covery, the disease was syphilitic. This inference is by no means valid. There was no evidence of syphilis, except that of which Mr. Couper speaks doubtfully after making his second ophthalmoscopic examination. I do not say that there was not syphilitic disease. All I deny—and I deny it strongly—is the assertion that recovery from such symptoms after antisiphilitic treatment points necessarily to recovery from syphilis. It is certain that recovery for a time from grave conditions, with intense headache and double optic neuritis, occurs when subsequent *post mortem* examination shows local gross organic disease of other kinds than syphilis. I treated her energetically for syphilis, partly on the chance of syphilis being present. I should, however, have adopted the same treatment could I have been certain that there was no syphilis. For the optic neuritis in this case, and, no doubt, the pathological condition for some other symptoms, as in cases of undoubted local gross disease of the encephalon, are secondary changes; optic neuritis is, I think, amenable to treatment, whatever kind of gross local organic disease leads to it.

Here, urging the thing *ad nauseam*, as I have been doing for very many years, I repeat that optic neuritis may exist with good sight; and my impression is that, if found in an early stage, iodides or mercurials would prevent sight from failing. I know that the changes often clear up under treatment. That they would not without I do not know, as I never run the risk of not using either the iodide of potassium or mercury, or both. Nevertheless, my impression is that there would be fewer blind people if, by routine use of the ophthalmoscope in cases of severe headache, optic neuritis was discovered early and treated promptly.

Everybody knows that there may be an abscess or a tumour in the brain of a patient who has no symptoms which lead him to seek medical advice, and that we sometimes find local organic brain-disease, which, during life, we never suspected. It is certain, too, that a patient may have an acute illness from local organic brain-disease, and recover—usually, but not always, with some incapacity, mostly defective sight. (Children with atrophy of the optic nerves are brought to us, with the statement that they became blind during “bilious” or “gastric” fever.) These recoveries, partial or complete, or recovery to good general health, are sometimes put down as so much recovery from meningitis. Without denying that meningitis is the cause in some, I believe they are more often recoveries from acute illness dependent on local gross organic disease. I know some of them to be so. We had a man under care in the London Hospital for severe headache and optic neuritis, who got quite well to all appearance; his sight had never been affected. He was about the wards, and read the newspaper regularly. One day he had hæmorrhage from a brain-tumour, and died. Very many years ago, there was under my care a boy who had an acute illness, with severe headache and optic neuritis, who recovered, except that the sight of one eye was much impaired. He was well enough to attend as an out-patient in the ophthalmic department at Guy’s; but later on, brain-symptoms appeared again. At this juncture the case diagnosed itself: a tumour, cancerous, opened its way through the base of the skull into the mouth; we saw the rest of it inside the head *post mortem*.

The statement that there could not be tumour in a case of recovery, at least temporary recovery, from the symptoms alluded to, is a theoretical one. The fact is, that recovery does follow when there is tumour. Whilst we may not like to affirm that the girl whose case I have related has still intracranial tumour, still, he would, I submit, be a very rash man who would say she had not.

I will mention, too, that tumour may exist for years from the first symptom. A patient of mine had epileptiform seizure limited to the right arm for about six years. He had then no headache, and no neuritis. These symptoms come on later; he died, and tumour of the brain was found. I have seen a boy about seven years before he died with tumour of the middle lobe of the cerebellum for double optic neuritis (with good vision) and reeling gait. In fact, the boy was killed; he had meningeal hæmorrhage from a fall. I may mention that a correct diagnosis was made in this case at the very first by my friend Dr. Young of Aldershot.

Absence of Deafness.—It is very remarkable that, whilst blindness is common in intracranial disease, deafness is rare. (We are not speaking of cases where deafness depends on organic disease of the ear, and in which the ear-disease causes cerebral or cerebellar abscess or meningitis. Most of them are cases of “bone-disease” causing intracranial disease, not of deafness resulting from intracranial disease.) I think that persistent deafness of nervous origin, in a case of intracranial tumour, is a localising symptom; that it points to disease involving or compressing, directly or indirectly, the auditory nerve. I would not deny, however, that disease of Ferrier’s auditory (cerebral) centre on both sides might entail some deafness. With this exception—and I have yet not seen such a case—deafness of nervous origin has an entirely different diagnostic

value from amaurosis from optic neuritis. The former may be of localising value, the latter never is. The former, by itself, is of no value as to kind of brain-disease; the latter, by itself, is of much value towards the diagnosis of local gross disease.

