never very intense, but it continued. Abdominal, or for that matter any, aneurysm is so rare in a woman that neither the husband nor any of his medical friends believed in my diagnosis. Eventually the patient saw by my wish an eminent London surgeon, who scoffed at the idea of an aneurysm, and promised immediate relief by removing an ovary adherent to the aorta. However, at the operation he found no such adherent ovary, but a well-marked aneurysm, and the patient has continued to suffer pain ever since.

But this case and other recorded cases did not suffer from the intense pain and restlessness displayed in our case. Dr. Gates and I thought, therefore, that we were dealing with a dissecting aneurysm, and that the separation of the coats of the aorta was the cause of the intense pain described. A dissecting aneurysm would also more probably account for a small leakage of blood into the pleural cavity, and so for the dullness found at the base of the left pleura.

Having, then, made our diagnosis, we thought we might get confirmation of it by an x-ray photograph, and Dr. Hodgson, head of the electrical department at the Royal Devon and Exeter Hospital, having a movable apparatus that he can take to patients' houses, we asked him to take a radiogram of the chest. This he did three days after the onset, and this radiogram (see Special Plate) clearly shows an aneurysm arising near the arch of the aorta.

The patient lived for nineteen days after the onset of the symptoms, being kept quiet in bed, and his pain kept in abeyance by an injection of 1/4 grain of morphine night and morning. On two occasions during this time he had severe attacks of pain with collapse, caused once by his getting out of bed against orders, and once by his getting excited about something. The temperature was at first slightly raised (99° to 100°) for four days, it was then normal for three, and then there was a rise to 101° every evening, falling to about 99° in the morning. His systolic blood pressure was at first 200 to 195, but towards the last week it varied between 162 and 159. The physical signs on the left side of the chest varied, owing to an increasing amount of fluid forming in the chest, due, as it turned out, to increasing pleuritic effusion. No bruit was to be heard over the heart or over the aorta until the day before his death, November 18th, when a well-marked humming bruit was heard over the aorta behind at the level of the fourth dorsal vertebra. On November 19th he was quiet and free from pain all the morning, but at about 4 p.m. he said he felt faint and died almost immediately. A *post-mortem* examination was performed by Dr. Solly, pathologist to the hospital, the next day, and his account is as follows:

The left pleural cavity was sealed by adhesions, and on opening this blood-stained fluid was seen, and a large amount of blood clot, mostly recent, but some of some days' standing, was removed. The heart was enlarged and showed hypertrophy, particularly of the left ventricle, but there was no valvular disease present. There was a definite dissecting aneurysm, about the size of a small orange, at the apex of the transverse arch of the aorta, caused by the rupture of the inner coat of the aorta at this situation, where it was definitely weakened by calcareous patches of atheroma. This dissecting aneurysm had ruptured into the left pleural cavity and so caused death from haemorrhage.

TRAUMATIC ARTERIO-VENOUS ANEURYSM.

BY

GEO. G. FARQUHAR, M.B., Ch.B., F.R.C.S.Eng.,

HONORARY SURGEON, DARLINGTON HOSPITAL.

[With Special Plate.]

In October, 1918, a man aged 49 fell from a bicycle, receiving a severe blow on the right side of the crown of the head. He was unconscious for several hours. A fortnight afterwards the left eye became prominent and its vision defective. Within another week the right eye began to protrude, and he was sent into Darlington Hospital by Dr. Williams of Richmond (Yorks).

On admission his appearance was as shown in Fig. 1 (see Plate). Both eyes were in a state of extreme proptosis, the conjunctivae chemosed, oozing a bloody serum and projecting in thick rolls between the lids and the corneo-scleral junction. Both corneae had lost their lustre, and their ground-glasslike surface prevented a clear view of the fundus. The pupils were slightly dilated, and vision in each eye was only 6/6. Speech was slow and the mental condition sluggish and depressed. The patient complained of a confused sensation in the head but no real headache. The temperature was normal, and there was no obvious sepsis about the nose or jaws to suggest cavernous sinus thrombosis. No pulsation could be detected about the orbits.

Suspecting arterio-venous aneurysm, I listened over the left temple and heard a loud systolic bruit. This was equally well heard over the right temple. Pressure over the left carotid tubercle silenced this bruit; pressure over the right had no effect.

