrosis which followed, are in accordance with the general course of such an affection; for this phosphorus disease is, for the most part, acute in its progress, and is consequently attended with severe local and constitutional disturbance.

With respect to treatment, the removal of the diseased bone is the only sound practice, and this should be done as soon as it is possible—that is, as soon as the bone is loose, and a new one has formed; for when the bone is dead it is only a foreign body, and its presence can do no good, and must do harm. Its removal should be accomplished when possible from the mouth.

Should an operation be attempted before a new bone has formed, the result of the case may not be so favorable as it would otherwise have been, for there seems little room to doubt that the muscles, acting upon the new bone before it has become consolidated, may alter its shape and produce deformity.

Exanthematous necrosis.

This name has been given to that form of necrosis that follows one of the exanthemata or some fever. It has been known to surgeons for many years, but my colleague, Mr. Salter, was without doubt the first surgeon who fairly described it (*vide* vol. iv of the present series of these Reports). The disease appears after fever, such as typhus, scarlet fever, measles, rheumatic fever, or small-pox; it appears to attack patients during the period of childhood more frequently than adults. It, as a rule, appears on the decline of the fever, with symptoms of pain and swelling about some portion of the gums, and rapidly terminates in the death of the bone involved. The necrosis, generally, is confined to the alveolus; but exceptions to this are not infrequent. The alveolus, however, is always involved under all circumstances.

It has fallen to my lot to see many cases, but I have kept records only of a few.

My experience of this disease does not enable me to support Mr. Heath in his opinion, that it is remarkably symmetrical.

Case 2.—*Necrosis of coronoid process of lower jaw, &c., after measles.*

Charlotte G—, æt. 4, was brought to me at Guy's Hospital on January 21st, 1861, for disease of the lower jaw. It had come on after measles, contracted some nine months previously. Several pieces of bone had come away through the mouth from the right side of the lower jaw, and on January 28th I removed the whole coronoid process and horizontal ramus of the jaw, including the whole thickness of the bone nearly to the symphysis. A good recovery followed, with perfect movement of the jaw.

Remarks.—In this case the whole thickness of the jaw with the coronoid process nearly to the symphysis was necrosed; it was readily removed with the temporary teeth from its bed with a pair of forceps, and a good jaw remained, although without teeth.

CASE 3.—*Necrosis of symphysis and horizontal ramus of lower jaw after measles.*

Harriet V—, æt. $2\frac{1}{2}$ years, came under my care at Guy's Hospital on January 20th, 1866, for necrosis of the symphysis and right horizontal ramus of the lower jaw, following measles eight months previously. On January 22nd I removed the mass of necrosed bone readily from the mouth, the bone including the whole symphysis with the horizontal ramus of the jaw on the right side beyond the mental foramen. A rapid recovery followed.

Remarks.—In this case, as in the last, the whole thickness and depth of the jaw was involved in the necrosis; and the disease occurred very early in life—at the end of the second year. Such cases are not common.

CASE 4.—*Necrosis of the alveolar process of the left upper jaw after measles.*

Louise J—, æt. 10, came under my care on January 10th, 1860, with necrosis of the alveolar process of the left upper jaw after measles. The whole alveolar process of the left side of the upper jaw was removed, together with the permanent teeth from the canine tooth backwards, and a good recovery followed.

In our museum there is also a specimen of necrosis of the alveolus of the lower jaw, with exfoliation of the three temporary and two permanent double teeth, after measles. I removed it from a girl, aged 14, in June, 1861. Prep. 590^{70}.

CASE 5.—*Necrosis of alveolar process of upper jaw after fever; exposure of permanent teeth.*

John H—, æt. 7, came under my care on September 12th, 1861, for disease of the left upper jaw. It had been coming on for two months after fever, which was contracted in July. The alveolar process of the upper double teeth was evidently necrosed, and on October 28th it was removed, together with

one tooth, which was sound. The permanent teeth were seen in the gum beneath the sequestrum, and two months subsequently they were firm and coming forwards.

Remarks.—Necrosis of the jaw, upper or lower, is certainly less frequent after fever than it is after measles or scarlatina. Mr. Salter states it to be of rare occurrence, and in this opinion I am disposed to coincide. In our museum, however, are several specimens of such disease, preparation 1091[7] being probably the best example.

Case 6.—*Necrosis of the palatal processes of the superior maxillary and palate bones after rheumatic fever.*

Ellen M—, æt. 14, a delicate girl, came under my care at Guy's Hospital, on March 4th, 1867, with some disease of the bone in the roof of her mouth. It had come on seven months previously, after a severe attack of rheumatic fever, in which nearly all her joints were involved. On admission, the whole bones of the part were necrosed, and with a pair of dressing forceps they were readily removed. The two plates of the superior maxillary bones came away, together with the palatal processes of the palate bones. A healthy surface remained. Within one month the parts had granulated up and healed, leaving a large opening into the nose. During the following months this orifice gradually contracted; and I should certainly say that at the present time, October 4th, 1869, it is hardly half its former size. This patient appeared again before me some four or five months subsequently with ostitis of the upper part of the right tibia, which passed on to necrosis. I removed a large portion of diseased bone from the leg, and a good recovery followed.

Remarks.—The case of necrosis just related is by no means a common one, for it was undoubtedly associated with the disease generally known as rheumatic fever, in which all the joints were more or less involved. The symmetry of the affection was also very marked, and the rapid recovery of the patient after the removal of the necrosed bone was most satisfactory.

The subsequent contraction of the opening in the roof of the mouth, as months passed by, was well seen, and clearly points

to the wisdom of leaving such cases to natural processes, and not filling the opening with any artificial material. The proper treatment of such a case, so well expressed by Mr. Heath, "is to close the aperture by a projecting fitting plate of metal or vulcanite attached to the teeth, and arching immediately below the palate, but making no pressure upon the edges of the hole itself. The effect of a plug is to enlarge the aperture by absorption."

It may be added, that these remarks are equally applicable to cases of congenital malformation of the palate.

CASE 7.—*Necrosis of alveolar process of upper jaw after measles; compensatory growth of lower jaw to make up for loss of alveolar processes in upper.*

Sarah S—, æt. 25, came under my care on Sept. 10th, 1868, for some enlargement of the left side of her lower jaw. It had been growing since her infancy, and had not caused her much inconvenience. On examination, the left half of the horizontal ramus of the lower jaw was nearly an inch higher in its vertical measurement than the right. In thickness the two sides seemed identical. The teeth were likewise natural, and when the mouth was closed, no difference was perceptible between the two sides. On looking at the upper jaw on the right side, the teeth and bone were quite natural; but on the left there were no teeth, with the exception of the wisdom molar, nor was there any alveolar process of bone, the vertical projection of the lower jaw exactly filling in the deficiency of the upper.

On inquiry, it was elicited that in infancy this patient had had measles, and that, as a result, the whole alveolar process of the left upper jaw had come away. It was clear that nature had consequently caused increase of growth in the lower jaw to compensate for the loss of substance in the upper.

Remarks.—The case just related is one of unusual interest, not so much on account of the extent of bone that had exfoliated after measles, as for the compensatory action that had taken place in the vertical growth of the lower jaw to make up for the loss of bone in the upper.

The lower jaw had completely filled in the mouth, and the

teeth had been pushed upwards sufficiently to come in contact with the bone corresponding to the alveolar process of the upper jaw. It seemed, indeed, as if the lower jaw had grown upwards for want of the regulating influence of the natural pressure which the teeth of the upper jaw must exert upon the teeth of the lower when in contact with them.

It is a pretty example of compensatory action in nature.

In connection with this case, in which it appears probable that the increase of growth in the lower jaw was due to the want of pressure of the teeth in the upper jaw, which in the normal condition always exists between the teeth, I propose to give an example by way of contrast of an exactly opposite condition; a case of flattening of the front teeth with the alveolus, from the constant, although very slight, pressure which resulted from the presence of a large nævus involving the upper lip.

In the former case, the increase of growth in the lower jaw was due to the absence of pressure by the upper. In the latter case, the alteration in form in both jaws was due to the constant pressure of a lip greatly increased by the existence of a nævus.

The case will be illustrated by a drawing (*vide* Plate I).

Case 8.—*Large nævus involving the upper lip, flattening the front teeth in both jaws from its pressure.*

Mary P—, æt. 24, came under my care for treatment in Guy's Hospital, on July 21st, 1868. She was the subject of a congenital nævus, which involved the whole thickness and length of the upper lip. It had grown with her growth, and had never shown any symptoms of natural degeneration. Six years previously she had been in a provincial hospital, where the nævus was injected six times without any good result; indeed, since that time it had increased in size. The whole lip was greatly enlarged on admission, with a spongy nævus, which could be almost completely emptied. On removing the pressure, however, it rapidly refilled. Its nature was apparently more venous than arterial, as it had no pulsation.

The drawing, which is copied from a photograph, well shows the patient's condition on admission (*vide* Plate I, fig. 1).

The teeth were completely flattened, the upper more so than the lower (*vide* Plate I, figs. 3 and 4.)

On July 28th I excised the nævus, dissecting up the skin and some of the mucous membrane lining the lip. Very little bleeding took place, as able assistants compressed the cheeks between their fingers and thumbs. Rapid convalescence followed the operation, and the condition of the patient afterwards was satisfactory (*vide* Plate I, fig. 2).

