was much disturbed. At the left apex the first sound was still somewhat obscure, but the second was loudly reduplicate without a trace of murmur: the phenomenon had persisted some considerable time.

In a second case, the patient, a young woman, was evidently phthisical; she had recently suffered from violent hæmoptysis: at the base, the second sounds were loudly and distinctly reduplicate; while, at the apex, the second sound was heard clear, single, and defined.

The last case I have to mention, and which has been examined by many competent observers, is so unusual, that I think it right to state it in detail.

CASE. Alfred Adams, aged 24, a coppersmith by trade, of middle stature, slightly built, of dark brown skin and florid lips, had an attack of hæmoptysis five or six years ago. A second attack occurred eight months ago; he thinks a quart of blood was expectorated altogether in this last attack. It occurred at night, and was preceded by cough.

Present symptoms. He has dyspnoea; cardiac and epigastric pain, of burning character on exertion; pain in the arms; palpitation, which has existed for some years; cough, with slight yellow expectoration; great nervousness; morning sickness; he sleeps in the horizontal posture; he has never had rheumatic fever. There is no evidence of renal disease.

Inspection. The chest is symmetrical; the left nipple slightly highest; there is no marked arterial impulse or venous distension. The heart's impulse is observed at, and two inches to the left of the left nipple; it is slight in *epigastrio*; respiration is tranquil during a state of repose.

Palpation. The cardiac impulse is considerably increased (systolic and diastolic); there is heaving, fine diastolic *fremitus*; the apex of the heart is felt two inches to the left of the left nipple. The pulse is of the same character in both wrists, exceedingly irregular and unequal, a few slow, followed by very rapid beats.

Percussion. The area of cardiac impulse is increased both to the left and the right side, corresponding to the visible and felt impulse.

Auscultation. The impulse is slightly heaving; the first sound of crumpling and rasping character at the base (right and left), the apex, and round the axilla; it is less marked in carotids. The second sound repeats itself four times distinctly. This repetition sound is audible at the right and left base, at the aortic and pulmonic cartilages; indeed, all over the anterior surface of the chest, diminishing in the carotids. It extends also from the apex to the left axilla, and is gradually lost posteriorly. This phenomenon has persisted for some time.

With regard, then, to the repetition sound of the heart, I would remark:—

1. It is a phenomenon subject to variation; in one class of cases at times distinct, at others apparently shading into some modification of murmur.
2. It may be either transient or persistent in character.
3. It is very frequently connected with pulmonary irritation.
4. It generally ceases to be audible while the heart's action is accelerated to become again distinct as the heart resumes its average rate of speed.

Skoda is doubtless correct in assuming that in some cases the divided beat is an element of a murmur; but there are certainly numerous cases in which the reduplication at base or apex is so distinct and unmixed with any quality of murmur, that some more comprehensive explanation of its mechanism has yet to be given.

[ERRATA. In the former part of this paper, published on April 25th, in page 337, column 2, line 6, after "blood streaming from the cavæ", read "and pulmonary veins". In page 338, column 2, line 40, for "long", read "bony".]

SURGICAL OBSERVATIONS AND REFLECTIONS.

By JOHN SLOANE, M.D., House-Surgeon to the Leicester Infirmary, etc.

[Read before the Leicester Medical Society, March 10th, 1857.]

I. AMPUTATIONS.

ALLOW me first to direct your attention to amputations. I have for some time entertained the opinion that the common methods of operating in amputations of the thigh, upper part of the leg, arm, and upper part of forearm, and the subsequent treatment usually adopted, are faulty, and may be improved.

Flap amputations are now fashionable; and I fear that we, as medical men, are too apt to be influenced in the treatment of disease by the prevailing fashion; too ready to adopt any plan possessing the charm of novelty, recommended by a distinguished professional brother, who, with his mind perhaps imbued with some preconceived notion, may not have rightly interpreted the phenomena he observed. If I endeavour to point out what, in my humble opinion, are fashionable surgical errors, I feel confident that the members of this Society will not blame me because I dare to differ from the recognised authorities; and that, regarding the disputed questions I shall notice, you will return a verdict in accordance with the evidence.

