perfect as in the left. Flexion of the fingers and the grasp had completely returned, and the only weak muscle was the abductor of the thumb, which had no perceptible power. Sensation was completely restored, as was easily demonstrated by touching the different portions of the arm and hand with a pin.

Electrical Reaction.—All the muscles of the arm and hand reacted to faradism except the abductor of the thumb.

REMARKS.—It will thus be seen that though the recovery had been tardy, it was complete in almost every respect, the only exception being that of the abductor pollicis which for some unexplained reason did not recover its function. The case is very encouraging, since it clearly demonstrates the possibility of restoring continuity of nerves by grafting. Whether the spinal cord in this case took up the functions of a nerve, or whether it simply served as a basis on which the nerve tissue was built up, I am quite unable to say. But that it did answer its purpose is clearly shown in the report of the case. Why restoration of function in the ulnar nerve should have been longer than in the median, I am unable to say, as the ends of the nerve were not separated more than $\frac{3}{4}$ of an inch, whereas the ends of the median nerve were between 2 and 3 in. apart. Could it be that the spinal cord offered a better medium for establishing continuity?

When in February, 1889, I related before the Clinical Society a fact (about which there could be no doubt), that after grafting a portion of the posterior tibial nerve of a man into a gap in the median nerve of a girl, sensation had returned in the fingers supplied by the median nerve within thirty-six hours after the operation, I could see that the statement was received with some incredulity. The observation, however, was made in a public institution, and there confirmed by others who had no interest in the case, so that I am able to vouch for its accuracy. The same remarks apply with regard to the observations in the present case, and I think it will be granted that both cases give much food for thought.

I feel sure that we have still much to learn concerning the repair of nerve lesions, and I am not at all certain that the conclusion of physiologists is correct when they affirm that the peripheral portion of a divided nerve always undergoes atrophy.

A CASE OF DEXIO-CARDIA WITHOUT DISPLACEMENT OF OTHER VISCERA.

By WILLIAM MACLENNAN, M.B., C.M.,

University Assistant to the Chair of Materia Medica and Therapeutics, Glasgow University; Dispensary Physician, Western Infirmary, Glasgow; Visiting Physician, Glasgow Training Home for Nurses; etc.

NUMEROUS cases of displacement of the heart arising from some obvious chest disease have been recorded by various observers, but few instances have been noted of dextro-cardia without a history of thoracic disease, past or present, and unaccompanied by displacement or transposition of the other viscera.

Byrom Bramwell records a case of congenital displacement of the heart to the right side, where the liver also remained on the right side.¹

Malformations and monstrosities which are irremediable may not be of great value to the practical physician, but they are of great interest to the anatomist and physiologist.

The following case which came under my notice recently at the dispensary of the Western Infirmary, Glasgow, seems worth recording, as it is apparently one of those rare cases of cardiac displacement, without coincident displacement or transposition of any other organ, and without a history of chest disease.

M. S., aged 15, was brought to the dispensary by an older sister "to get a bottle for a cold" of a few days' duration. When the usual examination of the chest was made inspection revealed a pulsation in the right mammary region which had all the appearance of the cardiac beat. Further examination demonstrated this to be the case.

The chest is generally well developed and presents no

formation which points to past or present disease. The movements are free and apparently equal on both sides. The right is perhaps slightly flatter than the left intracavicular region. The left clavicle, as ascertained by measurement, is fully 1 inch higher than the right clavicle from the nipple, so that the upper border of the right clavicle is on a level with the lower border of the left clavicle. Professor Cleland, to whom I showed the case, pointed this fact out to me. As a result, the left shoulder is correspondingly higher than the right. With the exception of these slight, and to the eye not very obvious, differences, the two sides are practically alike. Careful inspection of the right mammary region shows the rhythmical pulsation of the heart, which is obviously lying in its whole extent quite superficially and not overlapped by any pulmonary tissue. The vermicular form of cardiac contraction is easily made out—first, the auricular and then the ventricular systole.

The measurements of the chest are as follows:

Circumference is at—Axillary line, 26 inches; mammary line, 25½ inches.

Right chest—axillary level, 12½ inches; mammary level, 12½ inches.