On necrosis of the intermaxillary bones.

Disease of the intermaxillary bones is not of common occurrence. Nevertheless it occurs. I have three examples of complete, and one of partial, necrosis of these bones. One followed measles, and has been related in the 'Pathological Society's Transactions,' vol. x, and is given here in abstract. The second came on without any assignable cause, the third was clearly the result of an injury, and the fourth appeared at birth.

The details of the cases are as follows:

Case 9.—M. M—, a child, æt. 3, was brought to me at Guy's Hospital on the 15th of July, 1858, when convalescent from an attack of measles, which she had contracted two months previously. Ulcerations of the gum, and disease of the bone of the upper jaw, followed the exanthem. When I saw the child necrosed bone was at once detected in the median line of the upper jaw, and with a pair of dressing forceps it was removed. The bones were clearly the intermaxillary, in a perfect condition. A good recovery ensued.

The drawings of these bones may be seen in the 'Pathological Society's Transactions,' vol. x.

Case 10.—*Necrosis of the intermaxillary bones.*

John T—, æt. 40, came under my care at Guy's Hospital on July 13th, 1863, for some affection of his upper jaw. It had been coming on for about six months, with pain and swelling,

the latter having been confined to the gum and jaw, corresponding to the four upper incisor teeth. He had had no illness or injury to account for the disease.

Twenty-three years previously he had had a chancre on his penis, but it was not followed by constitutional syphilis.

When I saw him the bones into which the central incisor teeth were inserted were clearly necrosed, and with a pair of forceps they were readily removed. A rapid recovery followed. The lateral incisors were left in the gum, although they seemed to be only partially connected with bone.

The drawing below well illustrates this case, taken from prep. 590[75] in Guy's Museum. The sockets for the two central incisor teeth are indicated by the bristles.

The following case may likewise be given as one of necrosis of the intermaxillary bones, for they were the only ones deficient. The disease was clearly the result of an injury.

CASE 11.—*Necrosis of alveolar sockets of central upper incisor teeth,—intermaxillary bones.*

Walter B—, æt. 4, was brought to me on November 16th, 1866, for disease about the upper jaw. It had appeared after a stab with a knife, which the boy had received one year previously. A wound was produced at the time, which never healed; discharge from the part had been constant. A few days before I saw the boy a piece of bone had come away, which the child had swallowed.

When I saw him there was a large hollow in the centre of the upper alveolar processes, clearly due to bone exfoliation. The piece involved the four central teeth, and apparently the whole thickness of the intermaxillary bones. Nothing beyond keeping the parts clean could be done, and in one month perfect cicatrization had taken place.

When growth was completed artificial teeth were to be put in, but not before.

CASE 12.—*Necrosis of alveolus of upper jaw in an infant.*

On April 19th, 1858, an infant, three months old, was brought to me at Guy's Hospital with the left side of the face and cheek much swollen, the eye closed, and copious purulent discharge from the left nostril. The mother, who was quite healthy, and free from all syphilitic taint, stated, that the day the child was born a slight discharge of matter was noticed from the nostril and mouth, and that it had continued since, gradually becoming more copious. For three weeks the face had been swollen. With a probe introduced into the nostril and downwards towards the gum exposed bone was felt; it was likewise detected from the mouth. On May 31st two pieces of bone were removed by forceps from the mouth, which seemed to be the anterior surface of the alveolar process for one central incisor tooth. As months passed by, the tooth came forwards, and was quite loose. On November 1st I had to remove it. A good recovery followed.

From the history it would appear as if the inflammation, which ended in the death of the bone, had commenced *in utero,* for purulent discharge was noticed from the nostril and gum the day after the child's birth. The bone was clearly the alveolar process, which included one central incisor, and was consequently the intermaxillary bone. The disease may therefore have been due to some perversion of nutrition in this bone during its development.

On some cases of necrosis of the bones of the upper and lower jaws.

Amongst my notes I have many examples of necrosis of the jaws in which no definite cause could be assigned for the affection—no fever, no injury. In others some uncertain cause was made out. I have nearly as many cases of necrosis of the upper as of the lower jaw, although it is quite possible examples of the

former may have been recorded when those of the latter have been omitted as being the more common. Still, I cannot but think that authors have been somewhat in error when they assert that necrosis of the upper jaw is a rare affection, for I find that out of 50 examples admitted into Guy's during the period of my surgical registrarship, 19 occurred in the upper jaw, 29 in the lower, and 2 in both. The assertion is probably originally due to Stanley, and other authors have repeated it on his authority. My own notes of cases, taken only when of interest, contain many examples of disease of the upper jaw; some of these I will now relate.

The first example is one of necrosis of the alveolar process of the upper jaw, and exfoliation of the lateral incisor tooth; it occurred in an infant only two weeks old, and is one of interest; it is the youngest subject of necrosis that I have yet seen, although the cause of the disease was probably traumatic. I half suspect the bone died from the injury it sustained in the process of spoon feeding, to which the infant was subjected, for the signs of mischief were confined to the outer projecting margin of the bone, all the other parts being sound.

The fact that the lateral incisor was the tooth that exfoliated is another point worthy of notice, for it points to the conclusion that the intermaxillary bone contains only in itself the central incisor, although it may help to support the lateral one. The last case likewise tends to sustain this view.

Case 13.—*Exfoliation of the left lateral incisor tooth, with necrosed bone, from the upper jaw of an infant who was the subject of harelip.*

Flora C—, æt. 2 weeks, a delicate infant, which could not suckle, came under my care at Guy's Hospital on July 26th, 1869, with harelip on the left side, and fissured hard and soft palate; the parts were so wide asunder that the free margins of the bony fissure projected forwards, and the gum covering the alveolar process of the superior maxillary bone, or outer border of the fissure, was so inflamed and ulcerated as to expose the crown of the lateral incisor tooth; this was seen to be projecting from the ulcerated surface of the gum, and was quite loose. I removed this tooth, with two pieces of necrosed bone, and recovery rapidly followed.

The operation for harelip was subsequently performed with complete success.

I propose now to quote some other cases of necrosis of the upper and lower jaws. Examples of disease of the upper will be given first, and then one in which necrosis attacked both; examples of disease of the lower jaw will complete the series.

They occurred in patients of all ages, and attacked every portion of the bones. The body of the upper jaw suffered, with the alveolus; and in the lower jaw the coronoid, and even the articular processes suffered with the symphysis and other parts. Where the articular process was involved and exfoliated, it will be interesting to notice that the movements of the jaw were subsequently recovered; indeed, so perfect were these movements, that were it possible to doubt the nature of the specimen preserved in our museum, and here given in a drawing, it would be excusable.

CASE 14.—*Necrosis of alveolar process of right upper jaw.*

Eliza H—, æt. 24, came under my care at Guy's on June 6th, 1862, with necrosis of the alveolar process of the right upper jaw. It had been coming on for fifteen months without any assignable cause, the woman having been in good health. A large piece of dead bone was removed, including the alveolar process of three or four teeth. The teeth, which likewise came away, were free from decay, and included the right lateral incisor, canine, and bicuspids. A good recovery followed.

CASE 15.—*Necrosis of alveolar process of upper jaw opening antrum from below.*

Esther A—, æt. 30, a married woman, the mother of one child, came under my care in October, 1865, for necrosis of the alveolar process of the upper jaw, involving the right incisor teeth with the canine and bicuspids, and the two left incisor teeth, seven teeth in all. It had come on without any assignable cause, as fever or injury. After a few weeks' observation the bone was removed with a pair of forceps, a

large opening being left, exposing the antrum in the upper jaw of the right side. After a time these parts greatly contracted, and the deformity and distress were relieved most effectually by my colleague Mr. Salter, who filled in the opening in the jaw by a plate supplied with teeth.

CASE 16.—*Necrosis of the lower border of the orbit, exposing antrum from above; plastic operation; recovery.*

Eliza F—, æt. 34, came under my care in 1864, with a fistulous opening the size of a silver threepence, below the margin of the right orbit, communicating directly with the antrum. It had existed for nine years, having resulted from necrosis of the superior portion of the upper jaw, which had appeared without any assignable cause. The integument of the cheek was drawn tightly down to the margin of the opening into the bone, and caused much deformity.

I accordingly dissected the soft parts freely from the bone, pared the edges of the integument around the fistulous opening, and stitched them together with a continued suture; good union followed, and complete occlusion of the fistulous opening into the bone, removing the deformity. The patient is now quite well.

CASE 17.—*Exfoliation of alveolar process of left upper jaw with first molar tooth.*

Letitia P—, æt. 30, came under my care on March 19th, 1860, for necrosis of a portion of the alveolar process of the left upper jaw. It had commenced two months previously with pain and swelling, and when suppuration followed the pain was relieved; for about six weeks she had suffered only from some swelling and suppuration into the mouth.

This patient had had no illness previously, toothache, or injury; the disease had come on spontaneously.

When I saw her I found diseased bone, which, with a pair of forceps, was readily removed. The first molar tooth came away with it, and was quite sound. A good recovery followed.

