ART. XIII.—*Cases, with Observations on certain malignant Diseases of the Head and Face.* By L. BYRON, M.D., Surgeon of the County of Meath Infirmary; Corresponding Member of the Dublin Obstetrical Society, &c. &c.

ALL those who have attentively regarded the research of bygone and cotemporary inquirers in this attractive, but hitherto delusive and imperfectly explored field of human pathology, namely, malignant disease, must be struck with the comparative unprofitableness of those labours, which, for the most part, amount to little more than vain and contradictory speculations. A more intimate practical analysis of those protean maladies, as they affect separate parts of the frame, apart from that “*El Dorado*” already alluded to, would most probably, in the present state of our knowledge, lead to far more useful results. With this view the following cases and illustrations have been selected, and, first,

Those which refer to melanosis of the eye will, it is hoped, serve to illustrate a pathological problem of much interest, namely, whether that affection should be regarded in the light of an inorganic, harmless deposit, or as forming a distinct malignant disease.

A brief glance at the writings of a few distinguished pathologists will evince the discrepancy here alluded to.

Dr. Carswell says, “Melanosis I believe to be an inorganic substance, injurious only from its quantity, the number of organs it affects, its situation, and mechanical operation.”*

Lobstein and Cruveilhier entertain similar sentiments. The former says he has seen various parts of a membrane painted black—“*kerranosis*,”† the latter instances two forms of what

* *Fas.* No. 3. Art. Melanoma.

† Andral imagines the jaundice of young children to be this particular affection. Laennec, who first describes the complaint, calls it “*cerrosis*,” and says it is deposited in masses on layers, sometimes in a cyst, as exemplified in the hard tuberculated liver of gin drinkers, &c.

he calls natural melanosis, viz., the pigmentum nigrum of the choroid coat, and the secretion found in the ink-bag of the cuttle fish.*

Some of our own writers are quite at issue with the distinguished pathologists just named in regard to the nonmalignancy of melanosis. Mr. Wardrop considers it to be a mere variety of fungus; and Mr. M'Kenzie says, "it is undoubtedly of a fungous nature."† Dr. Warren says, "Melanosis of the eye is a rare affection. There are two kinds: one malignant, the other not. I have never seen the former, and presume it has the character of a black fungoidis."‡

CASE I.—L. Keenehan, æt. 4 years, was admitted into the county of Meath Infirmary on the 2nd January, 1826, when the following report of his state was taken: "General aspect delicate, with fair hair and complexion; the right eyeball is very considerably enlarged, projecting much from the orbital cavity, so as to form a large tumour. Its size is that of a small apple; its figure circular; and its surface florid; presenting an appearance of minute arterial vascularity. The superior half of it is covered by the upper eyelid, of a dark erysipelatous colour, extended over but not adherent to it; the inferior half is exposed, and adherent to the lower eyelid, which it appears to have pressed downwards. The tumour is generally soft to the touch, but its feel has a degree of firmness or elasticity. On its front is seen the cornea, opaque, brown, and disorganized; immediately over the centre of which is a superficial ulceration, having a greenish aspect, a quarter of an inch in length, and extending transversely. A muco-purulent discharge is secreted from the diseased surface in small quantity. He suffers no pain, except when the tumour is pressed upon. The natural functions are but little disturbed." His father stated "that the disease

* Anatom. Pathologique.

† A Treatise on Tumours. By R. Warren, M.D., p. 519.

‡ Treatise on Diseases of the Eye, 3rd Edition, p. 622.

had commenced two months before, as ordinary ophthalmia, with much swelling of the upper eyelid. A fortnight after the ball began to swell ; a symptom which was accompanied with considerable pain in the part, interrupting rest. There had been much increase in the tumour for the previous month, and it was daily becoming larger. Vision was destroyed at an early period. Never had complained of headach, and could assign no cause for the disorder." His bowels and diet were regulated, and emollient applications made to the tumour. A fortnight after admission his general health seemed improved, and the turgid, inflamed state of the upper eyelid had been lessened, but the tumour had increased in size. At this time it presented a uniform, florid, fungous appearance, with a depression in its centre, half an inch deep, marking the place from which the disorganized cornea came away. It had also begun to discharge blood in small quantity ; but, in general, the discharge differed little from the natural conjunctival secretion, and formed a yellow scab tenaciously adherent to the surface.

The malignant nature of the disease being evident, and nothing in the state of the other eye, which appeared perfectly sound, or of the general health, which, though delicate, had been much improved by good diet and care, contra-indicating an operation, extirpation of the disease was performed on the 20th January.

Operation.—The patient being laid upon a table, with his head gently raised, an incision was made from the external commissure of the eyelid to the outer edge of the orbit ; the conjunctiva was then divided from this point to the inner side of the tumour, pretty nearly in a line with, and close to the upper margin of the lower eyelid. A similar incision was made superiorly along the border of the upper eyelid, which joined the other at the inner canthus ; so that the three wounds formed one continuous surface. The lower eyelid was now detached from the tumour, as far as the bony edge of the orbit ; the levator palpebræ and upper eyelid were, in a similar manner, de-

tached above; after which the remaining connexions of the tumour to the orbital edges were separated. At this period, the forefinger of the left hand, being introduced between the eyelids and tumour, distinctly felt the attachment of the two oblique muscles, which were then divided upon the finger. A little further dissection, in the same cautious manner, freed the diseased mass from its other lateral adhesions. Nothing now remained to be done but to divide the four recti muscles and the optic nerve, which was easily effected with the common straight scalpel. A warm sponge was then passed into the orbit, and, after a short period of rest, the socket was cleared of diseased parts, as well as could be done. A small portion of soft substance, however, remained at the bottom of the orbit; this, although very inconsiderable in size, could not be completely removed, appearing to pass into the cranial cavity; and as the parts showed a disposition to bleed, it was deemed prudent to cease further attempts. The socket was, therefore, lightly filled with charpie, over which were placed a compress and roller, the latter carried also over the sound eye. The patient bore the operation well, had a little wine and water during its continuance, and lost, perhaps, two ounces of blood. There was no bleeding per saltem, nor any thing very like arterial hæmorrhage, unless a smart oozing from the socket immediately previous to the application of the charpie.

Examination of the Tumour.—The diseased structure presented a good specimen of that morbid alteration of parts which, for want of better names, we designate fungus hæmatodes, medullary sarcoma, or soft cancer. It consisted of three lobules: the first and largest, nearly the size of a pigeon's egg, occupied the seat of the lachrymal gland; the second, more than half as large, lay towards the inner side of the orbit; and the third and least considerable portion extended backwards, enveloping in its substance the optic nerve and recti muscles, no distinct traces of which were visible. A cavity in the centre of the diseased mass, in some degree corresponding to the position of the cells of the

vitreous humour, was filled by a soft black substance about the consistence of thick cream, half putrid and very foetid.

The sclerotic coat, surrounded by, and partaking very considerably of the disease, was almost the only vestige which remained of the healthy eye. The tumour was firm to the touch, but not hard, and on the surface was a minute vascular network. On cutting into it, a uniform whitish, demi-cartilaginous appearance presented itself. The conjunctiva adhered loosely to the newly-formed substance, and was free from the general morbid tendency, although thickened.

An anodyne was administered after the operation, and he passed a good night, interrupted only by some muttering in his sleep: this slight degree of delirium ceased after the second day. His pulse, also, 160 the day after the operation, soon fell to 120, at which degree of frequency it continued for some days; but his fever was, on the whole, moderate, being checked by suitable diet, aperients, &c. As early as the second day the eyelids began to granulate; and about the tenth day granulations were observed to shoot from the floor of the orbit. The charpie was withdrawn the day after the operation, and oiled lint substituted for it.

