the four parturition cases, none had been treated at birth by Munro Kerr's manual moulding method.. All six cases were treated as out-patients after operation at the Glasgow Sick Children's Hospital, being nursed at home by the mothers, instructed by the surgical sister, who visited them and undertook the dressing.

The operation was similar in principle in all the cases—namely, inversion of the depressed area of bone. Scalp and pericranium having been reflected in one layer, the depressed portion of skull was cut out by trephine ($1\frac{1}{2}$ to $2\frac{1}{2}$ in. diameter), inverted on the dura mater, and fixed in position by suture over it of the replaced scalp and pericranium.

Name.	Lesion.	Operation.	Result.
1. Baby E., 2 months	Parturition depression of left frontal. Elder brother, aged 3, formerly operated on by another method for similar depression.	Aug. 29, 1902	Scalp sutures removed at end of first week, at which time bony union in the skull was found to be firm.
2. Baby McL., 10 months	Traumatic depression of left parietal from fall out of bed at age of 6 months.	Sept. 9, 1902	Do.
3. Baby S., 3 months	Parturition depression of left frontal.	Oct. 17, 1902	Do.
4. Jessie B., 4 years	Parturition depression of left frontal.	Feb. 18, 1903	Do.
5. Baby McD., 4 months	Parturition depression of left frontal.	Feb. 17, 1903	Do.
6. Baby M., 14 weeks	Traumatic depression of left parietal from fall on edge of stool at age of 2 weeks.	March 17, 1903	Do.

The patients were photographed before and after operation, with the exception of Case No. 4, in which no photograph was taken before operation. The photographs after operation were taken at dates varying from ten days to three weeks after the date of operation.

The result has been in five of the cases complete correction of the deformity, and in the sixth partial correction. In this case (No. 3 in list) the trephine available was not sufficiently large to include the entire area of depression, and it is intended that by a second operation the united bony "dome" and the surrounding remains of the original depression be reinverted.

One of the most striking features in the results has been the rapidity of union observed in the bone. At the end of one week, when the scalp sutures were removed, the inverted disc of bone was in all six cases found to be firmly united with the skull, and this even in the one case, Jessie B., aged 4, in which the child was over infancy.

CASE OF CONGENITAL DEFORMITY OF THE NOSE ASSOCIATED WITH A DEGREE OF MEDIAN HARELIP.

By ALEX. MACLENNAN, M.B., C.M., L.M.,

Extra Dispensary Surgeon, Western Infirmary; Extra Honorary Surgeon, Royal Hospital for Sick Children, Glasgow.

DEFECTS in the development of the median parts of the face and head are somewhat rare, for it is owing to an arrest in the growth of the lateral maxillary processes that the very common deformity of so-called harelip is due. At one time it was doubted if a median cleft could occur in the upper lip, but the occurrence of a number of cases of this rare condition has settled the question, and it is generally admitted that the deformity occasionally is seen. It is the explanation of the facts which still gives rise to the diversity of opinion.

P. M., aged 7 months, was brought to the out-patient department of the Western Infirmary, Glasgow, suffering from a deformity of the nose, which was congenital. The accompanying photographs give a much better idea of the condition than any description can do, but there are one or two points which the photographs (Figs. 1 and 2) do not bring out with sufficient clearness.

The protuberance on the nose was covered with normal-looking skin, and on section the normal structures of skin were found to be present. The small tubercle seen about the middle of the swelling was somewhat more hairy than the other parts, which were covered with the usual fine down. The internal anatomy of the nose was normal with the exception that the septum was much thickened in the region of the external deformity. There was no trace on the protuberance of the red part of the lip. That part of the lip which ought to form the lunula

was thinned in the middle, and it was quite apparent that the lip had escaped further deformity owing to a compensatory expansion of the lateral maxillary processes. The continuation from the borders of the nostrils of the normal structures which form the upper lip could be

Fig. 1.

Fig. 2.

clearly traced downwards from either side, sweeping in a curved manner to bridge over the gap left by the missing fronto-nasal process, and curving away from each other again so as to leave a small notch in the upper lip. The palate and mouth were normal.

