which appears so frequently in the discussion to which I have referred, had no real foundation in the thing itself. Pathologists rejected this very precise and definite view, which Laennec had asserted and Villemain had gone far to establish, for such indefinite ideas as are to be gathered from the words "inflammation," "irritability," "irritation," "disposition" or "predisposition" and the like. What, in the shape of precise knowledge, do such terms convey? What was there so fascinating in the word "inflammation" that it should have been adopted as able to cover all the facts in the life-history of phthisis? What exact information as to causal relations does it convey to our minds? Why, again, was there such great hostility manifested to the idea of specificity? It seems to me very difficult to find satisfactory answers to these questions.

I have been able, I think, to show into what errors these tendencies led some of the most able, and certainly some of the most laborious, pathologists of our time. With the new and exact methods of experimental research which we now possess we seem to be able to arrive at conclusions more definite, more certain, and less hypothetical, and we use terms less vague and indefinite, but even with those methods at our disposal we should learn from the past the need of great caution against forming too hasty or too positive conclusions in all subjects which present any scope for controversy. I think I have shown how easy it is even in careful scientific researches to make many false steps; let us then at all times walk circumspectly and warily.

MOTOR AND SENSORY APHASIA (WORD-DEAFNESS, WORD-BLINDNESS, AND MIND-BLINDNESS).¹

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ALTHOUGH in each of the following two cases of aphasia there was a combination of motor and sensory disturbance, it is chiefly on account of the sensory derangement of speech that I have recorded them.

CASE 1.—The patient was a well-built man, aged forty-one years, who a little more than nine years before had some slight epileptiform convulsions; after one of these attacks he had paralysis of the right arm and leg and was aphasic. The aphasia, however, was not so lasting as in the attack I am about to describe, for he went to work in fourteen weeks, having recovered speech completely and the power of the right arm and partial power of the leg. Five years afterwards he had another, but much slighter, attack, lasting a fortnight, when speech was again affected and paresis of the right side occurred. His health receiving a great shock he gave up the very active work he was engaged in and had a long rest. He practically recovered and worked fairly hard again, but complained of headaches and giddiness. The viscera were healthy, and there was no evidence of syphilis. The attack I now relate commenced on Oct. 29th, 1892, with no marked premonitory symptoms. He was gloomy the day before, and shut himself up, and drew some curious pen-and-ink sketches, but he did not complain of his head. He retired to bed, and his wife roused him early next morning, as he had an appointment, and she discovered that he was perfectly conscious, but speechless; she noticed that the tongue was drawn to the right side, but the features were quite straight. There was slight numbness all down the right side, but power enough in the hand to write slowly. I was called in to see him at 8 P.M. I found complete motor aphasia—i.e., he had lost all power over the motor part of speech, and the only sounds he could utter were "o" and "a" fairly well and "u" indifferently. The tongue could only be partially protruded and deviated to the right, and the lips did not move. There was slight loss of power in the right leg, but less marked loss of power in the right hand. He could, however, write slowly with this hand, and he asked me several questions in writing which were intelligent and written correctly. He complained of the back of the head being painful and of having a burning

