Observations on cleft palate : with cases illustrating the new operation of staphyloraphy / by William Fergusson.

OBSERVATIONS

ON

CLEFT PALATE:

WITH

CASES ILLUSTRATING THE NEW OPERATION

OF

STAPHYLORAPHY.

BY

WILLIAM FERGUSSON, ESQ. F.R.S.

(From the London Journal of Medicine.)

London:
RICHARDS, PRINTER, 100, ST. MARTIN'S LANE.

1849.

OBSERVATIONS ON CLEFT PALATE; WITH CASES ILLUSTRATING THE NEW OPERATION OF STAPHYLORAPHY.

Four years have now elapsed since I had the honour of reading some observations on Cleft Palate, and the operations for the relief of this malformation, before the Royal Medical and Chirurgical Society; and three years have passed away since that communication was made public in the *Transactions* of the Society.[1] During this interval my attention has been very frequently called to the same subjects; and as the views which I then advanced were in most respects of a novel character, I feel in some degree bound to state the results of further experience regarding them. In the second edition of my work on *Practical Surgery*,[2] I gave further proof of the accuracy of my views, and at a later date again referred to the subject, in one of the lectures at King's College, which was subsequently published in the *Medical Times*,[3] under my own superintendence. The views regarding this malformation, and the particular operation resorted to for its relief, are as yet, I believe, so little known to the profession, that I trust I may not be deemed presumptuous in again endeavouring to draw the attention of my brethren to subjects which, I am disposed to think, have had less consideration than they really deserve. In France, in Germany, and in America, many distinguished surgeons have written upon staphyloraphy, and numerous examples have been given of the success of the operation; but, strange to say, the proceeding has attracted little more than casual notice from the surgeons of Britain. Since Alcock first performed the operation in this country in 1821, it has been frequently repeated, but at dates so few and far between, that success, when achieved, has produced but little impression either upon the profession or the public. With few exceptions (among which I may refer to the brilliant examples occurring to Sir Philip Crampton[4]), the results of surgical interference have been so unsatisfactory, that teachers have done little more than describe the process which was followed by Roux, to whom the honour is due of having devised and first performed the operation. My own personal experience in early life in such cases had led me to conclude that an operation could only be successful in the most favourable instances, and it was not until I had made a careful anatomical examination of the parts, that I became convinced that more might be done by the surgeon than had yet been accomplished. At least it appeared to me that the operation might be put upon a more scientific basis, and that surgeons might be made aware of the nature and effects of the hap-hazard collateral incisions which had been pro-

---

[1] Vol. xxvii. [2] P. 530 [3] Vol xvi. 1847.

[4] Dublin Journal of Medical Science, July 1, 1843, vol. xxii.

posed for the purpose of relaxing the soft palate during the period required for union in the mesial line. Roux's experience in the operation had been great, and his success was deemed very satisfactory,—two-thirds of the simple cases, and one-third of those which were complicated, having derived benefit from the proceeding. My friends Dr. Mütter, of Philadelphia, and Dr. J. M. Warren, of Boston, had achieved much greater proportional success: for out of twenty-one operations, Dr. Mütter had succeeded in nineteen; and Dr. Warren had been equally successful in thirteen instances out of fourteen. Results like these might well content the most sanguine. It was not, then, with the hope of shewing greater numerical results that I was first induced to write upon this subject, but because I had acquired a knowledge of the anatomy and physiology of the parts of which I believed surgeons to have been previously in ignorance, and upon which I had founded views and proceedings more in accordance with scientific surgery than those hitherto acted on, and which, if proved to be correct, might enable the surgeon to calculate on the result of the operation with a certainty heretofore unknown. I venture with great diffidence to use such language with reference to a subject, in connexion with which the names of the most eminent surgeons of the day may be found; but it is beyond dispute, I presume, that the anatomy of cleft palate had never been described until I had the honour of doing so, nor had there been any accurate allusion made to the actions of the parts in the various modifications of the operations originally performed by Roux, which had been suggested by that gentleman himself, by Dieffenbach, Liston, Mettauer, Warren, and others. I must refer to my original paper already alluded to, for various particulars which need not be repeated here. It will be sufficient for my present purpose if I touch upon the leading features of that communication.

The extreme mobility of the two portions of the soft velum in cleft palate had attracted the notice of all observers, but little, if any, attention had been directed to the moving powers. It was the custom in examining a case of the kind, for the purpose of determining upon an operation, to be guided by the facility with which the two portions of the uvula come together during deglutition. If a person with cleft palate be desired to swallow a little water, slowly and with the mouth partially open, the back parts of the fissure may be seen to approach each other, and in most instances actually come into contact. If they seem to do so readily, the prospects in this respect are favourable for an operation, and *vice versâ*. The cause of this movement had never, I believe, been inquired into. So accurate an observer as Malgaigne[1] had been content to state, that it was "a muscular action of which it is difficult to give an explanation." The movement is clearly attributable to the superior constrictor of the pharynx and the upper portion of the middle constrictor. The semicircle, which these muscles form on the back and sides of the pharynx, is, during deglutition, drawn into a straight line almost, the fibres come forward, inwards, and some of them downwards, so that the soft structures

