

Description of a series of watercolour drawings executed by the late Sir Charles Bell, illustrative of wounds received at the Battle of Waterloo, by Deputy Inspector General T. Longmore, Professor of Military Surgery

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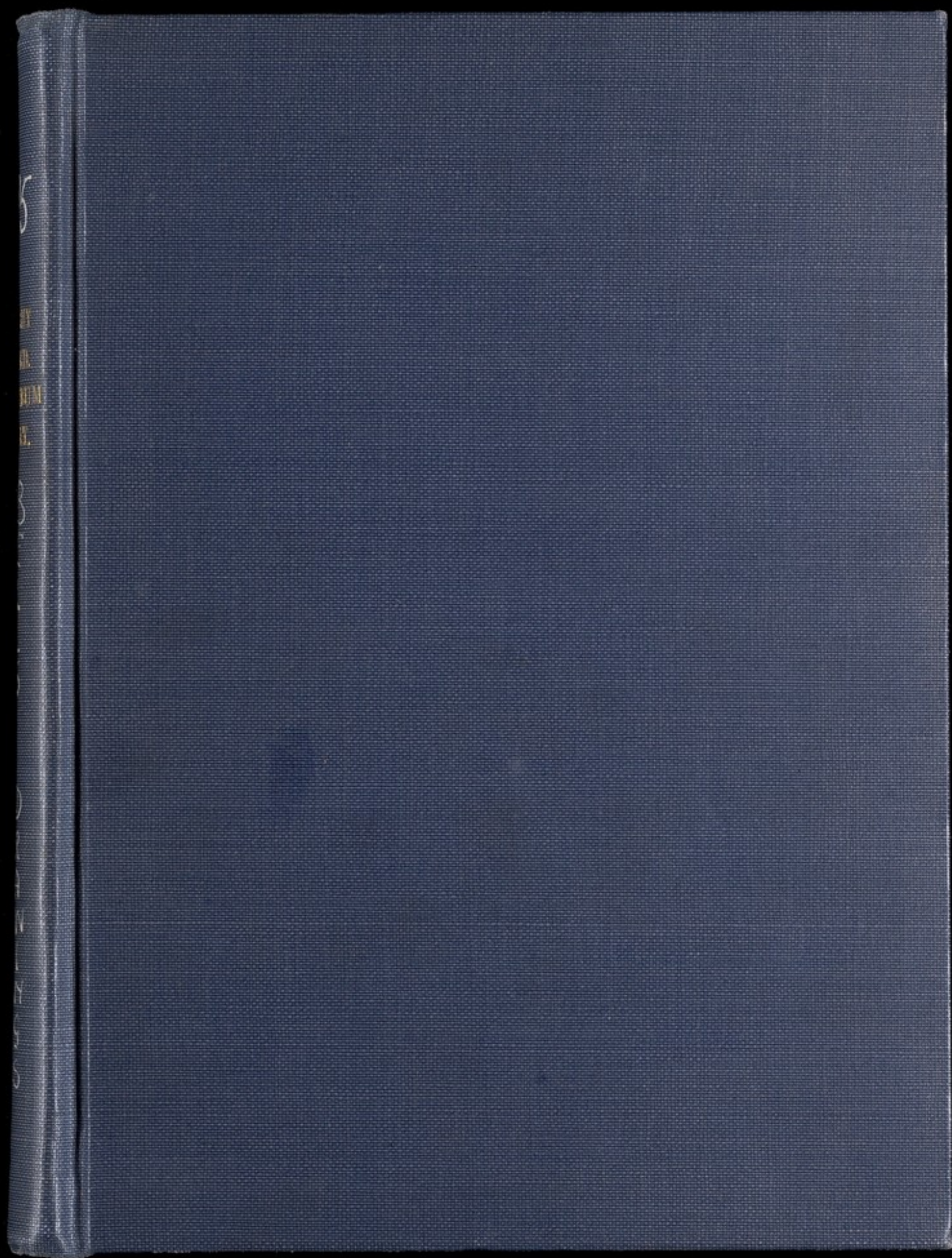
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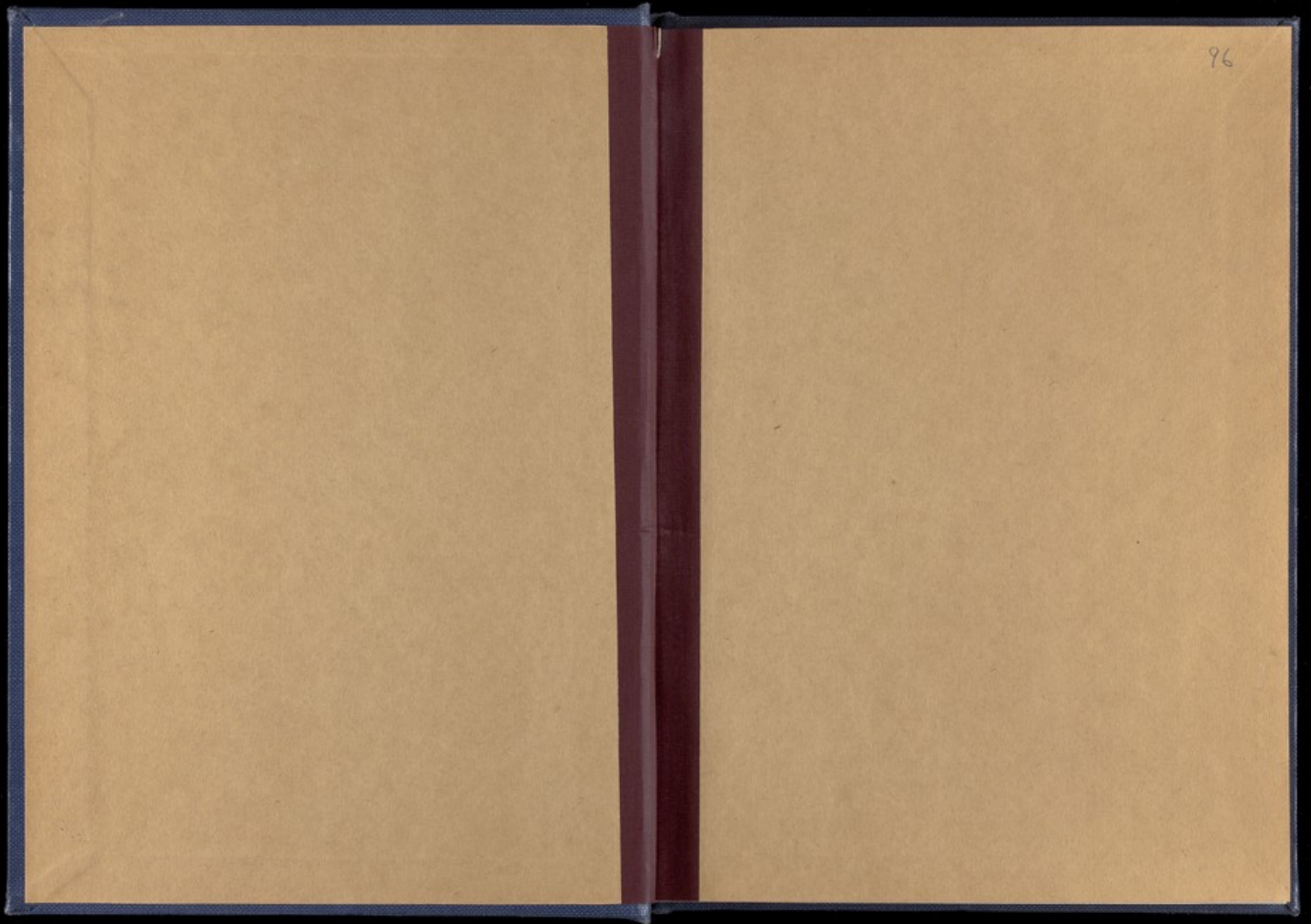
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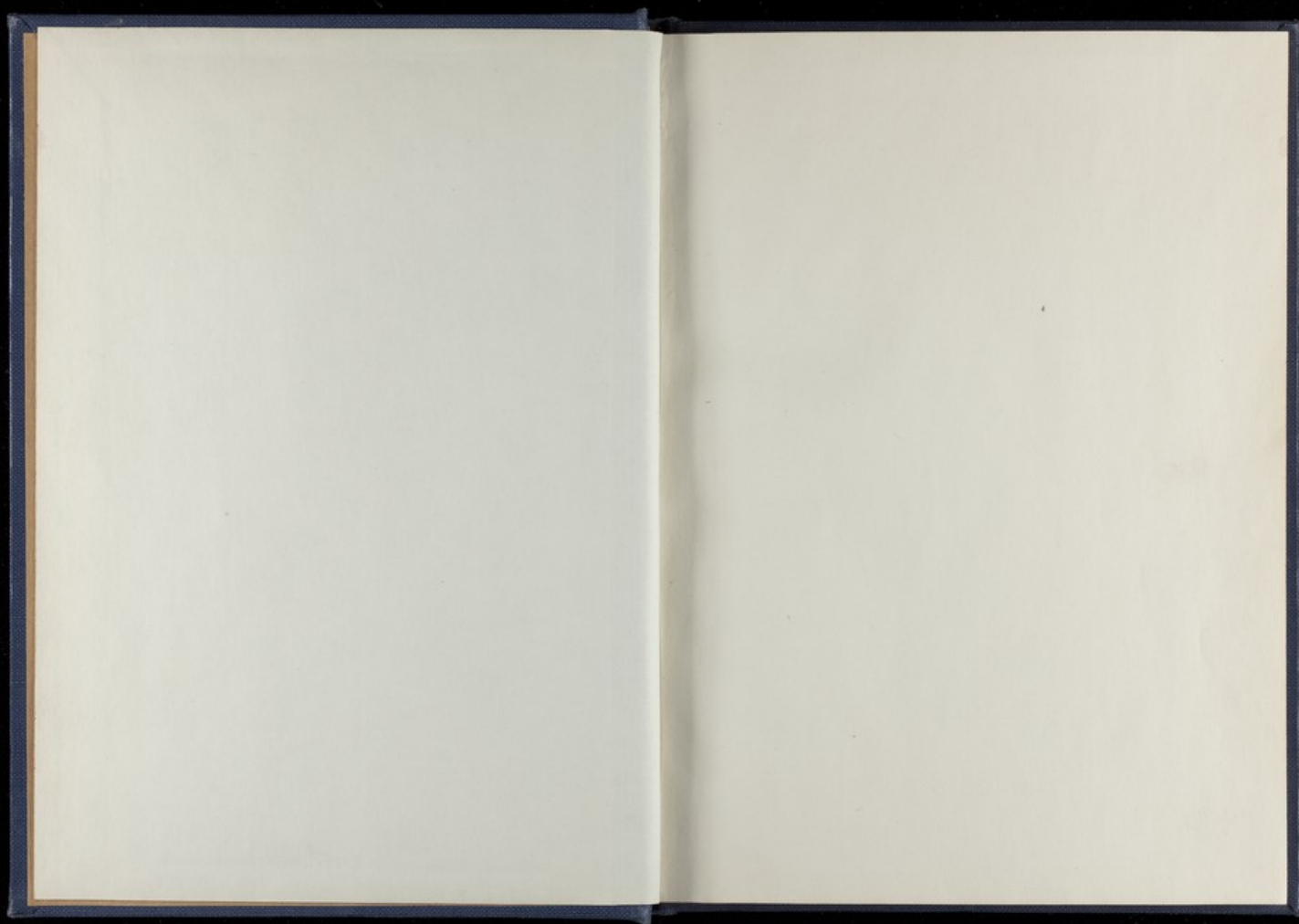
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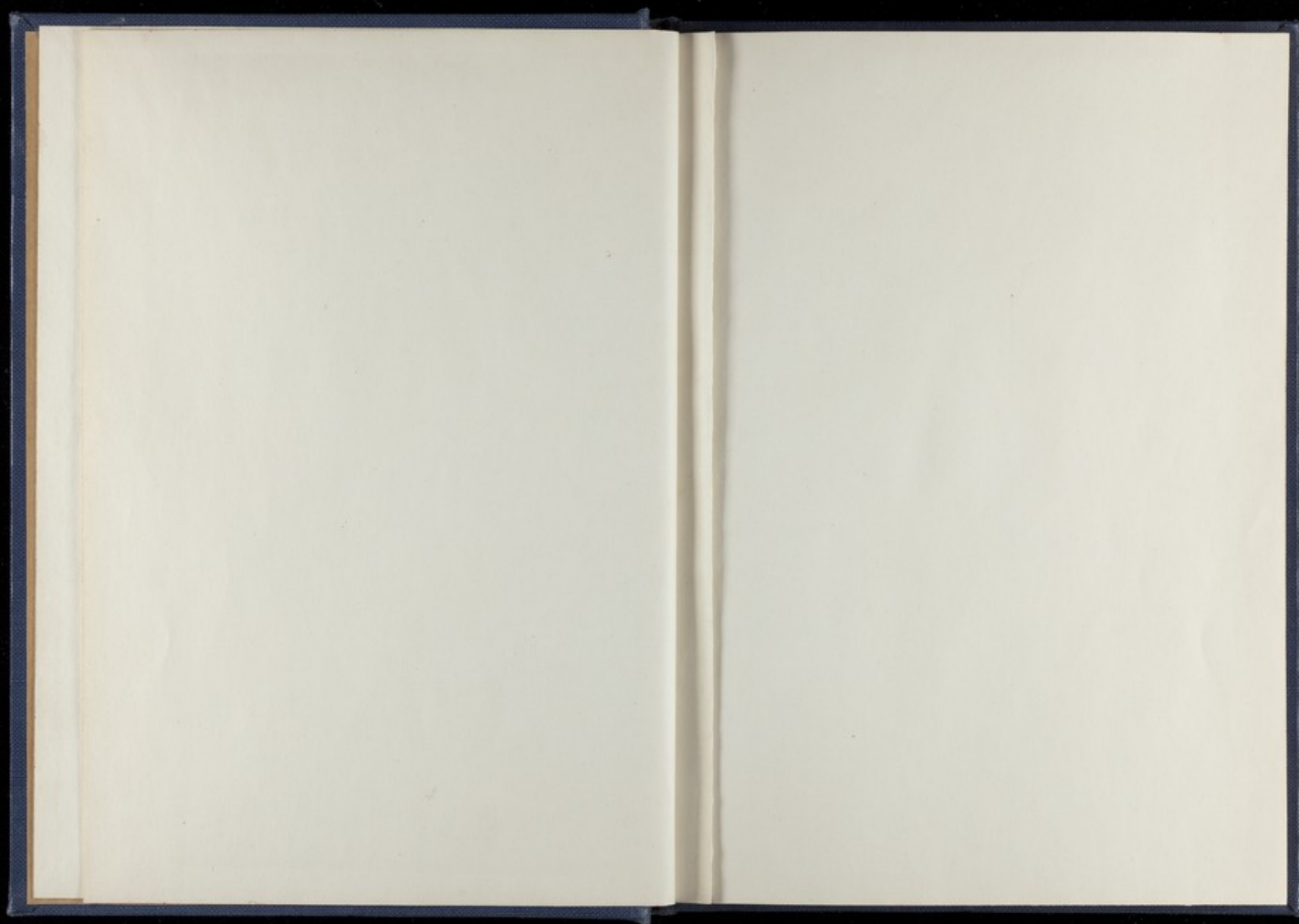


