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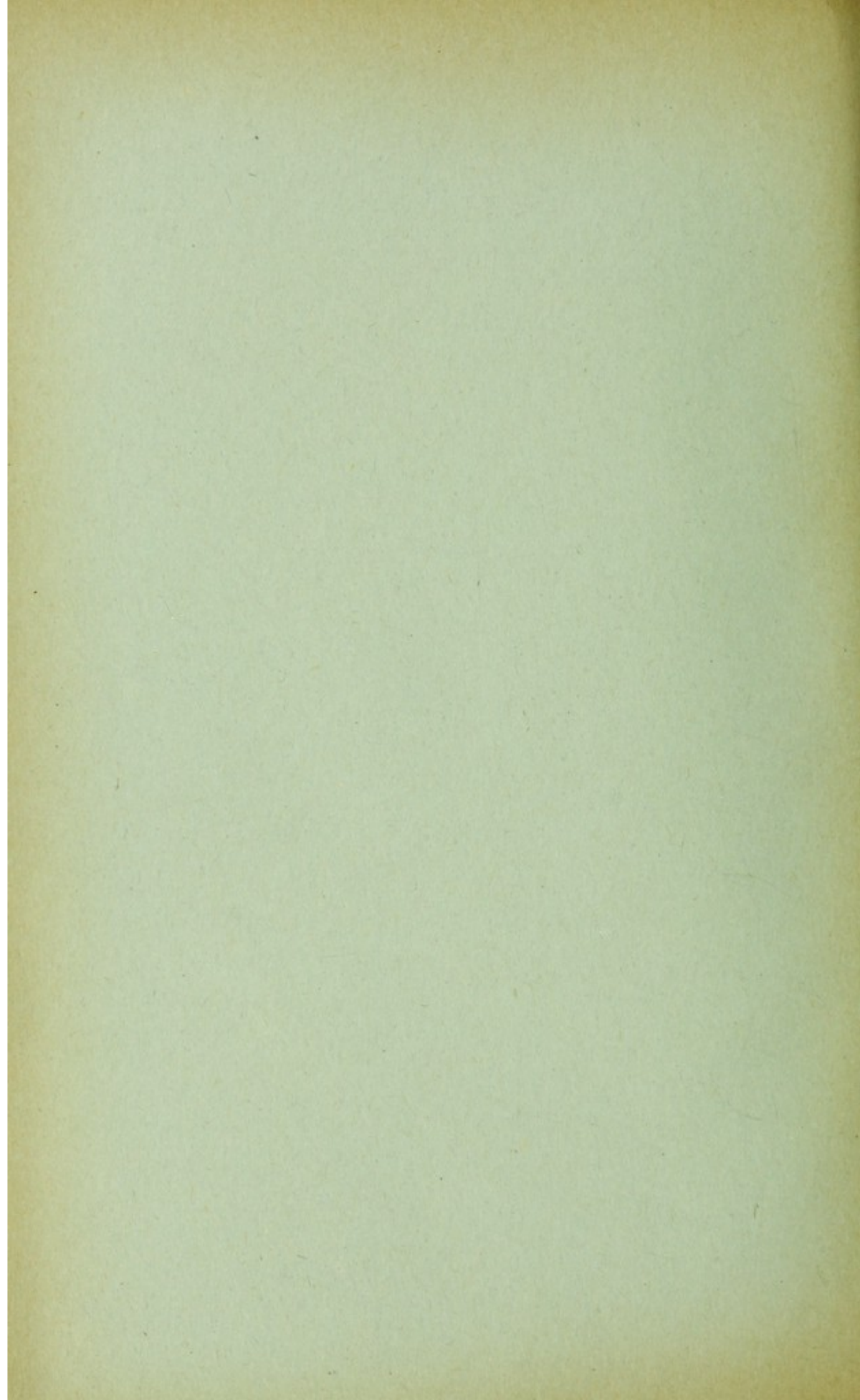
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PARTIAL DEFICIENCY OF THE PERICARDIUM.¹

By ARTHUR KEITH, M.D.