[1] Médecine Operatoire, Paris, 1834, p. 482

immediately in front—being the two portions of the split palate—are pushed in similar directions, and thus the posterior part of the fissure is made to close. The anatomist is more familiar with the action of pulling than that of pushing, as the result of muscular contractions. The lateral movements of the soft margins of the fissure could not escape observation, but, in so far as I know, they had never been accounted for. Doubtless any anatomist would have guessed that the levatores palati caused the elevation of these parts. He could not, however, have supposed that the palato-pharyngei could enlarge the fissure; on the contrary, in accordance with the doctrines of Dzondi and Müller (which are those usually entertained), he might suppose that these last-named muscles would in reality close the fissure, for their action, in the normal state of the parts, is to bring together the posterior pillars of the fauces. An examination of the course of the fibres of these muscles in the cleft state of the palate will shew beyond a doubt, that one of their actions will be to pull the edges asunder: in this state of the parts the anterior, or upper extremity of each muscle, is attached to the posterior margin of the osseous palate, and the fibres in their progress downwards, towards the sides of the pharynx, form a convexity upon the margins of the soft flap (in fact, it is this convex part which constitutes the most bulky portion of the flap): thus the action of each muscle tends towards the straight line, the parts are drawn asunder at such a time, and consequently the gap is enlarged. In the ordinary condition of the palate, these muscles have their fixed points above, in the mesial line of the soft palate, and acting towards that line, they must necessarily close or cause the posterior pillars to approximate, in accordance with their supposed functions. Perhaps during deglutition in the cleft state, the upper margin of the superior constrictor forms, for the instant, a kind of fixed point, which permits the lower portions of the palato-pharyngei to act in the normal manner; but during the quiescent state of the constrictor muscles the palato-pharyngei, when exerted to action, must tend to enlarge the fissure in the mesial line. The tensor (or circumflexus) palati seemed to me to possess so little muscularity, and besides to have such a limited sphere of action, that I deemed its influence upon the movements of the palate as of little consequence, and I entertained similar views with regard to both the palato-glossus and azygos uvulæ.

In accordance with these anatomical and physiological data, I inferred that if the chief muscular action affecting the soft palate could be done away with,—either for a short time or permanently,—there would be a greater probability than ever of union taking place in the mesial line when the parts were united by the process of staphyloraphy, and on this principle the proceedings which I recommended were founded. As a preliminary step to the ordinary operation, I suggested the division of the levator palati on each side, and also, if it seemed needful, of the posterior pillars of the fauces, whereby large portions of the palato-pharyngei might be cut across. I also then thought that the anterior pillars, each containing the palato-glossus, might possibly require division. To effect these different incisions, I used a small peculiarly

curved blade[1] for the levator muscle, and common curved scissors for the others.

These doctrines have been acted on ever since the subject was made public, and I am more than ever satisfied of their correctness. Experience has taught me the propriety of certain modifications, and given me such further insight into the whole subject, as to induce me to continue the publication of the "observations" which I have had the opportunity of making during the last three or four years. By far the greater number of cases of cleft palate which I have recently seen, have been unfit for operation. Many have been infants and young children, on whom I believe it is impossible to effect any such proceeding, and in many of the adults the gap has been so wide, or the soft parts have been so narrow, that an operation has not been considered advisable. There is no operation in surgery which so thoroughly requires the consent and assistance of the patient himself, and as neither of these essential points can be expected in early life, all manual interference must of necessity be delayed until the patient's good sense and courage shall be such as to bear him through the various steps of the operation, which, even in its simplest form, requires a large share of heroic indifference on the part of the sufferer. I have operated on one occasion on a boy only eleven years old, who behaved admirably; but, in general, up to the period of puberty, there is a reluctance to submit quietly to any surgical interference.

In a large portion of cases of cleft palate, the fissure implicates a portion of the bones as well as the soft velum. Such cases are never so favourable for an operation as when the soft parts alone are involved. When the bones are defective, the soft margins are usually narrow, the gap being wide in proportion, and invariably the muscular movements of the flaps are more conspicuous than when the fissure is limited to the soft velum. In the natural state of the palate the muscular movements are not so remarkable as in the abnormal condition. I do not think that either the lavators or palato-pharyngei act with such energy as in the cleft state, and the greater the cleft, I am disposed to say, the greater is the muscular action. This does not depend upon increase of muscular fibres, but rather arises from the comparative mobility of the parts. The smaller the fissure, then, the less conspicuous are the muscular actions—the nearer the normal state, the greater the resemblance in action to the ordinary muscular movements.

When I first drew attention to the anatomy of the cleft palate, and pointed out the motor powers likely to prevent the success of the ordinary operation of staphyloraphy, I was chiefly anxious to point out how and where the muscles of the palate might be divided for the purpose of ensuring that state of quiescence which appeared so necessary to secure union in the mesial line. I wished to put the operation on that scientific basis which characterises the modern operations for club foot, bent knee, strabismus, &c. Although fully satisfied of the correctness of my views, I have occasionally had difficulty in explaining why there

---

[1] Practical Surgery, 2nd ed. p. 531.