On the eighteenth day the entire of the orbit was granulating, and the cavity had diminished one-half. On the thirtieth day his pulse was but 100, and his general health good. The eyelids had resumed their natural size and appearance, two-thirds of the cavity had been filled up. So far every thing promised well; but on the fortieth day an unfavourable change took place. He began to look less healthy, the granulations assumed a yellowish white aspect, and the left eye, till then apparently sound, became amaurotic; its pupil widely dilated and motionless, and he could only discern the light of a candle.

On the fifty-second day the state of the left eye was improved; the pupil had diminished to half its former size, and he was able to discern certain objects, such as a pen, a towel, &c. The cavity measured but an inch in depth and width, and it was diffi-

cult to see into it, from the disposition to contraction which existed at the margins of the eyelids. On the fifty-sixth day he complained for the first time of pain at the back of his head, and in the right orbit. On the sixtieth day the pain was confined to the right side of his head; some of the lymphatic glands on that side of the face, and about the parotid glands were found to be considerably enlarged.

He had three grains of blue pill daily and the acid decoction of bark.

On the sixty-fourth day the improvement in the state of the left eye was found to have been but transitory, and the pupil had become as large as before; the growth of the granulations appeared to have been arrested; and his general health had evidently become worse; the swelling of the right lower eyelid had increased, and he was much distressed by headach; his pulse was 100, and weak, and his appetite bad.

On the seventy-seventh day, the tumour of the right lower eyelid had acquired the size of half a common plumb, and its surface was livid; the pupil of the left eye was so excessively dilated as scarcely to allow any of the iris to appear; he was much distressed by excruciating pain at the back of his head, so severe as to oblige him to cry out loudly and frequently; his pulse was 120, very small and weak, his countenance sunk, and death evidently near at hand. In this state he was taken home, where he survived but a few days. I was not sufficiently fortunate to be permitted to examine the body.

CASE II.—Richard Donnelly, a labourer, æt. 21 years, was admitted into the Co. Meath Infirmary, on the 24th March, 1827. Hair and complexion dark. His left eye was affected with cataract, and with what appeared to be amaurosis; the conjunctiva was extensively chemosed, and the eyeball somewhat enlarged; the inflammation, pain, and lachrymation inconsiderable. He complained of headach, and his pulse was 60, and full; his general health was good, and his constitution robust. He had had no vision in the eye for a year; the other symptoms

were only of a week's standing, and had been produced by striking the eye against a stick. Three weeks afterwards it was deemed expedient to perform the operation for staphiloma ; as the functions of the eye were irretrievably gone, it was hoped the eye would, after the discharge of the humours, and in consequence of the enlarged vessels being unloaded, probably sink into the socket, and give no further trouble. The operation was accordingly performed on the 27th March, somewhat more than three weeks from the time of his admission ; the sclerotic and choroid coats being divided three lines behind the ciliary ligament, and a large segment made of the ball, which included within it the lens in an opaque state, with its capsule and the iris. The vessels in general bled freely, and some coagulated blood found its way into the anterior cells of the vitreous humour. He had an anodyne at bed-time, but notwithstanding, suffered severe pain in the eye, and slept none. An emollient poultice and water-dressing were applied, and the pain did not recur. The wound discharged pus and bloody matter in moderate quantity, and for some days the swelling appeared to be gradually diminishing ; however, on the 29th April, about a month after the operation, the report was that the wound had filled up, and the eye was as large as before the operation, having a uniform fungous aspect. At this time he suffered little uneasiness, and wished to go home. He was therefore discharged.

On the 2nd February, nine months afterwards, he again presented himself. The tumour had very considerably increased in size within the preceding three months, and was then as large as a middle sized orange. Its circumference at the base, including the lids, measured nine inches ; in the centre seven inches and half, and at the top six inches. The upper eyelid was extended for two inches over it, and the under eyelid for one inch ; and they both adhered to its surface through the medium of the conjunctiva, which was moveable upon it. The anterior surface of the tumour had lost its smooth, uniform condition, and now presented an irregular aspect, from the existence of three

protuberances upon it, each about the size of a walnut. The most prominent, and, at the same time, the most internal of these was of a dark purple colour, and bled when touched; the others had a somewhat less vivid tinge, intermixed with a light pink shade; and the base of the tumour partook of the same colour. To the touch it was firm, elastic, especially in the situation of the projections, and in some places hard. The patient stated that it had sometimes discharged so much as a pint of blood at once. His general health was somewhat improved.

A fortnight after this report, on the 16th February, he was re-admitted into the infirmary. At that time the disease was evidently advancing with rapidity. The central and external protuberances had increased, and presented, in addition to their former colours, a greenish aspect, their surfaces, also, were partially ulcerated; three ulcers appeared upon them, and one upon the lid itself, near the eyebrow. All the ulcers discharged a small quantity of ichor, and the tendency to hæmorrhage appeared in a great measure to have ceased. He now, for the first time, complained occasionally of severe pain in the tumour, shooting to the back of his head, and there was a slight degree of chronic inflammation of the upper eyelid. His pulse was 80, and moderate; and his general health, though somewhat impaired, had not suffered materially.

The operation of extirpation of the globe was performed on the 28th February, one year from the time of his first presenting himself at the infirmary; and two years from the commencement of the disease in the eyeball.

An incision was first made from the external commissure of the eyelid, to the external angle of the orbit; this, from the elongated state of the lids, was fully an inch and half in length. An incision was next carried through the conjunctiva covering the tumour, from the inner angle of the eye, along the hairy margin of the under eyelid, to the outer angle, where it joined the first incision. A similar division of the conjunctiva was made above along the border of the upper eyelid, which also

joined the first incision at the outer angle of the orbit. The conjunctiva and lids were now stripped from the tumour above and below, until its surface was completely exposed all round as far as the margins of the orbit. The tendon of the superior oblique muscle was next divided on the left forefinger, and subsequently that of the inferior oblique muscle, in the same manner. The division of these tendons allowed the fingers to be passed freely round the orbit in all directions. The remaining attachments of the tumour, which were extensive, were afterwards divided, and the diseased mass, which was of great size, its posterior half filling up the orbital cavity, was removed. The os planum was perforated for a space as large as the nail of the forefinger, and the edges of this perforation were rough. There was a smart hæmorrhage from the ophthalmic and infra-orbital arteries; this was stopped by compression with lint and the fingers, during the time that some portions of thickened fat and cellular substance were being removed. The orbit was then filled with lint, and the bleeding quickly ceased. A portion of the upper eyelid, including the ulcer, was excised. The patient lost about eight ounces of blood. He sustained the operation courageously.

Examination of the Tumour.—The report taken at the time stated it to be a diseased structure, “*sui generis*,” resembling neither cancer nor fungus hæmatodes. I have now no hesitation in pronouncing it to have been a good example of melanosis.

The report goes on to state, that there was no appearance whatever of the lachrymal gland, and scarcely a vestige of the healthy eye; in place of the eyeball was a fleshy firm mass, on the surface of which ran the straight and oblique muscles, increased in size, particularly the obliquus inferior, abductor and adductor. Beneath these was a strong tendinous fascia, or fibrous membrane, apparently the sclerotic coat, extended and altered in its nature; on stripping off which, the surface of the tumour was exposed. The entire superficies was rendered irregular by numerous projections, or tubercles, of various sizes, from the di-

mensions of a pea to that of a chestnut ; the larger being of a dark brown or blackish colour ; the smaller of a lighter brown hue. Between these tubercles was interposed a white demi-cartilaginous substance. The larger projections, on being divided, exuded a matter similar to the pigmentum nigrum of the choroid coat, and were composed of a more dense structure of the same nature. The centre of the tumour, for an extent equal to, at least, one-third of the entire mass, was occupied by a similar substance. The smaller tubercles, on being cut into, presented an aspect of the same sort, but lighter in colour. Some of them were firm to the touch, others soft. The larger ones were generally softest. The optic nerve was sound, but narrowed near its junction with the eye.