ON ANTHRAX AND ANTHRACÆMIA IN WOOL-SORTERS, HEIFERS, AND SHEEP.*

By JOHN H. BELL, M.D., Bradford.

FOR nearly forty years it has been known in the worsted district around Bradford, that sorters of alpaca and mohair not unfrequently died from a peculiar and rapidly fatal disease, the cause and nature of which were not understood. Although unaccountable, the deaths were generally certified as from ordinary forms of disease. Many deaths from this disease were not recognised as such, and, when they were, single deaths with some weeks’ interval were not much noticed; but, when three or four occurred within as many weeks, of men working in the same room or for the same firm, the sorters became alarmed; public interest was excited; *post mortem* examinations, investigations, reports, and recommendations followed; but all ended without any satisfactory result. The number of deaths increased in proportion to the quantity and quality of these materials which were used. It appears strange that, during all this time, the knowledge of the existence of this disease should scarcely have passed beyond the immediate neighbourhood of Bradford; or that it has not been detected in other towns, where similar wools and hairs are used. I believe it will be found, if looked for, not only among hair- and wool-sorters, but also among other workpeople who are known to suffer occasionally from anthrax or malignant pustule, which is the external form of this disease.

My attention was first directed to this disease three years ago, in consequence of a man whom I knew well dying within seventeen hours from the apparent commencement of his illness. He was at work in the morning; but, feeling weak, left during the forenoon, walked two miles and a half to his home, went to bed, had no rigor, cough, pain, vomiting, or purging—only a feeling of exhaustion, with quickened breathing, low external temperature, and collapse, terminating in death the same night. Since then, in consequence of repeated and positive statements in the local papers to the effect that these deaths might easily be prevented, several inquests have been held on some who have fallen victims to the disease; juries have made recommendations to employers; public attention has been aroused; numerous paragraphs and cases have appeared in the medical periodicals; the Local Government Board have sent down Mr. Spear to investigate and report upon it; the Bradford Medico-Chirurgical Society have appointed a commission to inquire into the causes, nature, prevention, and treatment of this and other allied affections; and Professor Greenfield is doing important work in his special department; so that by-and-by we expect to have full and reliable knowledge respecting it.

During the last few months, I have seen several cases of external anthrax in persons who have come into contact with mohair or dry wools. This has not previously been associated with “woolsorters’ disease”; it is, however, the local or external form of this disease, and is caused by the introduction of the poison at the part affected. The constitutional form of anthrax, as it affects woolsorters, is not generally attended by external or internal pustule. It is a general blood-disease, caused by the introduction into the circulation of the spores of the *bacillus anthracis* derived from the fleeces of animals which have died from this disease. As there is no anthrax, I have called the disease anthracæmia. It is sometimes epizootic in the countries where these hairs and wools are grown. It affects persons who come into contact with the animals; but their illness and rapid death are not attributed to this cause. The blood of a person suffering from woolsorters’ disease or anthracæmia, when injected under the skin of a rabbit or other animal, produces death in two or three days; and the blood of these, when examined shortly after death, sometimes swarms with the *bacillus anthracis*.

As illustrations of different forms of woolsorters’ disease, I will mention very briefly some cases which have come under my notice during the last two months.

CASE I. *External Anthrax without Constitutional Symptoms.*—J. G., aged 36, for three months had been sorting Persian and Bokhara wools. On Tuesday, June 15th, he noticed a small pimple or heat-spot on the outer surface of the left arm, over the elbow-joint. On the fourth day, it was inflamed and painful. On the seventh day, there

* Read in the Section of Public Medicine at the Annual Meeting of the British Medical Association in Cambridge, August 1880.