should be movement in the flaps after the incisions requisite for the division of the muscles in question had been made. At first I was puzzled on this point, but I believe that I now understand the cause. It generally happens, even after the supposed division of the levator muscles, that considerable jerking in the flaps may be observed, and such movements I have no doubt are produced by the palato-pharyngei. Supposing the two pillars of the pharynx divided, the portions of these muscles in front may yet vary in length according to their contraction or relaxation; and if their anterior extremities still remain in connection with the posterior margin of the hard palate, the action may be sufficiently vigorous to give the impression, as the parts are looked at, that little good has resulted from the preliminary incisions. If, however, the parts be seized with the forceps, and pulled towards the mesial line, the comparatively feeble influence which the muscles now exert will be very striking. Besides averting muscular spasm, the incision which I recommend possesses another advantage, which I did not insist upon so much in my first paper as it seems to deserve. While the parts are stretched across the roof of the mouth after the insertion of the stitches, the wound above is made to gape, and in this condition is covered with a layer of lymph, which has the effect of thickening the tissues for the time, and also keeping them more quiet than they would otherwise be. I have such confidence in the accuracy of this view, that I prefer a free incision in the site of the levator palati rather than a short wound little broader than the blade; and I recommend the free incision, too, because many of the fibres of the palato-pharyngeus muscle will be cut, whereby further relaxation will be permitted. The incision may be effected either with a free division of the mucous membrane, or the knife may be plunged through this membrane, and then carried backwards and forwards to effect the division of the tissues within. I have sometimes acted on this latter plan, but in my opinion it is best to make the opening in the mucous membrane as free (or nearly so) as the wound in the muscular tissues. The blood gets readily away, and there is no infiltration of it in the soft tissues. as happens when the membrane is left almost entire. In general I find that if the preliminary division above the palate be made free, and in an especial manner the anterior extremity of the palato-pharyngeus be separated partially or perhaps completely from the posterior border of the hard palate, there is little need for the division of the posterior pillar of the fauces. There is perhaps little or no risk in dividing this part; but after doing so, I have usually noticed that the two sides of the uvula become more œdematous than on other occasions, probably from defective circulation through the veins. In some instances, however, the division of that part of the palato-pharyngeus which forms the posterior pillar of the fauces greatly facilitates the approximation of the sides of the posterior extremity of the fissure, and in all instances when, notwithstanding any incisions that may have already been made above each flap, the muscular action of the part seems still vigorous, I should deem the division of the parts in question of great service.

It has often appeared to me that when the head was thrown far back for the purpose of exposing the palate to a strong light, the flaps have

been drawn towards the posterior nares, and that in the same instances when the head was not kept so far back, the parts naturally came nearer the tongue. To account for these circumstances, I am disposed to think that when the head is thrown far back, the axis of the muscle is changed, and that its action, instead of being downwards, is probably upwards, just as the sterno-mastoid muscles are understood to incline the head forwards or backwards, according to the angle which the base of the skull forms with the top of the spine. Anywise I have not found it advantageous during the operation to stretch the head very far back.

In cutting so near to the numerous large vessels which are in this vicinity, some danger from hæmorrhage might be apprehended. I have never yet, however, had the least trouble on this score. I have always used iced water in my operations, and the bleeding, which has never amounted to a table-spoonful, has invariably ceased before the termination of the operation. There might be imminent danger if the knife were carried far back above the palate, but so long as it is limited in its action between the posterior nares and the posterior border of the levator palati, there is no possibility of reaching any large vessel. Further back than this there might be a risk of the point passing out at the side of the upper part of the pharynx, and doing serious mischief.

I still retain the opinion that there is no better mode of introducing the stitches than by means of a slightly-curved needle, set in a handle.[1] The point of the instrument, armed with a smooth round waxed silk thread, is passed from below upwards about a quarter of an inch from the cut margin of the fissure, and made to appear in the middle of the gap, when the thread is seized with forceps, drawn three or four inches out of the mouth, and then the needle is withdrawn. A similar manœuvre is followed on the opposite side; the two threads are then tied together by the ends which have thus been drawn out at the mouth, and, by withdrawing one of them, the other will be carried through the aperture opposite to that where it was first introduced. Hitherto the thread has been double; now one end must be drawn through the apertures and out at the mouth, and so the thread is ready to be tied. Two, three, four or five threads are introduced in this way, and then after the cut margins of the flaps are sponged free of blood and mucus, the various threads are fastened.

In my early operations I generally made a simple knot; or, by turning the thread twice over, made that called the "surgeon's," in accordance with the advice of Professor Smith of Maryland. The object of the double turn is to prevent slipping until the completion of the knot. If there be no great muscular spasm, there is seldom any trouble from slipping; if there should be, the twist first made must be held firm with the point of the forceps, or else a favourable opportunity, whilst the parts are very quiet, must be taken to effect the manœuvre. But in preference to such plans I have latterly adopted a method which I have found to be most satisfactory. A loop is made with a single turn of one end of the thread,[2] the other end is then passed through it, when

[1] Practical Surgery, 2nd ed. p. 33.

[2] Druitt's Vade Mecum, 4th ed. p. 401; also Medical Times, vol. xvi.

it is drawn so tight as just to permit the thread within it to slip along on the application of moderate traction. The loop can now be slid up to one of the apertures in the palate and the cut edges being accurately adjusted, the whole can be kept *in situ* by tying a common knot on the thread close upon the loop. By taking care that the thread is very smooth on the surface, and regular in size, and by drawing the loop with proper firmness, slipping will rarely occur. But, indeed, it is one of the advantages attending my mode of operation, that there is less trouble at this part of the proceeding, than when the muscles are left entire in their natural condition.