What are the comparative merits of the circular and flap methods of amputating? I shall allow Mr. Erichsen (whose work on *Surgery* is the most recent) to answer. He says: "Educated in the doctrines of Mr. Liston, who invariably amputated by the flap method, and who certainly did this with wonderful precision and rapidity, I have been in the habit of performing this operation in preference to the circular, over which it certainly possesses the special advantages of greater celerity in performance, more perfect coaptation and smoothness of the opposite sides of the wound, and greater tendency to union by the first intention." That an amputation by flaps may be more quickly performed than by the circular plan, is true; and this was a great recommendation in its favour before the introduction of anæsthetics, but it now has lost its force, as two or three minutes more or less under the influence of chloroform matter little.

Picture in your imaginations a healthy patient whose thigh is being amputated by flaps, for an accident sustained a few hours previously. The following is the course usually adopted. The surgeon, with a laudable anxiety to have the end of the bone well covered, makes the flaps of a good size: he finds that the skin and subcutaneous areolar tissue retract much more than the muscles; but, by exercising a little force, he succeeds in bringing the edges together with several points of interrupted suture. As masses of muscle are bulging through the intervening spaces, long strips of adhesive plaster are applied, to complete the closure of the wound; and round the ends of these are applied two or three additional strips, to prevent them from slipping. There is now considerable tension in the stump; but, in a day or two, the swelling consequent on such an extensive wound has caused the tension to increase to an injurious degree, and the very results which we should expect usually occur. Inflammatory action runs high, causing much pain, and requiring the exhibition of opiates. Union by the first intention rarely occurs. Frequently, about the third day, the surgeon perceives a roseate blush in the lower part of the stump; poultices or hot fomentations are applied; the plasters and sutures are removed. Probably, in a few days more, pus has formed at various points in the limb, to which exit is given by incisions; and more or less sloughing of the edges of the wound has occurred. When the inflammation has been subdued, the flaps are again drawn together by plaster, and they unite by granulation. A large proportion of patients, however, do not successfully pass through this ordeal. Do not misunderstand me. I do not say that all these mishaps occur in every case of flap amputation, but in most we have one or more of them.

"Relieve tension," is a good surgical rule, which we act upon with beneficial results; as, for example, in diffuse areolar inflammation of the hand, where we prevent much mischief by early and free incisions: and, in the treatment of stumps which I have described, effectual measures are taken to relieve the tension, which, it is my firm conviction, would never have existed had a more scientific method of operating, and a more rational mode of dressing the wound afterwards, been adopted.

It is well known that the mortality is much greater after amputations for injury than for disease. In 140 cases of flap amputation at University College Hospital, the mortality in cases of injury was 31 per cent., whereas in cases of disease it was only 19 per cent. The majority of the diseases requiring amputation exist in strumous debilitated subjects; and it is surprising that such extensive wounds should heal better in them than in patients in rude health. This fact may be easily explained. In diseased patients, the muscles are usually atrophied, and therefore there is less tension after the operation.

An analysis of cases of amputation in the Radcliffe Infirmary, Oxford, drawn up by Mr. Hussey, and read by him at the Royal Medical and Chirurgical Society in 1856, powerfully

supports my views. Of 124 cases of amputation for diseases, only 13 died, the mortality being at the rate of 10½ per cent.; and of 56 cases for injury, 10 died, the mortality being 18 per cent. It should be observed that, of 8 cases of amputation of the thigh for injury, 5 died, all the latter being very severe cases, attended with circumstances little favourable to recovery. The operations were usually done by double circular incision, the integument being reflected before division of the muscular substance; and very few were done by flaps, in cases where the soft parts were sound, and admitted of circular incision. Compare these results with those mentioned by Erichsen, where the mortality, as I have previously stated, after amputation for injury, was 31 per cent.; and for diseases, 19 per cent. In most if not all of these cases, the flap operation was performed.