was a bulla one inch in length, three-quarters in breadth, with an irregular outline and a dark-coloured base. For an inch and a half surrounding this, the tissues were hard. The skin was inflamed upwards to near the shoulder, downwards to near the wrist, and extending two-thirds round the arm. He did not complain of feeling ill. Pulse 68. He slept well, took his food as usual, and walked out about home. Two days afterwards—that is, on the ninth day—the bulla had gone, and a black eschar remained; but surrounding this was a rim of small vesicles, which disappeared in a day or two. The inflammation rapidly subsided, and the eschar separated. When convalescent, his pulse was 68—the same as when the arm was most inflamed. Fluid taken from the bulla on the seventh day contained a few bacilli. Tubes were sent to Professor Greenfield, who reported that “inoculation with the clear serum produced anthrax in a guinea-pig, which died fifty-four hours after inoculation”. Blood taken from the indurated tissue immediately surrounding the eschar did not appear to contain any bacilli, and immediate inoculation with it failed to produce any effect.

CASE II. External Anthrax with Severe Constitutional Symptoms.—W. E., aged 15, was employed about a mill where mohair was used, which had recently been fatal to several sorters. On June 23rd, 1880, during dinner-hour, he went into the sorters' room to see his brother, and, feeling tired, lay on some Van mohair. Two days afterwards, he experienced a slight tickling sensation on the left temple; and on the seventh day a small pimple appeared. The eyelids, side of the face, and neck were much swollen. He went to work, but could not continue it. On the ninth day, he was very ill, and Dr. Logan of Bingley was sent for. He had then a vesicle of the size of a sixpence, with dark base, on the left temple, one inch from the external canthus; much swelling of eyelids, parotid and submaxillary glands. Pulse 130, with delirium. In a few days, the severe symptoms declined; the swelling gradually subsided, and the eschar separated. This local form of anthrax in woolsorters and others who come into contact with hairs and wools is rare; but fatal cases have recently occurred. The more common form of “woolsorters' disease” has no local manifestation; but, as it is produced by the same material as anthrax, I have called it anthracæmia. When the poison is introduced through the lungs, it produces pulmonary anthracæmia; when through the alimentary canal, it produces enteric anthracæmia.

CASE III.—J. G., aged 49, a mohair-sorter, on July 17th got wet, and thought he had taken cold, as during the following few days he felt sickly, and his bones ached. On July 22nd, he left work about noon; went home to bed; said he ached all over. He had no sharp pain, but had slight cough, some expectoration, oppression at the chest, and did not sleep much. The following morning, he sent for his doctor, who visited him at ten o'clock. He was perspiring freely; pulse small, rapid, and intermitting; hands cold; mind clear. He died about noon, twenty-four hours after leaving work. A *post mortem* examination of the body was made by Mr. Spear, the Medical Inspector of the Local Government Board. Bacilli were found in the blood and other fluids.

CASE IV.—S. F., aged 33, a mohair-sorter for the same firm as the man whose case I have just given, on July 25th, 1880, complained of being unwell, and said he had an aching pain across his chest. On the second day, he was easier, but had a slight cough. On the third day, he was seen by several doctors, some of whom thought he had a little pneumonia, but certainly not “woolsorters' disease”. Pulse 130; respirations 24; temperature 101.6°. Lungs fairly resonant; right somewhat duller than left; vesicular sounds subdued and distant; no bronchial or moist sounds. He died twelve hours afterwards. A *post mortem* examination of the body was made twenty-nine hours after death. The external discolorations peculiar to blood-poisoning were present. The right side of the chest contained four pints of clear, pale, straw-coloured serum. The posterior part and base of the right lung were inflamed; the bronchial glands on the right side much enlarged and soft, containing fluid of a dirty colour. The mucous membrane of the trachea was of a dark claret colour. The pericardium contained six ounces of fluid. The valves of the heart and the lining of the large vessels were stained of a bright cherry-red colour. There were no decided subserous blood-spots, but some ecchymoses. The spleen was somewhat larger and softer than natural; other viscera normal. Blood taken from the finger twelve hours before death did not appear to contain any bacilli. None were found in serum removed from the chest by hypodermic syringe twelve hours after death. Fluids removed at the *post mortem* examination were found to contain very numerous non-motile bacilli.

I must now conclude with a word or two on anthracæmia from mohair in heifers and sheep.