I would offer the following explanation of the malformation: The deformity has arisen from an error in the growth of the fronto-nasal process, either in direction or in punctuality. The defect might conceivably be attributed to the lateral maxillary processes, which by their excessive growth united in the middle line and caused the median process to become diverted from its proper course. This, however, was unlikely, for the amount of union below the protuberance was not sufficient to lead to the belief that the lateral maxillary processes possessed such an exuberant growth. In all probability then, the growth of the lateral maxillary processes was compensatory, and they attempted to fill in the gap caused by the failure of the fronto-nasal process to do its proper share; and just because the union was so slender, the error in the growth of the nasal process was one of direction rather than of punctuality. The maxillary processes possessing a normal formative power grew on till they met in the middle line, and in a similar way the misplaced fronto-nasal process exceeded its normal dimensions—perhaps an attempt to reach its proper situation.

From a scrutiny of other examples of this malformation, it seems evident that the error lies in the fronto-nasal process which takes on a wrong direction of growth, for in certain cases the same deformity of the nose may be present while the gap in the lip is retained: thus showing that to produce this deformity no barrier to the downward growth of the median process is required.

On the assumption that the defect is due to the median process growing forwards, instead of directly downwards, the deformity is quite explicable. The nasal process turned forwards and left a gap, which in the present case became filled in by a compensatory growth of the lateral maxillary processes, but these left enough trace of their action to indicate the origin and nature of the deformity.

The description of the deformity as a tumour has been carefully avoided, for this is an example of growth which can in no sense be called a neoplasm, being merely a piece of tissue, normal in every respect save its position, and it is questionable if this tissue would ever have taken on such an excessive growth as to warrant the term tumour being applied to it. Still less can it be described as a teratoma, for the mass neither formed part of another ovum or of a blighted twin. In an ordinary double harelip the misplaced or normally placed fronto-nasal process is never called a tumour, and this swelling is merely the misplaced nasal process or part of it. This aspect of the subject has been discussed by Kredel in connexion with his case, which is very similar to the present one.

The failure to grow in a proper direction is probably the least fault to which the various parts of the developing ovum are liable, and it is wonderful that such an event does not happen oftener. The supposition that the defect is only a

digression of the median process from the usual path is strengthened by the presence of an exuberant growth in the lateral maxillary processes.

Before describing the operations performed to correct the deformity, and to allow of a more normal subsequent development of the nose, it may be instructive to consider some allied or similar cases reported by other observers. The references to this rare abnormality, though not numerous, are so scattered that some of them may be overlooked.

Professor Trendelenburg,² who has written on and explained this deformity, kindly sent me two photographs in illustration of, and a number of references to, the subject. One case is apparently an example of the least possible degree of defect in the growth of the median process, and the deformity produced is a slight median furrow running down the point of the nose. Professor Trendelenburg could give me no further details of the case represented, but the illustration is none the less welcome and instructive. I am indebted to him for his courtesy.

As a different variety of the same defect in the trophic power of the median process, an interesting case was brought in the summer of 1902 to the out-patient department of the Western Infirmary. The child came from Paisley, being brought to have an opinion regarding the time for operation. No photograph was obtained, as the mother failed to return, and it is more than likely that the case of this interesting and rare defect is thus lost for the purposes of illustration; but I have consoled myself by sketching an atrocity, which will be hereafter referred to as the Paisley case. The lunula was represented by a diminutive atrophic flap, which formed a little projection into a median harelip (Fig. 3). The rest of the face and the mouth were normal.

Fig. 3.—The Paisley case.

Here the defect was clearly in the trophic power of the fronto-nasal process as distinct from any error in its direction of growth.

Browne³ reported a case "with entire absence of the nasal bones and no appearance of the nose whatever; also a wide single harelip; no deficiency of the palate, but a fistulous opening extending along its upper surface, leading directly backwards and communicating with the pharynx, anteriorly passing upwards in the direction of the nasal fossa for about $\frac{1}{4}$ in." No sketch is given with this paper, and the child only lived seven days. There can be no doubt that the defect in the fronto-nasal process was extreme, and was probably accompanied by some defect in the lateral nasal processes as well.