Perhaps I shall be told that, after the flap amputation, there is a much better covering for the end of the bone, which forms a soft cushion between it and the artificial limb; but, as you probably all know, after no operation except Syme's or Chopart's can any pressure be borne on the end of the stump, which is usually very sensitive and tender. This rule applies to the wealthy, who can procure the most perfect substitute for the amputated member, as well as to the poor patient, who must hobble about on the common "pin". The pad of muscle must become absorbed in a great measure, as it is well known that muscular tissue, when not functionally active, atrophies. In persons affected with paraplegia, the muscles of the lower extremities not only waste, but their structure alters, and they degenerate in great part into fibrous tissue mixed with fat. The muscles over the end of a stump must be inactive; they cannot have formed new attachments beyond the end of the bone. These views are corroborated by my own observations. I have taken care, for a considerable period, to examine as many stumps as possible, and, in every old stump I have seen, the ends of the bones were only covered with skin and some subcutaneous tissue; and in no instance was there a thick pad. I believe it takes some years for the stump to become conical, as, when patients are discharged from hospital after amputation, I know the bone is usually well covered at the point. I have reason to believe that, when a well formed artificial limb is supplied, this change does not take place to the same extent. In all the cases I have examined, pieces of mechanism of a rude construction had been worn.

The plans of amputation which appear to me to be most rational are the circular, or a modification of the flap. In the circular, the skin and subcutaneous tissues, being divided by one sweep of the knife, should be separated from the fascia to the extent of an inch or an inch and a half, according to the thickness of muscle. Then the muscles should be cut in an oblique direction upwards, so as to leave a sufficient covering for the end of the bone. The edges of the wound should be drawn together by interrupted sutures, and, in the intervals, short strips of adhesive plaster, allowing abundant space for serous or other discharges to escape. The advantages of this method of operating are, that allowance is made for the greater retraction of the cutaneous than of the muscular tissues. There is not a mass of muscle which is useless, as it is afterwards almost completely absorbed, and injurious, as it causes tension; and, to use the language wrongly applied, in my humble opinion, by Mr. Erichsen to the flap amputation, the circular plan possesses the comparative advantages of more perfect coaptation and smoothness of the opposite sides of the wound, and of greater tendency to union by the first intention.

If there be no great tendency to separation of the edges of the wound (and there never should be, if the operation were rightly performed), I cannot see the necessity of long strips of plaster, which cause tension; surely short strips will suffice to keep the edges together. It is important to leave spaces between the plasters for the exit of any discharge. In a hospital to which I was once attached, one of the surgeons (a highly educated and estimable gentleman), anxious to procure union by the first intention, was in the habit of completely covering the end of the bone with strips of isinglass plaster; and, in his cases, sloughing and other untoward results were decidedly more frequent than in those of his colleagues who left some uncovered spaces.

The sutures should be removed on the third day, at the latest. In a patient from whose jaw Mr. Benfield lately removed an epulis, he extracted the pins from the twisted sutures in the wound in the cheek, at the end of forty-eight hours; and, when one was extracted, a little pus followed. There was union by the first intention in every part of the wound. Had this pin, which did not appear to be exciting

mischievous, been allowed to remain, what would have been the result? That the inflammation which was present, as shown by the formation of pus, would, in all probability, have caused the edges of the wound at that point to have separated. This case shows how soon sutures may begin to act as foreign bodies to excite inflammation, "with which union by the first intention is incompatible"; and union having already taken place, if inflammation did occur, the new structure would, as you know, readily break down. I have had opportunities of comparing the practice of two surgeons attached to the same hospital on this point. One almost always extracted the suture-pins on the third day; and, in his cases, there was almost invariable union by adhesion, the exceptions generally being where there was some delay, and the pins were allowed to remain a day or two longer; but, in one or two of these cases, union was perfect, notwithstanding the delay. The other allowed the sutures to remain undisturbed for five or six days, unless some redness or other sign of inflammation supervened; and union by the first intention was the exception in his patients.

The modification of the flap operation which I should recommend is the following. By cutting from without inwards, make the semicircular incisions of the usual shape through the integuments down to the fascia: these superficial flaps should be separated from the subjacent muscles to a sufficient extent; and then the muscles may be divided by two incisions, so as to form flaps. The methods of operating which I have proposed would be more painful and more tedious than the ordinary plan; and these would have been great objections before the introduction of anæsthetics, when it was considered very important that a surgeon should be a quick operator.

There is another point in the treatment of stumps, after amputation in the thigh especially, which does not always receive the attention it deserves, and the importance of which was first impressed upon my mind by Mr. Paget. This is the advisability of carefully bandaging the stump from above downwards, the soft texture being at the same time drawn by an assistant over the end of the bone. This practice tends much to prevent protrusion of the bone by curbing undue retraction of the soft parts.