The degree of tightness to which the stitches may be drawn, has often been a puzzling point with me. It has been remarked, that ulcerations frequently take place in the site of the ligatures; and this has been attributed to their tightness. I have no doubt that this is the cause; but if the pressure do not absolutely strangulate the parts, I believe that no permanent harm will result. If the edges of the fissure are not kept together with some degree of firmness, there is a risk of saliva, or mucus, getting between and preventing union. On the other hand, if all the threads were drawn so as to endanger strangulation, the whole extent of tne margins between the threads might slough. On the whole, a moderate degree of tightness should be preferred, rather than that the edges should be kept asunder by saliva or mucus. I have, too, had difficulty in determining the time to remove the stitches. In some of my early operations they were all taken away about the forty-eighth or fiftieth hour, but latterly I have permitted them to remain longer. I believe that the adhesions are so readily broken on the second or third day, that it is best to permit all, or at any rate the most important ligatures, to remain over those dates, in case of any dangerous force being applied at this important period. It is better, in my opinion, to let the threads remain several days too long, than that they should be moved a minute too early. Usually I take one or two stitches away on the third or fourth day, and on the fifth or sixth remove them all. It is better, I think, to take them out at intervals, than all at once.

With some exceptions, at first, all my patients have had fluid food from the date of the operation until the union has been firm. I believe this to be a great improvement in the treatment of such cases; and have to express my acknowledgments to my friend, Sir Philip Crampton[1] for breaking the established rule, previously acted upon, of starving the unhappy patients for eight-and-forty hours, or more, after the performance of the operation. Sir Philip permitted two of his patients to partake of "boiled bread and milk, custard, soup, and jelly, twice or thrice a day," with the best possible results; and when I contrast the apparent distress of the patients who were formerly starved, with the comparative comfort of those to whom this wholesome mode of enjoyment has been permitted, I have no hesitation in recommending this treatment as of very great service. Besides, the exhibition of soft or fluid food is less hazardous in my own method than

---

[1] Dublin Journal of Medical Science, 1st July, 1843, vol. xxii.

in the ordinary operation, as the chances of spasm and consequent dragging in the stitches are greatly arrested. Well made gruel is what I chiefly recommend, and it may be seasoned with salt, sugar, or a little wine, as the patient may choose. Usually, in eight or ten days the union of parts is so firm that solid food may be permitted, and it is seldom that any surgical interference is requisite after that time.

Patients and their friends are generally most anxious regarding the change of voice and improvement in articulation as soon as speech is permitted. If the whole cleft has been closed by the operation, the improvement in tone is at once perceptible; but if there be any aperture left, as is often the case, little change can be perceived. If, however, the opening be closed by any piece of mechanism, the result as regards the voice will appear much the same as in the other instance. In some the change is much more apparent than in others; but in all, considerable after-training is required to improve the voice and speech. The original defect has permitted the air to pass as readily through the nostrils as by the mouth; hence the nasal sound so characteristic of such cases, and hence, too, the impossibility of articulating such sounds and words as get their modulation in the front part of the mouth in the natural state of the palate. I have found some of those on whom I have operated so very indolent and regardless of improvement, that they have not taken any pains to learn the use of the parts as altered by the operation; but in others there has been such satisfactory progress as to astonish and delight the friends. One of my patients, whose articulation was so bad before the operation that I could scarcely understand a word he said, afterwards set himself industriously to study elocution, and in less than twelve months acquired such mastery, that his speech was in reality more correct than is usually heard in ordinary society. The power of speech is acquired so slowly and imperceptibly in early life, that we hardly appreciate the needful efforts; and under the circumstances referred to, we are all perhaps too sanguine as to the expected improvement,—forgetting, in our zeal, the many years that passed in early life ere an ordinary command was obtained over the organs of speech. In most instances I believe that considerable effort is required on the part of the patient to reap the full benefit of a successful operation.

I have attempted on several occasions to close the fissure in the hard palate, in accordance with the directions of my friend Dr. J. M. Warren[1], but as yet without much success. The plan of dissecting the soft tissues from the bones, as recommended by this ingenious surgeon, seems in his hands to have been very successful. My own failures must, I suppose, be attributed to want of skill on my part, or to the circumstance, that the cases in which I have hitherto tried the practice have not been favourable for its application. Sometimes, whilst dealing with the soft palate, I have also dissected the tissues from the bone between the margins of the gap and the alveolar ridges, and so

[1] New England Quarterly Journal of Med. and Surg. April, 1843.

have been enabled to close the whole gap by bringing the parts together in the mesial line; but almost invariably the junction in front has given way in a day or two after the stitches have been withdrawn, seemingly in consequence of the contraction induced by the soft structures resuming their original attachment to the bones. Sometimes a small slough has formed in this locality, but I have not perceved that the opening has been larger on this account after the parts had been completely healed; the size of the fissure here being regulated chiefly by the deficiency of the bones.

The following cases illustrate many of the general observations already made, and afford evidence of the utility of the practice inculcated.

Case I. D. P., æt. 17. The details of this case are given in vol. xxvii. of the *Medico-Chirurgical Transactions*. Since that publication I have repeatedly seen this gentleman, in whom the benefit of the operation has been more strikingly evinced than in any other of my patients. This I attribute, in a great measure, to his zeal in the study of elocution.