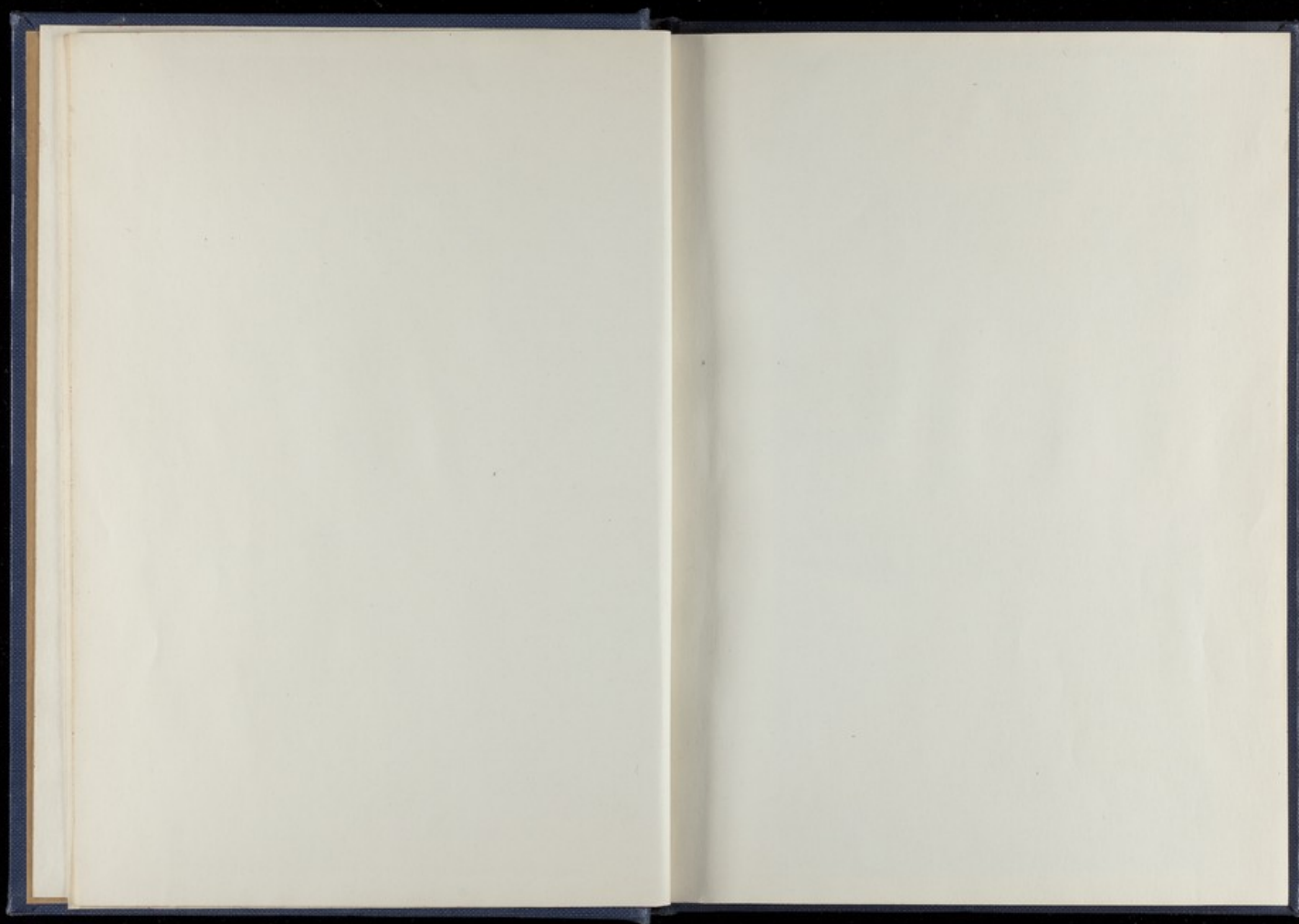
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ARMY MEDICAL SCHOOL MUSEUM.

DESCRIPTION

OF A

SERIES OF WATERCOLOUR DRAWINGS,

EXECUTED BY

THE LATE SIR CHARLES BELL.

ILLUSTRATIVE OF

WOUNDS RECEIVED AT THE BATTLE OF WATERLOO.

Presented by his Widow to the Army Medical School, together with a Sketch-book,
Book of Manuscript Notes, and some Original Letters.

BY

DEPUTY INSPECTOR-GENERAL T. LONGMORE, C.B.

PROFESSOR OF MILITARY SURGERY.

15/
MUSEUM OF PATHOLOGY, NETLEY.

Water colour Drawings of wounds
inflicted at the battle of Waterloo.

By Sir Charles Bell.

See Army Med. Department Report
Vol VII p. 596
(1865)



ARMY MEDICAL SCHOOL MUSEUM.

DESCRIPTION of a Series of Watercolour Drawings, executed by the late Sir CHARLES BELL, illustrative of Wounds received at the Battle of Waterloo, presented by his Widow to the Army Medical School, together with a Sketch-book, Book of Manuscript Notes, and some Original Letters.

By Deputy Inspector-General T. LONGMORE, C.B., Professor of Military Surgery.

In the summer of 1896, Lady Bell, the widow of the late Sir Charles Bell, F.R.S., presented to the Right Hon. the Secretary of State for War, for the Army Medical School, a series of seventeen large watercolour drawings, executed by her late husband. These drawings are all illustrative of wounds which had been received at the battle of Waterloo. The value of the present was greatly enhanced by the additional gift of the following two very interesting books, both of which had relation to, and served still further to explain, the drawings before mentioned, viz. :-

1. The sketch-book which Sir Charles made use of in 1815, at Brussels, containing the original sketches from which the large watercolour drawings were subsequently executed.

2. An interleaved copy of Sir Charles Bell's "Disertations on Gunshot Wounds," which he carried with him to Brussels and used as a note-book. This book contains memoranda concerning most of the cases figured in the watercolour drawings.

Six interesting original letters, written from Brussels to Mr. Charles Bell during the months of August and September, 1815, and having reference to the progress of some of the cases depicted in the sketch-book, were also included in the present by Lady Bell. One of these letters is signed by J. Hennen, two by C. Collier, one by J. Boggie, one by H. Blackadder, and one by J. Roche—names of eminent military surgeons familiar to all who have studied the history of military surgery during the period of the Peninsular wars.

Lastly, the collection was rendered more complete from being accompanied by a descriptive catalogue of the cases forming the subjects of the drawings, as far as information concerning them could be obtained, arranged by Mr. Alexander Shaw, Surgeon of the Middlesex Hospital, and brother-in-law of Sir Charles Bell. The materials of this catalogue, as mentioned by Mr. Shaw, were obtained by him from several sources, viz. :-

1. Notes in pencil by Sir Charles himself, written on the margins of the original drawings in his sketch-book.

2. Letters from the surgeons who were subsequently in charge of the patients.

(These three sources have been before referred to as part of Lady Bell's present to the Army Medical School.)

4. Sir Charles Bell's work entitled "Surgical Observations," the first quarterly part of which was published in 1816.

5. A manuscript catalogue of the museum of the Royal College of Surgeons of Edinburgh, in which some of the cases which are the subjects of the drawings are referred to.

The histories of the cases, so far as they are noticed in the following account of the diseases, are abridged from Mr. Shaw's catalogue.

The value of these acquisitions to the Army Medical School, whether regarded simply as works of art, or in their relations to the history of military surgical science and practice, or as souvenirs of the handiwork of the distinguished author of the "Anatomy of Expression," can hardly be over-estimated.

It may perhaps be of service to make the nature and particular character of this gift to the Army Medical School generally known, and with this view I forward a somewhat detailed description of the several books and drawings above

SIR C. BELL'S SKETCH-BOOK.—This is a folio book, 15 inches long by 10 inches in width; 46 pages are covered with pencilled sketches illustrative of 45 cases of wounds observed by Sir Charles Bell in the hospitals at Brussels, shortly after the battle of Waterloo.

On the first page of the book is a drawing of Shakespeare's Cliff, Dover, with a note observing that he reached Dover early on the 22nd of June, 1815. Mr. Shaw mentions that Sir Charles Bell's visit to the hospitals at Boulogne extended from the morning of the 20th June to that of the 7th July, so that the majority of the patients from whom the drawings were made did not come under Sir Charles's observation till between the twelfth and nineteenth days after their wounds had been received.

[illegible]

This is a venous hemorrhage, from the veins being compressed. Here is an hospital nurse, who says, 'Well, they cut them like a round of beef.' The limb is directly off, and the whole on the same level; the bone projecting; the skin not retracted. By-the-bye, the surface remarkably healthy, and in good state of granulation. Fossil this quite historical, for it is far behind," &c.

On the next page is the drawing of a patient who has had the radius and ulna of his left arm fractured by a bullet, which has afterwards curved under the skin of the abdomen, and lodged in the hypogastric region. The left hand is shown to be greatly enlarged, and the notes state, "The hand swollen by the bandage around the broken arm."

Sometimes touches of character are noticed. Thus, in connection with a severe wound of the abdomen, with visceral protrusion, there is the remark, "A Frenchman, in great spirits, and of course in fine contrast with that pale Dutchman."