CASE 18.—*Necrosis of alveolar process and palate process of the left upper jaw, exposing antrum.*

Emma P—, æt. 24, a healthy married woman, the mother of three healthy children, came under my care at Guy's Hospital on May 24th, 1869, with necrosis of the alveolar process of the left upper jaw. It had been coming, without any assignable cause, for six months; pain and swelling, which were speedily followed by suppuration, being the early symptoms. The central incisor tooth of the right side, with the left upper incisor teeth and eye tooth, had come away about one month.

When I saw the patient I removed a mass of necrosed bone from the mouth which included the alveolar process of the teeth just mentioned, and a portion of the body of the left maxillary bone, for the antrum was freely exposed to view on its removal. A piece of the palate plate of the left upper jaw subsequently died, and was removed. The patient is still under care.

CASE 19.—*Necrosis of a large portion of the body of the upper jaw, clearly from injury.*

I was consulted in August, 1868, by a Mr. T—, æt. 27, for some suppuration into the mouth below the right upper lip and right nostril. It had existed for four or five months, and had been preceded for several months by a constant, dull, aching pain in the upper jaw, more particularly about the front teeth. Pus escaped into the mouth through the gum surrounding the lateral incisor and eye teeth, likewise into the right nostril; with a probe dead bone could be felt from mouth and nose.

On September 8th I removed the necrosed bone, making an incision beneath the lip, and separating the cheek from the bone; a large mass came away, including the anterior wall of the antrum, lower orbital ridge, and base of nasal process, with the alveolar process; rapid convalescence followed, although an opening into the antrum remained. This was subsequently skilfully filled in with a plate containing teeth by my friend Mr. Salter, and no deformity was visible.

This gentleman remembered having received a severe blow from his gun, prior to the appearance of symptoms.

CASE 20.—*Necrosis of the alveolus of the upper jaw after an injury, with sloughing of the lip and deformity of mouth; recovery after operation.*

Henry P—, æt. 25, came under my care at Guy's Hospital in July, 1868, for some deformity of the mouth, the left angle of which was drawn up to the ala of the nose, and bound down to the gum. From the history of the case it appeared that at the age of thirteen he received a severe kick over the left upper jaw, and that this injury was followed by fever; inflammation of the lip and jaw ensued, which went on to sloughing of the soft parts and exfoliation of bone; the alveolar processes of the left upper jaw, including the incisor, canine, bicuspid, and first molar teeth, having exfoliated, leaving an opening into the front of the left nostril (Plate II, fig. 3). The parts subsequently healed, although with much contraction, the mouth assuming a very oblique direction, the corner commencing at the ala, and being bound down to the gum (Plate II, fig. 1).

By an operation the lip was freed from its attachments to the gum, and brought down to the proper level with the mouth, greatly improving the appearance of the patient, and Mr. Salter skilfully filled in the deficiency in the gums and fixed in some artificial teeth. In October, 1869, this man came before me, well pleased with the improvement (Plate II, fig. 2).

CASE 21.—*Necrosis of the facial surface with part of the nasal process of the right upper jaw.*

Hugh N—, æt. 7, came under my care at Guy's Hospital on April 6th, 1863, with necrosis of some portion of the right upper jaw. The disease commenced three months previously as a swelling in the cheek, below the orbit, and within one month an abscess formed and broke externally through the cheek, and also into the mouth. These openings had been discharging ever since. With a probe necrosed bone was readily felt both ways, and by a small incision within the mouth a large piece of the facial surface of the upper jaw was removed, with a portion of the nasal process. A good recovery rapidly followed this operation, and no disfigurement.

CASE 22.—*Necrosis of malar bone and alveolar process of upper jaw.*

Caroline C—, æt. 17, came under my care at Guy's Hospital on March 15th, 1867, for disease of the right malar bone. It had been coming on for six months with swelling and pain, an abscess having burst and discharged beneath the external angle of the eye three months before. At the same time there was swelling and inflammation about the alveolar process of the right upper jaw. The affection had appeared without any distinct cause, for the child had been apparently in good health.

On examination it was clear that necrosed bone was present both in the jaw and malar bones. On March 22nd a large piece was removed from the upper jaw, involving the alveolar process of the right incisors, and on the 27th a large piece was removed from the malar bone. On April 1st another small piece came away, and in a month the child was well.

CASE 23.—*Necrosis of alveolar process of upper and lower jaw.*

John D—, æt. 40, an engineer, who had never had syphilis or taken half a dozen doses of medicine in his life, applied to me at Guy's Hospital, on April 11th, 1867, for some disease of the jaws. It had been coming on for four months, without any known cause, with pain and swelling in the alveolar processes of the anterior halves of both upper and lower jaws, involving the teeth anterior to the molars. Suppuration also existed from many sinuses, and the teeth had fallen out. A piece of bone had come away from the right upper jaw one week previously, and I removed a similar piece from the left lower jaw on April 18th, this piece involving the bony sockets of the incisor and bicuspid teeth. On April 25th I removed a precisely similar piece of bone in two portions from the lower jaw. A good recovery took place in about six weeks.

CASE 24.—*Exfoliation of alveolar process of lower jaw with temporary molar teeth; exposure of permanent teeth.*

James H—, æt. 5, came under my care on July 25th, 1864, with necrosis of the alveolar process of the left side

of the lower jaw. It had been coming for three or four months, without any assignable cause. The child had not had any pain or toothache. With a pair of forceps the bone was removed containing the temporary teeth, which were sound, and beneath the sequestrum the crowns of the permanent teeth were clearly seen; they were loose and seemed likely to exfoliate. For three months I saw this boy at intervals, and these teeth gradually became firmer.

CASE 25.—*Acute necrosis of symphysis of lower jaw.*

Benjamin G—, æt. 26, a healthy labourer, came under my care on August 20th, 1868, with a large swelling of the chin and an abscess below the jaw, discharging ten days. It had come on rapidly one month ago, without any assignable cause. The jaw-bone was at this time clearly diseased, for dead bone was felt; with a pair of forceps a piece of the horizontal ramus of the jaw close to the symphysis was removed. It was about one inch square, and involved the whole thickness of the bone. A rapid recovery followed.

CASE 26.—*Necrosis of the symphysis of the lower jaw and horizontal rami after salivation.*

G. B—, a labourer, æt. 31, came under my care at Guy's Hospital, on October 15th, 1857, with necrosis of the lower jaw. He had always enjoyed good health till eight years previously, when he had a chancre, and was profusely salivated. He remained well for three years, when pain first appeared in the lower jaw, upon the left side, and this pain was experienced at intervals for five years, when swelling appeared. For about three months this enlargement continued to increase, and an abscess formed beneath his chin. He then sought advice at a London hospital, where he had seven teeth removed. He remained there for several weeks, and left on October 14th. On the 15th he came to me with all the parts about the chin greatly swollen, and a fistulous opening below the jaw. On looking into the mouth a large mass of necrosed bone was seen resting in a bed of new bone. The sequestrum seemed to be quite loose. With a pair of dressing forceps this was removed without

difficulty, and was found to consist of the symphysis and horizontal rami as far as the molar teeth, both mental foramina being included. Sensation in the chin was natural.

Case 27.—*Necrosis of the angle of the lower jaw, with one inch of both horizontal and ascending rami.*

Catherine S—, æt. 28, came under my care in February, 1869, with suppuration about the angle of the lower jaw on the left side. Several fistulous openings existed through the integument, and likewise many into the mouth. All her double teeth had been extracted on that side from her lower jaw, on account of the pain she had had in the part, but she was not sure that the teeth were bad. All then in the mouth were good.

The disease had commenced four months previously with some pain and swelling, with constitutional disturbance, but without any known cause. In July, 1869, or nine months after the first appearance of disease, a piece of bone exfoliated from the mouth, and was evidently the angle of the jaw, with the whole thickness of bone, including one inch and a half of the horizontal ramus and one inch of the ascending; it included, likewise, the groove and canal of the dental nerve.

On October 25th, 1869, repair was perfect, nothing but absence of teeth indicating the extent of past disease.

Case 28.—*Necrosis of symphysis and horizontal rami of the lower jaw after syphilis and mercury.*

William C—, æt. 31, came under my care at Guy's Hospital in July, 1860, with necrosis of the symphysis of the lower jaw. It had been coming on for some months, and the bone was lying loose in a cavity surrounded by new bone; it was readily removed with a pair of forceps, and was found to be the symphysis, with about one inch of the horizontal ramus on either side, as far as the mental foramina.

Two months later the left horizontal ramus was removed in the same way, and a good recovery followed.

This man had had syphilis ten years previously, and had been salivated.

Remarks.—On perusing the preceding cases of necrosis of the upper and lower jaws, the most prominent point that attracts attention is the entire absence of any satisfactory cause for the complaint, for in nearly all it will be seen that there was no disease in the teeth involved with the necrosed bone, nor any history of injury. In some, however, such a history was obtained. The disease, indeed, appeared in many to be what we must call idiopathic, having sprung up without any assignable cause. In one case syphilis was put down as the cause, and the man had been salivated, and from salivation necrosis of the jaw is not infrequent. In Preparation 1091 of our museum is a specimen of necrosis attributed to this cause; it consists of two thirds of the alveolar process of the lower jaw which became necrosed after the use of mercury for the cure of an ovarian dropsy. The preparation was given by the late Mr. Aston Key.

On necrosis of the condyloid process of the lower jaw and disease of the articulation.