As to the termination of the case, he progressed favourably to a satisfactory cure. He was treated like other patients who have undergone operations of magnitude. His fever was moderate, his pulse never rising above 80. For some days he complained of a slight headach, which did not, however, interrupt sleep, and he was somewhat annoyed by a swelling of the eyelids and left side of his face. On the tenth day, these symptoms had disappeared ; the entire cavity looked healthy and was granulating rapidly ; the denuded bone was covered ; and the eyelids had regained their natural size, the upper lid appearing at this time to be scarcely of sufficient size to allow of its covering the exposed socket. The edges of the wound in the upper eyelid had approximated.

On the twentieth day, half the cavity of the orbit had been filled up. On the sixtieth day there was no longer a cavity in the place of the eyeball, and the lids became adherent to the granulations proceeding from the socket, and thus covered the socket so as to diminish deformity.

On the eighty-eighth day the wound was completely healed, and the appearance of the parts good. There was a slight natural secretion from some small portions of the conjunctiva, which had remained adherent to the tarsal cartilages. He was

discharged cured, and continued well and perfectly free from any return of his complaint, as I had an opportunity of ascertaining for nearly four years afterwards, when he was carried off by a fever.

CASE III.—Rose M'Cabe, æt. 55 years, admitted into hospital, August 10th, 1837. Her statement of herself was, that she never was ill during her whole life up to about two years ago, at which period she first discovered a defect in the sight of her left eye. Her hair was light coloured; her general appearance that of health, although her countenance was remarkably white and exsanguineous, her entire aspect thin and worn, which, however, she said was natural to her.

A fleshy, wartlike tumour, red, and but slightly elevated, soon presented itself upon the conjunctiva, near the cornea, on the temporal side. This gradually extended itself, involving the globe and destroying the sight, which last was totally lost, about eight months after the disease commenced. The eye, at the time of her admission, was not much enlarged, nor was the pain considerable up to about four months before admission, from which date, however, the pain, which at first was of a tingling, burning kind, was exchanged for sharp and lancinating shooting from the eye, through the temples, towards the occiput. The growth of the tumour she describes to have been rapid within the last named period. The upper eyelid was tumid, and felt soft and puffy to the touch, it projected considerably beyond the range of the superciliary ridge, carrying with it the tarsal border, by which means about one-third of the tumid globe was exposed. The conjunctiva covering the eye was highly chemosed, as was also the conjunctiva palpebræ: no adhesion had taken place between the lids and the eye itself, nor did the secretions, which they poured out in abundance, appear to have undergone any change from the healthy state. The cornea was opaque, and was involved, to nearly one-half its diameter, in indurated, flesh-like tubercles, which seemed to have taken possession of the entire of the anterior circumference of the globe, as

far backwards as the finger could discover. A small portion of the cornea, towards the internal canthus, was tolerably clear, but the pupil could not be seen.

The eye was extirpated on the 20th of August, ten days after her admission. No regulation of her health appeared to be necessary, beyond a cathartic or two, and suitable diet.

The several steps of the operation were conducted on a plan similar, in all respects, to what has been already detailed: in this case the smaller size of the globe opposed but little obstacle to its removal. On cutting into the tumour already described in the upper eyelid, about half an ounce of perfectly black fluid flowed out, and having removed the ball of the eye, the entire of the back part of the orbit, especially towards its superior aspect, was found occupied by the same kind of matter. The optic nerve was free of all cellular connexions, and appeared to float in this melanotic fluid. The nerve was not thickened, but near its point of union with the globe, it was lessened in size and corroded in two places, so as to break before the scalpel in the act of dividing it.

The scirrhus indurations of the globe did not extend so far backwards as the entrance of the optic nerve. The entire of the cells of the vitreous humour, or more properly speaking, the entire of the sclerotic coat was filled with black fluid, in all respects like that already described. The lachrymal gland was partially indurated.

The case progressed without an untoward symptom: the pain left her head a few hours after the operation, and she was discharged well, on the 15th of October, little more than one month from the date of the operation. A small ulcer, not larger than a four penny piece, remained open at the time. On the 20th of December following, however, she presented herself at the Infirmary, with cancerous ulcerations and scirrhus thickenings of the skin of the temple, both eyelids, and a portion of the cheek in the neighbourhood of the external canthus: the same diseased appearance took possession of the neighbour-

ing parts of the socket to nearly its bottom, but there was no recurrence of the melanosis. The poor woman, on being told that nothing could then be done for her, returned to her home, and as I was informed, died about three months afterwards.

CASE IV.—Michael Monaghan, labourer, æt. 65 years, was admitted into hospital, February 6th, 1838. His hair and complexion were remarkably dark coloured, and his body and limbs were covered with an unusual quantity of long black hair: he was thin and worn, so much so, it was with difficulty he walked to the hospital, a distance of one mile. The following report was noted at the time. About eighteen months ago he first lost the sight of his right eye, from what appeared to have been cataract. Six months afterwards he first perceived what he calls a pearl upon the cornea, near its circumference on the temporal side; this remained stationary until about four months previous to his admission, from which time it grew rapidly, accompanied by pain, which he describes as if pins and needles were stuck into the eye about the external canthus, and this increased in intensity as the disease advanced; the pain he describes as being much worse at night than by day, never extending itself beyond the eye, temple, and forehead. At present the eyeball protrudes in an irregular, tuberculated form, outside the eyelids, which appear free from adhesions to the globe, as also from disease. The upper lid covers about a third of the tumour, is red and slightly œdematous. The under lid is not visible without raising the diseased mass which hangs upon and over it. The tumour is of a dark reddish colour, discharging fœtid darkish ichor which excoriates the cheek. The cornea can be seen, imbedded, as it were, in the disease; it is tolerably clear, except at its outer aspect, where the disease is said to have originated, and it is pushed towards the internal canthus, so as to be in part concealed by the caruncula lachrymalis. The tumour is about the size of a small orange, not very sensible, unless when pressed forcibly, but it is firm and unyielding to the touch.

The operation of extirpation was performed at his anxious desire on the 12th of February, at which time the appearance of

the disease was noted. On the anterior hemisphere, especially towards the external canthus, not a vestige of normal structure could be recognized, the hardened, fleshlike tubercles which presented themselves externally, formed the walls or boundary of a mass of softened black matter, about the consistence of thick flummary. The cornea alone for about one-half its extent on the inner side remains intact; the same power of resisting the disease was remarkable in the lower jaw bone, which lay imbedded in it, and was stripped of periosteum as far forward as the angles of that bone; the bone itself being perfectly intact. Not a vestige of the internal structure or coats of the humours could be discovered, unless at the back part, near the entrance of the optic nerve, through the sclerotica, where that coat, for a small space, appeared healthy, as did the nerve also, except in two points near the globe, where it was thinned, so as to break before the finger, which it did during the operation when feeling for it previous to its division by the knife. A few hardened pieces of cellular substance were removed from the orbit, but the chief part of that cavity was occupied by melanotic matter, in all respects resembling that which I have described.

The pain left his head a few hours after the operation, and he progressed to a perfect recovery, without an untoward symptom. The orbit had healed by the end of five weeks, yet he was observed not to be regaining either his flesh or strength. Two months after this period, and somewhat more than three from the date of his admission at the infirmary, he complained of pains in his back and legs, he was harassed with a trying cough; his abdomen, especially towards the hypochondria and epigastrium, was tender to the touch, and thus, in despite of every means used for his restoration, he gradually sunk and expired; apparently from exhaustion and without pain.

The body was examined ten hours after death, when the following appearances were noted :

Extreme emaciation, without a tendency to the effusion of fluid into any part of his body or limbs.