I shall next briefly advert to the "places of election" for amputations. Now, when art can do so much to supply the loss of a limb, it is the duty of a surgeon to know to what sort of stumps artificial members can be best and most usefully adapted. His first care, of course, is to save the patient's life; his second should be to leave him such a stump that, by the aid of the surgical mechanist, he shall feel the loss he has sustained as little as possible. As a general rule, the greater the length of the stump, the greater will be the steadiness and the comfort afforded by the artificial limb, and the greater will be the power exercised over it by the patient. In all injuries of the hand, I save as much as possible. I have treated compound fractures and dislocations of the fingers successfully, where they were almost completely separated. In similar accidents to the arm or leg, amputation would have been necessary, as the constitutional irritation and the purulent discharge would otherwise have killed the patients; but, after injuries to such small yet important members as the fingers, these need not be feared. If sloughing do occur, Nature unaided here is competent to effect amputation well. The importance of practising conservative surgery on the hand is shown by the following case.

John Porter, aged 17, a clerk at the Leicester Railway Station, was admitted an out-patient of the Leicester Infirmary on February 13th, 1856, with enlarged tonsils. About eighteen months previously, he sustained a severe injury of the right hand by the wheels of a railway carriage passing over it. Mr. Bullock, then house-surgeon to the infirmary, performed a conservative operation upon his hand, preserving the ring and little fingers only; the thumb, index, and middle fingers, with their metacarpal bones, being removed. The two fingers are very useful to him; he can write well by taking hold of the pen between them; and he states that he can do almost anything with them but lift heavy weights.

Amputation at the wrist-joint is a favourite operation with Mr. Thomas Wright, surgeon to the Nottingham General Hospital; and, during my residence there as a house-surgeon, he performed it twice with very good results. Both the patients had capital stumps, and retained as much power of supination and pronation of the limbs as before they lost their hands. In amputations of the forearm, as much as possible of the limb should be saved; and, to use the language of Mr. Gray, to whose work on *Automatic Mechanism* I am indebted for much

of the information I possess on this subject, "it should never be forgotten that the shortest or worst stump that can be made below the elbow is infinitely more useful to the patient than the best stump above the elbow; for no artificial joint is at all to be compared to the real elbow-joint."

As I have never seen Hey's or Chopart's operation performed, I shall pass on to Syme's amputation at the ankle-joint. This operation I have seen repeatedly done by Syme himself, and occasionally by others. When properly performed, and scientifically dressed afterwards, it is attended with most satisfactory results. The great danger to be dreaded is sloughing of the flaps, which we must guard against—

1. By taking care not to cut any of its vessels: and, with this end in view, the edge of the knife must be directed towards the bone while dissecting off the soft textures which form the flap. No opening should be made into it for the escape of discharges before they have formed, or for the removal of a portion to lessen its size. The latter object is best attained by commencing the lower incision, not at the centre of the malleolar projection of the fibula, but at its posterior border, and carrying the knife across the bone, slightly inclining backwards, and ending, of course, at the corresponding point of the inner malleolus.

2. By taking every precaution not to impede the circulation through the flap: and, with this end in view, it must be handled and sponged as little as possible, so as not to excite inflammation; the edges of the wound should be drawn together by interrupted sutures, with strips of wet lint only superimposed, and no plasters and bandages, which would cause pressure against the ends of the bones, impaired circulation, and sloughing.

The advantages of this operation are manifold. The lower surface of the flap, composed of the textures of the heel, are well accustomed to pressure; there is no troublesome retraction of the flap; the cicatrix is situated in front, and not beneath. Even where the ankle-joint is considerably diseased, this operation may be successfully resorted to; and, finally, the patient is very slightly maimed. A poor patient can have a circular boot, with a well raised heel, made by a common boot-maker, with which he can go about with little or no lameness or inconvenience; a wealthy patient can be supplied, by an ingenious surgical mechanic, with a boot so perfect as to render it difficult to discover, either by the patient's gait, or by looking at his feet, that he is not in full possession of those useful members.