sensation in that region. During the first week he was very emotional and easily excited, and at the end of the week he was very drowsy and difficult to rouse, and the paralysis of the right side was complete both for motion and sensation. There was marked rigidity of the right hand and arm, and the thumb was firmly contracted into the palm. The left hand was very tremulous and deficient in power, and sensation was diminished on the left side, but not so markedly as on the right. A curious spot of hyperæsthesia was discovered by the nurse on the inner side of the right knee, this being so sensitive that if touched ever so lightly he would spring up in bed and suffer agonising pain. He was now in a very sensitive condition, for the movement of lifting him up in bed to change his position had an extraordinary effect upon him and produced a drowsy and more or less unconscious condition which was very marked during the whole of the second week. Motor power, however, on the left side was practically normal and he could write slowly with the left hand. From the third week he gradually improved, gaining steadily more power in the right leg and arm and recovering sensation. He was much interested in all that was going on, reading daily papers and discussing topics of the day by writing with the left hand, for he was very little, if any, better so far as his aphasia was concerned. There was, however, during this period of motor recovery a good deal of sensory disturbance, particularly from the eighth week to the eleventh, when another condition developed—namely, that of sensory disturbance of speech. It was noticed that he was slightly deaf on Jan. 19th, which increased during the day and became complete on the following day. Dimness of sight was also observed, and he suffered a good deal of pain in the head. Next morning he could not read writing, however large, but could read words composed of large printed letters, but these were only of use until 3 o'clock in the afternoon, when they could no longer be seen. On the following day sight and hearing were gone on both sides, but a lighted taper passed before his eyes produced a pupil reflex. The ophthalmoscope showed the fundus of both eyes to be normal. There was a good deal of difficulty in swallowing. He had a fixed staring look, straight out, and was always plucking at the bedclothes with the left hand, a meaningless sing-song being heard at intervals. He now continued to be deaf and blind for ten days, and could only recognise his wife and nurse by the sense of touch, feeling their hands and articles of dress. On the eleventh day he showed signs of delight when the blind was drawn up and light admitted, and he could then recognise the difference between the hands of his wife and nurse. He was still deaf to words, but could hear sudden sounds. On the twelfth day he heard and seemed to recognise his own name, and he also noticed details in the dress of those about him. On the next day he saw colour in some tulips placed before him, which evoked grunts of satisfaction. Pointing to his ears and eyes he asked with his finger on the coverlet why he was deaf and could see so badly. Fourteen days after the loss of hearing he heard sounds at a distance, a dog barking, whilst he was comparatively deaf to sounds at his bedside, and on the following day he asked by making the outlines of the letters on the coverlet of the bed with his finger why he heard sounds (at the same time pointing towards the next house, where a piano was being played), yet could not tell what was said by those about him. He had now extended vision, pointing to pictures on the wall facing him, but the field of vision was very limited, and it was found he had right hemianopsia. He continued to be very deaf to ordinary word sounds, but the experiment of whispering the word "better" slowly in the right ear was tried. He heard it, and immediately began to write with his finger on the coverlet the whispered word, and showed signs of gratification. The same word spoken in natural tones produced an expression of pain and bewilderment. His mind continued to be very clouded, and he was unable to understand day from night or the time of day. Feb. 9th was the last day he made known his thoughts by drawing with his finger the outlines of letters forming words. He had during the day thought out and written a number of questions and was somewhat exhausted. His left hand (which he could alone use) was said to be rigid in the evening, the rigidity passing off very soon, but next day his sight was very much worse, and all hearing had gone again. He now had a slight attack of influenza, which was prevalent at the time. He could no longer form the outlines of letters, and the only way he could express his thoughts was in pantomime. He, like an uneducated deaf-mute, made pictures in the air to express his

¹ A paper read before the Medical Society of London on Nov. 23rd, 1896.