Disease of the bone entering into the temporo-maxillary articulation and disease of the articulation cannot well be divided, for although the joint may be diseased without the bone being involved to any extent, it is clearly impossible for the bone to be much affected without some affection of the joint taking place as a consequence.

Happily, however, disease of this joint is comparatively rare. I have the notes of one case before me in which anchylosis ensued, and for which no operation would be allowed. In our museum (Prep. 1070) there is also a specimen of complete synostosis of this articulation.

I have likewise another case of necrosis and exfoliation of the condyloid process of bone, which I am now about to relate, and in which the movements of the jaw were perfectly restored. Such cases are very rare, but in this the recovery was very marked. I give, likewise, a drawing of the bone.

CASE 29.—*Disease of the temporo-maxillary articulation.*

Emma H—, æt. 34, a married woman, came under my care on May 24th, 1860, for a disease involving the left temporo-maxillary articulation.

It had existed for nine years, and had come on with pain and swelling; for six years there had been a constant discharge from several sinuses, both into the mouth and externally, and the jaw had been gradually becoming fixed; for two months she had been quite unable to move the joint.

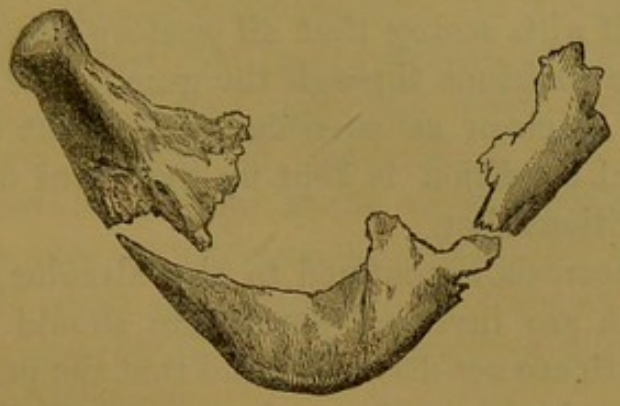
When I saw her the jaw was quite fixed; even with the patient under the influence of chloroform no movement could be made out. Two sinuses existed below the zygoma, leading down to the joint and to what seemed like dead bone. There was much thickening about the articulation, but no signs of disease in other parts.

I wanted this patient to enter the hospital to have something done, but she refused, so I saw nothing more of her.

CASE 30.—*Necrosis of the articular process, ascending and part of horizontal ramus of lower jaw; recovery, with perfect movement of the articulation.*

Caroline C—, æt. 6, came under my care at Guy's Hospital in April, 1868, for some disease about the right side of the lower jaw. It had appeared two years previously as an abscess, without any injury or fever, and was followed by disease of the bone. Several small pieces had come away. When seen the whole of the right side of the jaw and face was much enlarged. Sinuses existed, leading down to diseased bone, four below the angle, and others within the mouth. The disease appeared to be very extensive. There was some movement in the part. On May 12th the openings below the jaw were enlarged, and a large piece of bone taken away, including the articular process and part of the ascending ramus. A second large piece of bone was also removed through the mouth, representing the horizontal ramus. By July 9th all suppuration had ceased, and the child could move the jaw as well as if the part had never been destroyed.

The woodcut illustrates the portions of bone that were removed.



The repair in this case was very remarkable; it is probable that if the disease had attacked a patient of a greater age the result would not have been so fortunate.

On the treatment of necrosis.

When dead bone can be made out to exist, either in the upper or lower jaw, there is but one form of practice which ought to be entertained, and that is, its removal. It should be removed, also, with as little disturbance to the soft parts, or to the new bone-forming tissues, such as the periosteum, as possible. And it should likewise be removed from the mouth. When this latter practice is impossible or impolitic, from any cause, the surgeon should take good care that his incisions are made where they will be subsequently little seen.

With these principles of practice in the surgeon's mind, there will rarely be much difficulty in adapting the practice to the wants of the individual case.

In necrosis of the upper jaw the bone can always probably be removed by means of incisions made *beneath* the cheek; an incision *through* the cheek never seems necessary.

In necrosis of the lower jaw, where incisions through the integument are demanded, they should be made below its lower border.

When the bone is fixed, or, rather, before it has been thrown off from its attachments, any operative interference

must be condemned; any attempt at its removal under such circumstances must necessarily fail, or can only be partially successful. Under these circumstances the surgeon should content himself with seeing that all pent-up pus has free vent, by making free incisions through the gum; that the patient's mouth is kept as clean as possible by frequent washings, and that his general condition is kept up by means of tonic medicines and nutritious diet.

When the necrosis is confined to the alveolus, in which the temporary teeth are involved, great care should be taken that the parts beneath are not disturbed, and that the permanent teeth are not interfered with. Even when exposed they need not of necessity come away; indeed, as a rule, they subsequently tighten and become of service.

In young cases, where much loss of bone has taken place, it seems desirable to have some artificial substitute to prevent the occurrence of such a compensatory growth of bone as took place in Case 7.

PART II.

Tumours of the Upper and Lower Jaws.

On some cases of cystic disease of the antrum.

Diseases of the antrum, or of the cavity which exists in the body of the upper jaw, are by no means infrequent, and when they occur they give rise to symptoms of a somewhat characteristic nature. Many are, there is little doubt, connected with irregular dentition. How many is not yet positively determined; for although it is well known that cysts of the antrum and tumours are constantly found to contain, or, perhaps, to originate about, some tooth which is taking an abnormal direction, pathologists have not yet determined how many cysts or tumours depend upon such a cause. Cysts having this association are described as dentigerous cysts, but it is an open question whether many others ought not to be classified under the same heading. Any cases, therefore, that tend to illustrate this subject are read with interest, and with this feeling the following cases have been taken from my note-book.

I propose to quote three cases of so-called simple cysts of the antrum, of what was formerly described as "hydrops antri," or dropsy of the antrum, although it is clear that such a term is not pathologically correct. It was originally given probably from the fact that the expansion of the antrum was, as a rule, the only clinical symptom which attracted notice; the term had no pathological signification.

In the three cases I am about to detail the painless and gradual appearance of the tumour was noted in all, in none was there any history or appearance of diseased teeth, and in all advice was sought simply on account of the disfigurement produced by the disease.

In one case the fluid drawn off was mucoid, in the second two ounces of a dark blood-stained fluid containing cholesterine were drawn off, and in the third two ounces of blood-stained, limpid, albuminous fluid were taken away.

The antrum in each instance was opened beneath the cheek.

In all a cure was obtained through these means, suppuration of the cavity having been set up by plugging it with lint.

Case 31.—*Cyst in upper jaw; recovery after puncture with scalpel and suppuration of cyst.*

Eliza R—, æt. 23, came under my hands on June 18th, 1864, on the advice of Dr. Wise, of Plumstead, with a swelling in the right upper jaw. It was as large as a walnut, and had been growing five months; it was clearly connected with the antrum. I opened the cyst beneath the cheek with a scalpel above the alveolar process of the bone, and let out a quantity of mucoid fluid. The part was plugged. It re-collected, however, and the cyst was opened again on August 22nd, when a like fluid was evacuated. The cyst was then filled with lint, and free suppuration established; after this it gradually contracted, and on October 30th the woman was quite well. She remained so when last seen, some five months subsequently.

CASE 32.—*Cyst in antrum; free incision into it; recovery after suppuration.*

Eliza F—, æt. 40, came under my care on April 28th, 1861, for some disease of the right upper jaw, of one year's growth. The disease showed itself originally by a painless swelling, and when seen there was little else to cause notice. The antrum of the bone was evidently distended, and the symptoms present were clearly due to such a condition. On May 2nd I punctured the part with a trocar and canula beneath the cheek, and drew off two ounces of a dark blood-stained fluid, containing cholesterine. On May 30th the wound had closed; it was reopened with a knife, and the cavity plugged. Suppuration followed, and by July 12th the parts had resumed their natural appearance. On August 12th convalescence was established.

CASE 33.—*Cyst in antrum, treated by free incision.*

Mary B—, a healthy married woman, æt. 30, came under my care on August 2nd, 1863, with a cyst projecting into the right nostril, causing its partial occlusion, and a projection the size of a walnut involving the right cheek, and the right ala. It had been growing for fourteen years, but had made its appearance beneath the nose for only a few months. It was not attended with much pain, and she sought advice more from the disfigurement than from the distress occasioned by the new growth.

No doubt existing as to the cystic nature of the tumour, it was tapped, and about two ounces of a blood-stained, limpid, albuminous fluid were drawn off. The cyst at once collapsed, and the features recovered their natural shape. In a few weeks, however, the fluid had re-collected, the tumour being as large as ever. It was again opened beneath the lip by a free incision, and a long strip of lint introduced to excite suppuration. In four days this was removed, as the desired result had been obtained, and the case went on apparently well; but a fresh collection of fluid of a purulent character made its appearance, more particularly towards the nostril. This was accordingly

freely opened by a bistoury introduced through the nose, and a rapid convalescence followed.

This patient was seen two months subsequently, when she was quite well.

On a case of dentigerous cyst of the antrum.

In the cases that have been already quoted of cysts of the antrum no malplaced tooth was noticed, consequently it remains an open question whether they had any connection with dentition; they all, moreover, occurred in adults, when dentition was completed. In the following example of cyst of the antrum a tooth was found to be clearly situated in the cyst and growing from the floor of the antrum into its cavity. The drawing that accompanies the case will illustrate its position.