Five circumscribed black tumours were counted upon his chest and abdomen; those varied in size, from that of a small pea to a filbert nut. When cut into, some condensed cellular substance in the shape of a cyst was found to surround them, but no connexion could be discovered between these cysts and the contained pastelike matter which resembled the contents of a decaying lycoperdon (puff ball) rendered cohesive by a small portion of liquid. Its colour was deep brown, it was not fibrous, nor had it any appearance of being organized.

Brain.—The brain was remarkably firm and pale, no melanotic deposit was discovered in any part of its substance or membranes. The ventricles contained no fluid. The optic nerve, near the foramen opticum, was small, firm, and contracted; some slight adhesions, apparently the result of inflammation, were evident at this point.

The orbit, which was the seat of operation, was partly filled up with what looked like healthy granulations. All the bones forming the walls of the orbit were perfectly healthy.

Chest.—The lungs presented a most extraordinary appearance, their surface being dotted over by a number of melanotic tumours of various sizes; one was as large as a hand ball; all of them were perfectly circular in shape, and lay immediately under the pleura, from which they derived a partial covering or capsule, varying in extent in proportion to the size and prominence of each. No capsule could be discovered on the posterior aspect of these tumours, but the lung in their immediate vicinity was softened, and became more or less black. Several vomicæ were discovered in the upper lobe of the right lung, and tubercular deposits had taken place in the left lung. The number of tumours found in this part of the dissection was nine. The pleura costalis, heart, and great blood-vessels were perfectly healthy.

Abdomen.—The liver was about its natural size, but had four large melanotic tumours upon its convex surface ; those lay under the peritoneal coat, and were in all respects similar to those found upon the lungs ; one of those near the great fissure was as large as a turkey's egg, and projected above the level of the liver about one-third of its entire bulk. The colour of the liver was light brown, approaching to what is familiarly known by the appellation of the drunkard's liver.

No other organ appeared to be diseased, but on removing the liver a large tumour was discovered to have descended between the crura of the diaphragm, on opening which a large quantity of thin pus was discharged, and it was discovered to have originated from a disease of two of the dorsal vertebræ, the fifth and sixth.

The malignant diseases of the eyeball are considered by most authors* to be three in number, viz., cancer, fungus, and melanosis ; the two former existing as distinct affections ; the latter frequently associated with either of the others.†

The first is distinguished as attacking the old ; making slow progress ; seldom attaining a large size ; being accompanied by lancinating pains ; and eventually extending to the eyelids and lachrymal glands, and presenting at last a true cancerous ulceration. Such a tumour, on extirpation, so far from presenting anything like a fungous or medullary substance, is found to be extremely firm, and of such a fibrous or striated texture, as to merit the name of scirrhus.

Fungus hæmatodes, on the contrary, usually attacks infants and young persons, running quite another course, clearly divisible into three stages. In the first the pupil is dilated and im-

* M'Kenzie, *Op. Cit.*

† Roupel, as quoted by Andral, speaks of ulcerated cancer of the mammæ secreting melanotic matter. Dr. Carswell says it is more frequently combined with carcinoma, than with any other disease, but gives no examples of such in the eye.

moveable, having at its bottom a peculiar yellow, metallic appearance, and the form of the ball is unchanged. In the second stage, the sclerotic coat has become discoloured, and irregular on the surface; the eye, more or less fixed, appears enlarged and ready to give way, and pain and inflammation have set in. In the third stage the tumour has forced its way through the sclerotica or cornea, covered for a time by the conjunctiva, it grows with great rapidity, and appears as a dark red fungus, irregular on the surface, soft, readily torn, and bleeding profusely on the slightest irritation. A section of such a growth displays a brownish white substance, nearly destitute of fibres, and resembling brain in consistency and appearance.*

Melanosis of the eye presents few symptoms peculiar to itself as a distinct affection. It is described† as commencing with inflammation of the ball and pain in the head, succeeded by amaurosis, opacity of the lens, and enlargement of the globe; but it is not until the adventitious production, so characteristic of the disease, has forced its way through the tunics of the ball, that the nature of the malady can be determined.‡ At that period, however, dark, livid tubercles show themselves on its surface at various points, soon degenerating into a black, fungous mass, which quickly ulcerates, sloughs and bleeds, distending the lids, and forcing its way between them. The discharge usually consists of a thin, dark-coloured ichor, or of a dark coloured thick fluid. Portions of the diseased structure are occasionally separated, as if nature made an effort to rid herself of it, the process being accompanied by great pain in the head, and constitutional irritation. Should the disease remain

* The word fungus hæmatode in France denotes the nævus or aneurism by anastomosis of the English writers. Dr. Duparcque alone appears to have distinguished this from other malignant diseases of the uterus.

† M'Kenzie.

‡ Mr. R. Smith says (*Medical Press*, vol. v. p. 148), those tumours incline most towards the temporal fossæ.

uncontrolled, it generally extends to the brain, and the patient dies comatose.*

On examination after removal, all traces of normal structure are said to be lost in the morbid mass, the greater part of the cut surfaces present a deep sooty colour, more or less intermixed with black or brown. It is obvious, that this account of the presence of fibrous or brain-like matter, mixed up with melanosis in its solid or fluid form, applies to a combination of that disorder with fungus or carcinoma.

The child Kinahan presents a good example of medullary fungus in its third stage, or when the disease, after having existed longer than the patient or his friends probably were aware of, had burst through the coats of the eye, and acquired free liberty for its development and unrestrained growth. The ill success which has been the general result of similar operations to this, where fungus existed free of all combinations, was not different here. The coexistence of melanosis, however, does not appear to have exercised any influence as to its nature or its termination.

Although Mr. Travers gives a case of happy extirpation of the eye, in a child of eight months old, where the disease had not reached beyond its first stage; yet, as effusions of lymph within the eye may give rise to a deep-seated shining opacity in the pupil, which, says Mr. Laurence, "cannot be distinguished from medullary fungus in the same situation," the nature of the disease, in the case alluded to, may fairly be questioned. Very nearly all the cases recorded by Wardrop, Travers, and others, relapsed.†

The case of Donnelly, No. 2, presents an admirable specimen of melanosis of the punctiform, tuberiform, and stratiform kinds, combined in one mass. (See Plate). The ligamentous

* Dr. Carswell, *Op. Cit. Fas. No. 3, Art. Milan*.

† See a review of cases recorded in a Clinical Report by Dr. Ballingall, 1828. *Johnson's Journal*, April 1st, 1828, p. 258.

degeneration of the sclerotic coat was obviously of the staphylo-matous kind. The entire history of the case forbids the idea that it was either cancer or fungus. It is also worthy of note, that the melanotic deposit, although it was of considerable duration, yet exercised no other influence over the disease, than might have been expected from its bulk.

Cases III. and IV. are examples of melanosis combined with cancer or scirrhus of the globe of the eye. In the former case the melanosis was probably of long standing, and had arrived at the third stage.

The case of Monaghan, No. IV., exhibits a striking illustration of the strongest tendency to melanosis of the tuberiform kind, and although he survived beyond the period when cancer usually recurs, after an unsuccessful operation, there was not the slightest appearance of any such disorder in the neighbourhood of the original disease, nor any other part of his head or body; nor did the melanosis recur in or near the eye; his brain was perfectly free from any such deposit. The extreme emaciation of this poor man, coupled with the sallow, almost black aspect of his skin, and the extreme debility of his whole frame, gave slender hopes of a favourable termination; and yet, *quoad* the operation and its consequences, the result was successful: his death was not in any measure attributable to it, on the contrary, the consequent exemption from pain and suffering rendered the last few weeks of his existence comparatively comfortable, and probably enabled him to support life longer than he would otherwise have done.