wants, and his wife understood his drawings in a wonderful manner. Wishing for a chop, he drew the shape in the air. Wanting milk and soda water, he pointed to the sheet for whiteness, and drew in the air the shape of a soda-water syphon. Before losing all sight he had enjoyed seeing and arranging a bunch of lilies of the valley. He evidently remembered this and drew in the air the shape of lilies of the valley, arching the stems and dotting them with flowers. His wife understood and brought the flowers to him, when he was quite satisfied and arranged them with care. His sight again came back, but he was still suffering with right hemianopsia. Although an omnivorous reader when well, he did not recognise when tried either letters or figure symbols, and when a paper was given him he turned it upside down, and by gesture asked why it was given him. There were now (the end of February) distinct signs of recovery from motor speech, and he uttered his first word, "better," distinctly enough to be understood. The right leg and arm also had much more power, but the arm was exceedingly sensitive to touch. He understood whispered language more easily, but he was unable to recognise words in the ordinary strength of tone. Although deaf to words, he interpreted tones and gesture so well as to be conversant with much that happened. In March mind-blindness was most marked, though he had not so much difficulty in remembering objects as persons. His aunt, to whom he was very much attached, was allowed to see him. He did not recognise her, but after she had left the room he drew, with a pencil in the left hand, the house in which she lived, with the road to it—the garden and the dog at the gate—which was a very fair description of her abode. During this month his deafness gradually improved, but he was more deficient on the left side than on the right. The sense of smell was impaired on the left side. He saw better, but had yet word-blindness. He was able to articulate more and used and understood more words, but he made use of pantomime as well. The very sensitive spot on the inner side of the right knee, which had remained so all these months, could now be touched, he having asked the nurse to lay her hand lightly upon it for trial. He tried to count, but it was difficult, especially on more than one hand. He soon became more inquiring and asked "what was it he used to do." When told "to paint" he remarked "what was that?" Upon pursuing the subject he was told he used to read books, when he replied "that sounded like it." He was now getting up daily and was greatly interested in building with dominoes. He took a little more interest in things, but at the end of March (five months after the attack commenced) he still had forgotten that he ever was a painter. He was one day anxious for a certain picture to be brought to him which as a matter of fact he had painted, but when asked if he painted it he emphatically stated no, but that he remembered seeing a man paint it. He was very anxious to know what a book was. In April he noticed the lettering upon half a crown, given in his hand, when he asked to have it read to him, repeating each letter after the nurse and committing them to memory and comparing their form with other letters; he asked if these were what were contained in books. He could not remember his own surname, and when told his wife's surname he indignantly denied it and uttered her Christian name. He was now taking great interest in looking at pictures in illustrated papers and was very critical. He was able to remember letters and words which he had been told a few days before, and it was interesting to notice the aid that the fingers of the left hand were to his memory. If he wanted to remember a thing he looked hard at his left fingers, and, as he remarked, he saw it there in a short time, but often after much puzzling. The patient's condition from this time gradually improved. He was able to understand word symbols more readily day by day, and he could read. He would repeat a word again and again after following the outline of each letter, and having been told what the letters spelled. He often employed a circumlocution of more general words instead of the special word he could not revive in his memory, and instead of asking for "a pencil" he would ask for "something to draw with." His great trouble was that he had forgotten so much. His mind-blindness did not improve, and he could not recollect his most intimate friends when they called to see him. Neither could he recognise paintings which he had spent a great deal of time over, but little sketches which had cost him very little time and thought he could recognise as his work. In August he had partially recovered his loss of power, but he had still right hemianopsia, and his motor

