scoliosis to so great an extent, that it was difficult, and even impossible during more than the shortest period, for the patient to remain upright.

Fig. 12.

After some duration of spasmodic action, loss of power, partial or complete, may ensue.

Obliquity of the pelvis, however induced, whether by hip-joint disease, by rachitic curves of the tibia or femur, by genu valgum, or other cause, is a very common occasion of lateral curvature of the spine.

WISDOM AND KNOWLEDGE. "With all becoming deference," says Dr. Latham, "to those who so loudly trumpet forth the praises of knowledge, and fright the trembling student with a portentous array of the wonderful things he has to learn, I would venture to crave some little regard for what is not so much as named by them, but what is pre-eminently more important than knowledge itself. I mean wisdom, as a thing distinct from knowledge, but not opposed to it; requiring, indeed, knowledge to work upon, but taking care to proportion that knowledge to the real end which itself (wisdom) has in view. I marvel that this wisdom is not enumerated among the ingredients of the physician's character, since it is conspicuously the chief of all." "If we content ourselves," says Harvey, "with the observations of others, the sprightly edge of our own wit will languish, and we extinguish the lamp which they lighted to our hands. It is those who follow nature's conduct with their own eyes (sometimes through a perplexed yet faithful tract) who attain the highest pitch of truth." "Let us blush," he observes, "in this so ample and wonderful field of nature, where performance still exceeds what is promised, to credit other men's traditions only. Nature herself must be our adviser. The path she chalks must be our walk. While we confer with our own eyes, and take our rise from meaner things to higher, we shall at length be received into her closet secrets. For nature being divine and perfect, is always consonant to herself."

Original Communications.

ADDITIONAL OBSERVATIONS ON TRANSPOSITION OF THE GREAT VESSELS OF THE HEART.

By JOHN COCKLE, M.D., Physician to the Royal Free Hospital.

IN the current volume of the *Medico-Chirurgical Transactions*, a case of transposition of the great vessels of the heart is detailed by me, which was associated with simple patency of the foramen ovale. This case is, moreover, compared with the others on record, three in number.

In these four cases, were it not that some interchange of blood must have taken place through the foramen ovale, two circulating systems, perfectly distinct, would have existed. The right, or aortic system, would have constantly circulated black blood through all the organs connected with it, the muscular tissue of the heart inclusive; and the left or pulmonic system would have as constantly circulated oxygenated blood through the lungs. Indeed, even with a patent foramen ovale, the actual state of the circulation must have been nearly as described, so far as regards the systemic vessels. But, as Meyer* has pointed out, there are mechanical causes for an easy transit of blood from the right to the left auricle. The blood from the left or pulmonic heart, while circulating through the lungs, receiving no substantial additions, would have exhibited a constant tendency to concentration from loss of its watery portion by pulmonary exhalation. The absolute quantity consequently transmitted to the left auricle would have been a constantly decreasing one, and inadequate to the physiological distension of the chamber. On the other hand, the blood of the caval system, constantly receiving substantial addition from its tributaries, would exhibit as constant a tendency to repletion of the right auricle. Hence the necessary result would be, that any surcharge of venous blood would enter the left auricle through the patulous foramen ovale to restore the equilibrium. That this result did follow in the author's case is probable from the increased thickness of the walls of the right auricle.† It would, he imagines, be greatly more difficult to explain the manner in which oxygenated blood could pass from the left into the right auricle.‡ But that such passage was effected, we must admit. Such also seems to have been the opinion of most of the observers of the recorded cases. After carefully considering the whole question, the author is unable to give a satisfactory answer to the following question: How is the absence of cyanosis during the first three months, and its comparatively sudden supervention at the close of that period, to be explained?§

There are no data from which to infer the actual period of closure of the arterial duct.|| Even if there

* Virchow, *Archiv.* B. 12, 4tes-5tes Heft, p. 371.

† Upon this point, Cruveilhier, *Anat. Path.*, t. ii, pp. 477-84, makes the following statement. In hearts presenting no other complication than simple though ample communication between the auricles, the following changes are observed: general enlargement of the right cavities of the heart and dilatation of the pulmonary artery and its branches. The left cavities stand in striking antithesis to those of the right side, being below the average size.

‡ For arguments upon this matter, consult particularly Louis, *Research. Anat. Path.*, p. 337; and Allan Burns, *Observations on Diseases of the Heart*, p. 15.