Cases like the above have been already published, some in these 'Reports,' by Mr. Salter, and surgeons now generally recognise the disease. The knowledge of such cases, indeed, in the case about to be related suggested the practice that was followed, and pointed out the propriety of exploring the antrum before removing the bone which seemed to be the subject of the disease. In former times, doubtless, many upper jaws have been removed as a whole for this affection, its true pathology not having been understood.

Case 34.—*Case of dentigerous cyst of the upper jaw; operation and recovery.*

(Reported by Mr. Rogers Harrison.)

James J—, a healthy boy, æt. 6, came under Mr. Bryant's care at Guy's Hospital, on March 5th, 1868, for some affection of the upper jaw of the left side. It had been gradually coming for three years, and had appeared to follow a blow that he received at that time from a fall against a stone. The gum about the first bicuspid teeth was cut and bled profusely; for some days it was likewise swollen. Since then he had complained occasionally of pain in the part, but this was never severe.

When seen the left upper jaw was much enlarged; it projected forwards beneath the cheek, more particularly towards the nose, although it did not encroach on this cavity; it

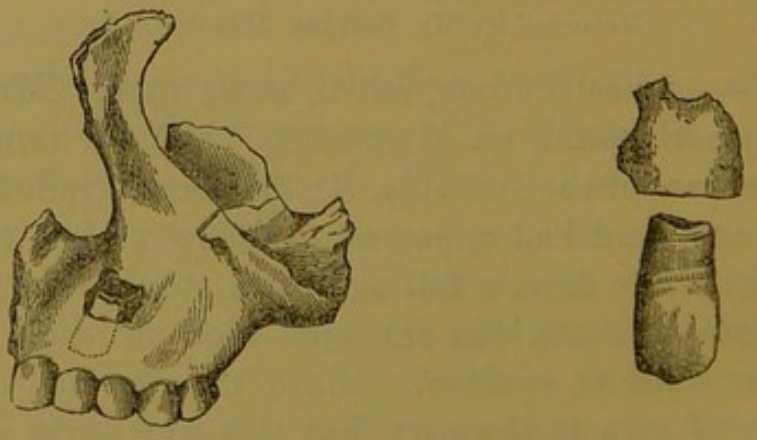
bulged downwards likewise, pressing the palate process of the superior maxillary bone into the mouth. It encroached likewise upon the orbit, pressing the eyelid upwards. He had changed some of his teeth, and had cut the central incisors and double teeth, but not the lateral incisors and canine. Mr. Bryant at this time made an exploratory puncture into the swelling, with the suspicion that it contained fluid, but blood alone escaped.

On June 18th this patient was admitted into the hospital, and on the 27th Mr. Bryant again punctured the swelling, at this time a little serum making its escape.

On July 24th, the patient being under the influence of chloroform, Mr. Bryant made a free opening into the antrum beneath the cheek by means of a sharp, strong knife. He then cut out a piece of bone, the size of that illustrated in the drawing below, and exposed the cavity. Some serous fluid escaped, and, on careful examination, the glistening surface of a tooth was seen projecting from the nasal angle of the cavity, and growing obliquely upwards. With an elevator this was removed, and appeared to be the crown of the left lateral incisor.

The drawing illustrates the position of the tooth in the bone, with the opening made into the cyst for its removal.

The tooth is also shown, of its natural size; and likewise the piece of bone which was taken away from the anterior wall of the cyst to allow of its removal.



A rapid recovery followed the operation, the boy leaving the hospital on August 13th. On October 6th he called on Mr. Bryant, when the face appeared nearly natural.

On a case of cyst in the lower jaw.

Cases such as the one about to be quoted are not nearly so common in practice as are those I have already illustrated. I have had but one example under my care. How far such are due to the irritation of developing or decaying teeth our science has not yet determined. That some are due to it there seems little doubt, for cases are recorded in which teeth have been found in cysts. Yet it seems true, as Mr. Heath has stated, that cysts occur in the lower jaw, apparently without any immediate connection with the teeth.

In the following case all the teeth were sound, even the one that was extracted: and it is given as an example of simple cyst of the lower jaw, unconnected with dentition.

Case 35.—*Cyst in lower jaw; recovery after the cyst was opened.*

Eliza T—, æt. 20, came under my care at Guy's Hospital on October 26th, 1866, for an enlargement on the right side of the lower jaw, opposite the second molar tooth. It had been coming for two years. The tooth had been removed without any benefit, and was a good one. The cyst was on the outer side of the jaw, and was about the size of half a walnut. It was evidently a bony cyst, but thin. There was constant pain, of a dull nature, in the part. All the teeth appeared to be sound. On October 26th the cyst was opened from the mouth with a stout knife, and a quantity of serous glairy fluid let out. No tooth or other contents could be seen. The cyst was then plugged with lint to excite suppuration. By January 5th, 1867, the report states that the cyst had steadily contracted; and by March 4th the jaw was of the natural size. On the 13th the girl was dismissed cured.

Case 36.—On June 7th, 1869, I saw a case which appeared to be somewhat similar to the above, but the patient refused to allow any surgical interference. She was a woman, æt. 50.

The cyst, or rather swelling, involved the left ramus of the jaw, which it expanded equably; it had been growing for about a year and a half. The anterior molar tooth, which apparently formed the upper boundary of the cyst, had been removed by a dentist some months back; it had never, however, caused her pain, and the patient stated that it was sound. The other teeth on that side were good. The enlargement of the bone seemed clearly a cystic expansion, and I wanted to lay the whole open, but the patient refused to allow any interference, so I saw no more of her.

I have, however, seen one case of true dentigerous cyst of the lower jaw, which was successfully treated by laying open the cyst and extracting the tooth; it occurred some years ago in the practice of my colleague, Mr. Poland, with whose permission it is now published. The particulars are as follows:

Case 37.—*Dentigerous cyst of lower jaw; operation; recovery.*

Mary F—, æt. 26, a native of Rochester, was admitted into Guy's Hospital on August 10th, 1859, for some disease of the right ramus of the lower jaw. It had been coming gradually for two years, and appeared as a dilatation of the bone, more particularly involving the outer wall. It had never caused much pain.

The outline of the growth was smooth, and it was diagnosed as being one of a cystic nature. Mr. Poland, into whose hands the case came for treatment, laid the cyst open within the mouth, excising a portion of its wall, and evacuated its contents, which were serous. He then discovered a tooth lying at the bottom of the cyst. This he extracted, and a good recovery followed. Mr. Poland tells me that the subsequent progress of the case was most satisfactory.

On the treatment of cystic disease of the jaws.

Our improved knowledge of the pathology of these cystic diseases of the upper or lower jaw (whether simple cystic, or dentigerous) has taught us one practical lesson—that in every case in which the faintest suspicion exists of the cystic nature of the growth, operative interference should be confined

to an exploratory operation, before the graver one of the extirpation of the growth is entertained. By the adoption of this principle of practice, many jaw-bones have, within the last few years, been saved, and as many patients suffering from cystic disease of the jaws have been relieved of their deformity by a simple operation.

In each of the cases which have been recorded, it will have been observed that the treatment was very simple, for a free incision into the cyst was made in all; the subsequent cure being effected by the production of inflammation of the cyst-wall by means of plugging its cavity with lint; although in the case of true dentigerous cyst the removal of the tooth through a free opening into the antrum was likewise needed.

The opening in all the cases of disease of the upper jaw was made through the wall of the cyst, beneath the cheek, and not by perforating the socket of the first molar tooth after its removal, as is often advised. The opening at this spot can be made more easily, and may be made larger, and is more under observation. It should always be a free one. When the cyst is large, a piece of bone may be taken away, as was done in the instance quoted of dentigerous cyst.

Let it be remembered, therefore, that in all cases of a suspected cystic disease of the jaw, an exploratory operation should be made into the cyst before the removal of the bone is attempted; and in all examples of cystic disease, let the opening into the cyst be a free one.

PART III.

On Solid Tumours connected with the Jaws.

Diseases of the jaws have always been subjects of interest, and tumours of these parts have ever received marked professional attention; for to the patient they not only cause much disfigurement, but interfere with the important function of mastication, and thus threaten life; and from the surgeon they demand in their treatment diagnostic as well as practical skill of no mean order.

It may likewise be positively asserted that few classes of cases have benefited more by an improved pathology than

those we are now about to consider; and, as a result, a simpler and more satisfactory form of practice is now called into requisition than is to be found in the annals of an older surgery.

It is not my intention in these pages to enter fully into the whole subject of tumours of the jaws. Mr. Heath, in his admirable 'Jacksonian Prize Essay,' has already done this in a way which has left nothing to be desired. I propose simply to give such cases as have passed under my care during the last few years, with remarks, believing them to be worthy of a place in these 'Reports.'

The first case is one of what must probably be called a hyperostosis of the bones of the face, more particularly of the upper jaws. It apparently began in the right upper jaw, for it occluded the right nostril at an earlier period than the left, although the expansion of the cheeks seemed to have been tolerably equal. The cavity of each antrum was clearly involved, for the symmetrical bulging of the growth at the mouth and cheeks was very remarkable, and the equal pressure upon the globes of the eye was well seen.