Rose,⁴ in his work on harelip and cleft palate, cites Hadlich as follows: "(Hadlich) described changes in the brain in two cases occurring in Langenbeck's clinic, consisting mainly of amalgamation, more or less, of the two hemispheres; the corpora striata and the optic thalami were united in the middle line, and the third ventricle, fornix, corpus callosum, and the olfactory nerves were absent. It is interesting to note

the association of such an abnormal fusion, with the defective development of the median parts of the nose and face." Such a case is of interest when compared with the one here described, where a defective development in one region is partly corrected by an increased development in another. Rose further remarks that a true median cleft is rare, and he refers to Pitt's case as being about the best example.

Pitt⁵ described a case where the median cleft extended half way up the columna. Witzel⁶ reported a case (to be found in the Rostock Pathological Museum) where behind a cleft in the upper lip was to be found a median division of the premaxilla, each half of which was firmly united to the adjacent superior maxilla. Here the defect extended to the upper part of the face as well.

Nase⁷ and Lexer⁸ have reported cases where the median fissure was confined to the nose.

A case similar to the one forming the text of this paper has been described by Kredel and referred to already. In it the outgrowth replaced the nose; the nostrils were situated at the sides. The root of what should have been the nose was very broad, and the eyes were correspondingly far apart. The palate and uvula were normal. Kredel affirms that a median fissure of the frontal process cannot occur; yet this very deformity is noted as occurring in the case which Witzel has described.

Bland-Sutton⁹ shows that a median fissure can exist by absence of the median parts of the face. Thus it appears that an ordinary double harelip produces the so-called median harelip when the fronto-nasal process fails to take up its usual position between the lateral maxillary processes. The ordinary single harelip is due to the defective growth of the lateral maxillary process of the same side—the double variety is due to defect of both lateral processes, and as it implies a more profound abnormality, the lateral processes often fail to reach each other and the fronto-nasal process in its entire extent. The common double harelip with cleft palate is so formed. In the so-called median harelip the defect exists, not in the maxillary processes, but in the fronto-nasal process, and as already stated is probably due to an error in the direction of growth in such cases as the present one, and to an arrest of growth in such cases as the Paisley one.

To recapitulate: The common deformity appearing in the upper lip is due to an inadequate growth of one or both lateral maxillary processes. Inadequate growth of the median process will give rise to that type of deformity, a minor degree of which is exemplified in the Paisley case. When the defect is confined to the interglobular area the very rare and disputed (albeit mistakenly) true median fissure will occur as in the hare normally. Another kind of deformity will ensue when the growth takes place in the wrong direction; I believe the present case to be of this nature. Defects about the lateral nasal processes are very rare; they give rise to malformations about the eye and nostril. (See Fig. 4.)

Fig. 4.—1. Defect produces median fissure, as in rodents (Pitt's case, etc.); 2. Defect produces median fissure by omission: (1) in growth (trophic) "Paisley case"; (2) in direction of growth, present case; (3) in punctuality (theoretical). 3. Defect produces (1) incomplete nostril, usually associated with ordinary harelip; (2) incomplete closure of lacrimal canal: fissure on the face. 4. Defect produces ordinary lateral or bilateral harelip, with or without cleft palate.

The operation performed to remove the deformity was not very complicated. Two segmental pieces of skin were removed from either side of the mass deforming the nose so as to leave a strip of skin sufficiently wide to fill in the gap between the nostrils. This bridge of skin was dissected free

from the outgrowth and formed a flap which extended down to the median fissure in the lip and the lower third of which formed the new lunula. The bulk of the outgrowth was formed of fat. By extending the horizontal incision above the median notch in the lip, and by stitching it vertically an attempt was made to obliterate the fissure. The nostrils were freed from their attachments to the bone and were sutured with catgut beneath the long median flap. Horse-hair and silkworm were employed for the superficial sutures. The operation was too ambitious, and healing did not progress as satisfactorily as was wished. The stitches in the lip gave way, leaving a raw surface, and the notch in the lip reappeared. In about six months a second operation was performed to improve the lip and to get a better angle between lip and nose. The incisions were complicated, but on this occasion healing took place by primary intention and the result has been fairly satisfactory (Figs. 5 and 6).

Fig. 5.

Fig. 6.

The interest in the case, however, lies not in the operation but in the deformity itself.

REFERENCES.