The sketches, however, of chief interest are those selected for representation in the more highly-finished watercolour drawings. Although the illustrations in the sketch-book are comparatively lightly finished, and bear the marks of the rapid, sketchy manner in which they were executed, they will repay a very careful examination. In each instance a consciousness of the faithfulness of the whole picture at once arrests the attention of an observer. The perfect knowledge of anatomy shows in the outlines—the natural positions in which the patients are lying, or the injured limbs repose—the expression of the features, in many instances specially characteristic of the particular injury, or of the particular state of the patient in the case represented—show at once the accomplished surgeon and the master-hand of a thorough artist.

In addition to the surgical illustrations just mentioned, the sketch-book contains several plans and drawings of the ground on which the battle of Waterloo had been fought, and the appearance presented by it at the time of Sir Charles Bell's visit to Brussels. These drawings are taken from different points of view, and accompanied with numerous annotations written in pencil.

INTERLEAVED "DISSENTATION ON GUNSHOT WOUNDS."—The printed matter of this volume is identical with section xvii, "On Gunshot Wounds," of the second edition of Sir Charles Bell's "System of Operative Surgery, founded on the Basis of Anatomy," published in London in 1814, the year before the battle of Waterloo took place. Some copies of this section were struck off and published separately from the large work, the title and the numbering of the pages being alone changed, and this is one of them. The particular copy presented to the Army Medical School is plentifully interleaved, and many notes, written both in pencil and ink, are scattered through it; but a large proportion of the inserted pages are still blank. Although not so stated in writing, the internal evidence is quite sufficient to show that most of the notes contained in the book were written at the time the observations were made to which the notes refer, or very shortly afterwards. The notes are frequently dated, and often written in the present tense, thus:—"2nd day, Brussels. Let any man go into the hospital of —, and observe the manner in which the wounded are lying; he will be aware of the distracting difficulties the surgeon has to contend with, if there be no arrangement." "Tuesday, July 3, there were very many important cases; see sketches." "The wounded officers are very ill arranged. They ought to be together; if not in a house, in a street or quarter. But let me not be mistaken; it is of the first consequence that the patients should be dispersed." &c.

At the end of the book is a short and hurriedly written diary, in which notes are made of some of the most important operations performed by Sir C. Bell himself in the hospitals. These are illustrated by a few pen-and-ink sketches. One of the last entries in this diary is of particular interest, as regards the history of the case to which it refers; for the description given, though brief, agrees in all particulars with the history of the celebrated case of the French soldier whose thigh Mr. Guthrie successfully amputated at the hip-joint at Brussels, at 2 p.m. on the 7th of July, the day on which Sir Charles Bell left Brussels. The broken and separated head and neck of the femur belonging to the case in question is specimen No. 2,929 in the Pathological Museum of the

Army Medical Department at Netley. The entry in Sir C. Bell's note-book is the following:—"The last case I observed in this 'hospital' was a wound in the groin, which shattered the head of the thigh bone. Here the shot entered" (a slight drawing follows, with a line pointing to the opening, which appears in the sketch to be just over the great trochanter), "and the head of the bone I discover to be fractured and separated from the shaft."

"My proposal is to extract the head of the bone, and do no more. Mr Guthrie's proposal is to amputate the thigh at the hip-joint. If the bone be taken out, there is a great cavity and suppuration certainly; but by this means the shock and violence will be saved. I fear the shock of so great an injury, especially as now the wound cannot be cut off, and its injury must be super-added to that of the incision. The man will readily allow of my proposal, but not of G's. However, next day he said that he would consent. In the meantime I was forced home by business. I had some officers to see," &c.

This note thus appears to show that Sir Charles Bell anticipated the present views with regard to the least unpromising plan of treatment for such an injury. The wound in the case in question was just that for the treatment of which resection of the head and neck of the femur would now be recommended by most surgeons, instead of the almost certainly fatal proceeding by amputation at the hip. Indeed, resection was actually and successfully performed in an almost exactly corresponding case in the Crimea, by Surgeon O'Leary of Her Majesty's 66th Regiment; and has since been done with success in four instances, during the late war in the United States, for wounds of a similar nature.*

THE WATER-COLOURED DRAWINGS.—These drawings, seventeen in number, and life size, are painted on paper about two feet and a half long, by one foot ten inches in width, with slight variations. They were done by Sir C. Bell when he was appointed Professor of Surgery in the University of Edinburgh, in 1836, and were used as illustrations for his lectures. As before mentioned, they were selected and enlarged from the drawings of wounds in the sketch-book previously described.† They are all executed with remarkable freedom and vigour, and both their style and colouring cause them to be most effective at the distance at which such drawings are usually exhibited.

Most of the wounds represented are wounds by gunshot; some few are sabre wounds. They have been selected so as to illustrate wounds of each of the principal regions of the body, viz.: head, four; face, one; torso, with two illustrations; neck, two; chest, one; abdomen, one; upper and lower extremities, eight; total, seventeen. The wounds are not exhibited in their most recent state, but in the condition in which they appeared between the tenth and nineteenth days after they had been inflicted—after various consequences, local and general, had been induced.

A short notice of each of the cases illustrated follows. They are described seriatim, according to the regional distribution of the wounds, as well as in accordance with the numbers borne on the drawings themselves.

Head (Drawing No. 1).—Sabre wound. A portion of the skull at the vertex completely detached by the sabre-cut; the corresponding part of the scalp remains connected by a small isthmus. The original sketch is in page 2 of the sketch-book. On the same page is a drawing of the "piece of bone taken away," and a sketch of a skull, showing the position of the removed portion. There are also the following pencil notes on this page:—"Hôp. de la Gendarmerie, 25th July. This man was brought into the hospital insensible. None of the soldiers knew him; he only can tell that he belongs to the 1st Dragoons. This portion of bone was completely detached, and a quantity of matter between it and the dura mater." Another note on the same page says, "On being urged to speak, he makes painful efforts to speak, but cannot. He

* See a "Tabular Statement of Excisions of the Head of the Femur for Gunshot Injury, &c.," Circular No. 6, War Department, Surgeon-General's Office, Washington, November 1865, page 62.

† Mr. Shaw mentions that "another set of copies from the original sketches, nearly the same in regard to the selection of the figures, but in comparison less carefully executed, were made some years before by Sir Charles Bell, on his appointment to be Lecturer on Surgery, in University College, London. This collection is still in the Museum of University College."

can sit up in a chair without support, but stoops languidly, and with a vacant and indolent expression of countenance." There is an allusion to this case in the note-book:—"The next case was that of a sabre wound in the head, as seen in the sketch. I advised the isolated piece to be taken away, and the integuments to be preserved, which was done. He was considerably relieved in his symptoms the day after the operation, but still could give no account of himself." The fragment of bone above alluded to passed from Sir Charles Bell's Museum to the College of Surgeons of Edinburgh. (See Catalogue, div. cxvii, 5.)

This is one of the most striking of the series of illustrations. The dull and fatuous expression of the wretched young man's countenance, and the helpless condition to which he has been reduced by the effects of his wound, are most forcibly and painfully depicted in the drawing. Not a quality which one may presume he possessed as the dragon soldier, physical or mental, remains, and the picture is distressing to gaze upon; yet Mr. Shaw mentions that he was told by Dr. Macleod, who attended this patient after Sir C. Bell's departure from Brussels, that the man ultimately recovered.

*Head (Drawing No. 2).—*Musket-ball wound. The case represented in this drawing forms a remarkable contrast with the preceding one. The patient was shot at the battle of Waterloo. He lay three days on the field without food, was then taken to a village, and from thence to one of the churches in Brussels. He was admitted into the Gendarmes Hospital on the 29th of June. The ball entered the cranium in front, passed through part of the brain, lodged behind, and was extracted on the seventeenth day. The patient recovered within two months. The original sketch is on the third page of the sketch-book, which also has a sketch of a skull, showing the position of the wound of entrance, position of lodgement, and lines of fracture. The notes written in pencil, at different parts of the same page, are the following:—"3rd July. Hôp. de Gendarmes. Dominique de Lorraine, 1 Reg. de Ligne. Bones fractured, and standing nearly perpendicularly. The ball, in its exit, struck up the skull; but the bones being resisted by the integuments, the ball rested within the skull. No symptoms of injury to the brain, no dilatation of pupils, no delirium. He is sulky, and complaining of headache; has not been sick; up a good deal, and can walk without support. Complaints of being brought down to the operation room, insisting there was no occasion. I withdrew the ball from under the skull with the common dressing forceps. When the ball was shown to him, extracted from under the skull, he expressed satisfaction. Next day he was still well, and was walking about in the ward. Under Blackadder's care. Lindsay had a similar case. Durant had also a case of this kind."

At the end of the interleaved copy of the "Dissertation on Gunshot Wounds," used by Sir C. Bell as a note-book, some further memoranda concerning this case occur; and a full report of its subsequent progress, dated August 13, 1815, in the handwriting of Dr. Blackadder, is among the MS. papers.

In the drawing, the patient's features are compressed, and indicate a sulky, forced submission to what is going on. There is also an exhibition of some degree of pain. A passage in the note-book thus explains this expression:—"This man had not a symptom. He is quite indolent. The sketch I made while he was sitting in the chair, he having walked down to the operation room. The expression of pain was not from what he suffered from the wound, nor from the surgeon either; but from the barber of the hospital, who was engaged with him at the time."

*Head (Drawing No. 3).—*Gunshot wound. A musket ball has perforated the frontal bone, entered the left orbit, and is causing protrusion of the eyeball on that side. The following notes appear with the original in the sketch-book:—"June 31. Hôp. de l'Annonciata. Samuel Prichard, 4th Regt. Assistant-Surgeon Reid."

"He has no symptom; you see all. The ball entered here in the forehead. My probe passes three inches and a half, obliquely downwards, and towards the left temple. If I had remained I would have enlarged the wound in the forehead, and taken away the piece of bone. I would have made an incision into the orbit, and extracted the ball, where I am sure it is lodged."

Among the collection of letters is one to Mr. Charles Bell from Mr. J. Roche, dated Brussels, 17th August, in which mention is made that "Sam. Prichard is alive, and doing well all things considered. . . . You will perhaps soon have an opportunity of seeing him in England, as he will, I believe, be soon sent home." The final result of the case does not appear.

The swollen and ecchymosed condition of the integuments covering the protruded eyeball are admirably shown in the drawing. There is no paralysis of the face, but the features wear a peculiarly heavy, torpid aspect.

*Head (Drawing No. 4).—*Gunshot fracture of skull. Fungus cerebri. The following are the marginal notes around the original drawing in the sketch-book:—

"Caesare Elizabeth, No. 16, sec. D. — Wanstell, 17th Regt. Staff-Surgeon Collyer's patient. On the fifth day after the battle was insensible. A portion of the frontal bone, an inch in diameter, was found driven into the brain, and it stood perpendicularly; not possible to extract it, from its being firmly wedged. Trepanning performed. Quite insensible during the operation; and showed no sensibility until on the next day, being bled, he awoke."

"On the removal of the bone a quantity of blood and brain came out, and coagulum was scooped out from betwixt the skull and dura mater. Three days after the operation he became more sensible, and has been improving. I recommended antimonial solution."

Note pointing to the fungus:—"Pulsating, sloughy."

The subsequent history of this patient, comprising an account of his death six days after Sir C. Bell had seen him, and of the appearances observed at the post mortem examination, is given in one of the collections of letters, dated Brussels, August 5, 1815, from Mr. Collier to Mr. Charles Bell. In the drawing the fungus cerebri is very prominent; and the starting eyeballs, open lips, hectic flush of the cheeks, clenched hands, and general appearance, are strongly indicative of moribund irritation.

*Face (Drawing No. 5).—*Two figures. (a) Gunshot wound; penetration of both orbits by a musket ball. (b) Gunshot wound; entrance of projectile over left malar bone.

There are no histories of these cases. The following notes are pencilled down in the sketch-book by the side of the original sketches:—

(a) "This through both eyes. This man has also lost the sense of smelling. Deprived of two senses—vision and smell."

(b) "Another case in the Gendarmerie. This man has lost the sense of smelling. The left eye has gutta serena."

*Neck (Drawing No. 6).—*Sword wound: penetration of the oesophagus. "Trois Louis Celestine. 21 de Ligne. Hôpital de la Gendarmerie, 2nd July. This man and another of the same name were stabbed with the small-swords of English officers."

"This wound is betwixt the sterno-clavido tendon, in the centre, and below the cricoid cartilage. The trachea may be wounded, but there is no air passing out. The oesophagus is evidently wounded, for almost the whole food passes this way, and the saliva keeps trickling." These are the notes attached to the original sketch in the sketch-book.

