

be sold, and thus afford the instrument for the execution of those criminal offences for which it has so long been famous.

8, *Hart Street*, 3d March 1838.

ART. XI.—*Case of Anthracosis or Black Infiltration of the whole Lungs.* By THOMAS STRATTON, M. D.

THE interesting appearance, of which the following case is an instance, was first described by the late Dr J. C. Gregory in 1831, and since that time several cases have been recorded.

On examining the bodies of elderly persons, we find the lungs always of a dark colour. Sometimes this colour is much deeper in various parts of the lung, which then are as black as charcoal; at other times the whole lungs are uniformly of this charcoal colour.

The first appearance is considered healthy; the second receives the name of melanosis; and the third is what has been called the black lung of coal-miners, and may more shortly be defined *anthracosis*, (*ανθραξ*, charcoal.)

On September 29th 1837, I was invited by Dr Crawford to witness the inspection of the body of a patient to Dr Leitch. The history of this patient is as follows.

George Harrison had worked in a coal-mine for fifty years; at his death, he was aged 70; for the last four years he has been an inmate of Tynemouth Workhouse; he had not worked in a coal-mine for some time previously. For some years before his decease, he has been affected with symptoms of chronic *bronchitis*; the *dyspnoea* was not considerable; his expectoration was small in quantity, and never of a black colour. There was mucous rattle more on the left than the right side of the chest. On percussion, the sound was natural. Latterly he complained much of pain in the right hypochondrium, and had dropsical symptoms in the abdomen and inferior extremities.

*Inspection.—Thorax.*—On the left side the *pleura pulmonalis* and *pleura costalis* were connected by extensive and firm adhesions. Both lungs uniformly presented a perfectly black appearance externally and when cut into. A portion of them rubbed on the hand left a black stain, which was with some difficulty washed off, and a bit put into water gave it the colour of china-ink. Throughout both lungs were seen and felt hard masses of black matter from the size of a bean downwards. These masses were more numerous in the central parts of either lung, and also were in greater abundance in the central part of the left than of the right lung. In the left lung were several chalky bodies, encased in this black substance. No black substance was found in the bronchial glands. Nor was black matter seen in any other part of the body which was examined.

The heart was natural.

*Abdomen.*—A considerable quantity of fluid was found within the cavity of the peritoneum. The liver and spleen were much diminished in size. The kidneys were healthy.

Harrison's lung I compared with that of another subject, formerly a man-of-war's man, aged 72. This lung was very much lighter in its colour than Harrison's, and did not leave a stain when rubbed on the hand.

It is proper to mention that the coal-miners in this district do not use a lamp attached to the forehead as they do in the west of Scotland.

On the left side there was a greater number of black bodies, more pleural adhesion, and more *bronchitis* than on the right side. It is interesting to observe that these three conditions existed together.

If we suppose the matter of the anthracosis to have been inhaled by the man whilst at work in the mine, and that during the five or six years that he discontinued this kind of work, the lungs were endeavouring slowly to relieve themselves of the foreign matter, then the obstacle to free action of the left lung from pleural adhesion, and the smaller quantity of air which could be admitted along the left bronchial tubes thickened by inflammation, and partially obstructed by mucus, will explain how the anthracosis had become less in the right lung, when these states existed in a much less degree.

If the difference in the quantity of anthracotic matter in the two lungs is not to be explained in this way, then, either, more inhaled black matter has been originally received by the left lung or the function of the elimination of carbon has been less imperfectly performed in the right than in the left lung. With respect to black expectoration in cases of *anthracosis*, I may refer to the instructive paper by Dr William Thomson, in the London Medico-Chirurgical Transactions for 1836, and of which a short account was given in the last Number of this Journal (January 1838, p. 260.)

Dr Cumin's patient (Ed. Med. and Surg. Journal, Vol. xlii. p. 324.) appears to have been affected with *phthisis pulmonalis*, complicated with anthracosis, as *phthisis* sometimes is with melanosis. Dr Laurie's and Dr Buchanan's cases (ib. pp. 328, 329,) prove the existence of anthracosis without the slightest pectoral affection. Dr Buchanan's case of Lyall seems to have been anthracosis along with peritoneal melanosis.

*Melanosis* of the lung appears to differ from *anthracosis* in the following particulars. *Melanosis* exists in isolated portions, while *anthracosis* is general over the lung. Of melanosis, the local effects are dyspnoea, cough, which is often dry, but sometimes attended with mucous expectoration, and mixed with some puriform sputa, while anthracosis may exist without any chest symptoms whatever. Of *melanosis*, the most constant constitutional symptoms are the gradual diminution of the vital powers, and diminished nutrition followed by hydropic affections, whereas anthracosis often is unexpectedly found to be present when death has occurred from other causes. In *melanosis*, black deposits are generally found in other parts of the body besides the lungs, whilst anthracosis is met with in these alone; and lastly, the matter of melanosis loses its black colour when treated with chlorine, (Dr Henry,) whereas the matter of *anthracosis* retains its colour when so treated (Professor Christison.)

October 1837.