speech was very indifferent. His friends attempted to get him into the air, after which he seemed very much worse, for the movement upset him considerably. Early in September he had been reading, and was very cheerful before taking his afternoon sleep, but when he awoke he was found to have a dazed look and to have lost all power of the right side. On the following morning I found hearing and sight completely gone. The tongue could not be protruded from the mouth, but deviated to the right. Swallowing was difficult, and there was also loss of sensation and power of the right side. He was completely deaf to words, even when whispered, but he had painfully acute hearing for sounds. There was one marked difference in his condition now from that in his previous attack, which was that he had always been able to make known his various wants by writing with his finger the outlines of the letters upon the sheet, which power he lost in the previous attack, when he was reduced to pantomimic signs. The word-deafness and loss of sight continued for four weeks, but he had right hemianopsia for several months afterwards. While deaf and blind to words, as well as having complete paralysis of motor speech, he expressed a wish to make his will, and made his wishes known by forming the outline of the letters on the sheet of the bed. He also made his lawyer and wife understand that when they meant "yes" they were to tap his hand and when "no" they were to cross it. To satisfy him the will was executed, and with his left hand he very badly wrote his signature. He now gradually recovered from word-blindness and very slowly regained power in his limbs, but the motor part of the aphasic condition was very slow in recovering, for he was unable to speak until the following April, when he commenced and rapidly regained speech, it having been absent since its partial recovery for thirty-two weeks. On getting downstairs he almost at once commenced to strum on the piano, and it was noticed that he had no difficulty in reading music. This test, however, had not been tried when he was word-deaf. At the end of the second year he was able to walk slowly on crutches. His zest for painting returned and he found the greatest pleasure in sketching from nature while he was convalescing. His mind was a complete blank with regard to paintings he had done before his illness. His power of motion steadily returned, and at the end of the third year he could dispense with his bath chair. It was very curious how, in the early period of his convalescence, movement of the body—i.e., to another room—brought on the sensory disturbance of speech for perhaps twenty-four hours. This occurred on three or four occasions. Four years have now elapsed since the attack came on, and I quite recently had a chat with the patient in his studio. He told me that he had tried hard to paint during the past year, but he was so disgusted with his work that he had practically given it up. To my uncritical eye his work looked very passable. He said, however, that his difficulty was in trying to remember how he used to do it, and when he found he was doing the thing wrong he was so dissatisfied with his efforts that he had ceased to make further attempts. He could, however, do pen-and-ink work exceedingly well. On asking him if he remembered painting the pictures about his room he said he did not, but he still thought he saw another man paint one of them. He described himself as being a better judge and more critical than ever he was before, but no workman, and this was not through want of muscular power, for that he had quite recovered. He has been colour-blind ever since he was fifteen years of age, his difficulty being to distinguish green from red. On inquiring if this was any worse or was in any way explanatory of his failure he said it was not, but if anything he thought the condition was a little better. He had always had an ambition to become an author and had written considerably; but he told me that he now found this work most difficult, his power of concentration being limited and thought slow. He had a very good vocabulary, however, when talking, and was never at a loss for a word, though there was sometimes an occasional hesitancy in pronunciation. Contrary to Lichtheim's experience, the sensory aphasia in this case of total aphasia cleared up before the motor.

CASE 2.—Another case of sensory and motor aphasia came under my care at the Royal Halifax Infirmary in the month of February, 1896. I had seen this patient five years before in consultation with Mr. Steele, of Halifax, when he was suffering from paralysis of the extensors of the left forearm, which had come on quite suddenly. There was no disturbance of speech at this time. He was said to have recovered from this attack. Two and a half years afterwards he had an

epileptiform seizure, and partially lost the use of the right leg and foot, from which he recovered, but he had subsequently at intervals slight fits, one of which ushered in the present condition, and was attended with twitching of the right side of the face. There was a clear history of syphilis made out before, but the condition of the patient now was such that he could give no account of his illness. "I really cannot tell you, I am sure, just now," was his answer to every question put to him, and it was evident he had no comprehension of word language. He read with great difficulty figures and could not read printed matter accurately, but could make out some letters. He could not recognise a bell on the table, but could recognise a watch and a knife. When a water-pipe was pointed at he could not say what it was, but said "hot." Apparently there was no defective eyesight, but an exact perimeter tracing could not be taken on account of the patient's inability to comprehend what was wanted. The motor part of speech was good and there was no paralysis, and his gait was normal, and so were the organic reflexes. He looked in good health and apparently was always in a good humour, readily pleased, but not in any way emotional or childish. On further examining the aphasic condition he seemed to have a more or less complete comprehension of the uses of the objects shown, but could not always give the correct designation. Some things shown he remembered easily and could pronounce their names, others he could not name, but if he thought for a time he sometimes gave the correct name or a similar sounding word, or substituted a round-about phrase as an equivalent. Occasionally when taken suddenly he seemed to answer instinctively and generally correctly. A pencil he knew the use of, but could not name. A pen he called "pea," then pen. A knife and fork and book he knew. A cork he knew, but he called a bottle "brot," and medicine he could only pronounce partially. A key he called "lock," recognising its use. He knew his own name, but occasionally transposed the two parts. In the identification, then, of objects shown he occasionally used the association of ideas. Water pipe he called "hot," and the key "lock," but mispronounced some words. On investigating the visual sense in reading printed or written matter he was found to be much more incorrect. He could read figures accurately, though with some hesitation in some cases. When spelling out, letter by letter, printed words he was very incorrect, and did not always give the same interpretation on two consecutive occasions, while in time he might stumble into a correct reading. When reading and pronouncing words there were similar hesitation and inaccuracy, while there was often an approximation to the sound—e.g., he called London "Luddenden" (the name of a local village), after considerable doubt. His own name he was able to read correctly. On testing his capacity for repeating words there was evidently a degree of inability to recognise certain words and phrases. "What is your name?" he replied to correctly. "How old are you?" he could not understand. Certain words he was deaf to and could not repeat, and through the word-deafness he was unable to comprehend and allowed his mind to dwell on one or two stock phrases, which were always ready, and from which it was difficult to divert his attention. His memory was very defective and he could not say where he lived or the town he lived in; but the word-deafness might account for this. Neither could he say how long he had been ill. On testing his writing from a copy it was found that he made the same errors as in spelling, but did not make the same blunders twice. At times his writing was quite clear, whilst at others it was quite unintelligible. He could write his name, but sometimes transposed it and sometimes left out letters. He could copy figures more accurately than letters. His condition seemed to improve a little, and remained bright and cheerful. He was able to talk and answer simple things correctly, and his memory was a little better. Early in the morning of March 24th he went to the ward lavatory, and was found afterwards in an insensible condition. Apparently he had had a fit, but was quite unable to speak. There was complete paralysis of the right leg, the limb being quite flaccid and paralysed, with rigidity and contracture of the right arm. The eyes and face were unaffected. He could only partially comprehend what was said to him, and could make no response. He gradually recovered power in the leg and arm, and made attempts at speaking, and could utter one or two words—"very nicely," "yes," "getting on," and a few others—and seemed to comprehend more what was said, but his attention was very easily over-tired. On May 8th