*Neck (Drawing No. 7).—*Deep perforating wound of the right lower half of the neck, from grapeshot. The following notes are pencilled with the original sketch, from which this drawing was made:—

"Elizabeth Caesare. No. 15, sec. D. James Alexander, 1st Regt. RI. Dps. Struck by a grapeshot; considerable bleeding on receiving the wound; since, several bleedings; the large cavity filled with coagulum, and the bandages soaked; stopped by cold applications; has been bled for pain in the chest, and relieved."

"There has been no bleeding from the wound for these three last days. The wound will admit the hand! The sterno-clavido, the scapulo, the trapezius, seen distinctly; the nerves also, but covered with slimy granulations. The beating of the carotid distinct in the wound, pumping up the matter. The right arm tumbled and paralytic. I am asked how he is to proceed in event of returning hemorrhage."

A line marking "exit of the ball" points to a wound a little above the right acromion.

The conclusion of this case is mentioned in one of the letters to Mr. Bell, dated Brussels, August 5, 1815, and signed Charles Collier. "James Alexander did not survive forty-eight hours after you saw him. I was quite prepared, in the event of hemorrhage, to cut down upon and secure the bleeding vessels; but he died exhausted. He died as I have seen many, from the powers of life yielding to an injury they are unable to repair. He had no fever or cough."

In connexion with this case Sir Charles Bell has related the following anecdote of Baron Larrey:—"On looking over my sketches of the wounded at Waterloo with Baron Larrey, he fixed with interest on the case of a young man who had been wounded in the lower part of the neck. 'Well I know,' says this excellent surgeon, 'how that man must have died. I have seen many wounded so during my campaigns, and die from air driven into the veins.'"

*Chest (Drawing No. 8).—*Extensive superficial wound of the chest by cannon shot. The marginal notes in the sketch-book give the following:—

"Albrecht Heifer. Caserne St. Kinnlooth. No 13, sec. D. German Legion. The flesh of the right breast thus torn off by a cannon shot. The ribs not broken. No symptoms of much internal inflammation, but breathing with difficulty. Is this from laceration of muscles of respiration? I believe not, but from effusion." "Collier."

Mr. Collier alludes to this case in both his letters; in the second, dated 20th August, 1815, he writes, "Heifer, who had his breast struck by a round shot, is convalescent."

*Abdomen (Drawing No. 9).—*Sabre-wound. The colon protruded, and completely divided; its ends retracted from each other; omentum and meso-colon also protruded. The following account of this case occurs in the sketch-book:—

"Peltier, 3rd French Lancers. Belg. Hosp. 2nd July. Belly opened by a sabre. Immediately the bowels protruded. Before he was off the field he had two stools, and none since downwards. When brought into the hospital the third day after the battle, the mass was gangrenous (Dr. Kluyckens). A large portion of the mass comprehending the colon came away after he had made two openings."

Letters and lines indicate in the sketch the following parts of the protruded mass:—"A, superior orifice" (opening of distal part of colon); "B, superior orifice" (proximal part of colon); C (pointing to the chief central part of the mass), "omentum covered with slough and slime;" D and E, (pointing to red, smooth, membranous portions on the front of the mass), "the other two red portions are portions of the gut which has sloughed away from A to B."

This is the patient before alluded to, whose spirits are contrasted with those of "that pale Dutchman."

There does not appear to be any further notice of this patient; but Mr. Shaw mentions that, "at lecture, Sir Charles Bell was wont to speak of the case as one in which recovery had either taken place, or might take place."

*Upper Extremity (Drawing No. 10).—*Gunsbot wound of the right shoulder. The head of the humerus, and acromion process of the scapula, shattered. Excision of the head of the humerus attempted, but decided from when the injury to the acromion was found, and amputation at the joint performed.

The drawing in the sketch-book not only shows the wounds of entrance and exit of the ball, but has the lines of the incision for the amputation marked in dotted lines. There is also a pen-and-ink sketch, in profile, of this patient, in the diary at the end of the interleaved note-book before described, with the remark, "Amputation of the arm at the articulation. I was forced to do this by circumstances." And a detailed account of the steps of the operation performed.

There is also some account of this case, illustrated with an engraving, Plate VI, in Sir C. Bell's work entitled "Surgical Observations," p. 231, under the head, "Observations on amputation at the shoulder-joint, and on excision of the head of the humerus in cases of gunshot fractures."

*Upper Extremity (Drawing No. 11).—*Head of left humerus shattered by gunshot at Waterloo. Head of the bone excised by transverse incision.

The original sketch from which this drawing was made is on paper, and has

been wafered on to one of the pages of the sketch-book. It was not done at Brussels, but at the York Hospital, Chelsea, after the excision had been performed. There are the following marginal notes:—

"James Ellard, private, 18th Hussars, et. 32. A musket ball entered above the insertion of the pectoral muscle, passed through the head of the humerus, and went out behind. Few small pieces of bone were extracted a few days after at Brussels. On the 13th Sept. received into York Hospital, Chelsea. Operated on by Mr. Morell, on the 16th Sept."

The drawing appears to have been made on the fifth or sixth day after the operation. The shoulder appears swollen, red, and inflamed; and a transverse wound represents the line of incision made in the operation, which Sir C. Bell considered ought to have been longitudinal. A straight pencil line in the original sketch points to a swelling near the situation of the insertion of the pectoralis major, and "here abscess forming" is noted. The remaining notes are, "1st day, little fever; 2, feverish; 3, hectic flush; 5, an attack of ague." "2nd visit. The abscess discharged, contracted, healed. Three weeks since the operation. The man walking about the ward, with the arm little swelled or painful, and the countenance good. Successful."

This case is noted in the "Surgical Observations," p. 235. Full particulars of it are also published by Deputy Inspector-General Morell, the operator, in the 7th vol. of the "Medical and Chirurgical Transactions," p. 161. See also remarks at length upon Sir C. Bell's views in this case, by Mr. Guthrie, in his "Treatise on Gunshot Wounds," 3rd edit. 1857, p. 495, &c., with an engraving illustrative of the injury before amputation.

*Upper Extremity (Drawing No. 12).—*Necrosis of humerus, following fracture by gunshot at Waterloo.

The original sketch in this case is on page 43 of the sketch-book, and was made at the York Hospital on the 13th of December.

*Upper Extremity (Drawing No. 13).—*Left arm, with acromial end of the clavicle, and glenoid cavity of the scapula, carried off by cannon shot.

This is one of the early sketches in the sketch-book. The notes with the sketch are the following:—

"On the field, by bowsticker shell; head of scapula, glenoid cavity, and part of clavicle. Artery taken up on the field. Eleven days, and no hemorrhage. Wound healthy. This man will do well, with support, and due compression of the granulations."

In one of the letters from Brussels to Mr. Bell, dated Sept. 12, 1815, and signed "John Boggie," the recovery of this patient is thus referred to:—"The case which you saw in my division, of the shoulder torn off, is now nearly well. He left this a few days ago with the invalids. The acromion process, which had been left bare, dropped off about a month ago."

*Upper Extremity (Drawing No. 14).—*Arm carried off by cannon shot, close to the shoulder-joint. The following are among the marginal notes with the original sketch:—

"Serjeant Anthony Tuitmeyer, 2nd Line Batt. K.G.L. L'Hôpital des Jésuites. Taken off by cannon shot. The incision through the deltoides, down to the bone; and the saw used so as to leave the head in the cavity. This, with a little picking away of the bone, will make a good operation. Staff-Surgeon Hennen."

Plate VII. in Sir C. Bell's "Surgical Observations," is an engraving from this drawing. The following description is given:—

"He belonged to the German Legion, and a round shot carried off his arm on the field of Waterloo. In this condition, unbound, he rode upright into Brussels, fifteen miles, and presented himself to Dr. Bach at the Hospital of St. Elizabeth. When put into bed he fainted, and remained insensible for half an hour."

*Upper Extremity (Drawing No. 15).—*Right arm carried off close to the shoulder-joint by cannon shot.

This drawing is very similar to the preceding one. Among the marginal notes, with the original sketch, are:—

"Brunswick Hussars, 10th. A great deal of blood on the field; it stopped spontaneously. . . . This was amputated by taking the head out of the socket, and the artery tied. This very unnecessary."

*Upper Extremity (Drawing No. 16).—*Arm shattered from the elbow to the shoulder-joint. Incomplete amputation has been performed. The patient from whom this drawing was taken made a very remarkable recovery from an attack of tetanus; and the history which is given in two of the letters of the collection is rather fully extracted, on account of the interest which it affords. I have not been able to find it noticed in the writings of Hennen, Guthrie, Thomson, Ballingall, S. Cooper, or elsewhere. The following are the marginal notes with the original drawing in the sketch-book:—

"Caesare Elizabeth, 1st July. Voults, King's German Legion. Had his arm completely shattered from the elbow to the shoulder-joint; parts destroyed; no bleeding. On coming here, a kind of amputation was performed. Difficulty of securing the artery, by which a pint of arterial blood was lost. The wound was in a sloughy state; now clean. Being consulted, I advised that an incision should be made in the deltoid, in the length of the remaining shattered humerus; that the dissection should then be carried close to the bone; the light saw then used, to cut across the neck of the humerus, so as to leave the head of the bone in the joint. Collier. A, B, C, D, pieces of the humerus shattered, isolated, and sticking to the granulations by their outer surfaces. It is a remaining slough."

Mr. Collier, in his first letter, dated Brussels, August 5, 1815, thus describes the progress of this case:—

"On Voults, of the German Legion, I performed the operation we talked over, and, I add with gratification, successfully; i.e., it now offers every prospect of a speedy cure. I cannot immediately recall whether, at the time you saw him, he had appearance of tetanic spasm; but prior to my undertaking anything, it was so confirmed that I deemed it necessary to call a consultation; and having then our opinion confirmed of its absolute necessity for any chance of life, I carried what had been before counsel over into execution. I found no difficulty in dissecting the muscles from the bone, and very little in sawing it close to the head. With two incisions I removed all those splinters of bone which had been driven in among the muscles, and those portions of soft parts which appeared thickened and diseased. There was very little hæmorrhage, as the axillary artery was not touched; but the head in the socket was some impediment to the meeting of the flaps, and I now regretted that this had not been taken away. The spasm appeared neither augmented nor diminished by the operation. The countenance became strongly tetanic; jaws were fixed; the least effort to swallow produced the most frightful convulsion; his tongue, caught between his teeth, was fully ulcerated. The emprothotome was succeeded by opiothotome, and of as marked a character as I ever witnessed. When sitting on the side of his bed I have seen him thrown on his back, and the body arched by the power of the muscles; and yet through all this, and through some sloughing of the stump which occurred, he has struggled. He is now free, for some days, from spasm, which gradually subsided after three weeks. The stump is fast closing up, and he walks about the ward, and is considered a convalescent patient."

"P.S. There are but two cases living of all who had this affection—this man and a French officer. His death was constantly anticipated by all, and by none more than myself, on account of the general ill success of our means in these cases."

In a second letter, dated August 20, Mr. Collier writes, "Voults will soon be well. His health is good, and the spasm has long since yielded. The stump is nearly healed."