Case II. Miss W., æt. 18. The particulars of this case also are given in the volume above referred to. The improvement in speech, since the operation, has not been remarkable. The palate itself has been rendered more perfect than in the preceding case; but, from timidity or want of energy, the lady has taken little or no advantage of the improved condition of the parts.

Case III. G. D., æt. 18. The fissure extended through the soft, and the greater portion of the hard palate; and the soft parts were so narrow, that I hesitated in recommending an operation. On the 4th of January, 1845, I operated on the patient: in addition to making the incisions devised by myself, I dissected the soft tissues on each side of the hard palate from this part of the fissure, in accordance with the directions of Dr. J. M. Warren; and, by this proceeding, was enabled to close the whole gap at once. Sloughing took place throughout the greater extent of the junction; and, on the fifth day, the fissure was wider than ever, the margins on each side, between the stitches, having given way. The operation was a complete failure; and I attribute this result to the ligatures having been placed too near to each other, and drawn too tight, so that sufficient circulation was not permitted.

Case IV. J. T., æt. 23. This patient was sent to me by Mr. Tuson, of the Middlesex hospital. That gentleman had operated three times upon the case, in accordance with the practice of Roux, but without success. A narrow point of junction had been gained about the middle, which, by the movements of the sides, had become gradually elongated, so as to resemble a piece of thread, three-fourths of an inch in length, stretched between the two sides of the fissure. The cleft had originally been limited to the soft palate; and, although the margins had been three times pared, they still seemed sufficiently broad to sanction the hope of success from my own proceeding. On the 23rd of April, 1845, I operated; and the union was perfect throughout, with the exception of a small aperture in front, a little larger than might admit the point of a probe. In paring the edges, I left the transverse

band untouched; but came so close upon its roots at each side, that it could not afterwards be recognized.

Case v. S. S., æt. 22. The fissure extended through the soft palate, and nearly one-half of the hard. On the 8th of May, 1845, the soft parts were brought together, and the union was, in due time, complete. Three weeks afterwards, the soft structures were dissected from the hard palate, and brought together in the middle. On the third day, when the stitches were removed, the union seemed perfect; but in two days more the junction opened; and, ere long, as the soft parts became united to the bones, the orifice was as wide as ever. The union of the soft velum remained perfect.

Case vi. W. F. G., æt. 24. The extent of the fissure was about the same as in the last case; and the soft parts were thin, narrow, and remarkably mobile. The operation was performed on the 8th of October, 1845. The spasm of the muscles, when the parts were touched, was so great, that the preliminary incisions were not so fully carried out as I desired; nevertheless, union took place throughout the whole extent of the soft palate. An oval hole remained in front, where, owing to the flatness of the osseous roof, it was not deemed advisable to attempt an operation. An obturator was afterwards applied by Mr. Saunders, with the result of obviously improving the articulation.

Case vii. J. B., æt. 11, had a fissure in the soft parts only. The patient and his friends were particularly anxious that an operation should be performed. Although fearful that the boy might not keep sufficiently quiet, I trusted, on this occasion, to his assurance that he would. He kept his word; and the proceedings were most satisfactorily accomplished. On the second day, union seemed perfect, and I removed the stitches; but during the subsequent night, the whole separated, and the gap was as wide as ever. I attribute the failure in this case chiefly to the removal of the stitches at too early a period. Probably, during sleep, or in taking food, the parts had been overstretched, and the delicate adhesions had given way.

Case viii. G. B., æt. 16. The fissure extended through the soft, and the greater portion of the hard palate. An operation, limited to the soft palate, was performed on the 16th October, 1845, with complete success. An obturator was afterwards adapted to the opening, and the improvement in voice and speech was very satisfactory. This patient, like most others similarly affected, had a hare-lip when born, which had been operated on in early life; the malformation was, however, still very marked. Another operation was performed some months after that on the palate, with the effect of greatly improving both the speech and appearance. Mr. Saunders, who constructed the obturator, tells me that he has recently seen this gentleman in consequence of some modification of the apparatus being requisite, and that the result of our conjoint proceedings is all that could be desired.

Case ix. C. T., æt. 16, had a fissure limited to the soft palate. A completely successful operation was performed on the 8th of December, 1845. This patient was brought by Mr. T. A. Richards, of Green, terrace, Camberwell, to my friend Mr. S. Lane, of Grosvenor-place-

who, knowing my interest in such cases, kindly placed her under my care. I had the advantage of being assisted in the operation by both of these gentlemen.

Case x. —. W., æt. 26. The cleft extended through the soft parts only. The operation was performed on the 1st of March, 1846, and was followed by complete union, excepting in the two portions of the uvula, which were subsequently united by paring their edges, and retaining them in apposition by a single stitch. The non-union, at first, of the two parts of the uvula, I attribute to the soft parts dropping so much upon the root of the tongue, as to be disturbed by the movements of that organ. The voice and speech were soon remarkably improved in this case.

Case xi. T. S., æt. 26, had a cleft extending through the soft, and one-half of the hard, palate. The operation was performed on the soft parts, 28th October, 1846, and was followed by perfect union. An obturator was used to fill the aperture in front, from which great improvement in voice and speech resulted.