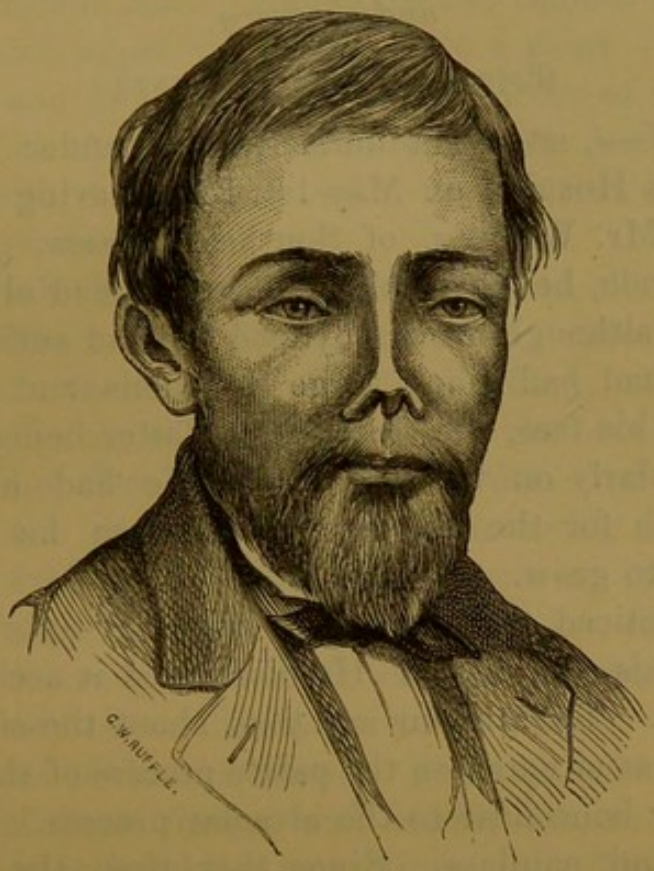
The disease seemed to have been attended with little or no pain, and no cause could be assigned for its appearance. The man confessed that he came to me simply on account of the disfigurement it caused.

No operation could be entertained when I saw the man, although I told him to let me watch the case, with the feeling that the time might come when it would be right to interfere.

Case 38.—*Hyperostosis, or symmetrical osseous tumour, expanding nostrils and upper jaws, &c.*

William W—, a smith, æt. 43, came under my care on February 4th, 1869, for some disease about his face. It had been coming for about twelve years, and showed itself at first by an expansion of the left nostril, at its upper part; in about one twelvemonth the same condition appeared in the right nostril, and it was at this time that the left became occluded. The expansion of the nose had gone on slowly since then, and when he came under care both nostrils were completely occluded, and much expanded. The tumour or tumours pressed

downwards, causing a marked bulging into the mouth of the palatine plates of both upper jaws. These bones likewise appeared to be much expanded towards the cheeks. The eyeballs were somewhat pushed outwards. The sight was, however, good. The man suffered no pain, and only from the disfigurement, which was very great. (*Vide* woodcut below.)



On a case of non-malignant tumour of the upper jaw.

In the following example of simple non-malignant tumour of the upper jaw, the course and treatment of the disease are fairly illustrated. The slow growth of the tumour, its long duration before surgical advice was sought, and the absence of all other than simply mechanical symptoms, make up the usual history of such cases. In the case about to be recorded the tumour was made up of fibre tissue, cartilage, and bone cells; these three elements, in different degrees of quantity, building up the bulk of tumours of the upper jaw.

With respect to the treatment of the case no doubt could be entertained, the extirpation of the growth being the only justifiable operation.

The success of the treatment was most satisfactory, and in

this also the case quoted followed the usual course of all such cases, for there are few large operations in surgery that are followed with such good success as these, rapid recovery being the rule after operative interference.

Case 39.—*Case of osteochondroma of upper jaw. Excision and recovery.*

(Reported by Mr. F. C. Turner.)

Thomas W—, æt. 35, a builder, came under Mr. Bryant's care at Guy's Hospital on May 1st, 1869, having been sent up to him by Mr. Whiting, of Southend, Essex. The patient was a well-made, healthy-looking man; he had always enjoyed good health, although from boyhood he had suffered from his teeth. He had had many large gumboils and abscesses on both sides of his face, the scars of the latter being still visible, more particularly on the left side. He had not, however, suffered much for the last few years, since he had allowed his whiskers to grow.

He first noticed the disease of his right upper jaw twelve years before his admission. He discovered it accidentally in a looking-glass. The tumour was then about the size of a small walnut, and was situated on the palate process of the right superior maxillary bone near to the alveolar process. It was then quite hard and painless. Since that time the tumour has grown gradually, but has given him little inconvenience. It has been gradually, however, encroaching on the cheek.

In November, 1868, his right eye became affected, the tears from that eye coursing down the cheek. The parts about the eye also became swollen and inflamed. At Christmas an abscess formed at the inner corner of the eye, opened and discharged, the swelling subsiding; since that time, however, several attacks of inflammation and suppuration have appeared in this part, and disappeared. The patient has never had any pain in the tumour, and suffers only from the mechanical inconvenience of the growth.

Condition on admission.—To the eye the right cheek was clearly much enlarged from a tumour situated in the upper jaw. The skin over it was healthy, except at the inner corner of the right eye, where there were signs of inflammation and suppu-

ration, apparently from obstruction to the lachrymal duct. On looking into the mouth an extensive tumour was seen with a smooth surface, starting from the central incisor tooth and middle line of the hard palate, and involving all the teeth; the first molar was completely surrounded. The tumour pressed backwards to the edge of the hard palate, and posteriorly appeared to pass the middle line. Externally the tumour seemed to involve the whole upper jaw outwards to a point just below the malar bone, and upwards to the lower border of the orbit near to the inner canthus. The tumour felt very hard and bony.

Mr. Bryant determined, with the patient's sanction, to remove the growth.

On May 4th the operation was performed, the patient being under the influence of chloroform. The upper lip was first slit up in the middle line with a bistoury, and an incision made above the ala of the nose and up the cheek to the inner canthus. The cheek flap was then dissected upwards and turned out, the surface of the tumour being exposed. The vessels that were divided were twisted, and all bleeding ceased. Mr. Bryant then divided the right upper jaw from its attachment to its fellow with a small saw, the incisor tooth having been previously removed, and divided, likewise the malar and nasal processes of the same bone. The tumour was next seized with a pair of bone forceps and readily broken off, the whole mass fortunately breaking away from the orbital plate, which was left *in sitû*, as was likewise the palate process of the palate bone. With a pair of scissors the soft parts in the palate were divided, and the whole growth removed.

The edges of the lip and cheek were then carefully adjusted, and stitched together.

Some slight hæmorrhage followed the next night, and some chloroform sickness; but on the second day these symptoms had passed away. The wound looked well, and the man was able to take plenty of liquid nourishment.

On May 6th the sutures were removed, the wound having united, a piece of strapping being applied to guard against separation.

On May 10th the man got up for a short time, and the wound had firmly cicatrised. There was only a little discharge from the mouth. No tears had rolled over the cheek

since the operation; Mr. Bryant, however, advised the man to apply pressure daily with the finger to the lachrymal sac.

May 17th.—Everything doing well. Patient gets up and goes about.

May 24th.—The patient can swallow his food now readily. Wound looks very healthy.

He left the hospital convalescent.

October 20th.—This patient has had an artificial palate and set of teeth fitted in by Mr. Salter, and is in all respects, both in appearance and comfort, well pleased with the result of his case. His face is quite natural, and he speaks as clearly as any other man. (*Vide* Plate III, fig. 2.)

The growth is figured in Plate IV. A reference to its microscopical appearances will be found in the description of the plate drawn up by my colleague Dr. Moxon.

We meet, however, occasionally with tumours of the upper jaw that require less severe measures than the removal of the bone;—the removal of the growth from the bone, or with that portion of bone with which it is connected, being generally sufficient. Indeed, looking at the subject in the broadest way, it is never necessary to do more than remove the tumour with that portion of bone upon which it is placed. In some cases, as in the one already given, it is necessary to take away a large portion of the upper jaw; in other cases much less severe operations will be found to suffice.

In one I am about to quote the tumour sprang from the nasal plate of the superior maxilla. The removal of this plate with the growth was all that was required. In a second, a fibrous growth pressed into the antrum, and the simple enucleation of the tumour was all that was needed.

In some cases, again, the laying open of the antrum and enucleation of the growth is the right practice, especially in cases of polypus of this part.

In all cases, however, it is the surgeon's duty to take away as little of healthy tissue as possible; he is to take away all the disease, and only such healthy bone as may be found necessary to further this end. To Sir William Fergusson is undoubtedly due the establishment of this rule, and it is one that all surgeons should strive to follow.

CASE 40.—*Fibroplastic tumour growing from the nasal process of superior maxillary bone; removal and recovery.*

A healthy man, æt. 42, came under my care at Guy's Hospital in March, 1863, with a tumour expanding the left nostril and cheek. It had been observed only three months, and had been detected after a severe attack of epistaxis, which had lasted for one week. The tumour nearly filled the nostril and completely closed the passage. The man's general health was good, and there was no glandular enlargement. On April 21st I excised the growth, the man being under the influence of chloroform. An incision was made commencing from the corner of the eye through the nostril, which was divided and turned up. The growth was then seen to spring from the nasal process of the superior maxillary bone. This was divided with a pair of bone forceps, and the tumour turned out. An excellent recovery followed, and in August, 1869, more than six years after the operation, the man was well.