At a village in the neighbourhood of Bradford, where several sorters have lately died from woolsorters' disease, the hot water or sud after washing the mohair is run into tanks and neutralised by sulphuric acid,

to extract the grease. The water then passes into the common drain of the village, and is utilised to irrigate some fields near.

During the second week of May last, five healthy heifers (of a herd of twelve), which had been in adjoining fields for the previous three months, were turned into the sewage pastures. In about three weeks, one of them died after a few hours' illness; and three others were ill, but recovered. The sewage was suspected; four other heifers were added, and they were allowed on the sewage fields twelve hours daily. On June 29th, the remaining heifer of the first lot which had not been ill died suddenly, after a short illness. They were then all removed from these pastures; and on July 4th, six days after removal, a third, which had not been previously ill, died similarly. During the same period, several sheep were found dead in the fields.

Post mortem examinations were made of several of the carcasses of the heifers and sheep. The blood and fluids were found to swarm with the bacillus anthracis, the spores of which are supposed to have been derived from the mohair, and conveyed with the sewage to the land. They then gain access to the alimentary canal with the food and drink, and develop what I have called enteric anthracæmia, because the pathological changes are mostly found in the intestines and spleen.

CASE OF IMPERFORATE RECTUM, WITH A SUGGESTION FOR A NEW METHOD OF TREATMENT.

By NEIL MACLEOD, M.B. Edin., Shanghai.

A FEMALE child was born May 26th, 1879, apparently well developed, of rather a deeper pink colour than usual, and weighing $5\frac{3}{4}$ lbs. On the following day, the bowels not having moved, a probe was passed into the anus, which was found to communicate with a *cul-de-sac* about half an inch in depth. The probe was then passed into the vagina for nearly two inches; it could be moved about with freedom, and felt readily from the anal *cul-de-sac*, where the rectum should have been. There was no bulging in the perinæum. The child had passed urine of natural colour several times since birth, and did so during the examination, when also a thick, white, mucus-like material was seen to issue from the vagina, the orifice of which was large enough to admit the tip of the finger, and surrounded by a thick fringe of mucous membrane, which was all that was present for a hymen; the bony outlet of the pelvis seemed natural. The abdomen was slightly distended, and perhaps more so in the left iliac region than elsewhere, and there was no tenderness. The child had vomited two or three times, the nurse said, a clear stuff like mucus, and cried but little. Dr. Little saw the case in consultation, and agreed with me as to the advisability of operating at once. With his assistance, therefore (on the afternoon of the same day), the child having passed urine during the examination made immediately before operation, I made perineal exploration for the rectum, cutting carefully in the middle line to a depth of an inch and a quarter without being able to feel with the finger anything like a bulging loaded bowel. The wound bled freely; a plug of carbolised lint was inserted in it, when the oozing ceased. I then performed Littre's operation, with complete antiseptic precautions. Two vessels in the abdominal wall bled freely, and were tied with catgut. When the peritoneum was opened, about half a drachm of clear serum escaped, and a piece of bowel presented itself, healthy, distended, fluctuating, and crossed transversely by several large vessels. Careful exploration was then made with the finger, which passed down as far as the pelvic brim along the bowel, and round what appeared to be the end of it, forming a *cul-de-sac*, from the corner of which, near the middle line, a thin cord-like body dipped into the pelvis behind and fore from the uterus. Sutures were then passed through skin and gut, one on each side forming a loop, with a bite of fully half an inch of both skin and bowel, and there being held tight. On opening the bowel between, meconium could not find its way into the peritoneal cavity. The sutures were then fished out of the bowel with a blunt hook, cut, tied, and a few more applied. A large quantity of fluid meconium escaped. Carbolised sponges, gauze, etc., were applied to the wound. Though the child had lost a quantity of blood during the operation, and evaporation from the spray had cooled the surface considerably, it presented a natural pink hue. The child was then wrapped in cotton-wadding, the nurse being ordered to keep it very still, and to give it by spoon milk supplied by a wet-nurse. Four hours afterwards, I found the child blanched and pulseless, bleeding having taken place from the abdominal wound, the nurse meanwhile carrying and swaying the child in the arms. On removing the dressing, the bleeding, which had taken place from the wound in the groin, had ceased, and the abdomen was flattened considerably by the escape of a large quantity of meconium. The child