Left chest—axillary level, 12½ inches; mammary level, 12½ inches.

During forced inspiration (mammary level)—right side, 13½ inches; left side, 13½ inches.

During forced expiration (mammary level)—right side, 12½ inches; left side, 12½ inches.

It will be seen from a study of these figures, that although the difference between forced inspiration and expiration is not so great as it might be, the movements are pretty equal on both sides. The percussion note over the entire left lung is clear and resonant—if anything rather exaggerated—while that over the right lung is slightly dull. Over the left mammary region the note is clear and cardiac dullness entirely absent. The respiratory murmur over the left lung is full and strong and entirely free from *râle*; that over the right lung is weaker, though equally pure. In the usual cardiac area no heart sounds are heard at all, but over the right mammary region the heart sounds are clear and sharp and very distinctly heard. The area of cardiac pulsation, which is represented in the illustration by the continuous curved line in the right mammary region, is absolutely dull, and merges below with the usual area of hepatic dullness. The dotted line encloses a space which represents visible cardiac pulsation, while just over the right nipple, at the x, is the apex

beat. Measured transversely the cardiac dullness is 2½ inches, and perpendicularly 3½ inches. The heart is obviously lying in close contact with the chest wall.

The liver is normal in position and size, and there is no

¹ *Edinburgh Medical Journal*, 1881-2, vol. xxvii, 743.

displacement or transposition of the other viscera. The abdominal aorta can be distinctly felt beating slightly to the left of the vertebral column, and the distribution of the other great vessels is normal. The radial pulses are equal in volume and force.

The boy's height is 4 feet 5 inches, and he weighs 5 stone. His general nutrition is very fair, and his colour is good. On exertion there is no shortness of breath and no suspicion of cyanosis.

The boy's mother states that he has never been ill, and not specially subject to coughs or colds. The patient's own explanation of the displacement of his heart is comical enough. When asked when and how his heart had gone to the right side, he replied, "Please, sir, my sister gied me a lickin' last week and knocked it over there." The history of this case is thus entirely negative, and therefore the more interesting and remarkable. There is nothing to lead one to believe that he ever suffered from pleurisy with effusion or any other form of thoracic disease.

He was born at the full time, and was a strong healthy child. The mother states that the labour from first to last was quite natural. She has had twelve children, but none of them had presented any abnormality. She had twins only once immediately after the birth of the boy whose case is the subject of this paper.

Numerous cases of cardiac abnormality and displacement have been recorded by various observers. Of those described, some are well known though uncommon, while others are of extremely rare occurrence.

Ectopia cordis, or extrusion of the heart through the chest wall, is not infrequently met with. Jones,² Daniell,³ Charpentier⁴ and others have recorded instances. The child in these cases may present no other abnormality, and be otherwise well developed, but it does not survive long.

Double heart is known, though it is an abnormality rarely met with. Two hearts have been found in the fetal chest due to the admixture of the two germs. For example, a case in which three ventricles were supposed to exist is recorded by Chemineau, and a second appendix has been noted in connection with the left ventricle by De Haen.

In an interesting paper on Double Monsters and the Development of the Tongue,⁵ Professor Cleland narrates the case of a kitten with double heart and double organs from fissiparous division, and, when he saw the case of the boy here described, he suggested that the cardiac displacement might be produced in a similar way from fusion of a double heart. But the history of the birth of this boy along with the physical examination of the organs rather negatives this view.

The case of which this paper is the subject is one of dextrocardia without obvious cause. There is no history of previous illness. The chest is well developed and symmetrical, and any physical signs which could account for the displacement are entirely absent. The diminished or enfeebled respiratory murmur over the entire right lung seems to me to be more due to pressure of the heart on the right bronchus than to any impairment of movement or want of development of the right lung. The exaggerated respiratory murmur of the left side is probably due to a slight compensatory emphysema. The liver, the spleen, and other viscera are in their normal position. The birth was apparently quite natural, so that probably this is not one of those rare cases of double heart arising from a fused germ or as an accompaniment of an acephalic monster. It seems rather to be one of those instances where the heart itself has probably in fetal life undergone displacement without coincident change in the position of the other viscera. In this respect the case appears to me to be of special interest.