The tumour was clearly, on examination, one of the fibroplastic kind.

CASE 41.—*Epulis of left upper jaw pressing into antrum; removal and recovery.*

Mary A. H—, æt. 24, came under my care on Sept. 5th, 1860, for a growth the size of a large walnut connected with the gum of the left upper jaw. It had been growing for eight months; had commenced without known cause about the bicuspid teeth; had increased without causing much pain, and was distressing only from mechanical causes. The teeth of the jaw were sound and perfect.

I removed the mass with a scalpel, and on lifting it out of its bed found it had pressed backwards into the antrum, which it had partially filled. A good recovery followed, although with a large opening into the superior maxillary bone.

The tumour under the microscope seemed to be made up of fibre tissue only.

CASE 42.—*Tumour growing from the palate process of the superior maxillary bone; excision; recovery.—Myxoma.*

Miss Mary C—, a governess, æt. 25, consulted me on January 28th, 1868, for some tumour of her upper jaw. She was sent up to me by Mr. Oswald Foster, of Hitchin, under whose care she had been.

She was a healthy young woman, and had never had any serious illness. Her present disease appeared about six years previously, with an abscess about the first molar tooth of her left upper jaw. In 1864 another so-called abscess appeared in the same part, which discharged and healed, and again in 1865; the abscess at this time being larger than on either of the previous occasions, and leaving more swelling behind it. Since the appearance of the first abscess, however, in 1862, there had always been some enlargement about the palate.

When I saw this patient the whole of the hard palate on the left side was covered with an elevated, hard fibrous growth; it had a smooth surface, and was elevated about a third of an inch. It involved the alveolar processes and teeth of the entire jaw, and was not painful to the touch. No operation but its removal could be entertained.

On July 3rd this patient was admitted into Guy's Hospital, and on July 11th an operation was performed. The patient was placed under the influence of chloroform, and her mouth fixed open by means of Mr. Thomas Smith's admirable gag. The growth was then completely scraped off the palate surface of the hard palate, all bleeding being arrested by the actual cautery.

No bleeding or bad symptom followed the operation; the patient being convalescent on July 22nd, when she left the hospital.

This lady called on me in August, 1869, quite well. On looking into her mouth no signs of any operation could be made out.

Microscopically the tumour was of the glandular or myxomatous kind.

CASE 43.—*Tumour of hard palate towards its posterior border (apparently polycystic).*

On May 10th, 1869, Mary R—, a healthy woman, æt. 54, came under my care, at Guy's Hospital, for a growth that had been coming for fifteen years, springing from and involving the posterior portion of the hard palate of the left side. It was the size of a walnut, and had an irregular bossy outline. It appeared to be made up of cysts, some being translucent. One or two of them I punctured, a clear tenacious fluid escaping mixed with blood.

The growth gave her no pain, and very little inconvenience, as it did not encroach on any important part to any extent.

It had been so gradual that I did not suggest any operative interference until some necessity should arise. When I last saw her in September she was much the same.

The disease was evidently of a simple nature, for it had existed for fifteen years, and appeared to be of a polycystic kind.

On a case of cancer of the upper jaw.

Cancerous affections of the upper jaw are too common. Mr. Heath has tabulated 138 cases of cancer out of 307 of tumours of this bone. The soft cancer is the one usually met with, examples of carcinoma fibrosum being very rare. The disease is said also to begin usually in the antrum.

I have two cases to relate of this affection, one of which occurred in a young woman aged 29, in whom the disease had progressed so far as to forbid surgical interference. In the second an operation was performed, when the disease was found to have been connected with a malplaced tooth in the body of the bone.

The cases are as follows:—

CASE 44.—*Growth (malignant?), occupying right upper jaw, causing blindness, with protrusion of eye-balls, occlusion of nostril, and inability to open mouth, &c.*

Julia P—, a young married woman, æt. 29, the mother of

two children, came under my care at Guy's Hospital on February 18th, 1864, with a frightful disease of the face. It began six years previously by an enlargement of the *right* upper jaw, which was soon followed by complete occlusion of the right upper nostril, and protrusion of the right eye. The glands, also, below the jaw, on the right side, at this time became enlarged. These symptoms gradually increased, till the tumour became of an enormous size, projecting like a cocoa-nut in the face, and both eyes were completely pushed out of their orbits, and all sight was lost. The mouth became fixed, from the encroachment of the tumour upon the articulation of the lower jaw, and the gradual enlargement of the glands beneath it, so that deglutition was a work of difficulty, and respiration was interfered with. The woman had lost flesh rapidly, and was clearly sinking.

Nothing could be done for her, as she refused to enter Guy's. I never saw her more than once.

I must give one more case to conclude this series, for it was a case that made a great impression on my mind when it passed under my care, and from it a valuable lesson is to be learnt. It was one of enlargement and expansion of the horizontal ramus of the lower jaw. The enlargement put on all the appearance of a new growth, for it was unattended by any of the symptoms of inflammation, although it had been preceded by them, and even by necrosis of some portion of the jaw. It turned out, however, eventually to be an enlargement due to a chronic inflammation of the bone and abscess.

That such an inflammatory growth might have been excised as a tumour of a more serious nature excited a feeling far from pleasurable, and the having escaped such a serious piece of bad surgery, by a little care, was a lesson in favour of a cautious practice, which ought not to be lost, for had the operation not been undertaken more with a view to explore than excise the growth, the lower jaw of this patient might have been removed.

The details of the case are as follows:

Case 45.—*Cystic expansion of the lower jaw simulating a tumour, due to inflammation and necrosis of the bone.*

(Reported by the late Mr. Leonard Cass, an old and valued pupil.)

Mary D—, æt. 19, was admitted into Guy's Hospital on

June 7th, 1860, under the care of Mr. Bryant, with an enlargement of the right side of the lower jaw, involving the whole of the horizontal ramus. It appeared from the history of the case that she had a fall three years previously, and struck her chin against a chair; swelling of the part rapidly appeared, and pain involving the three front lower teeth; an abscess also subsequently formed and broke. The teeth were extracted, and a large piece of black bone came away from the mouth; several other pieces were subsequently removed, and she was well in about one year. She remained free from all apparent disease for six months, when a swelling appeared in the right horizontal ramus of the lower jaw, and this has steadily increased.

When she was admitted there was a large globular swelling situated in the right ramus of the lower jaw; it had a smooth outline, and clearly involved the whole thickness of the bone, nearly as much expansion of the bone existing on its inner side as on its outer. The tumour was very firm, and hard pressure upon it caused pain. It had been coming for one year and a half.

The nature of the case was not very clear. Mr. Bryant half suspected it to be inflammatory, and yet the uniform expansion of the whole bone rather indicated some new growth. An exploratory operation was consequently advised, and performed on June 19th. Chloroform was given, and a free incision made along the lower border of the tumour beneath the jaw; in this the facial artery was divided and tied. The soft parts were then dissected off the bony swelling, and about the attachment of the masseter muscle a small opening, large enough to admit a probe, was found, which communicated directly with a cavity in the centre of the jaw. This opening in the bone was consequently enlarged, and a small piece of necrosed bone found, resting in a cavity which was lined with false membrane; this was removed and the parts closed. From this time everything went on most satisfactorily; the wound rapidly closed, and the expanded cyst in the bone contracted; the jaw recovered in six months its natural size and its normal functions.

On a case of solid tumour of the antrum, apparently originating from the irritation of a tooth.

The following case, which I attended with my colleague Mr. Bader and Dr. Alfred Charlton in 1868, is worthy of record from the fact that the growth apparently originated from the irritation of one of the double teeth; the tooth was clearly imbedded in its base, and the tumour sprang from a ridge growing from the palate process of the superior maxillary bone surrounding the tooth.

CASE 46.

The early history of the case I give in my colleague, Mr. Bader's, own words.

"Violet C—, æt. $8\frac{1}{2}$, the youngest of six children, came to me on November 6th, 1867, with slight protrusion of the left eye. This was observed first three months ago; it increased since. The retinal veins showed impeded blood-return from the ophthalmic vein; they were gorged; the eye and sight were otherwise healthy. About three weeks later an elastic nobby swelling appeared above the left lachrymal sac. This rapidly grew larger, displacing the eye more; the sight then began to fail.

"An incision was made over the most prominent part of the swelling, and a large quantity of a grey red gelatinous substance removed from behind the eyeball and from the left antrum; there was little bleeding. The wound healed kindly, the protrusion subsided, vision improved. About two months later the protrusion reappeared, the sight failing again."

It was under these circumstances that I was consulted. On March 1st, 1868, I saw the child with Mr. Bader and Dr. A. Charlton. The disease at that time was apparently connected with the left upper jaw, the growth filling up the nose and pressing up the eye; it pressed the cheek likewise much forward, but had in no way altered the shape of the hard palate.