The injury had evidently caused a fracture of the base of the skull, wounding the left internal carotid artery as it lay in the inner wall of the left cavernous sinus, and producing an arterio-venous aneurysm. Through the circular sinus the arterial pressure had reached eventually the right cavernous sinus, and then proptosis became bilateral.

On October 24th I tied the left common carotid, and the intracranial bruit ceased immediately. In a few days there was less oedema of the conjunctivae, and this improvement continued steadily, the proptosis diminishing *pari passu*. In three or four weeks all oedema had disappeared, and vision in the right eye had improved to 6/6. Vision in the left eye was still only 6/60, and this cornea remained "steamed." The left eye now developed an internal squint, due probably to injury of the sixth nerve by the fracture or by the subsequent arterio-venous aneurysm. As both eyes had been immobilized by oedematous surroundings this paralysis of the sixth nerve was only evident on subsidence of the swelling and return of the mobility.

Ligature of a common carotid is said to be followed by mental symptoms in some cases. In this case no ill effect resulted; on the contrary, the patient became more alert and cheerful.

One of the photographs in the special plate shows the distressing appearance of the man on admission, and the other shows the improvement three weeks after operation. The slight swelling of conjunctiva still visible above the right lower eyelid disappeared entirely during the following week. After leaving hospital the patient was lost sight of, and no information could be gathered about the final result as regards vision of the left eye and strabismus. I am informed that a year after operation he was apparently well and engaged in his usual occupation.

PNEUMOTHORAX IN A BOY AGED 7:

RECOVERY.

CLINICAL AND X-RAY REPORTS.

BY

WILLIAM B. MARTIN, M.R.C.S., L.R.C.P., D.P.H.,

TUBERCULOSIS DISTRICT OFFICER, KENT COUNTY COUNCIL;

AND

ROBERT KNOX, M.D.,

RADIOLOGIST, KING'S COLLEGE HOSPITAL.

[With Special Plate.]

PULMONARY tuberculosis as it occurs in the adult is comparatively rarely found in children. In them thoracic tuberculosis more usually manifests itself as an enlargement of the lymphatic glands at the root of the lung, a condition which can be recognized by physical examination and by radiography. The relationship between pulmonary and glandular tuberculosis and age is not yet by any means clear, and is a very wide subject which lends itself to endless discussion. Some Continental writers, quoting the findings of hundreds of autopsies, assert that tuberculous enlargement of the glands at the root of the lung in children is always secondary to a lung focus or foci.

They describe such a focus in comparison with the adult pulmonary lesion as being usually very small, and state that often in children past infancy it is found to be in a state of arrest, cavity formation having sometimes taken place before this has come about. These foci are usually situated subpleurally, but on account of their relatively minute size it is not surprising that clinically, or even radiographically, their presence cannot be often demonstrated, and of course this would be all the more difficult in the case of a focus situated on the diaphragmatic or mediastinal surface. I recently came across a very interesting case of pneumothorax in a boy, aged 7, who had signs of intrathoracic glandular tuberculosis without any evident pulmonary lesion which would appear to be quite possibly an illustration of such a condition. He came under notice as a "contact" to his brother, who was already attending one of the tuberculosis dispensaries under my charge for tuberculous cervical glands, and I first examined him on February 18th, 1920.

His father had an enlarged gland removed from his neck in his youth, but since that time has not shown any evidence of tuberculosis. His mother died in childbirth; she is stated to have usually been in "poor health," for which apparently no definite cause had ever been assigned. There is no other history of tuberculosis in the family.

He was said to have attended school regularly, to be generally full of life and mischief, and rarely complained of anything except

occasional mild attacks of abdominal pain and distension, sometimes accompanied by diarrhoea. Occasional cough had been noticed, but no dyspnoea or sputum.

He gave me the impression of being of an unusually excitable disposition. His chest and arms were thin, but he was not much under weight for his age. It was noticed that the venous network was unusually apparent under the skin of both temporal, upper frontal, left cervical, and anterior thoracic regions. The abdomen was slightly distended, but no definite thickening, dullness, or tenderness could be made out. Two small glands were to be felt in the left anterior triangle of the neck and one in the right. Both tonsils were moderately enlarged. Paravertebral areas of comparative dullness were elicited on light percussion in both upper interscapular regions, more particularly on the right. The breath sounds were relatively harsh over the same areas and over both upper apices, especially the right. No moist sounds were heard except an occasional rhonchus, clearing on coughing, at the left base behind. D'Espine's sign was present.