In amputations of the leg, the usual site is about a hand's breadth below the knee, and the patient with the knee-joint flexed bears upon the artificial limb with the patella and upper part of the tibia. This practice is objectionable. It is well to remember that a bad stump below the knee is much inferior to a good stump above that joint, the rule regarding the elbow-joint being precisely opposite. The further from the trunk the safer the operation, is a dogma regarding amputations in which I believe there is much truth, but it is doubtful whether the comparative safety be owing to the removal of a smaller portion of the limb, or to the fact that the wound is smaller, because as the distance from the trunk increases, the size of the extremity decreases. Where practicable, amputation of the leg should always be performed at the upper part of the lower third, because there is sufficient room left for the formation of an ankle-joint in the artificial limb; the stump being long, affords a good lever for moving the artificial leg, and there is less danger to the life of the patient. Where it is impossible to save so much of the limb, we should amputate as near the lower third as possible, and never above the commencement of the upper third. Why never in the upper third? Because a properly constructed artificial leg cannot be advantageously applied. It may be said that poor patients must be satisfied with the common pin, and that amputation in the upper third of the leg leaves them a very useful stump. My answer is, that I have frequently seen poor hospital patients procure expensive and well made artificial limbs from the kind assistance of a master, or of the charitable in the neighbourhood, or of their relatives, or from their own earnings. To beautify ourselves as much as possible is a trait of our common humanity; and is it right or justifiable in a surgeon to inflict permanent deformity on a patient because it may be fancied he has not the means to procure a well formed artificial limb? Such a course, in my opinion, is wrong in all cases, and especially so in the manufacturing districts of the country, where we so frequently see men of wealth and influence who have risen from the poorest grades in the community.

According to Coulson, "amputation of the leg should never be performed upon children, but the lower third of the thigh

unhesitatingly selected, for the very important reason that the amputated limb ceases to grow in uniformity with its fellow, and the patient is doomed to the additional inconvenience of having one knee-joint elevated perhaps some inches above the other, and imparting to his gait a peculiarly grotesque appearance."

Amputation at the knee-joint was revived some years ago by Mr. Syme; but the great objection to its performance is that there is no space left for the formation of a joint in the artificial limb. In most cases of disease, and in certain injuries of this joint, amputation is unnecessary, as by excision a most useful member may be preserved, far superior to any artificial substitute.

In amputations of the thigh, we should select a point at least five inches above the knee, so that space may be left for the artificial joint, and for reasons already adduced in all cases the stump is made as long as possible.

II. TREATMENT OF FRACTURES OF THE CLAVICLE.

I hold views somewhat peculiar regarding the treatment of fractures of the clavicle. The following quotation from Mr. Miller's work on surgery will show the orthodox plan. After stating that the sternal end of the broken bone remains *in situ*, owing to the action of the pectoral and sterno-mastoid muscles nearly neutralising each other, the bone being also steadied by the costo-clavicular ligament, and that the acromial portion is dragged downwards by the weight of the arm, and forwards and inwards by the action of the subclavius, the attachment of this muscle to the first rib being then the fixed point, he says: "The indications of treatment are plain, but unfortunately not very easily fulfilled. They are to raise the acromial portion to the same level with the sternal, to retain it there, and at the same time to keep the shoulder removed from the sternum, so as to prevent the displacement inwards, and consequent riding of the ends of the bone. Many and complicated are the means devised for this end." He then goes on to recommend the pad in the axilla, retained there by a shawl or large handkerchief, which is tied over the opposite shoulder tightly; this tends to elevate the shoulder, and consequently the acromial end of the clavicle, and this indication is further contributed to by a short sling well tightened over the elbow. The arm is next bound to the side, the humerus acts as a lever on the pad as a fulcrum, and extension of the clavicle is thus effected, preventing the riding of the ends of the bones. A figure of 8 bandage approximating the scapulae, tends still further to secure extension.

This is all very well in theory, but when applied practically, what is the result? When there is much displacement, as there usually is when the clavicle is broken towards the middle, I have never been able, by following out these directions, or by any other plan, to bring the ends of the bone into apposition, nor have I ever seen any other medical man more successful. In the great majority of fractures of the clavicle, there is very little displacement.

In treating fractures of the clavicle, whether there exist much displacement or not, I merely loosely apply a figure of 8 bandage, and place the arm in a sling, supporting well the elbow. The bandage I apply as a *placebo* to satisfy the patient; as, if nothing were done, he would most probably place himself under the care of a quack. The bandage must never be applied tightly, because if, as usual, it be passed over the broken clavicle towards its acromial end, it causes or increases displacement; and if applied over the upper extremity of the humerus, it after a few hours slips and is of no service. The sling is useful, inasmuch as it supports the shoulder, and tends to prevent movement in the extremity. When there is much displacement, I enjoin rest in bed in addition to the sling.