Case xii. J. M., æt. 18, had a wide fissure in the soft palate. An operation had been performed some months previously, on the old plan, which had completely failed. My own process was resorted to, March 24th, 1848, with perfect success. The intellect of this patient was not of the brightest kind; and, although some improvement in the tone of the voice was perceptible, there was little amendment in his speech when he was last seen, some months after the operation.

Case xiii. J. H., æt. 16. The fissure was limited to the soft velum. The operation was performed on the 8th August, 1848; and the union was perfect. The voice was considerably improved; but the patient left town too soon to permit a judgment to be formed regarding his speech.

Case xiv. —. T., æt. 29, had a very wide fissure in the soft palate, extending also through about three-quarters of an inch of the hard; the soft parts were very narrow and mobile. An operation was performed, 20th September, 1848, in which the soft structures were dissected from the bones, and brought together in the mesial line. The soft velum united satisfactorily, but the uvula remained split, seemingly for the reason stated in Case x: a small slough formed in the tissues dissected from the bones, in the site of one of the stitches, and an aperture remained in this situation. I am still in doubt whether it will be preferable to apply an obturator here, or to repeat the operation, in order to close the circular opening now remaining. My friend, Mr. Henry Lee, did me the honour, two years previously, to submit this case for my opinion, when I advised that an operation should not be performed. I was led to this decision by considering that there was little probability of the parts being united in a satisfactory manner. Moreover, the patient spoke so remarkably well (under the circumstances), that there seemed no great hope of improvement, even were the operation successful; and, in addition, I was of opinion that no improvement in hearing would result. This patient, like many others with this malformation, was very deaf, and more desirous of relief in this respect than as regarded the palate or speech. She assented at the time to the opinion

given; but, after the lapse of two years, having still a hope of her hearing being improved, determined to have the operation performed on her palate. Mr. Lee again desired that I should see her; and, after my explanation had been given as to the probability of a failure, she requested that an operation might be performed. I undertook the proceeding with great reluctance, but did every thing in my power to ensure success. Contrary to my expectations, union took place as above narrated; and I have now no doubt, that after joining the two portions of the uvula, (a proceeding which may be considered as almost certain of success,) and the adaptation of an obturator, should that be preferred, there will be considerable improvement. The patient has not yet returned to town to have the roof of the mouth made perfect; and I am unable to say how far her hearing has been benefited. She fancied, within a fortnight after the operation, that there was an improvement; but I have little hope of her being able to dispense with the use of an ear-trumpet.

Case xv. M. G., æt. 18, had a cleft extending through the soft palate, and about half an inch of the hard. In the operation, which was performed on the 16th October, 1848, an attempt was made to close the aperture in the bones, as well as behind; but a portion of one side sloughed, and the soft velum alone was permanently closed. A plug of caoutchouc was subsequently fitted to the aperture; and when I last saw the patient, (a few days ago,) her voice was greatly improved.

It may thus be observed, that, out of fifteen cases, I have been successful in closing the soft palate in thirteen. One of the cases of failure was the third in which my own peculiar practice was employed. It was a most unfavourable example, and one which, in all probability, would not have admitted of any remedy by the ordinary plan. Probably I should not now attempt an operation under such circumstances.

In addition to these cases, I have permission to refer to others which have been treated in accordance with my views.

Case xvi. G. L., æt. 20, who had a simple fissure in the soft parts, was operated upon in King's College Hospital, by my colleague Mr. Partridge, in August, 1845. There was only partial union in the first instance; but a second operation, some months afterwards, closed the gap nearly through its whole extent.

Case xvii. G. L. R., æt. 18, had a simple fissure in the soft parts, and was operated on successfully, in King's College Hospital, in January, 1846, by my then colleague, Mr. Simon.

Several friends have kindly favoured me with accounts of cases which they have treated in a similar manner; and the particulars are here subjoined, exactly as they have been furnished to me.

Case xviii. Mr. Bowman writes thus:—"My dear Fergusson,—The case of Staphyloraphy, of which you wish a short account, was that of a young medical man, now practising in the south of England, upon whom I operated twice; at first unsuccessfully, according to M. Roux's method, and without lateral incisions; but afterwards with a successful result, after making the divisions of muscles, as you recommend.

"The fissure extended through the whole of the soft palate, coming quite up to the bone.

"On the first occasion, I think in 1842, I simply pared the edges and brought them together, and enjoined him not to swallow till the third day; in this respect adopting the views of the distinguished French surgeon, some of whose operations I had previously witnessed in Paris, and one in London. During two days, the stomach was much disturbed with repeated vomiting; and though the wound appeared to be agglutinated when the stitches were removed on the fourth day, ulceration gradually extended from the top to the bottom, and the whole parted asunder, to my great regret.