The *corrosion* of the optic nerve in both those cases I shall not attempt to explain; pressure would seem to be the probable cause, unless we suppose the existence of some corrosive property in the matter of melanosis, which no chemical analysis has hitherto discovered; or admit with Laennec its distinct vitality, as Mr. Carmichael supposes the matter of cancer and tubercle to possess a distinct life, analogous to that of the parasitical ani-

mals, found in the livers of hogs and sheep.* The latter gentleman thus expresses himself:—"Laennec is equally decided respecting the independent vitality of tubercles, and although opposed by Cruveilhier, Majendie, Lombard, Carswell, and others, I am persuaded that future pathologists will adopt these opinions. Dr. Baron, in his work on Tubercular Accretions, is obviously another supporter of this doctrine, which I understand is every day gaining proselytes, but particularly amongst the searching and indefatigable pathologists and naturalists of Germany, so that I feel in no small degree strengthened in a doctrine, which I espoused as long ago as 1806, when the first edition of my essay on Cancer made its appearance, and in which I had no predecessor but Dr. Adams, who suggested my theory, though in the details I differed widely from him."

An operation at any period of that dreadful malady may be fairly questioned, but the period at which it may be hazarded in cancer, involves a question of much practical importance. The simple fact of melanosis not relapsing in any of the cases I have recorded, is at once a proof of its non-malignancy, and, consequently, the light estimation in which it may be held as regards the issue of an operation.

Mr. Carmichael assures us with great confidence, he can, with almost unerring certainty, point to those cases of cancer which forbid an operation. "There are, he says, indications which point out sufficiently well, when cancer has not a local but a constitutional origin, and, therefore, prohibit in such cases any attempt at extirpation. These signs are a delicate, sickly appearance, but above all, a peculiar pale, anæmic countenance, inclining rather to a blueish or leaden hue, as if the blood had not been duly oxygenized."

Those observations seem to apply to extreme cases, where the experienced eye can see the *probable* taint of the constitution. He cannot mean, as his words imply, that there are some cases

* Medical Press, Feb. 5, 1840.

of cancer which have a local, and some a constitutional origin, and that he is able, through the aspect of the countenance, to foretell to which of these, each case individually belongs. Without meaning to dispute the force and fidelity of those impressions on Mr. Carmichael's own mind, it must be confessed, he has failed in communicating to others this very important knowledge, for who is there who has not seen the operation of extirpation of cancer successful where the patient was worn by pain and suffering? and, on the other hand, are we not in the habit of seeing cancer relapse when the operation had been undertaken before the constitution appeared to sympathize or suffer in any material degree?

The case of M'Cabe gave confident hope of a favourable termination, the cancerous disease not having extended itself beyond the front part of the globe; her general aspect was fair and "anæmic," but it was not possible for the most experienced eye to discover the least inclination to a "blueish or leaden hue," and although her appearance and that of Kinahan favoured Dr. Carswell's hypothesis as regards the origin of melanosis,* yet the other cases, especially that of Monaghan, are opposed to it, as the latter is, in a remarkable manner, to that of Mr. Carmichael.

It is said by Dr. M. Hall, that "melanosis generally affects persons of more advanced ages than phthisis, and instead of the hectic and emaciation of phthisis, there is a disposition to

* "The much greater frequency of melanosis in the grey and white, than in the bay, brown, or black horse, is a circumstance which may be noticed here as favourable to the theory, which ascribes the origin of the disease to the accumulation in the blood of the carbon, which is naturally employed to colour different parts of the body, as the hair, rete mucosum, choroid, and other parts. This theory is supported by the results of the chemical analysis of melanosis, as well as by the facts derived from the consideration of the physical and anatomical characters of the disease, both of which also concur in confirming the opinion I have expressed regarding its seat and mode of formation."—*Dr. Carswell, Op. Cit.*

cachexia and anasarca.”* This statement is not borne out by the cases which have fallen under my observation.

As regards the operation of extirpation of the eye, I would say, that a simple scalpel is all that is required for its performance; the fingers and thumb of the left hand of the operator, serving in place of a forceps, but, for the division of the optic nerve, where the disease has acquired considerable bulk, I think that part of the operation will be performed best by a knife with a lateral curve. I have never found it necessary to transfix the eye in order to keep it steady under the operation, this however, may be done or not, at the will of the operator, but what I deem of great importance in this, as in all deep wounds in the neighbourhood of important organs, or extensive mucous or serous surfaces, is the speedy removal of charpie or lint, where such have been used to restrain bleeding. A piece of lint torn longitudinally, and laid in the wound, fold upon fold, may be removed at once with facility, from eight to twenty-four hours after the operation, at which time it will have accomplished all it was intended it should do, and it will not, as it otherwise might, act as a foreign body, and excite the consequent inflammation beyond proper bounds. Water dressing, with or without light stuffing of oiled lint, as the case demands, is all that should be afterwards used.

A Case of Fungus Hæmatodes of great Size, extending itself within the Cranial Cavity, without Pain, and unaccompanied by Paralysis or any manifest Disturbance of the Mental Faculties.

H. O. R., æt. four years and three months, the only son of a gentleman of fortune, possessing health and intellect, beyond most children at his time of life, was first observed to be fretful and unwell about Christmas, 1837. He seemed to have taken cold, his spirits became depressed, his breathing, especially at

* Lancet, May 26th, 1838, p. 278.

night, was somewhat laborious, arising apparently from a cough, there being a slight discharge of white mucus from his nares. It was observed at this time, that although he entered into, and enjoyed his usual amusements out of doors, he was not easily pleased, and his legs and feet were frequently cold. About this period I first saw him sleeping, he lay upon his face, snored deeply, and at the same time was easily disturbed. Some trifling derangement in the secretions from his bowels was easily rectified, his diet was regulated, and his feet ordered to be kept warm.

January 20th. The above symptoms have progressed, he is evidently weaker, his flesh is soft and wasted, his skin arid, still, however, he enjoys his toys, especially in the early part of every day. He goes into the open air, but refuses to walk as heretofore. His attendants observe there is something odd, a slight cast and drooping in his right eye and lid; on close inspection, the strabismus was of doubtful existence, but the upper eyelid was obviously turgid and drooping. His pulse from the commencement was slow, it was at this time 65 in a minute, feeble and irregular.

Some apprehensions were now entertained that hydrocephalus was the cause of these symptoms, a small blister was accordingly ordered to his neck, and other medicines given calculated to combat such an occurrence.

25th. The doubtful appearance of his eye is now more decided; the upper lid covers two-thirds of the ball, and is immoveable, the eye is turned upwards and remains fixed in that position, the iris acts but sluggishly under the impression of light. No shade of colour is observed in the pupil. About this period the remissions, already alluded to, became more marked, in the morning from 6 to 10 or 11 o'clock, he was cheerful, and enjoyed his toys, the remainder of the day and night he lay, as already described, upon his face, his mouth wide open, no air appeared to pass through his nose. From the commencement the sense of smell was absent. The sense of

hearing, however, was now so acute, the lowest whisper was heard by him at a distance which surprised his attendants. His complexion varied, at one time it was high-coloured, but more frequently pale.

Up to this period, he did not complain of the slightest pain in his head; when asked the question, he now and then said his head ached. His legs and feet are now heated with difficulty, pulse 62, feeble and irregular. It is observed that the two front incisor teeth in the upper jaw stand apart, but some doubt exists on the point.

February 2nd. I was summoned to visit him, his sight having been suddenly lost. I was informed that the preceding morning he told his attendants he could not see objects, and this was manifest from the manner in which he took hold of any thing presented to him; his sight, however, returned in the course of the day, but again went suddenly about 8 o'clock the following morning. Both eyes were now fixed and immoveable, with the lids hanging over them. The pupils were perfectly clear. The iris acts in a most irregular manner, at one time appearing to obey the impression of light and again not.