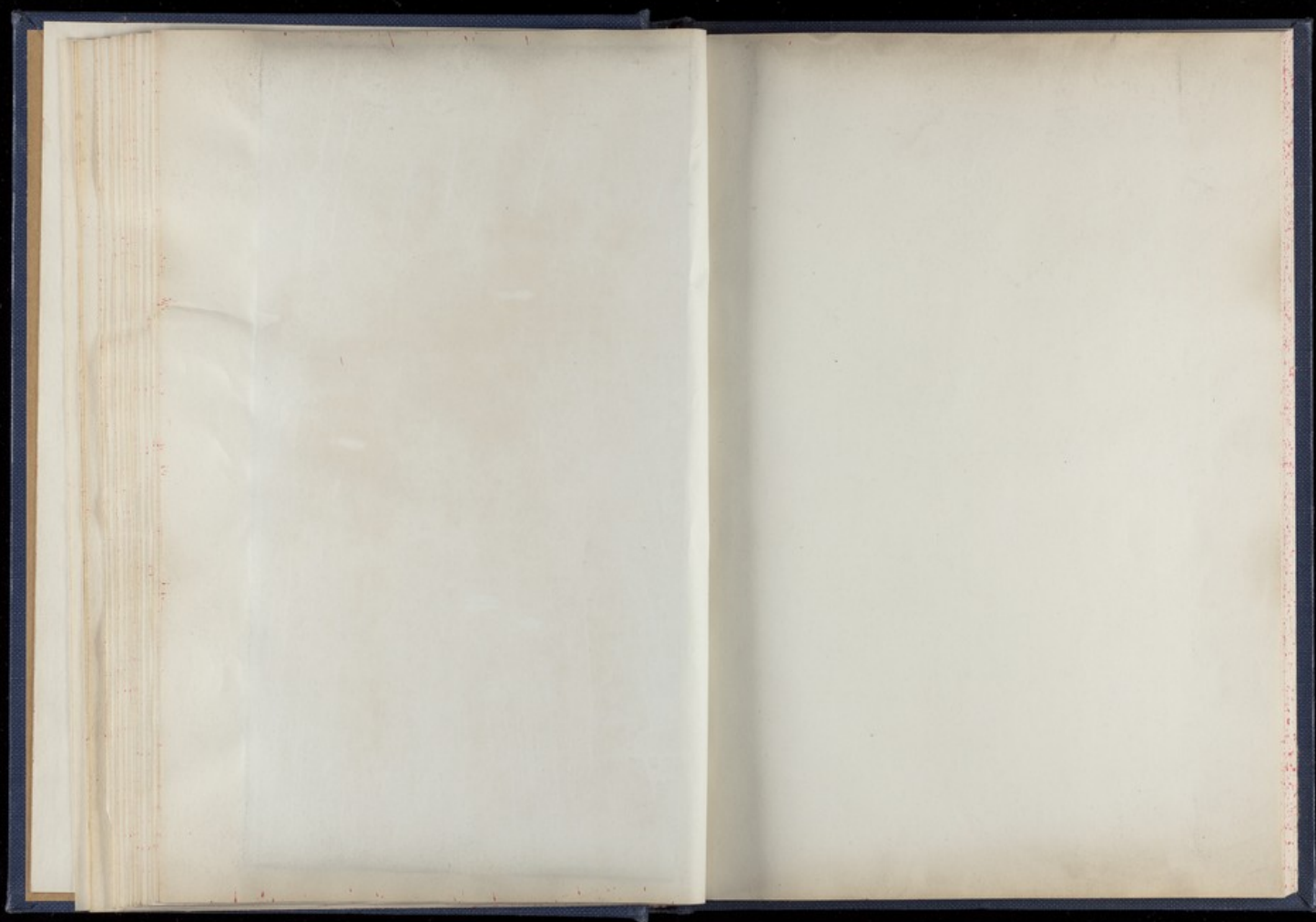
*Lower Extremity (Drawing No. 17).—*Gunshot fracture of the leg in its lower third; the bones comminuted; the orifice small; general swelling of the limb. The limb is supported by a splint made of a bundle of straw.

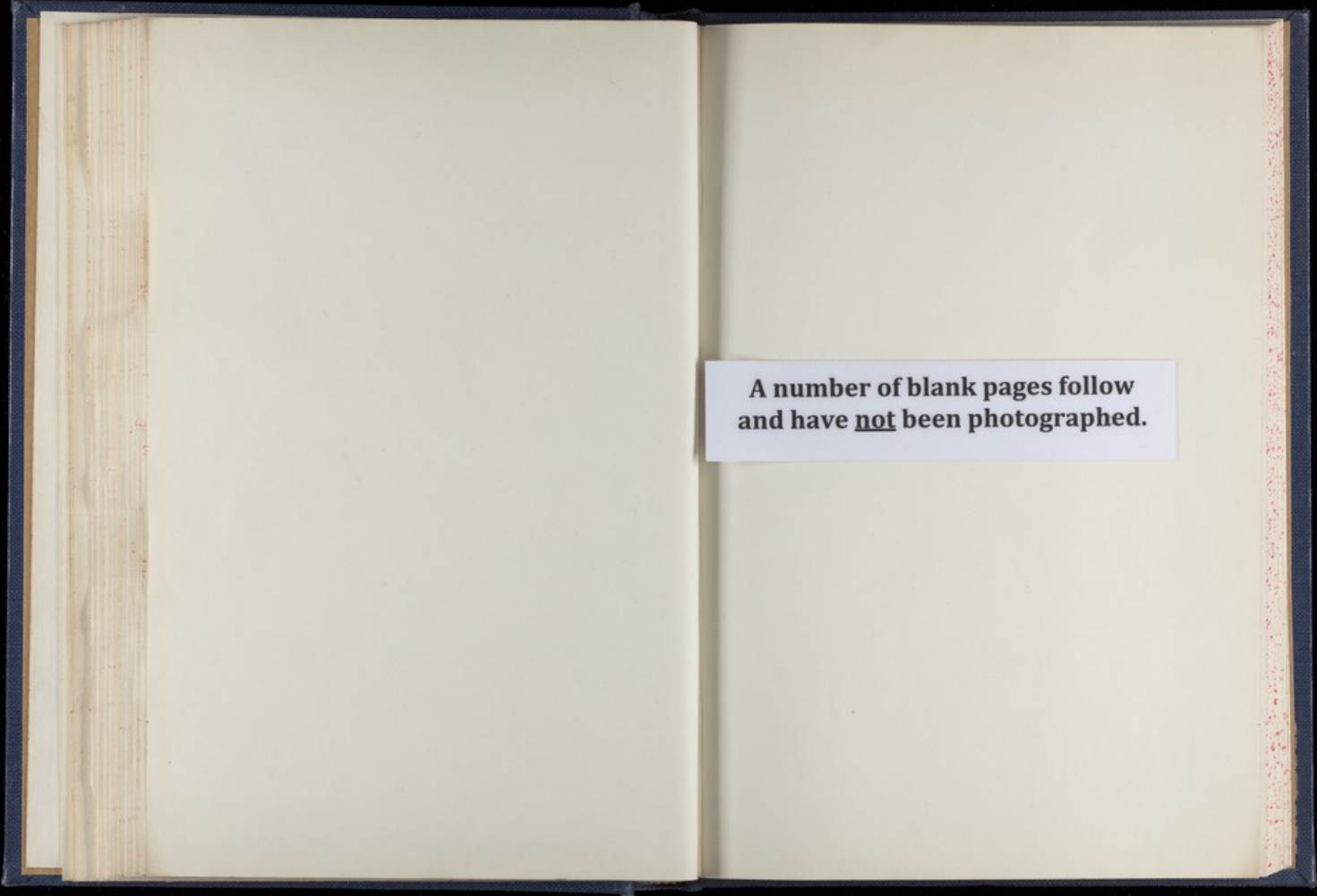
With the original drawing in the sketch-book are the following pencil notes:—

"This is an example of the state in which I found a great many limbs in the Gendarmes, three of which I amputated this morning. On forcing my finger into the wound, it is in a sac or bag, with jagged sharp bone all around; as quantity of bad matter spouting out after the finger." There are also reference to these cases in the interleaved note-book.

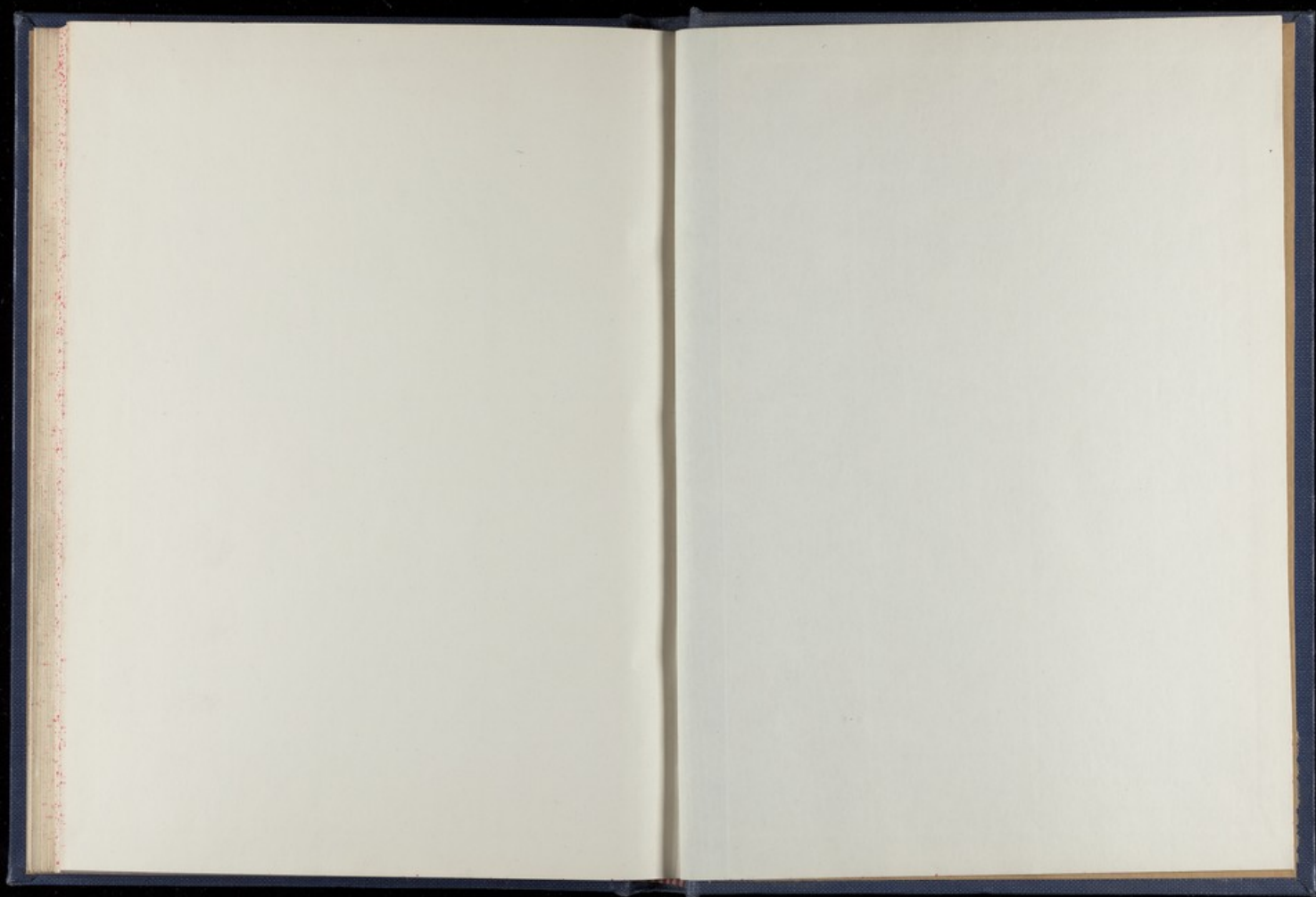
The seventeen drawings, above described, have been protected by glass, and framed in oak frames, and are now hung upon the walls of the Pathological Museum of the Army Medical Department, at Netley. Mr. Shaw's catalogue is placed at hand for reference.