he had another attack, when he was quite speechless and collapsed. The nurse had observed some twitching of the muscles of the right side of the face when he awoke; he then lost the power of the right arm, but the leg escaped. The condition of paralysis was succeeded by one of rigidity. There was difficulty in swallowing, and the patient was very irritable. He seemed to understand a little more what was said to him in a few days, but recovery was very incomplete, for there was no return of intelligible speech, and there was complete loss of power over the right hand and partial loss of power of the right leg. He became very restless—constantly attempting to get in and out of bed—and was so noisy that we could no longer retain him in the infirmary. His condition is very pitiable at the present time; he cannot understand anything said to him, has complete motor aphasia and right hemiplegia, is very emotional, and presents all the symptoms of cerebral softening.

Although motor speech has been involved in both of these cases as well as sensory, as I have said before, I have brought them forward chiefly on account of them being good examples of sensory disturbance of speech. In Case 1 it is remarkable how compound was the aphasic condition, and it is most probable that there was thrombosis of the Sylvian artery, for all the cerebral centres concerned either in the expression or the interpretation of speech are situated within an area supplied by this vessel. The centre for motor speech (the posterior part of the third frontal convolution and the lower part of the ascending frontal convolution on the left side) was first affected, and the ascending frontal convolution containing also the cortical centres for the movement of the tongue and lips accounts for the early loss of these movements in this case. The part of the brain concerned in the sense of hearing was next affected, which is the posterior half of the first temporo-sphenoidal convolution on the left side. When this region is diseased there is often transient deafness in the opposite ear. The fact observed that he could hear a whisper and understand the word when whispered very softly and slowly is one I find no record of, but points, I think, to over-stimulation of the centre by the ordinary voice, preventing perception of sound characters. The hearing of both ears went simultaneously, but the right, or that on the opposite side of the lesion, was the first to recover. In word-blindness a lesion of the first temporal convolution is found in the majority of cases. The hemianopsia was probably due to involvement of the occipital lobe, for the pupil still continuing to respond to light supports Wernicke's suggestion that the symptom is then due to a lesion in the occipital cortex. The amaurosis which has been present in both attacks is probably cortical also, and is difficult to explain. The optic nerve always looked healthy. Mind or object blindness was part of the visual disturbance. It has been produced artificially by Munk in dogs by extirpating parts of the occipital lobe. Loss of smell, which was associated with the sensory aphasia, is thought by Gowers to be due to softening of the root fibres at the commencement of the fissure of Sylvius. I have not mentioned the fact before, but this patient had visual hallucinations, which Professor Henschen in his work, "The Pathology of the Brain," directs attention to as likely to trouble a patient with homonymous hemianopsia when that symptom is of cortical origin. He said he could always see in the blind half of the field of vision a man at the back of his head holding two lighted candles. Bastian has strongly pointed out that lesions in the posterior parts of the brain are more apt to produce hallucination than lesions in the middle or anterior parts. The amount of sensory disturbance was very remarkable in this case, and might have suggested, at an early period, a purely functional origin, but, as Wyllie says, "the very existence of word-deafness or word-blindness in any case should suggest an organic rather than a functional cause."²