No doubt remained of the separation of the teeth, and a dark-coloured tumour was now discovered occupying the line of the palatine suture; it is firm and elastic to the touch; passing the finger backwards the soft palate is found to be thick and firm, giving the sensation of softened leather. The fungoid nature of the disease was now apparent. From this period all the symptoms advanced rapidly but with regularity; the tumour in the palate extended itself so as to protrude outside the mouth to the size of a goose egg; the eyes lost their brilliancy, for which in health they were remarkable, and were converted into two dark-coloured fungi, protruding in a hideous manner outside the lids; his nose was flattened and spread out upon the front of the tumour, not the slightest elevation or prominence appearing in its place. The nasal and malar bones could be distinctly

felt floating wide apart, upon this spongelike mass of disease. His head was thrown back in order to straighten the passage of air through the trachea and mouth. Liquid food was passed under the tumour and upon his tongue, and although somewhat difficult, the act of deglutition was performed with amazing facility, and what is perhaps equally surprising, he could articulate intelligibly, and in this state was sometimes jocose; his mental faculties remained perfect to the last; he spoke, asked for food, which he took, and gave directions to have his feet warmed a quarter of an hour before he expired, which event took place on the 22nd of March, about three months from the earliest indication of disorder. (See Plate).

Autopsy.—The skull-cap was remarked to adhere with morbid force to the dura mater, by means of exsanguineous ligamentous bands, rather than blood-vessels. The surface of the hemispheres presented a number of blood-vessels, and the arachnoid and subarachnoid tissues had lymph effused in several places. The brain itself was remarkably firm, and on cutting into its cortical parts and the corpus callosum, innumerable red dots marked its high degree of vascularity. The ventricles contained a small quantity of serum, but their walls appeared healthy. Having raised the anterior lobes of the cerebrum, a firm elastic tumour, covered by dura mater, presented itself, occupying the entire extent from the anterior edge of the cribriform plate of the ethmoid bone, to the foramen magnum; in extent and bulk it was fully equal to the segment of a goose egg, being convex towards the brain. In raising the dura mater, which adhered with great tenacity to the subjacent disease, a pale, whitish-looking mass, but little elastic, and in some places semi-cartilaginous, was seen; a section of the tumour displayed some black spots or patches of equal density with the rest of the disease; no trace of bone or other part of the normal structure of the parts appeared in it.

The sutures between the temporal and malar bones were open on both sides, as were all the sutures of the orbit and face; the coronal sutures also gave way, allowing the os frontis to

move backwards and forwards with facility, carrying its orbital process with it, and being perfectly intact, as were all the bones of the orbit, the os planum and os unguis excepted; no trace of these could be discovered. The disease as it presented at the eyes and mouth, was less firm and darker-coloured than elsewhere. The eye itself was totally disorganized, some black matter, which seemed to correspond with the choroid coat and the pigmentum nigrum, was found in the centre of this part of the disease. The nasal bones were perfectly sound, as were the malar and petrous portion of each temporal bone; these last seemed to have a peculiar power of resisting the disease, as they lay surrounded by it. The seventh pair of nerves passed over the tumour and was untouched by it. Some encroachments must have been made by the tumour in the direction of the crura cerebri, but here, as towards the cerebrum and cerebellum, where the greatest convexity of the tumour lay, no mark of undue pressure nor disease could be discovered, beyond what has been recorded, of the other parts of the brain.

The open state of the sutures will explain, in some measure, the manner in which the brain eluded the ill effects of pressure, which must otherwise have taken place owing to the encroachment of the disease upon the cranial cavity; yet as the necessity for this change must have been antecedent to it, and can only be explained on mechanical principles, it is not easy to account for the almost total absence of functional disturbance and pain in this case. Dr. A. Colles who saw this boy after the nature of the case was apparent, informed me of a case, which fell under his observation a short time before, in which, at an advanced period of the disease, in one of the extremities I think, there was no pain from the commencement to its termination. (See Plate).

Thus, we find this disease occupy the entire space from the base of the cranium, a considerable portion of the cavity of which is filled to the mouth, nose, and eyes, finding its way into the frontal sinuses, the antrum of Highmore and pharynx; convert-

ing into its own nature all the soft parts within its reach and the following bones : the entire of the ethmoid and sphenoid bones, except the temporal wings of the latter ; the superior maxillary bone, except its orbital plate, nasal processes and the sockets of the teeth, which last were untouched ; the basilar processes of the os occipitis, the os unguis, part of the palate bones, and all the spongy and turbinated bones.

Malignant Osteo-Sarcoma of the lower Jaw Bone ; Excision and Disarticulation thereof.

Anne Lynch, æt. 47 years, was admitted into the county of Meath Infirmary, June 2nd, 1828. The report taken at the time runs thus : “About twenty years ago she thinks her jaw bone was fractured in the operation of extracting the last molar tooth on the right side ; a small tumour soon after formed in the site of this tooth ; for the succeeding seven years she enjoyed good health, and suffered but little pain from it : twelve years before her admission at the Infirmary, the part was irritated by a pin which she put into her mouth, becoming imbedded in the part, where it remained for about a fortnight ; from this period the tumour extended itself, but so slowly as to give little inconvenience up to the month of May last.” The following appearances were noted at the time of her admission.—“The right jaw and side of her face considerably enlarged, the soft parts, however, appear to be perfectly healthy, the disease is confined to the bone, from the alveolar process of which has sprung up a fleshy, wartlike, fungous growth, occupying the space from the second molar tooth, which is reported to have fallen out, to about the angle of the jaw. Caustic was applied to this diseased growth, and having occasion to return to her home, she was discharged, and did not again return until the October following, when it was observed that her general health, which had suffered in a slight degree previously, was now fast declining. She looked sallow and worn, cachectic, her nights were restless from repeated paroxysms of sharp, lancinating pain ; the tumour had

increased considerably, and the flesh-like excrescence already described turned inwards upon the tongue, impeding in some measure articulation and deglutition ; the tumour bled on touching it, and gave out a thin, foetid sanies.

Having decided upon the removal of the disease, the operation was performed on the 6th of October, in the following manner :

The patient being seated in a chair, with her head thrown backwards, inclining to the left side, and supported by an assistant, the incisor tooth on the affected side was extracted. Having divided the prolabium and soft parts down to the bone, in a line with the socket of the extracted tooth, the incision terminated about a quarter of an inch below the chin. The next incision commenced a little anterior to the lobe of the ear, and terminated over the angle of the bone, about a quarter of an inch from its lower margin. Those two incisions are united by a third, extending from the last-named point to a like point of the first incision. Having divided the bone with a common amputating saw, in a line with the first incision, the integuments and muscles are dissected upwards towards the mouth, and downward upon the neck, so as to disengage the tumour as far backwards as the angle of the jaw, where the bone was again divided by a chain saw passed close to the bone from below upwards, and worked from within upwards and outwards. A few strokes of the saw were sufficient to effect the division, the bone being found to consist of a thin shell only at that part. As the entire of the disease was not included in the detached piece, it was deemed necessary to remove the ramus with the articulating extremity of the bone, and accordingly the temporal muscle was first divided at its attachment with the coronoid process ; to effect this the bone was depressed by the fore-finger and thumb of the left hand, and thus the pterygoid muscles and capsular ligament were subsequently divided. Some delay and difficulty arose at this stage of the operation, but were speedily surmounted by fixing a strong hook into the articulating extremity of the

bone, upon its anterior aspect, and thus forcibly drawing it forwards, rupturing its posterior adhesions, and avoiding the necessity of cutting in so perilous a position. No compression was made upon the carotid artery, nor was it in any way molested. The divided extremities of the facial and transverse facial arteries were secured ; there was but little venous hæmorrhage, and the patient lost altogether about ten ounces of blood. The lips of this hideous wound were brought together by a few stitches of the interrupted suture ; no charpie nor lint was put into it. She bore the operation well, although it occupied a space of twenty minutes in the performance, and she afterwards walked from the operation room to her bed. Water dressing to the wound and an anodyne draught were ordered.