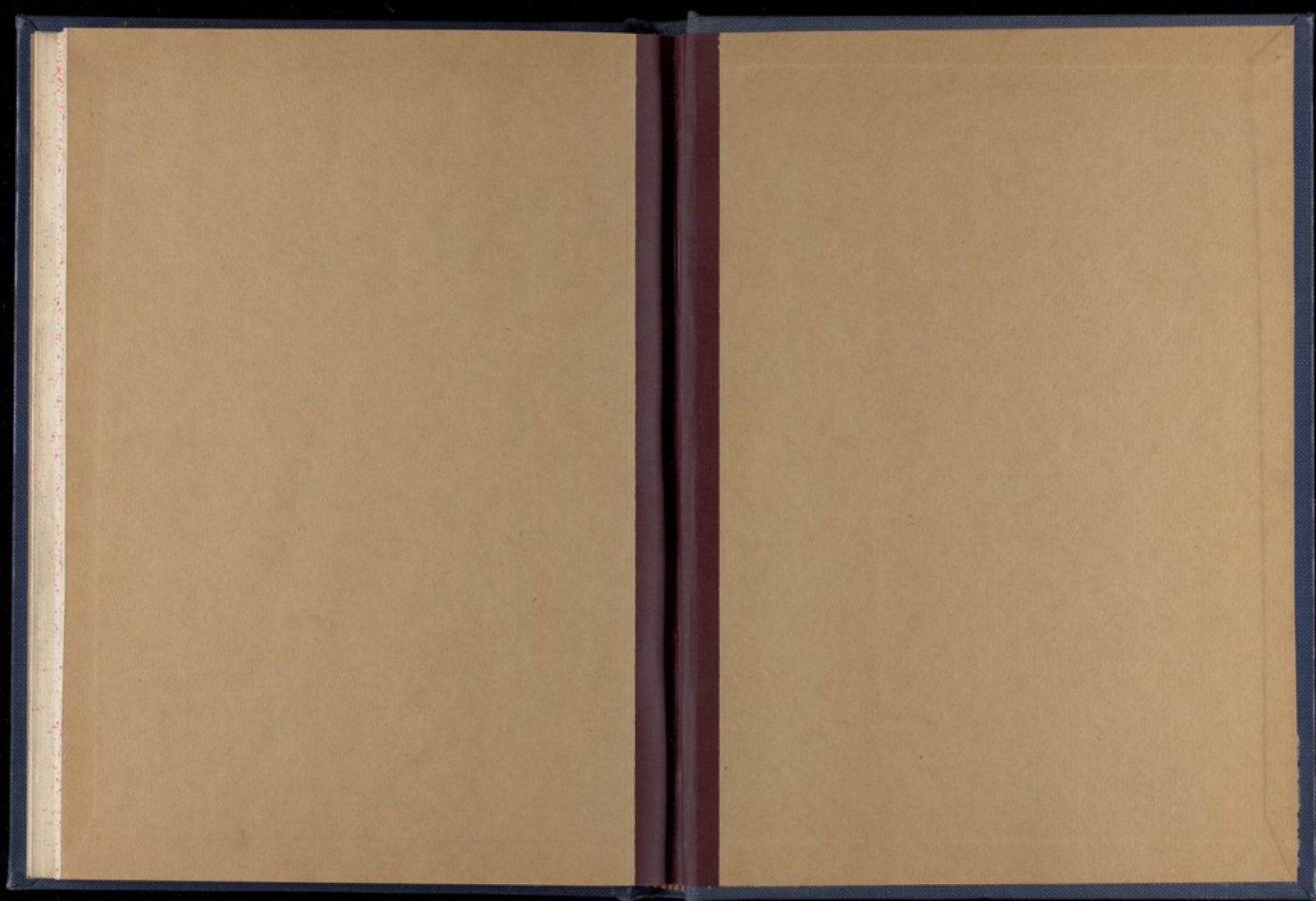
The sketchbook, interleaved copy of the "Dissertation on Gunshot Wounds," and the letters from the surgeons who had charge of the patients referred to in these works, after Sir Charles Bell had left Brussels, are placed together in an appropriate case in the same museum.

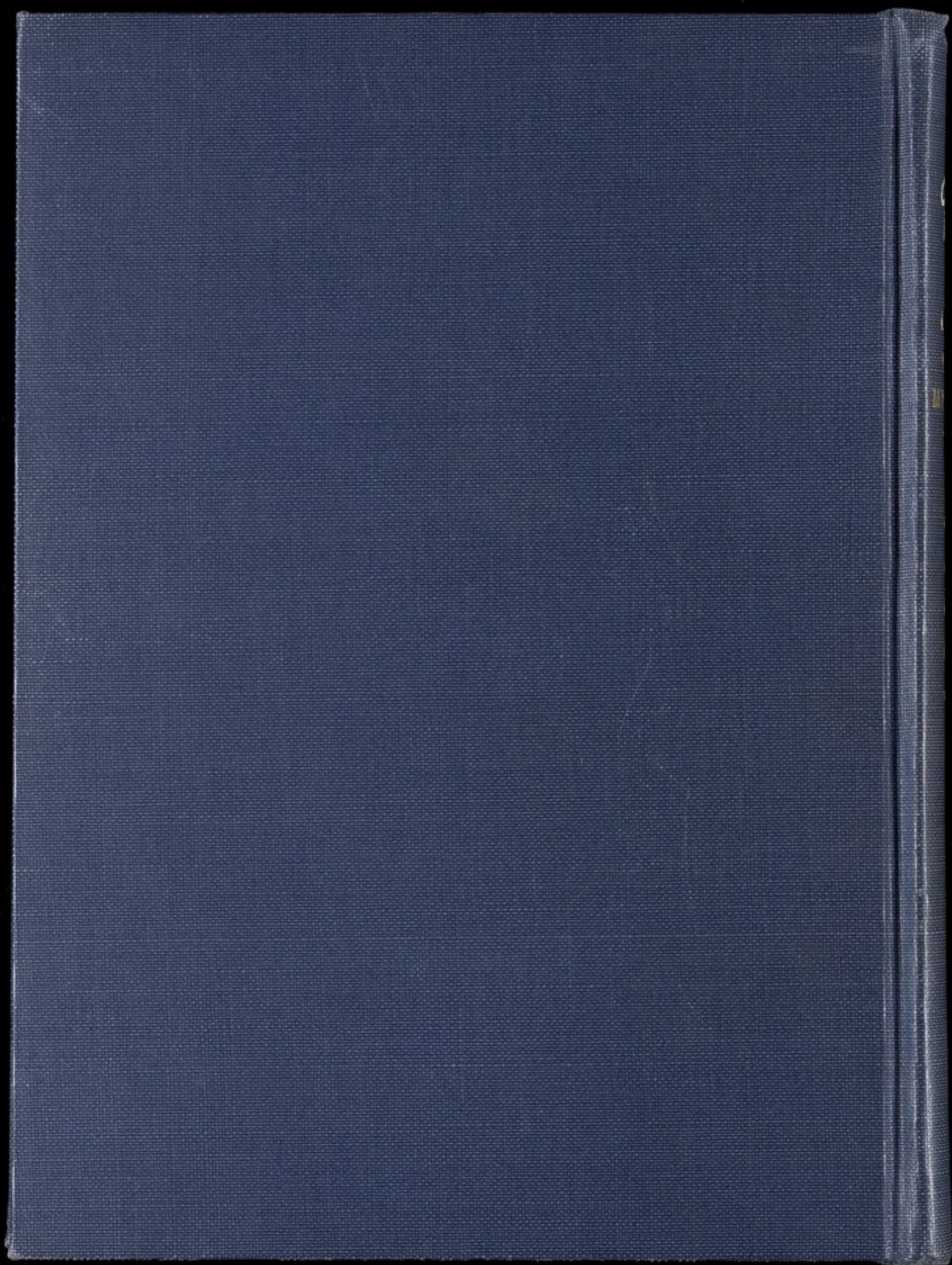




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SIR CHARLES BELL'S
DRAWINGS

95.

MUSEUM OF PATHOLOGY, NETLEY.

Water colour Drawings of wounds
inflicted at the battle of Waterloo.

By Sir Charles Bell.

*See Army Med. Department Report
Vol VII p. 596
(1865)*



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ARMY MEDICAL SCHOOL MUSEUM.

DESCRIPTION

OF A

SERIES OF WATERCOLOUR DRAWINGS,

EXECUTED BY

THE LATE SIR CHARLES BELL,

ILLUSTRATIVE OF

WOUNDS RECEIVED AT THE BATTLE OF WATERLOO.

Presented by his Widow to the Army Medical School, together with a Sketch-book,
Book of Manuscript Notes, and some Original Letters.

BY

DEPUTY INSPECTOR-GENERAL T. LONGMORE, C.B.,
PROFESSOR OF MILITARY SURGERY.

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ARMY MEDICAL SCHOOL MUSEUM.

DESCRIPTION of a Series of Watercolour Drawings, executed by the late Sir CHARLES BELL, illustrative of Wounds received at the Battle of Waterloo, presented by his Widow to the Army Medical School, together with a Sketch-book, Book of Manuscript Notes, and some Original Letters.

By Deputy Inspector-General T. LONAMORE, C.B., Professor of Military Surgery.

In the summer of 1896, Lady Bell, the widow of the late Sir Charles Bell, F.R.S., presented to the Right Hon. the Secretary of State for War, for the Army Medical School, a series of seventeen large watercolour drawings, executed by her late husband. These drawings are all illustrative of wounds which had been received at the battle of Waterloo. The value of the present was greatly enhanced by the additional gift of the following two very interesting books, both of which had relation to, and served still further to explain, the drawings before mentioned, viz.:-

1. The sketch-book which Sir Charles made use of in 1815, at Brussels, containing the original sketches from which the large watercolour drawings were subsequently executed.

2. An interleaved copy of Sir Charles Bell's "Disertations on Gunshot Wounds," which he carried with him to Brussels and used as a note-book. This book contains memoranda concerning most of the cases figured in the watercolour drawings.

Six interesting original letters, written from Brussels to Mr. Charles Bell during the months of August and September, 1815, and having reference to the progress of some of the cases depicted in the sketch-book, were also included in the present by Lady Bell. One of these letters is signed by J. Hennen, two by C. Collier, one by J. Boggie, one by H. Blackadder, and one by J. Roche—names of eminent military surgeons familiar to all who have studied the history of military surgery during the period of the Peninsular wars.

Lastly, the collection was rendered more complete from being accompanied by a descriptive catalogue of the cases forming the subjects of the drawings, as far as information concerning them could be obtained, arranged by Mr. Alexander Shaw, Surgeon of the Middlesex Hospital, and brother-in-law of Sir Charles Bell. The materials of this catalogue, as mentioned by Mr. Shaw, were obtained by him from several sources, viz.:-

1. Notes in pencil by Sir Charles himself, written on the margins of the original drawings in his sketch-book.

2. Letters from the surgeons who were subsequently in charge of the patients.

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3. Notes written on the interleaved copy of the "Dissertation on Gunshot Wounds."

(These three sources have been before referred to as part of Lady Bell's present to the Army Medical School.)

4. Sir Charles Bell's work entitled "Surgical Observations," the first quarterly part of which was published in 1816.

5. A manuscript catalogue of the museum of the Royal College of Surgeons of Edinburgh, in which some of the cases which are the subjects of the drawings are referred to.

The histories of the cases, so far as they are noticed in the following account of the drawings, are abridged from Mr. Shaw's catalogue.

The value of these acquisitions to the Army Medical School, whether regarded simply as works of art, or in their relations to the history of military surgical science and practice, or as souvenirs of the handwork of the distinguished author of the "Anatomy of Expression," can hardly be over-estimated.

It may perhaps be of service to make the nature and particular character of this gift to the Army Medical School generally known, and with this view I forward a somewhat detailed description of the several books and drawings above enumerated.

SIR C. BELL'S SKETCH-BOOK.—This is a folio book, 15 inches long by 10 inches in width; 46 pages are covered with pencilled sketches illustrative of 45 cases of wounds observed by Sir Charles Bell in the hospitals at Brussels, shortly after the battle of Waterloo.

On the first page of the book is a drawing of Shakespeare's Cliff, Dover, with a note observing that he reached Dover early on the 25th of June, 1815. Mr. Shaw mentions that Sir Charles Bell's visit to the hospitals at Brussels extended from the morning of the 30th June to that of the 7th July, so that the majority of the patients from whom the drawings were made did not come under Sir Charles's observation till between the twelfth and nineteenth days after their wounds had been received.

The drawings in this book are generally outline sketches, slightly shaded, in black lead. The particular parts wounded, the situations where amputation has been performed, the parts swollen or inflamed, are coloured by the addition of red chalk. The 17 watercolour drawings have been selected from these 45 cases in the sketch-book. On the same pages of the sketch-book on which the drawings appear, are usually a few notes of the histories of the cases represented, the names of the hospital in which the patients were placed, and a few other such particulars. Occasionally there are memoranda concerning some special features in the symptoms or nature of the case which had attracted Sir C. Bell's attention. Now and then the sketch of the patient, and of the superficial appearances of his wound, are accompanied by a diagram showing the supposed injury inflicted in the deeper anatomical structures at the seat of injury. The memoranda noted are often very brief; as, for example, such a remark as the following:—"Remember the short cough and the sound of air spurting at the same time from the wound." Sometimes the drawings have evidently been made not so much to note the appearances of wounds of special interest, as to show some examples of judicious surgery. An interesting instance of this appears on page 7 of the sketch-book. On this page is a drawing of a patient with an amputated thigh. The stump has a circular bandage round it; but no skin or flaps whatever have been left as a covering for the surface of the stump, the whole aspect of which is fully exposed to view. The patient is lying in bed with his back and head elevated, and the stump slightly bent upwards; he is pressing upon a compress over the site of the femoral artery near the groin, with the thumb of his left hand, while he supports the stump below with his right hand. Near the exposed face of the stump is a pad of charpie, marked a, which appears as if recently taken off from it. The following memoranda are inscribed on the page with this drawing:—"30th. A l'Hôpital de Gendarmes. Bleeding; took off the dressing; bleeding stopped. This is a Frenchman; amputated on the field. The stump bled, it was necessary to open the wound; but it was open, and, under the rays, only this (a) clotted mass of charpie on the face of the stump. The wretched man understands a great deal; he keeps his thumb fixed on the compress over the artery; he says that the artery was tied, but 'qu'il est tombé.'"