I show you an ingenious piece of mechanism invented by the late Mr. Wilkinson, one of my predecessors as house-surgeon to the Infirmary, and used by him in these injuries. By means of its padded and concave shoulder straps, the scapulae can be safely approximated, pressure being made upon the front of the shoulder joints and none upon the clavicles.*

In a case of fracture of clavicle with much displacement, lately under the care of Mr. Macaulay in the Infirmary, Wilkinson's apparatus was applied in the presence of Messrs. Paget and Macaulay, and after the straps were tightly drawn,

* Wilkinson's apparatus consists of an iron frame well padded, six inches square, with rounded angles, at each of which there is a buckle. The frame is placed on the back over the scapulae, the shoulder straps attached to the buckles at the superior angles pass in front of the shoulders, where they are well padded and concave to admit the rounded upper extremities of the arms, they then pass under the armpits, and are fastened to the buckles at the lower angles of the frame.

the rising end seemed rather less prominent, but the patient at my evening visit begged me to loosen the straps, as he could no longer bear them so tightly buckled, and I was obliged to keep them so relaxed that I am satisfied he derived no benefit from the application. The method of treatment I adopt is attended with satisfactory results. I learned it from Mr. Wright, senior, of Nottingham, known to many of you as a deservedly eminent surgeon. I have been informed that the late Mr. Vincent, of Bartholomew's Hospital, followed the same simple plan; and Nélaton, the great French surgeon, in this fracture prefers Mayor's handkerchief to any other apparatus, dispensing with the use of Desault's pad, as he believes that where deformity exists, it is impossible to remove it by any treatment, and the only indication answered appears to consist in keeping the fragments motionless.

III. EXTRACTION OF CATARACT.

When both eyes are cataractous and equally affected, ought both to be operated on at the same time? To this question, says Mackenzie, "my experience leads me to answer in the affirmative, if division of the cataract is the operation to be performed; but if we mean to extract, I regard it as better to operate on one only, and watch the result before touching the other. Double extraction decidedly exposes the eyes to greater risk of inflammation. If we operate only on one eye and allow it to recover, we may possibly observe in the course of the operation and recovery some particulars which will be essentially useful to us in conducting the second operation, or will even lead us to select a different and more suitable mode of operating for the second eye. The patient, however, who has recovered from a first operation either well, or indifferently, or ill, is often unwilling to submit to a second. The confinement, abstinence and depletion, used after a fresh operation, sometimes cause the eye not operated on to fall so much back in the orbit that it is difficult to perform extraction on it."

I attach great value to any statement of Mackenzie's regarding ophthalmic surgery; but I believe, and I hope to be able to prove to you, that his opinions concerning the double extraction are erroneous. Every one who has seen many cases of disease of the eyes, must be aware of the great sympathy that exists between them, and I was taught to consider the extraction of both lenses at one sitting a most hazardous proceeding, inasmuch as if inflammation came on in one eye, the other would most probably become affected by sympathy, and that it was therefore advisable to allow some months to elapse between each operation. Being a firm believer in this doctrine, I was astonished and instructed by the following cases.

John Wood, aged 59, a framework knitter, had double extraction performed by Mr. Paget, on the 18th of January, 1856. One eye became violently inflamed and vision in it was lost, but in the other no unfavourable symptom appeared, and on the 4th of March he was discharged, able to read pretty well with the assistance of a proper glass. This case is published in detail at page 246 of the ASSOCIATION MEDICAL JOURNAL for 1856.

The next was an aged female inmate of the Leicestershire Lunatic Asylum, who had double cataract, and whose mental aberration was believed by Dr. Shaw and Mr. Buck to depend in a great measure upon the loss of sight. Mr. Buck, after a consultation with Mr. Paget, and assisted by him and myself, extracted both lenses by the double operation. I do not possess notes of the case, but I learned from Mr. Buck that one eye inflamed suppurated and vision in it was lost, but that the other progressed favourably, and she could see with it satisfactorily.