¹ Kredel, Die angeborenen Nasenspaltung und ihre Operation, *Deut. Zeits. f. Chir.*, 1898, Bd. xlvii, S. 237 (literature here appended). ² Trendelenburg, Verletzungen und chirurgische Krankheiten des Gesichts, *Deut. Chir.*, Lieferung xxxiii, 1. Hälfte, 1886. ³ Browne, Case of Congenital Deficiency of the Nose, with Single Harelip, *Dublin Medical Press*, 1860, second series, vol. xlv, p. 452. ⁴ Rose, On Harelip and Cleft Palate, London, 1891, p. 12. ⁵ Pitt, Medical Society's Proceedings, vol. xii, p. 304. ⁶ Witzel, Ueber die angeborene mediane Spaltung der oberen Gesichtshälfte, *Arch. f. klin. Chir.*, 1882, Bd. xxvii, S. 893. ⁷ Nasse, Zwei Fälle von angeborener medianer Spaltung der Nase, *Arch. f. klin. Chir.*, 1895, Bd. xlix, S. 767. ⁸ Lexer, Angeborene mediane Spaltung der Nase, *Arch. f. klin. Chir.*, 1900, Bd. lxi, S. 360 (*Langenbeck's Archiv*, Bd. lxii, Heft 3). ⁹ Bland Sutton, On some Cases of Congenital Fissures of the Mouth, *Transactions of the Odontological Society*, 1887, new series, vol. xx, p. 97.

TRANSPLANTATION OF THE INSERTION OF THE BICEPS TENDON FOR PERSISTENT CONTRACTION OF THE KNEE-JOINT IN A CASE OF RHEUMATOID ARTHRITIS.

By C. MANSELL MOULLIN, M.D.Oxon., F.R.C.S.,
Senior Surgeon and Lecturer on Surgery at the London Hospital;
Examiner in Surgery at the University of Cambridge.

E. B., a woman, 30 years of age, was admitted into the London Hospital, under the care of my colleague Dr. Sansom, on February 12th, 1901, for subacute rheumatoid arthritis. She was married, had had four children, and one miscarriage. There was no history of syphilis or gonorrhoea. She herself had never had rheumatic fever, but there was a well-marked history of articular rheumatism, rheumatic fever, and heart disease in the family. Her own illness began ten years before in the left metatarso-phalangeal joint. Then it spread to the ankles; later on it attacked the fingers, and then the knees. On an average, there had been one attack each year, and the only real respite she had had was for nine months, four years ago, after a prolonged stay at Buxton. For the last three months she had been confined to bed, nearly every joint in her body being affected.

On admission it was noted that she was very much wasted,

and that hands, feet, elbows, and knees alike were swollen, painful, and contracted. There was no evidence of organic heart disease, arterio-sclerosis, or granular kidney.

Hot air baths relieved the pain, but did not otherwise benefit her. Massage effected a slight improvement. Weight extension was placed upon the legs, as the knees were contracted almost to a right angle; but after two months' trial the angle of flexion was scarcely lessened, and the hamstring-tendons at the back were as tense and rigid as they could be.

The case was transferred to my care on April 18th, and I determined to try the effect of transplanting the insertion of the tendon of the biceps from the flexor to the extensor side of the joint, in the hope that, by weakening one and strengthening the other, I might restore the balance of power, and get and keep the knees straight. It was recognized that the operation could do the complaint no good; but it was hoped that, at least, it would be able to allow the patient to stand upright, and walk, even if the knees were stiff.

Fig. 1.—Showing the patient after operation.

An incision was made on the outer side of each limb; the tendon detached from the fibula; the quadriceps exposed, and the tendon of the biceps passed through a slit made in it, so that it lay upon the anterior aspect. A few sutures were passed through the two tendons to secure them, the ordinary dressings applied, and then the knees secured in their contracted position until the wounds were healed. The same weight extension that had been used without the least effect before was applied again, and the knees began to straighten out at once. It was some time before the patient was able to stand owing to her general condition, but at the beginning of July she was sent down to Buxton, and now, eighteen months after the operation, there is no recurrence of the contraction. She is able to stand without support and walk about sufficiently to come to hospital and perform her ordinary household duties.

The operation is so simple and devoid of danger and has succeeded so well in the present case that it seems to me it might be performed with advantage in other cases of contraction of the knee-joint, whether arising from rheumatoid