Two hours after the operation I was summoned to visit her, on account of bleeding, which, however, proved to be but trifling, and was easily arrested by directing a current of cold water to the part for an hour or two.

Examination of the Disease.—"The bone is enlarged to about the size of a turkey's egg, but of an irregular oblong shape, extending from the first molar tooth to the articulating extremity of the bone ; the greatest size being about its centre. The bone is hollowed out, so much so as in some places to be as thin as paper, and it was totally absent on the aspect of the alveolar process, which was occupied by the foul excrescence already described. This latter was continuous with and sprung from a mass of disease of the following description, which occupied about two-thirds of the cavity above described. Its surface in some places exhibited an extremely minute arterial vascularity ; smooth, but irregular and tuberculated. The part traversed by the chain saw was made up of soft, brain-like matter, combined with a more firm granular substance, containing various cysts, the walls of which were made up of spiculæ of bone, so firmly compacted together in some places as to resist the scalpel, whereas another of those bony cells, or it might be a portion of one only, allowed the knife to

pass freely through it, presenting in those places a semicartilaginous appearance. Those cysts contained a firm, white, gelatinous substance, which, however, was easily removed, leaving the walls or internal surfaces smooth, white, and irregular." See the accompanying plate, which was taken from a wax cast now in the Museum of the College of Surgeons, and was executed from the recent specimen, under the eye of the late Dr. J. Browne, who was present at the operation, and gave me the benefit of his valuable assistance.

This affords a good specimen of encephaloid cancer, combined with calloid (*matière calloid* of Laennec, *cancer gelatiniforme* or *areolaire* of Cruveilhier), a combination by no means common; and if we believe those who assert, that encephaloid carcinoma always relapses,* a favourable termination might not have been expected in this instance.

The above was the fourth operation of excision and disarticulation of the lower jaw bone performed in Ireland, and the first and only one ever performed in the provinces.†

Cases of this kind are comparatively few in number; yet this achievement of modern surgery has been undertaken, and, for the most part, successfully executed, in several instances where the nature of the disease and the condition of the patient were favourable. It has been performed three times by Mott of Philadelphia; three times by Mr. Cusack, at Madame Stevens's Hospital, Dublin; once by M. Gansoni, at Lyons; and once or twice by Graffe of Berlin; once at La Pitié; once by

* *Cyclopædia of Practical Surgery*, p. 640.

† Some explanation seems necessary, not having published this case sooner. It did not at that time seem to possess any new features of interest, either as regarded the operation itself, or the disease for which it was undertaken; the one appeared sufficiently plain, and the other so unintelligible as to admit of no illustration from an apparently isolated case; passing events, however, seem to have rendered it of interest in both ways, and by postponement it has the additional value of my being able to say, that the subject of the disease is now, eleven years after the operation, in good health.

Mr. Hetling, Bristol ; once by Mr., now Sir B. Brodie ; twice, I think, by Mr. Liston ; and once by A. T. S. Dodd, Esq., Chichester.

We are told by Baron Dupuytren, " the boldness of surgeons did not stop here (*Archives General*, tom. xiv.), that Walther and after him Graff (*Journal Hebdomadaire*, tom. iv.) have removed the whole of the lower jaw bone by disarticulating it on both sides ; Walther had previously tied both carotid arteries : " these facts, he adds, " appear almost incredible."*

Baron Dupuytren himself, however, was the first surgeon who removed a portion of the lower jaw bone in the year 1812. Since that period several cases of this minor operation have been recorded. The most remarkable are, first, a case by M. Lalumière, at the Saint Eloi Hospital ;† it is styled a " bold and bloody operation," the patient having nearly expired from loss of blood and retroversion of the tongue upon the pharynx and epiglottis. The bleeding was arrested by the actual cautery ; the operation of tracheotomy was performed, and thus the patient's life saved. Cases by Mr. Cusack, and Mr., now Sir P. Crampton,‡ Lisfranc,§ Delpech, Mr. Leland,|| Liston,¶ and a case by Dr. Bull, of the South Infirmary, Cork.** Notwithstanding the great majority of the above cases proved successful, still, strange as it must seem, the operation is regarded by many, especially in France and Germany, as affording slender

* *Lancet*, Oct. 1833, p. 61 ; *Journal Compliment Mars*, Oct. 11, 1823.

† *Journal of Dr. Johnson*, July 1st, 1830, p. 550.

‡ *Dublin Hospital Reports*, vol. iv. § *Rep. Hosp. Perfect*. No. 9, 1827.

|| *Lancet*, Oct. 1833, p. 61.

¶ *Operative Surgery*.

** *Lancet*, Sept. 28th, 1839. Dr. Bull claims the honour of being the first provincial surgeon in Ireland, who excised the inferior maxilla ; Dr. John Colvin, however, informs us (*Lancet*, Oct. 26th, 1839, p. 164) of that operation having been performed by Dr. Robinson, of the Armagh Infirmary, assisted by himself, upwards of seven years previously ; but as the only incident in the case worthy of note was the " breaking of a very expensive and finely fabricated chain saw," the honour of having performed the most interesting operation may fairly be awarded to the former gentleman.

hopes of escape for the unhappy patient; we are told, for example, the operation should not be undertaken but to dispel the gloom of utter despair: "Pour les dérober à cette terrible extrémité (desespoir) que nous croyons le chirurgien autorize à opérer."*

This opinion was expressed in 1824, and, although dissented from at the time by Delpech, no formal denial of it has since been given in that country; the great majority of pathologists still admit the incurable nature of osteo-sarcoma, and without pointing to any form or period of that disease when the operation of excision was likely to be successful, have confounded it with other diseases, such as spina ventosa, epulis, exostosis, fungus hæmatodes, and carcinoma.

Some explanation of this fact may be found in the acknowledged difficulty of the subject, and a too great eagerness to reduce this class of disease to the level of some preconceived theory, and thus render our nomenclature unintelligible, and worse than useless.

It is believed, for example, that fungus hæmatodes and cancer may lapse alternately into each other; that both may have a benign or malignant origin, and without giving clear or distinctive notions of either, we are told that no age, sex, nor condition of body exempts from their invasion. In confirmation of this position, I would refer to the works of Andral, Cruveilhier, Heusinger, Muller, and others; and as a proof that those opinions are not confined to France and Germany, I would point to the systematic arrangement of Dr. Carswell, as being English, and based upon anatomico-pathological principles, it may be regarded as the freest from objections of every kind. "Numerous examples," he says, "might be given of scirrhus, medullary sarcoma, and fungus hæmatodes, as they are commonly called, originating in the same morbid state, and passing successively from the one into the other in the order in which I have mentioned them.

* Histoire des progrès récents de la Chirurgie par R. Richerand.

Who can glance at the above authorities, and contrast their sentiments on this subject with the recorded cases of osteo-sarcoma of the lower jaw bone, and not be struck with the triumphant refutation which these facts afford of those opinions, especially as regards fungus hæmatodes and cancer? Who, for example, will be so bold as to assert that he ever saw malignant fungus of the head or face cured permanently by operation, or any other means?*

And it is equally difficult to contrast the pathological specimens of cancer of the bones to be found in our museums, and painted by various authors, with malignant osteo-sarcoma of the lower jaw bone, and refuse our assent to the opi-

* Graffe, it is said, has often extirpated fungus hæmatodes, without any relapse having occurred for sixteen, eighteen, and twenty years. *Gazett. Med. de Paris*, p. 170, Mar. 1835. This statement appears incredible, and, no doubt, those and like cases, said to be malignant fungus, and reported to be cured by operation, were either mild or malignant osteo-sarcoma, previous to the contamination of the soft parts, or fibrous erectile tumours growing from the periosteum, or the lining membrane of the antrum of Highmore. This proposition becomes more probable by referring to the cases cured by the excision of the superior maxillary bone, as first proposed by Gensoul, and practised by Mr. Syme, Guthrie, &c. See also cases by Makenzie (*Treatise on Diseases of the Eye*, edit. 3, 1840, p. 68), where the eyes were displaced by tumours of the antrum, said to be fungus. The patients, however, were restored to sight and health, the morbid masses having been removed.