§ For some interesting examples of malformation shewing the length of time prior to the supervention of cyanosis, see Naumann, *Klinik.* B. 2, s. 321 *et seq.*; also, Meckel, *Path. Anat.*, B. 1, s. 411; and Louis, *op. cit.*, p. 340.

|| For the most detailed accounts of the period of closure, see Haller, *Element. Physiol.*, t. viii, p. 10; and Billard, *Mal. des Enfants*, pp. 486-94.

were, they could hardly serve to explain the phenomenon in question. The small quantity of blood transmitted through this channel into the aorta during three months would scarcely have tinged the mass of venous blood in the systemic vessels. Its closure, consequently, at this period, could hardly in any way have influenced the production of cyanotic tint.*

In the case recorded by Gamage, the child was born perfectly healthy. No cyanosis supervened for some days; yet the arterial duct seems *never* to have existed. The foramen ovale was largely patent. In these cases, one is almost led to think that perhaps one or more organs, probably with varying activity, have for a time performed some work of compensation—the liver, kidney, skin,† mucous tracts,‡ or thymus gland. In very many cases of cyanosis,§ this latter organ remains unusually large.¶ According to the very careful experiments of Friedleben, related in his work upon the *Physiology of the Thymus Gland*, a diminution of carbonic acid, naturally exhaled, to the extent of 14 per cent., occurred in animals deprived of this organ. Furthermore, in support of this view of the vicarious action of the thymus gland in malformation of the heart, we have the concurrent testimony of Meckel, Sandifort, Duret, Cailliot, and Burns. This hypothesis, perhaps, receives some support from the author's case, in which the organ was very large.

Causes of Transposition of the Great Vessels. There is, as may be well supposed, great uncertainty attending the determination of the proximate cause of transposition of the vessels. The very important results that have followed the study of the changes which the vascular arches undergo, in certain cases of abnormal development of the branches of the main vessels of the chest, have hardly yet extended to the explanation of the phenomenon of transposition of the main vessels themselves. Kürschner,¶ so far as I know, is the chief upholder of the view that faulty metamorphosis of the vascular arches may determine transposition of the great vessels. The researches even of Von Baer, Ratlike, and Bischoff, in vascular embryology, have not removed the difficulty. Von Baer** has indicated the manner in which the rotation of the embryo in the yolk to the right determines the transposition of the heart to the right side; but he has not shown how the main trunks alone undergo transposition. Perhaps the more commonly received opinion is, that the phenomenon is dependent upon some irregular torsion of the aortic bulb after its division into the systemic and pulmonary trunks. There is one other very interesting question connected with these and other kindred changes, which is, how far they may be influenced by external exciting causes. D'Alton++ has given good reasons for supposing that unnatural compression of the abdomen during pregnancy may be productive of the change. At the same time, he admits the difficulty of the explanation.

* We must bear in mind that, no obstruction of the orifices existing, the necessary permanence of this channel was not essential. The cases of the series show that one permanent fatal way suffices. But, even if thought necessary to reserve this point, the explanation of cyanosis is, certainly, not afforded by the more ordinary theory of pulmonary stasis. The theorem of Cruveilhier (*op. cit.*, t. iv, p. 374) would demand modification. The tint must obviously be due to the circulation, through the systemic vessels, of non-oxygenated blood. For the consideration of the question how far the blood, *per se*, can influence cyanotic tint, consult Kreisig (*opus posth.*), *Krank. des Herz. im allg. u. in der erst. Entwicklungsstufe*, pp. 232-3; also, Hamernik, quoted by Henle, *Handbuch der Rational. Pathol.*, B. 2, s.

† FAIRÉ, *op. cit.*

‡ Nasse, *Reil's Archiv*.

§ Guirac, *Sur la Cyanose*.

¶ It must be admitted, however, that a case by Nasse, *Leichenöffnungen. Erst. Theil*, p. 167, opposes this view, he expressly states "Von der Thymus was nichts zu finden."

** Vide Friedberg, *op. cit.*, p. 96.

++ Vide Von Baer, *Erster Theil*.

++ *Op. cit.*, p. 23.