IN the Museum of the London Hospital Medical College there is a specimen showing a wide natural deficiency in the left half of the pericardium. It was described in the *Transactions of the Pathological Society of London* in 1839 (vol. xii. p. 222), by Curling, and this specimen, with four others, were all that were known to Peacock in 1866, when he published his work on *Malformations of the Human Heart* (2nd edition). The lesion gives rise to

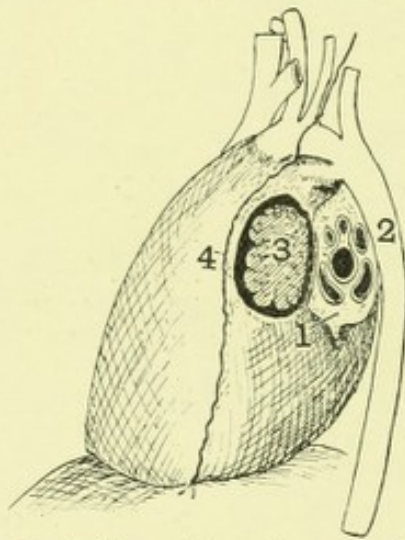


FIG. 1.—Pericardium of heart of an anencephalic fetus showing a patent pleuro-pericardial foramen.

- 1, Root of left lung.
- 2, Descending aorta.
- 3, Left auricle protruding through foramen.
- 4, On pericardium in front of the phrenic nerve.

no symptom during life. The deficiency is always found on the left side, and in these cases the phrenic nerve is found to descend behind the costal cartilages parallel with and quite close to the internal mammary artery. The mediastinal aspect of the left lung lies directly on the heart.

When I first came across these cases I completely failed to explain the condition of parts on an embryological basis, but quite recently I discovered the explanation while dissecting a group of malformed fetuses. In an anencephalic full-time child there was a deficiency in the left side of the pericardium, through which the left auricular appendix protruded (fig. 1). The opening had a rounded, smooth margin, and was bounded behind by

¹ Read before the Anatomical Society of Great Britain and Ireland, March 1906.

the root of the left lung (see fig. 1); in front of the foramen, on the pericardium, descended the phrenic nerve. The opening is clearly a patent pleuro-pericardial foramen.

In another foetus, which was the subject of a number of malformations, there was a large deficiency of the pericardium on the left side. On removing the sternum and costal cartilages, a strong fibrous membrane was found behind them on which the phrenic nerve descended. This fibrous membrane was found to be the pericardium. In the figure a great part of it is

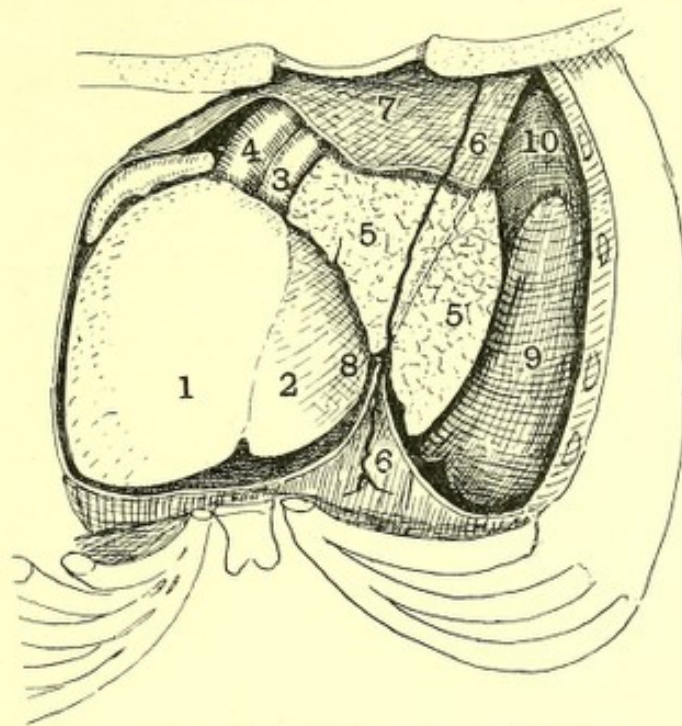


FIG. 2.—Thorax of a malformed foetus from which the sternum and cartilages have been removed. The heart and lungs have been exposed by the removal of the anterior wall of the pericardium.

1, Right ventricle; 2, left ventricle; 3, pulmonary artery; 4, aorta; 5, left lung; 6, phrenic nerve; 7, upper part of pericardium; 8, junction of pericardium with pleura at the lower margin of the greatly expanded pleuro-pericardial opening; 9, liver; 10, stomach. Both of these organs lie in the left pleural cavity, there being a wide pleuro-peritoneal communication.

shown as cut away, to expose the heart and half of the left lung which lay behind it. The left margin of the membrane descended in front of the lung and turned backwards at the lower margin (see fig. 2, 8). The greater part of the left pleural cavity was occupied by the liver, stomach, and spleen.

It was evident that the condition of parts had been produced by the lung bud growing within and expanding the communication between the pericardium and pleura, for that communication lies immediately ventral to the point at which the lung bud appears. The condition should be described as dilatation of the pleuro-pericardial foramen.