A 50 per cent. solution of old tuberculin gave a positive von Pirquet reaction. I made a diagnosis of tuberculosis of the mediastinal glands with a preponderance of infection on the right. A skiagram of the chest was not taken at the time, but Fig. 2 (see Special Plate) confirms my diagnosis and demonstrates the apparent absence of definite pulmonary disease of the usual adult type. I considered that the mesenteric and cervical glands were also infected.

He attended the dispensary again three weeks later, and there was then apparently no change in his condition. On the occasion of his next visit—four weeks afterwards—he was obviously suffering from dyspnoea, and his face and ears were slightly cyanosed. His aunt gave a history that she first noticed the dyspnoea two weeks previously, that it appeared to come on suddenly after he had been crying hysterically in a fit of "temper" for some time and that he had complained of pain in the abdomen and chest and had vomited several times. She had called in a doctor, who, she said, made a provisional diagnosis of appendicitis, and advised rest, since when the breathlessness had improved and vomiting ceased.

On examination it was seen that the previously noted subcutaneous venous engorgement had become more apparent, and the apex beat of the heart was plainly visible in the right mid-axillary line. There was no heart dullness discoverable on the left side, and the whole of that side, back, and front gave out a tympanic note on percussion.

The right supra- and infra-clavicular regions were also tympanic. On auscultation tubular breathing was heard in the right supra-clavicular fossa, and over the other areas of abnormal resonance the typical signs of pneumothorax were found—amphoric breathing (with the metallic quality well marked) and "bruit d'airain." The boy's chest was x rayed by Dr. Knox at the King's College Hospital, Denmark Hill, and my diagnosis of pneumothorax confirmed (see Fig. 1).

As the respiratory distress appeared to be becoming less, and as there was no anaesarcia or evidence of fluid in the pleural or abdominal cavity, I decided not to attempt artificial release of the imprisoned air, even though it was evidently still exerting considerable pressure. In addition to the displacement of the heart this was indicated by the bulging of the intercostal spaces on the left side, slight convexity of the dorsal spine to the right, and the evident encroachment of the upper portion of the left pleural sac over the uppermost anterior surface of the right upper lobe.

Within a few weeks the boy regained his normal appetite and mental vivacity, and could walk about quietly without apparent respiratory embarrassment, but the physical signs showed no alteration whatever for three months, when it was first noticed that the amphoric breathing was losing its metallic quality and was not so intense.

At the end of six months after the "accident" amphoric breathing had almost disappeared, but "bruit d'airain" could still be demonstrated all over the left side, but not over the right clavicular regions as before. There was no apparent change in the position of the heart. The boy could walk about now quite easily, but still had to refrain from "playing" outside.

Nine months after the accident his chest was screened again, when it was found that the heart was still situated entirely to the right of the sternum and the left lung still appeared to be quite collapsed.

Six weeks later the amphoric breathing was found to have given place to diminished breath sounds of a normal type, and it was clinically clear that the lung was functioning to a certain extent. The apex beat of the heart was at that time seen to be just to the left of the sternum; it kept moving more and more to the left until, twelve months after the date of onset of the pneumothorax, it had practically resumed a normal position.

At the present time the breath sounds on the left are almost as full as on the right, and judging from his general condition it would never be suspected that he had been through such a severe complication. He runs about now, has tales to tell of his prowess at boxing, and evidently flouts my veto against football irksome.

The condition of the chest sixteen months after the "accident" is shown in Fig. 2. The left lung and heart are seen to have almost returned to their normal positions, and—I wish to repeat—the absence of a gross pulmonary lesion, such as would almost certainly precede such a complication in an adult, is very noticeable.

The determining cause of pneumothorax in the adult is usually the rupture of a superficially placed cavity, and an explanation of the "accident" in this case might be the rupture of a small dry inactive cavity, such as that described at the beginning of this article. Another cause might have

been the caseation and cavitation of a bronchial gland and contiguously placed lung tissue resulting in the formation of a sinus between the pleural cavity and the lung. Though children as a rule bear the toxæmia of active tuberculosis well, one would have expected more definite evidence of activity before and after the "accident" if this had been the case. Nor at any time has there been the slightest evidence of pus or fluid in the pleural sac, nor any sputum.