The child's health was tolerably good. An operation was determined upon, and on March the 4th it was performed. Mr. Bader kindly gave chloroform, and Dr. Charlton assisted. I

exposed the tumour by an incision made along the border of the nose and lower margin of the orbit, and turned the cheek back. I then freely opened the antrum with a pair of forceps, and with my finger detected the base of the tumour growing from the upper surface of the palate process of the upper maxillary bone. The whole bone was consequently removed without much difficulty. The operation was attended with very little bleeding.

The child passed a quiet night, having slept and taken nourishment well, but twenty-four hours after the operation it had a convulsion and died.

On examining the bones that had been removed, it was clear that the disease had sprung from the upper surface of the palate process of the upper jaw, and from a rough ridge of bone surrounding the posterior double tooth. The tooth at its lower surface had partially cut through the gum and showed as a white speck, but it was imbedded in the centre of the base of the new growth. The growth had expanded the antrum and pressed into the nose and orbit, having caused absorption of much of the bone.

Unfortunately, no microscopical examination of the growth was made. It was, however, of a greyish semi-transparent granular character, and readily broke down under the finger. It did not appear to be of a cancerous nature, it having no juice.

The main interest of the case rests in the fact that it appeared to have originated around the base of a double tooth. Such a case suggests the probability that other solid tumours may have a like origin and indicates the important line of practice that should be followed, viz., the exploration of the antrum, even in cases of solid growth, before the removal of the upper jaw.

DESCRIPTION OF PLATES I, II, III, IV,

To illustrate Mr. Bryant's Paper on Diseases of the Jaws.

Plate I illustrates a case of nævus of the upper lip, flattening the front teeth from its pressure. (Case 8.)

Fig. 1.—Shows the patient's condition on admission.

Fig. 2.—Shows her condition after the operation.

Figs. 3, 4.—Show the flattening of the upper and lower teeth respectively.

Plate II illustrates the case of Henry P—. (Case 20.)

Fig. 1.—Shows the deformity of the mouth before the operation.

Fig. 2.—Shows the man's appearance after the operation.

Fig. 3.—Shows the deficiency in the bone, after exfoliation.

Plate III illustrates a case of osteochondroma of the upper jaw. (Case 39.)

Fig. 1.—Shows the condition of the patient on admission.

Fig. 2.—Shows the result of the operation.

Plate IV illustrates the naked-eye and microscopical appearances of the tumour in the same case.

Figs. 1 and 2.—Show different aspects of the tumour.

Figs. 3 and 4.—Show the appearances seen at different parts of the same section, which have been separated simply for convenience. They are viewed with 1-5th objective.

a. The fibrous substance of the tumour; the fibres had a close texture, with cells imbedded in it. The cells were without capsules, and very delicate in outline.

b. The bony part of the tumour, containing bone-lacunæ with canaliculi (*c*), but of coarse and imperfect formation.

d. A capillary vessel, coursing through the fibrous substance of the tumour.

Fig. 1.

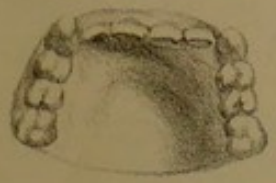
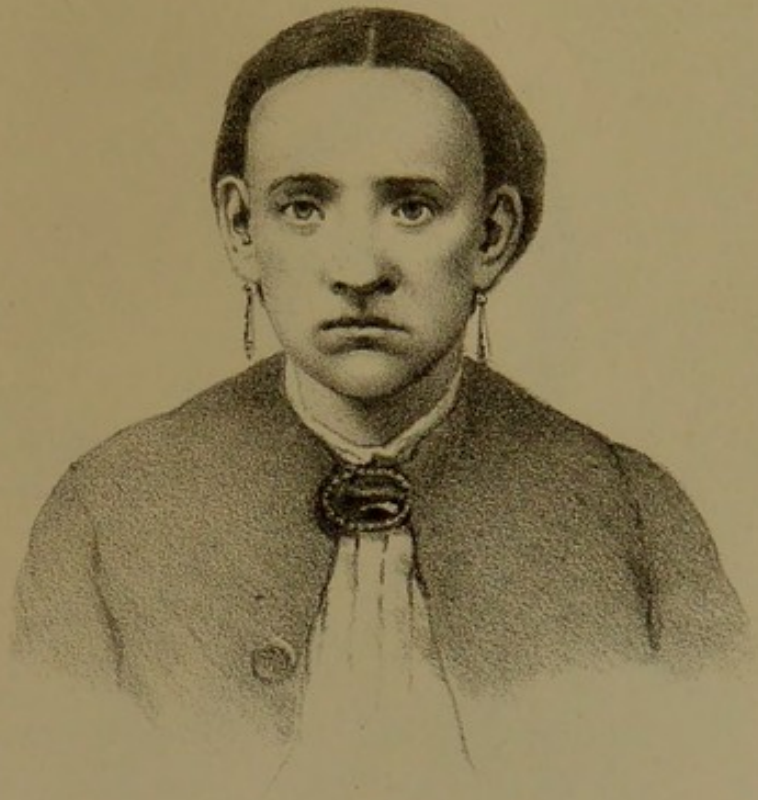


Fig. 2.



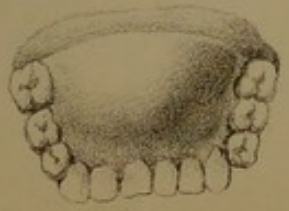


Fig. 4.

Plate 1.

W Hurst .lith .

M& N. Hanhart, imp.

Fig. 1.

Fig. 3.

Fig. 2.

Plate II.

W. Hurst lith.

M & N. Hanhart imp

Fig. 2.

W. Hurst. lith.

Fig. 1.

M&N. Hanhart. imp.

Plate III.

Fig. 1.

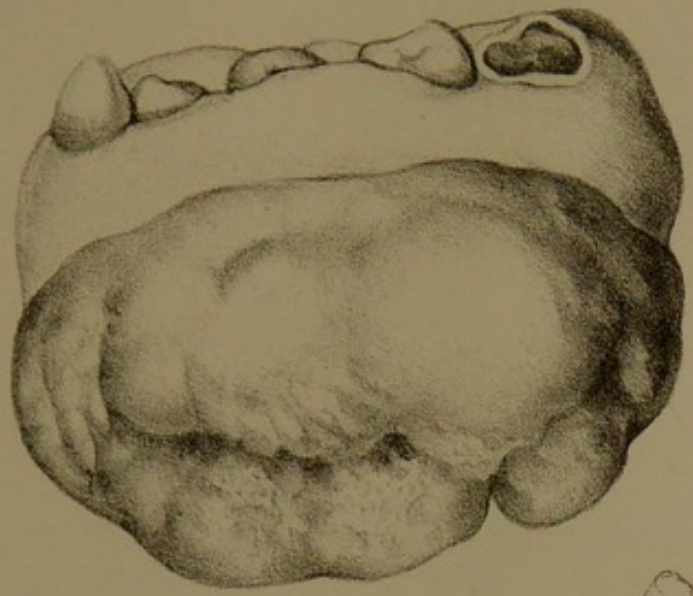


Fig. 2..

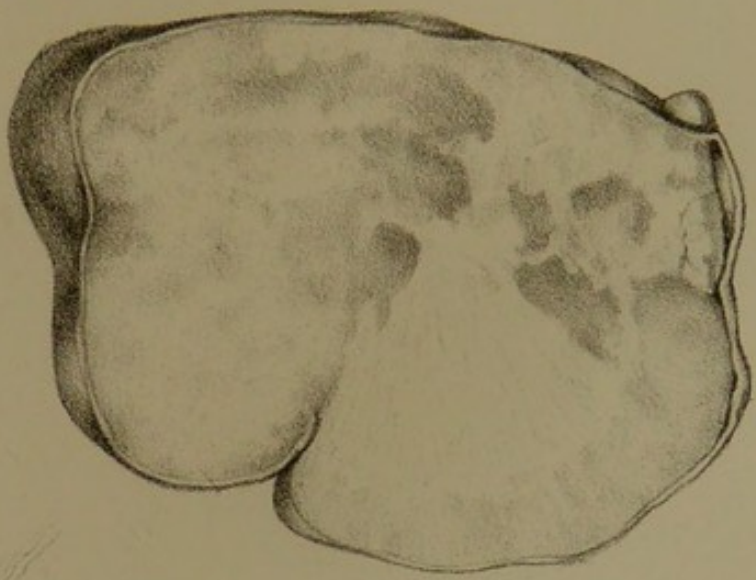


Fig. 4.

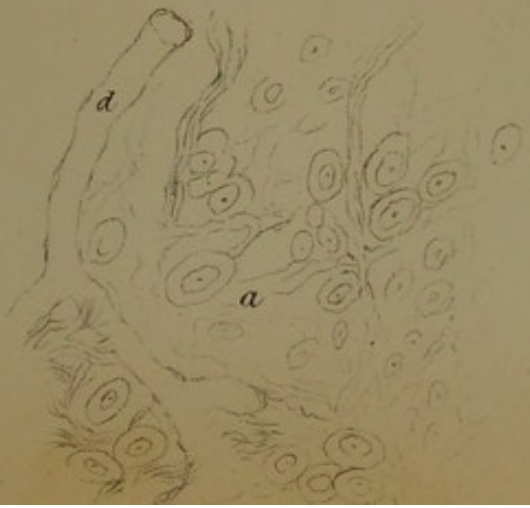


Plate IV

W. Hurst lith.

M & N. Hanhart imp