According to the views I formerly held, vision should have been lost in both eyes in each of these patients. It cannot be doubted that after a single operation inflammation would as readily have arisen, and loss of vision been the result in the eyes which did badly, as after the double extraction; and as the untoward symptoms were confined in each case to one eye, the other not being sympathetically affected, no mischief was caused; on the contrary, it was fortunate for these patients, at least for the sane one, that the double operation was performed; because, had one eye been operated on in the orthodox mode, and that one happened to do badly, the man probably would never have consented to a second operation; and at this moment, instead of enjoying the power to read pretty well, he would have been helplessly blind.

My observations upon these two cases alone did not induce me to renounce my old notions. I learned from Mr. Paget that his father, whom he succeeded in the office of surgeon to the Infirmary, always performed double extraction; that he

himself has always followed the same plan; and their combined experience extends over a period of sixty years. I have been told that his late colleague, Mr. Nedham, did, and I know that his present colleagues, Messrs. Macaulay and Benfield do, extract cataractous lenses by the double operation. These gentlemen are convinced that the greater risk of inflammation after double extraction is a myth—a plausible hypothesis not founded on facts; and the truth of which I believe has not been previously questioned in this country. In no other Hospital in the United Kingdom, as far as I have been able to ascertain, except at the Leicester Infirmary, and at the Birmingham Eye Institution since its foundation in 1823 by Mr. Hodgson, is it the rule to resort to double extraction. I know that it has been adopted occasionally by surgeons elsewhere; and it may be argued that if it had been found to be safe it would have become the usual practice long since. But this argument would be unjust; because, if this plan has not succeeded in patients under the care of other medical men, it must be on account of some difference in the mode of operating or in the after treatment, and it only shows the necessity for them to discover and to remove this difference, and then there can be no reason why they should not obtain results as satisfactory as have been obtained at the Leicester Infirmary. I should state that the late M. Roux always performed double extraction.

"That we should only operate on one eye and allow it to recover; as we may possibly observe, in the course of the operation and recovery, some particulars which will be essentially useful to us in conducting the second operation, or will even lead us to select a different and more suitable mode of operating for the second eye," is a reason assigned by Mackenzie for preferring the single operation. Are we not more likely to remember and be prepared to meet any peculiarities or difficulties encountered in operating on the first eye, if we proceed to operate on the second after a few minutes, instead of delaying for some months? We are not obliged to extract the lens from the second eye in the double operation, if after operating on the first, any other procedure be considered preferable; and I cannot see the propriety of watching the progress towards recovery of one before the other is touched, as, according to my observations, these cases do not take an unusually erratic or uncertain course, but the sequence of events in one patient closely resembles that in another, and we cannot be certain that the progress of the second eye will be similar to that of the first; on the contrary, it is more likely to be different, because after some months the patient's general health is likely to be somewhat changed, and the state of the second eye is occasionally altered materially.

I have now considered all Mackenzie's objections to double extraction. I confess I am unable to assign any reason why he should recommend the double operation for solution, as inflammation is one of the complications to be dreaded, and the wisdom of waiting some months to remember the particulars of the first operation, which will aid us in the second, will apply equally well to division as to extraction. It appears to me that if it be right to perform a double operation for solution, it is equally right to perform double extraction. Double and single extraction being equally free from danger, what are the special advantages of the double operation? The patient is only for half the time confined to his bed and to his room, and stinted in his diet; there is not the same risk of his remaining with imperfect or without vision, because if the first operation succeed well, or even indifferently, he will not unlikely be satisfied with what he has gained, and fearing the risk, refuse to submit to a second; or if extraction on the first eye fail, he would probably refuse to have the second operated upon; and we must not forget, as already stated, that "the confinement, abstinence and depletion, used after a first operation, sometimes cause the eye not operated on to fall so much back in the orbit, that it is difficult to perform extraction on it."

RAILWAY DISEASES. A curious series of facts has been published by Dr. Duchesne of Paris, to show that, as the result of railway travelling, engineers, stokers, etc., are subject, as a class, to weak sight, loss of hearing, rheumatic pains, especially in the right side of the body, numbness, or anaesthesia, etc. A good deal of such want of health is due to the sameness of their food and other bad hygienic conditions, added to a molecular change in various parts of the brain from the constant and oft-repeated minute concussions to which the brain is subject in the excessive speed of express trains, etc.—as in a speed of fifty or sixty miles per hour.