Prognosis. Considering the serious nature of transposition of the great vessels of the heart, and occasionally the apparently insufficient nature of the compensation afforded—viz., simple patency of the foramen ovale—it is difficult to conceive how life could be long maintained. Its duration, however, appears to range within comparatively wide limits. While in some cases death has happened almost in a few hours, in others the subject has survived even for years. In the case I have narrated, the child lived two years and eight months. In that recorded by King, two years and nine months were attained. These, with one most remarkable exception, are the longest known instances of the duration of life under such circumstances. This exception is in the case recorded by Nasse.* The subject actually reached the age of nineteen years and some days. Here the foramen ovale was patent, but only to the extent of admitting a crow's quill. The ventricular septum was also defective to the extent of nine lines. From the anatomical results in this remarkable case, it might be inferred that deficiency of the ventricular septum was much more favourable to the prolongation of life than might perhaps appear from an analysis of the cases of transposition extant. But, in some cases with both auricular and ventricular septa defective, life has not been long maintained. In the case observed by Meckel of transposition of the vessels occurring in a lamb, the foramen ovale, ventricular septum, and arterial duct were all open; yet the animal only lived two days.†

Diagnosis. It has been generally considered impossible to arrive at a knowledge of the existence of transposition of the vessels during life, either by the symptoms, or by the usual methods of physical investigation. And, considering the extraordinary rarity of the affection, it is certainly probable that this opinion will long maintain its ground. Still, reflecting carefully on the morbid anatomy of the cases recorded in the third series, there are, unless I greatly mistake, at least the elements existing for a possible diagnosis. Cases of transposition may at once be separated from the more ordinary congenital malformations connected with obstructive change of the orifice of the pulmonary artery. In this common class, the narrowed outlet reveals itself mostly by murmur, and by inference we estimate the coincident or consecutive changes. In transposition of the vessels, abnormal though the circulation be, yet in no sense can it be said to be obstructed. The cyanosis, as before hinted, when existing, can certainly depend upon no pulmonary stasis from impeded egress through the pulmonary artery. The blood freely passes the outlet, and permits the valves to close normally after it. But it is from the manner in which these valves close that some information may possibly be derived. If we glance at the cases of the third series (and at some of the first and second), it will be perceived that, in all the former, the pulmonary artery was absolutely or relatively much enlarged. In D'Alton's case, and in my own, this is obvious. On examining D'Alton's plate, it will be seen that, as in my case, the pulmonary semilunar valves are remarkably large. These valves, then, theoretically, should close with a sound proportionately louder and more marked than those of the aorta. This occurred practically in the case now brought forward. It would, therefore, appear that if, in a case presenting the ordinary symptoms of malformation of the heart—without pulmonary or other disease to complicate it—the heart, though increased in impulse, has its sounds clear and normal, save in regard to an unusually marked second sound at the second and third left costo-sternal cartilages, we may

* *Leichenöffnungen, Erster Theil*.

† For much valuable and interesting detail respecting the epochs at which death occurs in cyanosis generally, I must again refer to the elaborate and practical essay of Nasse, in the *Archiv für die Physiologie* of Reil and Autenrieth, Band 10, s. 239 et seq.; also Horner, *Diss. de Cyanosi*, 1832.

be justified in *suspecting* that it is one of transposition of the vessels of the heart.*

Transactions of Branches.

EAST YORK AND NORTH LINCOLN BRANCH.

REMOVAL OF RIGHT SUPERIOR MAXILLARY AND MALAR BONES.

By ROBERT M. CRAVEN, Esq., Hull.

[Read Sept. 23, 1863.]

I PURPOSE to-day to give you an account of a successful case of removal of a large growth, involving the right superior maxillary bone, to effect which it was necessary to remove the whole of the superior maxillary and malar bones.

I have the more satisfaction in doing so, because I have the opportunity of showing you the morbid growth removed, and also the patient, who, I am justified in saying, behaved most heroically under this formidable operation. The interest in a case such as this is, of course, very much increased when one can illustrate a description, and thus give a more practical bearing to the subject. I also had a photograph taken before the operation; and you can, therefore, see him as he was and as he is.

Erichsen, in his work on *Surgery*, states that the operation of excision of the upper jaw together with the malar bone, was first performed by Gensoul in France, and Lizars in this country. To Liston and O'Shaughnessy, we are very much indebted for our knowledge of the diseases and operative procedures necessary for the removal of diseases of the jaws.

I will now proceed to give a brief history of the case, the subject of my remarks.

Thomas Hotham, married, aged 44, agricultural labourer, residing at South Cave, near Hull, was admitted into the Infirmary under my care on June 25th, 1863, with a large tumour of the right cheek.