"In 1845, after the publication of your views on this subject, this gentleman again applied to me, and expressed a strong desire that I should make another attempt to procure union. I had already made up my mind to adopt, on the next opportunity, your proposal with regard to the preliminary section of the muscles, and also to give food on at least the second day, if not earlier. I accordingly noticed the situations in which the lateral halves of the palate were dragged, during his efforts at movement in the throat, while the mouth was open, and with your well-contrived knife made the requisite division, I suppose, of the levator palati on each side, with the immediate effect of causing the flaps to hang more loosely towards the median line. I then passed three ligatures. This was at ten A.M., and he had previously had his usual breakfast. He thought he could easily manage without food till the next morning, and accordingly took none; but I was then sorry to find him suffering again from repeated vomiting, with severe sick headache, to which he was liable, and I was almost ready to abandon hope. I gave him a small dose of calomel, and some beef tea; the vomiting recurred seven or eight times during the day, but left him towards evening, and did not return. He assured me that neither the effort of vomiting, nor that of swallowing, caused any dragging upon the threads, as far as he could judge from his sensations. To be brief, these apparently untoward circumstances had no injurious effect on the process of union, which seemed to take place as perfectly as possible, and in the whole extent, except a minute space next the hard palate, where a kind of pin-hole remained and still exists, but without any bad influence on his voice.

"Since the operation, his voice has considerably improved; but he has still some peculiarity and indistinctness of utterance, which will probably now be permanent, as it has resisted the efforts of a well-known teacher of elocution to overcome it.

"You ask me for my opinion of the anatomical grounds on which you have founded your improved method of performing staphyloraphy. I think them in all respects sound, and likely to stand the test of experience; at least I intend to operate according to the plan you have so ingeniously framed upon them, when opportunities present themselves. —Believe me most sincerely yours, W. BOWMAN."

"14 Golden-square, Nov. 23, 1848."

I had the honour of assisting Mr. Bowman in the operation which he first performed, and cannot speak too highly of the able manner in which it was conducted. There appeared to be, at the time, every prospect of success.

My friend and former pupil, Mr. Robert R. Storks, has given me the following interesting narrative :—

Case xix. "M. J., æt. 20, applied to me in June, 1846, for relief from congenital fissure of the soft palate, which, on examination, presented the following appearances :—The fissure extended directly in the mesial line, from the posterior edge of the horizontal plates of the palate bones to the extremity of the uvula, which was divided into two nearly symmetrical halves. The flaps on either side were ample, and during deglutition lay almost in apposition, but, on irritating the fauces, they were drawn powerfully upwards and outwards, and were with difficulty distinguished from the surrounding mucous membrane. Her articulation was very imperfect; and, during mastication, particles of food passed into the posterior nares, occasioning great distress.

On June 21st, Staphyloraphy, after the method recommended by Mr. Fergusson, was performed, the levator palati on each side being divided. After the division of these muscles, the flaps were nearly in apposition, although there had been considerable loss of substance from the paring of the edges of the fissure; nor could I excite, on either side, any contraction by irritating the parts with the finger. As no other muscular fibres appeared in this case to exercise any influence opposed to the union of the parts, I did not interfere with either the palato-glossi or palato-pharyngei muscles. Four stitches were required to bring the parts together; one of which I removed on the second, the remaining three on the third day, after the operation. Beef tea and wine were allowed after the first twenty-four hours had elapsed. On the fourth day she had a severe attack of sore throat, accompanied with ulceration and erythematous redness over the palate; on the fifth day it was subsiding; and it was, after a week, difficult to say that an operation had ever been performed. It would be out of place for me to make any observations upon the case here narrated; but I cannot refrain from bearing my unbiassed testimony in favour of the views laid before the profession by Mr. Fergusson, in the *Medico-Chirurgical Transactions*. Having had opportunities of witnessing the performance of the old operation, in the hands of some of the most eminent surgeons of the day, including its originator, M. Roux; and subsequently, through the kindness of Mr. Fergusson, having examined his preparation and assisted him in many of his operations, I cannot too strongly express the opinion, that in my humble judgment, the relief of the lamentable deficiency it is proposed to remedy, is, by the latter proceeding (assuming that the soft parts are sufficiently ample to meet in the mesial line), rendered as certain of success as the operation for hare-lip. The passive condition to which the parts are reduced, by the division of the muscular fibres, the effusion of lymph above the palate, acting as a splint and rendering motion impracticable, combined with the greater amplitude given to the soft parts by the partial and temporary destruction of their arched form, may be enumerated as perhaps the principal advantages of this proceeding. In addition, the paralyzed condition of the muscles influencing the wound, enables the surgeon to allow the patient food at a much earlier period than after the old operation,—a matter of no slight importance in some constitutions. Two things are essentially necessary before any individual is competent to give an

opinion upon this subject: 1st. That he should have seen and carefully examined the preparation upon which Mr. Fergusson founds his views; and 2ndly. That he should have witnessed the performance of the operation in good hands. The instruments necessary are few and simple; but they require that, for the absence of which no mechanical ingenuity will compensate—delicate manipulation. I had another opportunity of partially putting into practice this operation in a very difficult case, in which the plan was as successful as I could anticipate:—A female had been left, after syphilitic ulceration, with an aperture in the soft palate, admitting my fore-finger. By means of the knife recommended by Mr. Fergusson, I was enabled to divide the levatores palati nearly to their required extent; the edges were pared, the aperture being made, by the incision, elliptical rather than circular, and the parts brought together. The wound united except at one point, into which, when cicatrization was complete, I could only introduce an ordinary drawing pencil. The proceedings afforded the patient great relief; but circumstances prevented me from following out the case, and I have consequently been unable to remedy the existing deficiency."