In Case 2 there is not much to note except that the sensory aphasia came on first and long before the motor condition; also that there was an absence, as far as could be made out, of any hemianopsia with the word-blindness. The probable cause in this case is thrombosis, which may be proved in a short time, as the patient is now *in extremis*.³ An important question in connexion with aphasia is its influence on testamentary capacity. In Case 1 the patient, as I have related, made a will and signed it. In concluding

² Disorders of Speech, p. 378.

³ The patient has since died, but no post-mortem examination was allowed.

this paper I have to thank various writers—Broadbent, Gowers, Wyllie, and others—for many suggestions, not forgetting my teacher, Hughlings Jackson, to whom I am indebted for any interest I take in this subject, and Dr. Maxwell, senior house surgeon to the Halifax Infirmary, for assisting in the note-taking of Case 2.

Halifax.

A CASE OF EXCISION OF THE SCAPULA FOR LARGE CYSTIC SARCOMATOUS GROWTH.

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A WOMAN, aged thirty years, came under my care on Nov. 18th, 1896, with a swelling in the position of the left scapula of four months' duration. There had been rather severe pain in it at times. The swelling was as large as the patient's head, smooth and round, with enlarged cutaneous veins over it. There was a freely fluctuating area, the size of the palm of the hand, in the centre of the swelling. The body of the scapula was buried in the swelling, and what seemed to be the angle was pushed much nearer to the spine than normal. There was a projecting mass of considerable size beneath the teres muscles, and the growth extended into the inner portion of the supra-spinous fossa, round the base of the spine. The acromion process and its junction with the spine and the region of the glenoid fossa seemed free from growth, and movements in the shoulder-joint were quite free. The whole mass of growth with the scapula was movable on the chest-wall beneath. An exploring syringe withdrew clear serous fluid from the fluctuating area in the centre of the swelling. It seemed probable that there was a cyst in a mass of sarcoma growing from the scapula.

I operated on Nov. 25th. Precautions were taken by the administration of brandy and the arrangement of hot bottles about the patient, before the operation began, to guard as far as possible against severe shock. An exploratory incision was then made into the cyst, and it was found to be part of an enormous sarcomatous growth. Excision of the scapula was therefore proceeded with. The exploratory incision was continued upwards and downwards along the vertebral edge of the mass for eight inches, and outwards over the spine and acromion as far as the acromio-clavicular joint, and the flaps turned up and down. I then divided the levator anguli scapulae and rhomboids and found that the vertebral border and angle of the scapula had disappeared in the mass of growth. The attachments of the deltoid and trapezius to the spine were next divided; I then found the growth extended for an inch above the upper border of the bone, but it was at this point well encapsuled. In separating the mass here, I was not able to recognise the supra-scapular artery, nor did a vessel of any size bleed. The supra- and infra-spinatus muscles did not appear to be infiltrated as they approached the shoulder-joint. I therefore cut them through about an inch from the joint, and found the section healthy in appearance, and as the growth did not in any way encroach on the glenoid cavity I proceeded to saw through the spine at its junction with the acromion, and then through what has been called the "surgical" neck of the scapula—through the depression between the supra-scapular notch and the axillary border just where the triceps is attached. This section completely detached the head with the glenoid fossa, and the shoulder-joint was not opened. The coracoid process was left attached to the head. This division of the bone brought the subscapularis into view and I divided it. The body of the bone with the mass of growth was now only attached by the teres muscles and the serratus magnus, which were finally divided. The subscapular artery was clamped before division. An enormous number of small bleeding points were tied, and often between one and two dozen forceps were on the vessels at one time, but the patient lost very little blood considering the extent of the operation. She looked pale at the conclusion of the operation, and two drachms of brandy were given hypodermically, but she did not suffer severely from shock. The pulse was then only 106. Digital pressure was