A more easily explained and more common displacement of the apparently normal heart is a complete transposition of this organ along with a similar change in the position of the other viscera. In these the heart is found beating in the right mammary region and quite absent from the left, the spleen, the liver, and the other viscera being also transposed. The late Allen Thomson⁶ has shown from his own observa-

tion and from that of Professor von Baer, of Königsberg, that this kind of transposition permits of explanation from embryological development.

But displacements caused by disease of the lungs and pleuræ are by far the most common. Large pleuritic effusions on the left side may drive the heart right across the chest so that its apex beat may be seen about the right nipple. While in this position adhesions may form, and when the pleuritic effusion becomes absorbed the heart remains anchored in its abnormal situation. Similarly, congenital or acquired atelectasis may displace the heart. In such cases great compensatory enlargement of the sound lung takes place, which pushes the heart before it towards the collapsed side.

Displacements from disease are either (1) vertical or (2) lateral.

In the vertical displacements the heart may be lowered, due to depression of the diaphragm from emphysema, bronchitis, asthma, collapse of the stomach and intestines. In aneurysm of the aorta the heart is usually depressed without lowering of the diaphragm, while abdominal enlargements, such as acute tympanites and tumours, raise the heart.

Of the lateral displacements the commonest are those due to pleuritic effusion and pneumothorax, which tend to displace the heart to the opposite side to that which is affected. Contraction of the lung—cirrhosis and atelectasis—tend, on the other hand, to displace the heart towards the affected side.

In the above case no sign of atelectasis exists, and there is no history of a former pleurisy with effusion to explain the cardiac displacement. Probably it has been produced *in utero* by some temporary arrest in the development of the right lung. The growth of the left lung would push the heart over to the right side, and it may have been permanently retained in that abnormal position by the development of adhesions, even after the right lung had resumed its growth and become functionally active.

TWO CASES OF BLOOD POISONING IN WHICH ANTISTREPTOCOCCIC SERUM WAS USED.

BY
A. H. COOK, M.B.LOND., and A. R. COOK, M.B.,
M.R.C.S., Medical Officer to the Hampstead Infirmary. B.A., B.Sc.Lond.

As cases in which this serum has been used have not as yet been very numerous, the two given below may be thought worthy of recording.

J. M., aged 56, a labourer was admitted on March 18th into the Hampstead Infirmary suffering from an injury to his right leg. He stated that three days previously, while on duty as a night watchman, he hit his right shin against a pile of timber in the dark. He went to work on March 17th and 18th, but had to give up work on the evening of March 18th, and was admitted into the infirmary.

Condition on Admission.—The right leg was very inflamed from ankle to knee, and the temperature was 103.2° F. There was a small lacerated wound about the size of a shilling over the crest of the tibia about 3 inches below the knee. He complained of great pain over the leg. The temperature that evening was 104.4 F. Simple boracic fomentations were applied.

On March 19th, the redness had spread above the knee, and three incisions were made in the most boggy parts. The temperature fell, but rose again to 103° in the evening. On March 20th the inflammation had spread to the back of the thigh. On March 21st his condition was much about the same. He had two injections of morphine on account of the great pain. On March 22nd the leg, though discharging freely, looked very bad. The temperature varied between 101 and 102°, and on March 23rd a fresh incision was made, and much pus let out.

On March 24th the condition of the leg looked very critical, the inflammation was rapidly extending, and it was feared amputation might be necessary. In the evening, the temperature being 101.4°, 20 c.cm. of antistreptococcic serum

² S. Jones, *Ectopia Cordis*, *Trans. Path. Soc. London*, 1855, vi, 98 to 106.

³ Edw. Daniell, *BRITISH MEDICAL JOURNAL*, 1860, p. 776.

⁴ Charpentier, *Ectopie Cardiaque Thoracique*, *Union Méd.*, Paris, 1883, 3 to 5, xxxvi, 654.

⁵ *Journal of Anatomy and Physiology*, 1874, vol. vii, p. 250.

⁶ *Glasgow Medical Journal*, July, 1853.