The pneumothorax would appear to have been of the valvular variety, the "flap" of the valve eventually becoming effectually closed. It is easier to conceive of the permanent closure of such a flap if it was composed of a piece of the free visceral pleura (evidently there were no old adhesions, as the pneumothorax was so complete) than of the efficient blockage of a sinus running through the tissues at the root of the lung, which must be involved in much chronic thickening and consequent loss of vitality and elasticity.

There is undoubted evidence of the spread of tuberculous infection by the blood stream and by direct continuity of tissue, and some apparently believe that it may spread along the lymphatics against the direction of the lymph flow; but, after all, it is an academically accepted fact that infection of a lymphatic gland is secondary to a focus situated in the area drained by that gland, a condition which in children is markedly exemplified by early enlargement of the gland.

This is the main theoretical argument in favour of the doctrine of the existence of a primary pulmonary focus in all cases of tuberculosis of the glands situated at the root of the lung.

Dr. Knox has kindly interpreted the main points shown on the excellent radiograms he has made as follows:

In Fig. 1 (posterior position) is seen the chest of a child showing complete pneumothorax on the left side. The heart and mediastinal contents, including the collapsed left lung, are displaced to the right of the dorsal spine. The right lung is somewhat compressed, the trachea is situated well over to the right side, and is oblique in direction. The diaphragm is fairly high in position on the right side and very much depressed on the left. On the fluorescent screen the movement of the diaphragm in respirations was irregular. The condition depicted is one of complete pneumothorax of the left side of the chest, with total collapse of the left lung, displacement of the heart, and the mediastinal contents to the extreme right of the thorax.

On July 19th, 1921, the patient was again examined and a very marked change observed (Fig. 2, anterior). The left lung has expanded, the right side of the diaphragm moves freely, the left side is more circumscribed in deep inspiration. The heart has not yet recovered its normal position, the apex being somewhat tilted upwards to the left. The left lung does not appear to have fully recovered its functional activity. The heart is somewhat enlarged; the right lung has expanded well. There is evidence of increased density of the roots of the lungs, particularly the right, where the glands are enlarged.

The condition revealed by the x ray examinations at various dates is extremely interesting. The duration of the symptoms extended over several months and there was no obvious improvement in the condition. The prevalence of the pneumothorax was strongly in favour of a valvular inlet into the pleural sac. The expansion of the lung seen in the later picture made it possible to determine the cause of the pneumothorax, the right root showed a considerable increase of density, and there is also evidence of a peribronchial thickening. There is evidently tuberculous infiltration of the root of the lung. This, however, could not be detected in the earlier pictures on account of the collapse of the lung upon the root.

FOREIGN BODIES IN THE GASTRO-INTESTINAL TRACT IN ACUTE APPENDICITIS.

BY

WILLIAM C. ALLARDICE, M.D., F.R.C.S.E.,
SURGEON, NORTH STAFFORDSHIRE INFIRMARY.

[With Special Plate.]

CONSIDERABLE interest having been lately displayed as regards the presence of foreign bodies in the gastro-intestinal tract, the following case seems worthy of record:

A woman, aged 35, was admitted under my care as a case of acute appendicitis. The only history given by her husband was that she had been ill for a few days, and that she had recently been in an asylum. As she had severe pain with marked rigidity in the right lower quadrant of the abdomen, operation was arranged for. When under the anaesthetic the nurse informed me that the patient said she had swallowed

DAVY AND GATES : CASE OF DISSECTING ANEURYSM
OF THE AORTA.

MARTIN AND KNOX : PNEUMOTHORAX IN A BOY.

FIG. 1.—Posterior.

FIG. 2.—Anterior.

ALLARDICE : FOREIGN BODIES IN THE GASTRO-INTESTINAL
TRACT IN APPENDICITIS.

Skia-gram taken after first operation, showing fork, hairpins, etc., still
in the abdomen.

FARQUHAR : TRAUMATIC ARTERIO-VENOUS ANEURYSM.

FIG. 1.—Showing appearance of the
patient on admission to hospital.

FIG. 2.—Showing improvement three
weeks after operation.