made on the subclavian artery in the posterior triangle before I began to divide the parts in the neighbourhood of the subscapular artery. Although the most scrupulous care was taken with every antiseptic detail the wound suppurated. This was almost certainly due to auto-infection, as she had a sinus leading to bare bone in the other arm; but during the healing, which was protracted, she gained flesh. There is now (July, 1897) no sign of any recurrence. The head of the bone can be rotated freely in the glenoid fossa. All movements of the forearm and hand are normal; the biceps and triceps act well. She can raise the arm a little more than to half a right angle, but only to half a right angle by means of the deltoid; beyond this the trapezius draws up the outer end of the clavicle, and with it the arm. There is no power of external rotation in the shoulder-joint. The acromion process became tilted, so that the upper surface no longer looked upward, but only backwards. The arm is a very useful one.

The mass of growth, on examination after removal, in some parts presented the appearance somewhat of fat, but was more gelatinous, and in others was white and firm. In the centre it was infiltrated with serum, and broken down into the cystic cavity which was tapped with the exploring syringe. Communicating with this cyst was a larger one, also formed by degeneration of the tumour tissue. The growth had destroyed the body of the scapula to a very large extent only portions of the bone were found as small thin plates scattered through it. The angle and vertebral border had quite disappeared. The subscapularis, and the infra-spinatus and supraspinatus muscles, except towards their insertions, were replaced by growth which was only covered by the thickened and infiltrated supra- and infra-spinatus fasciae and the layer of fascia over the subscapularis. The origins of the teres major and minor were extensively infiltrated. Microscopic sections show a tissue composed of small round cells with large areas of degeneration, in which all structure is lost, and here and there amongst the round cells a few imperfect giant cells.

That it is unnecessary to remove the whole bone for even periosteal sarcoma seems now generally agreed upon by surgeons, provided that the section of the bone is made well away from the growth, for if this is done recurrence in the lungs is more likely than recurrence in the portion of bone which is left. I operated on this principle in this case, dividing the bone and muscles everywhere thoroughly beyond the limits of the growth, but not removing the whole bone. It would have taken longer to disarticulate at the shoulder and acromio-clavicular joints and dissect out the coracoid process, and, moreover, the retention of the head and glenoid cavity with the coracoid must add considerably to the utility of the limb. One objection that has been raised to leaving part of the scapula—that the cut arteries tend to retract behind the portions of bone left and are more difficult to secure—cannot, I think, be entertained—at any rate, when only the head and coracoid process are left.

Clifton, Bristol.

SOME UNUSUAL CASES.

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CASE 1.—Some years ago, whilst on a visit at West Ilsley, where there was no resident medical man, I was asked to see a boy, who, with others, had been trying a chaff-cutting machine. By some means or other he got his arm in front of the blades whilst the machine was in action. Immediately below the left armpit there was a gaping wound down to the bone. In this the open mouth of the lower extremity of the divided axillary artery could be plainly seen. The boy was faint and frightened, and there was no bleeding then to signify. Having a pocket-case with me the artery was tied and the wound closed. In this case the nerves were doubtless divided. The power of moving the arm had permanently gone.

CASE 2.—A patient who had worn a bivalved tracheotomy tube for a long time presented himself at St. George's Hospital. The shield of the tube had become detached, and the two valves had fallen into the trachea. These were removed separately by a curved pair of forceps.

CASE 3.—Soon after the introduction of the fourpenny-