No physical change is here reported to have taken place beyond what might be ascribed to the effects of mechanical pressure; whereas malignant fungus (such as I have recorded) converts all soft parts and most of the bones which come in contact with it, into one "strange distempered mass," partaking of properties, however, which cannot be mistaken as belonging to that malady, which hitherto has bid defiance to human art.

An old medical friend, Dr. Colles, rich in honours as in years, conversing on this subject lately, related the following anecdote, illustrative of the tact well known to exist amongst surgeons in this country at present relative to this subject. The late Surgeon M'Evoy, of Dublin, in consultation with him, then a young man, and at a period antecedent to Mr. Hay's *Essay on Fungus Hæmatodes*, was in the habit of thus diagnosing this disease: "You may operate," he would say, "upon that puffy cancer; it is the custom of the day to do so; but it will surely return and destroy life." Subsequent experience, one would think, was sufficient to remove all doubt on this subject; our wonder is that it has not done so.

nion of Boyer, that cancer and malignant osteo-sarcoma are one and the same disease.

Epulis cannot be confounded with the malignant diseases of the maxillæ but by the most careless and inexperienced. Those tumours are not, even in their most advanced stages, inclined to contaminate the parts in their neighbourhood ; if freely removed they do not return.*

A soft tumour of the gum, rapid in its growth, broken on its surface, and furnishing foetid and bloody discharge, is sometimes, it is said, met with ; there is no danger of mistaking the one kind for the other, the remediable for the malignant ; fortunately the latter is rare ; always appears upon the upper jaw, and is, no doubt, fungus hæmatodes. I perfectly agree in the following statement of Mr. Liston.—“ I cannot recal to my recollection, any case that I have seen of decidedly malignant disease springing from the gum.”†

Spina ventosa and benign osteo-sarcoma, appear to be synonymous terms. The former used by Boyer is most applicable to those cases where the tumour is made up of bony matter, with no contained medullary fibrous or cartilaginous substance, as usually happens when the subject of the affection is advanced in life ; the latter applies to that form, which, when cut into in the early stage of the affection, presents a fibro-cartilaginous appearance, surrounded by a thin shell of bone ; a good specimen of this form of the complaint is well described and figured by Mr. R. Adams, as occurring in the phalanges of the fingers and metacarpal bones of the hand.‡ Similar cases are recorded by Sir Philip Crampton, Sanson, &c.

* See a case supposed to be epulis of great size recorded in the *Lancet*, vol. i. 1836-7, p. 237, and alluded to and figured in the *Medico-Chirurgical Transactions*, vol. xx. p. 198.

• † Liston's *Surgery*, p. 268.

‡ *Cyclopædia of Anatomy and Physiology*. M. Hemizo (*Outlines of Human Pathology*, 1836) speaks thus of exostosis, p. 14: “Osteo-sarcoma is well described by the term Cartilaginous Exostosis.”

It would appear that these cartilaginous degenerations of the lower jaw bone, sometimes described under the denomination of exostosis, frequently assume the form of cysts, and are identical with the benign or mild osteo-sarcoma;* and it may be further remarked, that a striking analogy exists between those structural changes in bone and chronic cysts in the soft parts; such for example as are described by Sir A. Cooper, and found in the breasts of females. This opinion gains weight by a comparison of their essential or elementary properties: but still more by the remarkable fact that both, if left to their natural course, are apt to assume a malignant character at a particular period of life, and under similar circumstances, the one acquiring the nature of scirrhus or cancer, the other malignant osteo-sarcoma. And it is worthy of remark, that, although examples of benign osteo-sarcoma are to be found occurring in subjects considerably advanced in life,† no instance, as far as I know, can be adduced where the malignant form of that disease affecting the lower jaw bone, set in before the twenty-eighth or thirtieth years of age. Sir A. Cooper, speaking of encysted tumours in the female breast, says: "Although these tumours are not in their commencement malignant, and they continue for many years free from the disposition to become so, yet if they remain until the period of the cessation of menstruation they sometimes assume a new and malignant action." He further adds, "but as the scirrhous tubercle is rarely seen under thirty years of age, so does this disease seldom happen after thirty."‡ Sir A. Cooper does not say that those tumours, when malignant, were other than scirrhous, or that any of them having put on these characters ever afterwards changed into fungus hæmatodes.

The following case by Sir Philip Crampton§ affords a good

* See a remarkable case of this kind by Mr. Travers (*Surgical Essays*, p. 174). The patient, Maria Ledwich, was destroyed by the size of the tumour alone.

† Of this kind was the case of Mahony (*op. cit.*) by Mr. Cusack.

‡ *Illustrations of Diseases of the Breast*, p. 63.

§ *Op. cit.*

example of malignant-osteo sarcoma in its most advanced stage. "A man about 50 years of age, who had a large osteo-sarcomatous tumour proceeding from the angle of the lower jaw. Inferiorly the tumour was formed by large, soft, bleeding fungus, not unlike a soft wart, in which the molar teeth were included, and which poured out a sanies having an insufferable foetid smell. Externally the skin was hard, slightly tuberculated, adherent to the tumour, and in parts of a dull purplish colour." &c. It was wisely determined not to operate in this case, but we must regret no report is given of the pathological condition of the bone.

The case I have recorded also affords a good specimen of the malignant form of this disease, before the soft parts became implicated. By contrasting this with those cases where the soft parts are involved, a practical rule of great value becomes apparent, namely, that in the one, excision of the part would be cruel and calculated to bring the science of surgery into disrepute; whereas in the other, even in its most extended form, the soft parts not being implicated, the operation is safe and almost certain of success, provided the patient has sufficient strength to endure it.

The question naturally arises, what are the symptoms of malignant osteo-sarcoma, and how are we to ascertain the precise time when the change from benign to malignant takes place? In the present state of our knowledge, and previous to the appearance of the fungous growth from the alveoli or the implication of the soft parts, our experience of those symptoms which mark cancer in other obscure parts of the body must be our only guide.

The following inferences are fairly deducible from what is known on the subject of osteo-sarcoma of the lower jaw-bone:

- 1st. The disease almost always commences in the cancellated structure of the bone, and has usually, if not always, a cystic origin, which it maintains, more or less perfectly, throughout its entire growth.

2nd. The disease is always (as far as recorded facts go) mild, under the ages of 28 or 30 years, and although it does not necessarily become malignant after that period of life, still it frequently does so; ultimately involving the soft parts in its neighbourhood, and *uniformly* assuming the characters of carcinoma.

3rd. Osteo-sarcoma of the lower jaw-bone is almost always curable by free excision before the soft parts become involved in the disease, which they never do in the benign form of the disease, nor for some time, often several months, after it has changed into carcinoma, or the malignant form.

4th. That cancer of the face, especially the bones, admits of cure more frequently than when seated in any other part of the human frame; cancer scroti, chimney sweepers' cancer, perhaps excepted.

5th. Ligature of the carotid artery is unnecessary previous to, or during the operation of disarticulation of the jaw-bone, as exemplified in Mr. Cusack's cases and mine.

6th. Stuffing the wound with charpie or lint seems to be in most cases unnecessary, and if permitted to remain in the wound beyond eight or ten hours, would most likely excite undue inflammation. No contrivance seems requisite to prevent a retroversion of the tongue upon the pharynx and epiglottis when the bone is divided posterior to the mental attachment of the digastric and anterior fibres of mylo-hyoidei muscles, as will generally be the case, nor will any contrivance prevent the trifling retraction of the muscles of the face occasioned by their division and want of support.