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This is a venous hemorrhage, from the veins being compressed. Here is an hospital mate, who says, 'Well, they cut them like a round of beef.' The limb is directly off, and the whole on the same level; the bone projecting; the skin not retracted. By-the-bye, the surface remarkably healthy, and in good state of granulation. Found this quite historical, for it is far behind" &c.

On the next page is the drawing of a patient who has had the radius and ulna of his left arm fractured by a bullet, which has afterwards curved under the skin of the abdomen, and lodged in the hypogastric region. The left hand is shown to be greatly enlarged, and the notes state, "The hand swollen by the bandage around the broken arm."

Sometimes touches of character are noticed. Thus, in connection with a severe wound of the abdomen, with visceral protrusion, there is the remark, "A Frenchman, in great spirits, and of course in fine contrast with that pale Dutchman."

The sketches, however, of chief interest are those selected for representation in the more highly-finished watercolour drawings. Although the illustrations in the sketch-book are comparatively lightly finished, and bear the marks of the rapid, sketchy manner in which they were executed, they will repay a very careful examination. In each instance a consciousness of the faithfulness of the whole picture at once arrests the attention of an observer. The perfect knowledge of anatomy shown in the outlines—the natural positions in which the patients are lying, or the injured limbs repasing—the expression of the features, in many instances specially characteristic of the particular injury, or of the particular state of the patient in the case represented—show at once the accomplished surgeon and the master-hand of a thorough artist.

In addition to the surgical illustrations just mentioned, the sketch-book contains several plans and drawings of the ground on which the battle of Waterloo had been fought, and the appearance presented by it at the time of Sir Charles Bell's visit to Brussels. These drawings are taken from different points of view, and accompanied with numerous annotations written in pencil.

INTERLEAVED "DISSERTATION ON GUNSHOT WOUNDS."—The printed matter of this volume is identical with section xvii, "On Gunshot Wounds," of the second edition of Sir Charles Bell's "System of Operative Surgery, founded on the Basis of Anatomy," published in London in 1814, the year before the battle of Waterloo took place. Some copies of this section were struck off and published separately from the large work, the title and the numbering of the pages being alone changed, and this is one of them. The particular copy presented to the Army Medical School is plentifully interleaved, and many notes, written both in pencil and ink, are scattered through it; but a large proportion of the inserted pages are still blank. Although not so stated in writing, the internal evidence is quite sufficient to show that most of the notes contained in the book were written at the time the observations were made to which the notes refer, or very shortly afterwards. The notes are frequently dated, and often written in the present tense, thus:—"2nd July, Brussels. Let any man go into the hospital of —, and observe the manner in which the wounded are lying; he will be aware of the distracting difficulties the surgeon has to contend with, if there be no arrangement." "Tuesday, July 3, there were very many important cases; see sketches." "The wounded officers are very ill arranged. They ought to be together; if not in a house, in a street or quarter. But let me not be mistaken; it is of the first consequence that the patients should be dispersed," &c.

At the end of the book is a short and hurriedly written diary, in which notes are made of some of the most important operations performed by Sir C. Bell himself in the hospitals. These are illustrated by a few pen-and-ink sketches. One of the last entries in this diary is of particular interest, as regards the history of the case to which it refers; for the description given, though brief, agrees in all particulars with the history of the celebrated case of the French soldier whose thigh Mr. Guthrie successfully amputated at the hip-joint at Brussels, at 2 p.m. on the 7th of July, the day on which Sir Charles Bell left Brussels. The broken and separated head and neck of the femur belonging to the case in question is specimen No. 2,929 in the Pathological Museum of the

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Army Medical Department at Netley. The entry in Sir C. Bell's note-book is the following:—"The last case I observed in this 'hôpital' was a wound in the groin, which shattered the head of the thigh bone. Here the shot entered" [a slight drawing follows, with a line pointing to the opening, which appears in the sketch to be just over the great trochanter], "and the head of the bone I discover to be fractured and separated from the shaft."

"My proposal is to extract the head of the bone, and do no more. Mr Guthrie's proposal is to amputate the thigh at the hip-joint. If the bone be taken out, there is a great cavity and suppuration certainly; but by this means the shock and violence will be saved. I fear the shock of so great an injury, especially as now the wound cannot be cut off, and its injury must be super-added to that of the incision. The man will readily allow of my proposal, but not of G. H. However, next day he said that he would consent. In the meantime I was forced home by business. I had some officers to see," &c.

This note thus appears to show that Sir Charles Bell anticipated the present views with regard to the least unpromising plan of treatment for such an injury. The wound in the case in question was just that for the treatment of which resection of the head and neck of the femur would now be recommended by most surgeons, instead of the almost certainly fatal proceeding by amputation at the hip. Indeed, resection was actually and successfully performed in an almost exactly corresponding case in the Crimea, by Sargant O'Leary of Her Majesty's 60th Regiment; and has since been done with success in four instances, during the late war in the United States, for wounds of a similar nature.*

THE WATERCOLOUR DRAWINGS.—These drawings, seventeen in number, and life size, are painted on paper about two feet and a half long, by one foot ten inches in width, with slight variations. They were done by Sir C. Bell when he was appointed Professor of Surgery in the University of Edinburgh, in 1826, and were used as illustrations for his lectures. As before mentioned, they were selected and enlarged from the drawings of wounds in the sketch-book previously described.† They are all executed with remarkable freedom and vigour, and both their style and colouring cause them to be most effective at the distance at which such drawings are usually exhibited.

Most of the wounds represented are wounds by gunshot; some few are sabre wounds. They have been selected so as to illustrate wounds of each of the principal regions of the body, viz.: head, four; face, one; arm, with two illustrations; neck, two; chest, one; abdomen, one; upper and lower extremities, eight; total, seventeen. The wounds are not exhibited in their most recent state, but in the condition in which they appeared between the twelfth and nineteenth days after they had been inflicted—after various consequences, local and general, had been induced.

A short notice of each of the cases illustrated follows. They are described seriatim, according to the regional distribution of the wounds, as well as in accordance with the numbers borne on the drawings themselves.

Head (Drawing No. 1).—Sabre wound. A portion of the skull at the vertex completely detached by the sabre-cut; the corresponding part of the scalp remains connected by a small isthmus. The original sketch is in page 2 of the sketch-book. On the same page is a drawing of the "piece of bone taken away," and a sketch of a skull, showing the position of the removed portion. There are also the following pencil notes on this page:—"Hôp. de la Gendarmerie, 5th July. This man was brought into the hospital insensible. None of the soldiers knew him; he only can tell that he belongs to the 1st Dragons. This portion of bone was completely detached, and a quantity of matter between it and the dura mater." Another note on the same page says, "On being urged to speak, he makes painful efforts to speak, but cannot. He

* See a "Tabular Statement of Excisions of the Head of the Femur for Gunshot Injury, &c.," Circular No. 6, War Department, Surgeon-General's Office, Washington, November 1865, page 22.

† Mr. Shaw mentions that "another set of copies from the original sketches, nearly the same in regard to the selection of the figures, but in comparison less carefully executed, were made some years before by Sir Charles Bell, on his appointment to be Lecturer on Surgery, in University College, London. This collection is still in the Museum of University College."

can sit up in a chair without support, but stoops languidly, and with a vacant and indifferent expression of countenance." There is an allusion to this case in the note-book:—"The next case was that of a sabre wound in the head, as seen in the sketch. I advised the isolated piece to be taken away, and the integuments to be preserved, which was done. He was considerably relieved in his symptoms the day after the operation, but still could give no account of himself." The fragment of bone above alluded to passed from Sir Charles Bell's Museum to the College of Surgeons of Edinburgh. (See Catalogue, div. cxvii. 2.)

This is one of the most striking of the series of illustrations. The dull and fatuous expression of the wretched young man's countenance, and the helpless condition to which he has been reduced by the effects of his wound, are most forcibly and painfully depicted in the drawing. Not a quality which one may presume he possessed as the dragon soldier, physical or mental, remains, and the picture is distressing to gaze upon; yet Mr. Shaw mentions that he was told by Dr. Macleod, who attended this patient after Sir C. Bell's departure from Brussels, that the man ultimately recovered.

Head (Drawing No. 2).—Musket-ball wound. The case represented in this drawing forms a remarkable contrast with the preceding one. The patient was shot at the battle of Waterloo. He lay three days on the field without food, was then taken to a village, and from thence to one of the churches in Brussels. He was admitted into the Gendarmerie Hospital on the 30th of June. The ball entered the cranium in front, passed through part of the brain, lodged behind, and was extracted on the seventeenth day. The patient recovered within two months. The original sketch is on the third page of the sketch-book, which also has a sketch of a skull, showing the position of the wound of entrance, position of lodgement, and lines of fracture. The notes written in pencil, at different parts of the same page, are the following:—

"4th July. Hôp. de Gendarmerie. Domicile de Lorraine, 1 Reg. de Ligne. Bones fractured, and standing nearly perpendicularly. The ball, in its exit, struck up the skull; but the bones being resisted by the integuments, the ball rested within the skull. No symptoms of injury to the brain, no dilatation of pupils, no delirium. He is sulky, and complaining of headache; has not been sick; up a good deal, and can walk without support. Complaints of being brought down to the operation room, insisting there was no occasion. I withdrew the ball from under the skull with the common dressing forceps. When the ball was shown to him, extracted from under the skull, he expressed satisfaction. Next day he was still well, and was walking about in the ward. Under Blackadder's care. Lindsay had a similar case. Durst had also a case of this kind."

At the end of the interleaved copy of the "Dissertation on Gunshot Wounds," used by Sir C. Bell as a note-book, some further memoranda concerning this case occur; and a full report of its subsequent progress, dated August 13, 1815, in the handwriting of Dr. Blackadder, is among the MS. papers.

In the drawing, the patient's features are compressed, and indicate a sulky, forced submission to what is going on. There is also an exhibition of some degree of pain. A passage in the note-book thus explains this expression:—"This man had not a symptom. He is quite intelligent. The sketch I made while he was sitting in the chair, he having walked down to the operation room. The expression of pain was not from what he suffered from the wound, nor from the surgeon either; but from the barber of the hospital, who was engaged with him at the time."

Head (Drawing No. 3).—Gunshot wound. A musket ball has perforated the frontal bone, entered the left orbit, and is causing protrusion of the eyeball on that side. The following notes appear with the original in the sketch-book:—

"June 21. Hôp. de l'Annunciata. Samuel Pritchard, 4th Regt. Assistant-Surgeon Regt."

"He has no symptom; you see all. The ball entered here in the forehead. My probe passes three inches and a half, obliquely downwards, and towards the left temple. If I had remained I would have enlarged the wound in the forehead, and taken away the pieces of bone. I would have made an incision into the orbit, and extracted the ball, where I am sure it is lodged."

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Among the collection of letters is one to Mr. Charles Bell from Mr. J. Roche, dated Brussels, 17th August, in which mention is made that "Sam. Prichard is alive, and doing well all things considered. . . . You will perhaps soon have an opportunity of seeing him in England, as he will, I believe, be soon sent home." The final result of the case does not appear.

The swollen and ecchymosed condition of the integuments covering the protruded eyeball are admirably shown in the drawing. There is no paralysis of the face, but the features wear a peculiarly heavy, torpid aspect.

*Head (Drawing No. 4).—*Gunshot fracture of skull. Fungus cerebri. The following are the marginal notes around the original drawing in the sketch-book:—

"Caserne Elizabeth, No. 16, sec. D. — Wanstell, 17th Regt. Staff-Surgeon Collyer's patient. On the fifth day after the battle was insensible. A portion of the frontal bone, an inch in diameter, was found driven into the brain, and it stood perpendicularly; not possible to extract it, from its being firmly wedged. Trepanning performed. Quite insensible during the operation; and showed no sensibility until on the next day, being bled, he shrank."