Projecting from the right cheek was a rounded tumour having the size of an orange. It extended from the external process of the frontal bone and zygoma above to the angle of the mouth below (almost completely closing the right eye), and from the side of the nose to the ramus of the lower jaw. The colour of the integument was natural, except at the upper part below the eye, where it presented a rather livid appearance, and several veins, not of large size. It was very firm to the touch, but elastic, especially at the outer part. Pressure and handling caused little or no pain. The interior of the mouth on the right side, from the alveolar process (which was concealed by the growth or embraced in it) to the inside of the distended cheek, presented a large excavated sore of a greyish sloughy aspect and fœtid odour. This part of the tumour was softer to the touch than that which showed itself externally. It did not encroach on the palate, which was of the natural width. There were no enlarged glands beneath the jaw. The patient seemed a healthy man.

History. The tumour had been growing seventeen weeks. His attention was first attracted to a general swelling of the cheek (at that distance of time) and inside the mouth, resembling the swelling caused by a gumboil. He had no pain in it, but a feeling of numb-

ness. At the end of about five weeks, he showed it to a medical man in his village, who recommended him to use soothing applications, and to have a tooth drawn if the swelling did not subside. The gum was lanced shortly afterwards. Several of the teeth became loose; and as they were much in his way, he pulled them out himself. He had not noticed that the tumour had grown more rapidly of late; and there had been no increase of pain in it. He had always enjoyed good health. There was no history of tumour nor of malignant disease in his family.

The tumour was believed to be of malignant character. A consultation was held on the case; and all unanimously recommended the operation, which I will now describe, and to which the patient most readily assented; indeed, he seemed to have made up his mind before he came to the hospital to be rid of it if possible.

June 27th. Chloroform was administered, but could not be continued on account of the seat of the disease, except by every now and then discontinuing the operation, which, of course, would have considerably lengthened the proceeding. All were struck with the firmness and heroism of the man, who hardly ever murmured or groaned. The central incisor tooth of the right side was first extracted. An incision was then made in a semicircular line, from the external angular process of the frontal bone into the angle of the mouth. From the upper end of this incision, a cut about an inch in length was carried along the zygoma. Another incision was made from the nasal process of the superior maxillary bone down to the side of the nose round the ala, and through the centre of the upper lip into the mouth. The flap thus formed was carefully dissected upwards, and detached from the tumour in front up to the margin of the orbit. The finger was passed into the orbit to separate the eye, etc., from the floor. The zygoma and external angular process of the frontal bone were then cleared of their soft parts and defined, so as to allow of the correct adaptation of the bone-forceps. The zygoma was first divided by the forceps; and then the external angular process of the frontal bone. The nasal process of the upper maxillary bone was then cleared of all soft parts, defined, and divided by forceps. An incision was now made with a bistoury along the side of the nose, and through the soft parts covering the alveolar process and extended along the soft parts of the palate near to the mesial line. A small saw was used to cut through the alveolar process; and the palate-process of bone was divided with bone-forceps. The whole mass, being now only attached by some soft parts and a portion of the palate bone, was easily removed by a stroke or two of the bistoury and forcibly pulling it down. There was nothing like the hæmorrhage one has seen, and would expect, considering the formidable nature of the operation. Two or three ligatures only were required.

The appearance presented after removal, and before the edges of the wound, etc., were brought together, was most ghastly. All bleeding having ceased, and no doubt existing that the whole of the diseased growth had been removed, the cavity left was filled with charpie to give support to the cheek. The flap was then replaced, and carefully brought into neat apposition by means of hare-lip pins and silver wire sutures. A pin was placed in the upper lip, and another at the angle of the mouth. The remaining parts were brought together by suture.

Scarcely any deformity was apparent after the operation; and the man was removed in a comfortable state to his bed. A pad of wet lint was placed over the face. Milk or gruel were ordered as diet.

When seen in the evening, he was very comfortable and tranquil.

June 28th. He passed a very good night; and took milk readily and easily. The wounds looked very well; there was little or no oozing.

* The case recorded, seems also to bear upon the question of murmur as engendered at the foramen ovale. Here, if ever, the condition would probably have existed for the production of such murmur from the apparent necessity of a current through the foramen, guarded, in part, by the remains of the valve. Murmur, however, was at no period detected.