Mr. Storks gratified me by asking my assistance in the first of the above cases; and, in my opinion, the operation could not have had greater justice done to it. It is with me, as with all others who have the pleasure of that gentleman's acquaintance, a matter of deep regret, that a young surgeon of such promise should be prevented, by ill health, from following a profession in which he has already so ably distinguished himself.

Case xx. My friend Mr. Quain thus writes to me:—

"Keppel Street, 20th Nov. 1848.

"My dear Sir,—After having carefully examined the preparation which you kindly showed me, as well as an imperfect one in the Museum of University College, I became so well satisfied of your suggestion, respecting the division of certain muscles being likely to prove a real improvement in the operation for cleft palate, that I resolved to put it in practice on the first opportunity. Accordingly, in operating on a young lad a short time ago, I made the preliminary sections which you recommend, and the case has been completely successful. I look upon your addition to the operation in question, as a very happy application of the plan of dividing muscles, now so advantageously resorted to in some other cases.—I am, my dear sir, faithfully yours, R. Quain."

"Prof. Fergusson."

In a visit to University College hospital, shortly after the above date, I had the satisfaction of seeing the patient, who was about to pass from under Mr. Quain's immediate notice.

Case xxi. My friend Mr. Avery has given me the following particulars:—"Mr. Haddock, æt. 22, a stout, healthy-looking young farmer, from Sutton, in Cambridgeshire, came to me in March last, with cleft palate. It commenced half an inch behind the hard palate, and extended exactly through the middle of the soft palate and uvula. On irritating the parts sharply, both flaps almost entirely disappeared against the sides of the fauces; but when he swallowed, they met at the mesial line. The operation was performed on the 20th of May, according to the description given in your paper, and the suggestions

you were kind enough to make, when you showed me the preparation of the dissection in your possession. The edges were freshened with great facility by transfixing the flaps, at about a line from their edges, with a small pointed bistoury. The division of the levator palati was so free, that the round extremity of your curved knife could be seen moving above the mucous membrane lining the under surface of the palate, just as the tenotomy knife is seen under the integuments, in the division of tendons. The palato-pharyngeus was also freely divided with a bistoury and curved scissors. Although the motions of the flaps were not entirely destroyed, it was quite clear to all present that they were very greatly diminished, particularly at the posterior part of the palate and uvula; and that, *comparatively*, the flaps could be held and drawn down, like a piece of loose integument. Five different coloured sutures were passed, beginning from before and proceeding backwards, and afterwards tied in the same order. Very little movement of the soft palate could then be produced by irritating the parts sharply, and it lay almost *flat* and loose over the tongue, instead of being *arched*. He had beef tea, gruel, and a little sherry, on and from the first day; and, which was very grateful to him, he was allowed to sip a little thin gruel whenever he liked; besides this, he had an enema of beef tea, with a glass of sherry in it, every night and morning. After forty-eight hours the first and third sutures were removed; on the third day, the fifth; on the fifth day, the second; and on the sixth, the fourth and last. He suffered neither constitutional disturbance nor distress; and his pulse was never above 65. Small ulcerated spots only remained where the sutures had been. They soon all closed, excepting one. On the tenth day he had meat and porter; on the following day he went about London, and on the twelfth returned home, with a small superficial unclosed spot remaining. I saw him six months afterwards, and found him a much smarter man; he had married, and his pronunciation was quite distinct, although much of the nasal twang remained."

Case xxii. Mr. Avery also writes:—"Very soon after, I assisted Mr. Yearsley in a case so precisely similar to the above, that there is scarcely an observation to add to it. Mr. Yearsley had seen the operation performed upon Haddock, and the treatment employed; and the result, induced him to follow the same plan in every particular. The age of the patient, the state of his health and strength, the time of cure and termination, were, as nearly as could be, the same. After witnessing these two cases, which were so completely successful, where your method was adopted, and having seen the operation performed by M. Roux, and others, in Paris, and by surgeons of the highest eminence in London, where other methods were followed, with total failure or only partial success,—I think it is but justice to place the happy result to the score of the great improvement you have introduced, by the division, more particularly, of the levator palati muscle. By that division the adverse action of the muscles is greatly diminished, and the flaps are cut in such a manner that they fall by their own weight almost *flat* over the tongue, instead of being held up tightly in an arched form by the upper surface of the soft palate; and I cannot help thinking, that when well performed, and in favourable cases, the success of this operation will be, for the future, the rule instead of the exception. I tried

every variety of complicated instruments on the subject, before the operation, but can testify that the very simple means you use and have described to me are incomparably easier of application, and more effective, than any I have seen."

Both of the gentlemen who treated these cases, politely afforded me an opportunity of seeing the patients; and in each, I felt satisfied that my views had had justice done to them.

Case xxiii. Mr. Skey, of St. Bartholomew's Hospital, has informed me of a successful example occurring in his private practice.

Case xxiv. Mr. Shaw, of the Middlesex Hospital, tried the method in a case which came under his care in that institution. The proceeding was unsuccessful,—a result at which I was not astonished; for the condition of the parts was by no means favourable for any operation.

Thus, then, it will be observed, that out of twenty-four cases, in which the practice recommended by me has been put into execution, it has proved of advantage in twenty-one. Many of these were most unfavourable instances; and, in three of the successful cases, the ordinary operations had already failed.

16, George Street, Hanover Square, Jan. 1849.