"On the removal of the bone a quantity of blood and brain came out, and coagulum was scooped out from betwixt the skull and dura mater. Three days after the operation he became more sensible, and has been improving. I recommended antimonial solution."

Note pointing to the fungus:—"Pulsating, doughy." The subsequent history of this patient, comprising an account of his death six days after Sir C. Bell had seen him, and of the appearances observed at the post-mortem examination, is given in one of the collections of letters, dated Bruxelles, August 5, 1815, from Mr. Collier to Mr. Charles Bell. In the drawing the fungus cerebri is very prominent; and the staring eyeballs, open lips, hectic flush of the cheeks, clenched hands, and general appearance, are strongly indicative of marasmodic irritation.

*Face (Drawing No. 5).—*Two figures. (a) Gunshot wound; penetration of both orbits by a musket ball. (b) Gunshot wound; entrance of projectile over left malar bone.

There are no histories of these cases. The following notes are pencilled down in the sketch-book by the side of the original sketches:—

(a) "This through both eyes. This man has also lost the sense of smelling. Deprived of two senses—vision and smell."

(b) "Another case in the Gendarmerie. This man has lost the sense of smelling. The left eye has gutta serena."

*Neck (Drawing No. 6).—*Sword wound; penetration of the oesophagus. Trois Louis Celestine. 21 de Ligne. Hôpital de la Gendarmerie, 2nd July. This man and another of the same name were stabbed with the small-swords of English officers."

"This wound is betwixt the sterno-cleido tendon, in the centre, and below the cricoid cartilage. The trachea may be wounded, but there is no air passing out. The oesophagus is evidently wounded, for almost the whole food passes this way, and the saliva keeps trickling." These are the notes attached to the original sketch in the sketch-book.

*Neck (Drawing No. 7).—*Deep perforating wound of the right lower half of the neck, from grapeshot. The following notes are pencilled with the original sketch, from which this drawing was made:—

"Elizabeth Caserne. No. 13, sec. D. James Alexander, 1st Regt. RL Dps. Struck by a grapeshot; considerable bleeding on receiving the wound; since, several bleedings; the large cavity filled with coagulum, and the bandages soaked; stopped by cold applications; has been bled for pain in the chest, and relieved."

"There has been no bleeding from the wound for these three last days. The wound will admit the hand! The sterno-cleido, the sculenus, the trapezius, seen distinctly; the nerves also, but covered with slimy granulations. The beating of the carotid distinct in the wound, pumping up the matter. The right arm tumid and paralytic. I am asked how he is to proceed in event of retreating hæmorrhage."

A line marking "exit of the ball" points to a wound a little above the right acromion.

The conclusion of this case is mentioned in one of the letters to Mr. Bell, dated Bruxelles, August 5, 1815, and signed Charles Collier. "James Alexander did not survive forty-eight hours after you saw him. I was quite prepared, in the event of hæmorrhage, to cut down upon and secure the bleeding vessels; but he died exhausted. He died as I have seen many, from the powers of life yielding to an injury they are unable to repair. He had no fever or cough."

In connexion with this case Sir Charles Bell has related the following anecdote of Baron Larrey:—"On looking over my sketches of the wounded at Waterloo with Baron Larrey, he fixed with interest on the case of a young man who had been wounded in the lower part of the neck. 'Well I know,' says this excellent surgeon, 'how that man must have died. I have seen many wounded so during my campaigns, and die from air drawn into the veins.'"

*Chest (Drawing No. 8).—*Extensive superficial wound of the chest by cannon shot. The marginal notes in the sketch-book give the following:—

"Albrecht Heifer. Caserne St. Elizabeth. No. 13, sec. D. German Legion. The flesh of the right breast thus torn off by a cannon shot. The ribs not broken. No symptoms of much internal inflammation, but breathing with difficulty. Is this from lesion of muscles of respiration? I believe not, but from effusion." "Collier."

Mr. Collier alludes to this case in both his letters; in the second, dated 20th August, 1815, he writes, "Heifer, who had his breast struck by a round shot, is convalescent."

*Abdomen (Drawing No. 9).—*Sabre-wound. The colon protruded, and completely divided; its ends retracted from each other; omentum and meso-colon also protruded. The following account of this case occurs in the sketch-book:—

"Peltier, 3rd French Lancers. Belg. Hosp. 2nd July. Belly opened by a sabre. Immediately the bowels protruded. Before he was off the field he had two stools, and none since downwards. When brought into the hospital the third day after the battle, the mass was gangrenous (Dr. Klaykren). A large portion of the mass comprehending the colon came away after he had made two openings."

Letters and lines indicate in the sketch the following parts of the protruded mass:—"A, superior orifice" (opening of distal part of colon); "B, superior orifice" (proximal part of colon); "C" (pointing to the chief central part of the mass); "omentum covered with slough and slime"; "D and E, (pointing to red, smooth, membranous portions on the front of the mass), 'the other two red portions are portions of the gut which has sloughed away from A to B'."

This is the patient before alluded to, whose spirits are contrasted with those of "that pale Dutchman."

There does not appear to be any further notice of this patient; but Mr. Shaw mentions that, "at lecture, Sir Charles Bell was wont to speak of the case as one in which recovery had either taken place, or might take place."

*Upper Extremity (Drawing No. 10).—*Gunshot wound of the right shoulder. The head of the humerus, and acromion process of the scapula, shattered. Excision of the head of the humerus attempted, but desisted from when the injury to the acromion was found, and amputation at the joint performed.

The drawing in the sketch-book not only shows the wounds of entrance and exit of the ball, but has the lines of the incision for the amputation marked in dotted lines. There is also a pen-and-ink sketch, in profile, of this patient, in the diary at the end of the interleaved note-book before described, with the remark, "Amputation of the arm at the articulation. I was forced to do this by circumstances." And a detailed account of the steps of the operation performed.

There is also some account of this case, illustrated with an engraving, Plate VI, in Sir C. Bell's work entitled "Surgical Observations," p. 231, under the head, "Observations on amputation at the shoulder-joint, and on excision of the head of the humerus in cases of gunshot fractures."

*Upper Extremity (Drawing No. 11).—*Head of left humerus shattered by gunshot at Waterloo. Head of the bone excised by transverse incision.

The original sketch from which this drawing was made is on paper, and has

been wafered on to one of the pages of the sketch-book. It was not done at Brussels, but at the York Hospital, Chelsea, after the excision had been performed. There are the following marginal notes:—

"James Eildard, private, 18th Hussars, et. 32. A musket ball entered above the insertion of the pectoralis muscle, passed through the head of the humerus, and went out behind. Few small pieces of bone were extracted a few days after at Brussels. On the 19th Sept. received into York Hospital, Chelsea. Operated on by Mr. Morell, on the 18th Sept."

The drawing appears to have been made on the fifth or sixth day after the operation. The shoulder appears swollen, red, and inflamed; and a transverse wound represents the line of incision made in the operation, which Sir C. Bell considered ought to have been longitudinal. A straight pencil line in the original sketch points to a swelling near the situation of the insertion of the pectoralis major, and "here abscess forming" is noted. The remaining notes are, "1st day, little fever; 2, feverish; 3, hectic flush; 5, an attack of ague." "2nd visit. The abscess discharged, contracted, healed. Three weeks since the operation. The man walking about the ward, with the arm little swelled or painful, and the countenance good. Successful."

This case is noted in the "Surgical Observations," p. 235. Full particulars of it are also published by Deputy Inspector-General Morell, the operator, in the 7th vol. of the "Medical and Surgical Transactions," p. 161. See also remarks at length upon Sir C. Bell's views in this case, by Mr. Guthrie, in his "Treatise on Gunshot Wounds," 3rd edit. 1857, p. 496, &c., with an engraving illustrative of the injury before amputation.

*Upper Extremity (Drawing No. 12).—*Necrosis of humerus, following fracture by gunshot at Waterloo.

The original sketch in this case is on page 43 of the sketch-book, and was made at the York Hospital on the 13th of December.

*Upper Extremity (Drawing No. 13).—*Left arm, with acromial end of the clavicle, and glenoid cavity of the scapula, carried off by cannon shot.

This is one of the early sketches in the sketch-book. The notes with the sketch are the following:—

"On the field, by howitzer shell; head of scapula, glenoid cavity, and part of clavicle. Artery taken up on the field. Eleven days, and no hemorrhage. Wound healthy. This man will do well, with support, and due compression of the granulations."

In one of the letters from Brussels to Mr. Bell, dated Sept. 12, 1815, and signed "John Baggie," the recovery of this patient is thus referred to:—"The case which you saw in my division, of the shoulder torn off, is now nearly well. He left this a few days ago with the invalids. The acromion process, which had been left bare, dropped off about a month ago."

*Upper Extremity (Drawing No. 14).—*Arm carried off by cannon shot, close to the shoulder-joint. The following are among the marginal notes with the original sketch:—

"Sergeant Anthony Tuitmeyer, 2nd Line Batt. K.G.L. L'Hôpital des Jouines. Taken off by cannon shot. The incision through the deltoides, down to the bone; and the saw used so as to leave the head in the cavity. This, with a little picking away of the bone, will make a good operation. Staff-Surgeon Hensen."

Plate VII, in Sir C. Bell's "Surgical Observations," is an engraving from this drawing. The following description is given:—

"He belonged to the German Legion, and a round shot carried off his arm on the field of Waterloo. In this condition, unassisted, he rode upright into Brussels, fifteen miles, and presented himself to Dr. Bach at the Hospital of St. Elizabeth. When put into bed he fainted, and remained insensible for half an hour."

*Upper Extremity (Drawing No. 15).—*Right arm carried off close to the shoulder-joint by cannon shot.

This drawing is very similar to the preceding one. Among the marginal notes, with the original sketch, are:—

"Brunswick Hussars, 16th. A great deal of blood on the field; it stopped spontaneously. . . . This was amputated by taking the head out of the socket, and the artery tied. This very unnecessary."

*Upper Extremity (Drawing No. 16).—*Arm shattered from the elbow to the shoulder-joint. Incomplete amputation has been performed.

The patient from whom this drawing was taken made a very remarkable recovery from an attack of tetanus; and the history which is given in two of the letters of the collection is rather fully extracted, on account of the interest attached to the case, and because I have not been able to find it noticed in the writings of Hensen, Guthrie, Thomson, Ballingall, S. Cooper, or elsewhere. The following are the marginal notes with the original drawing in the sketch-book:—

"Caserne Elizabeth, 1st July. Voulitz, King's German Legion. Had his arm completely shattered from the elbow to the shoulder-joint; parts destroyed; no bleeding. On coming here, a kind of amputation was performed. Difficulty of securing the artery, by which a pint of arterial blood was lost. The wound was in a sloughy state; now clean. Being consulted, I advised that an incision should be made in the deltoid, in the length of the remaining shattered humerus; that the dissection should then be carried close to the bone; the light saw then used, to cut across the neck of the humerus, so as to leave the head of the bone in the joint. Collier. A, B, C, D, pieces of the humerus shattered, isolated, and sticking to the granulations by their outer surface. D is a remaining slough."

Mr. Collier, in his first letter, dated Brussels, August 5, 1815, thus describes the progress of this case:—

"On Voulitz, of the German Legion, I performed the operation we talked over, and, I add with gratification, successfully; i.e., it now offers every prospect of a speedy cure. I cannot immediately recall whether, at the time you saw him, he had appearance of tetanic spasm; but prior to my undertaking anything, it was so confirmed that I deemed it necessary to call a consultation; and having then our opinion confirmed of its absolute necessity for any chance of life, I carried what had been before comeled over into execution. I found no difficulty in dissecting the muscles from the bone, and very little in saving it close to the head. With two incisions I removed all those splinters of bone which had been driven in among the muscles, and those portions of soft parts which appeared thickened and diseased. There was very little hemorrhage, as the axillary artery was not touched; but the head in the socket was some impediment to the meeting of the flaps, and I now regretted that this had not been taken away. The spasm appeared neither augmented nor diminished by the operation. The countenance became strongly tetanic; jaws were fixed; the least effort to swallow produced the most frightful convulsion; his tongue, caught between his teeth, was sadly ulcerated. The emprosthotonos was succeeded by opisthotonos, and of as marked a character as I ever witnessed. When sitting on the side of his bed I have seen him thrown on his back, and the body arched by the power of the muscles; and yet through all this, and through some sloughing of the stump which occurred, he has struggled. He is now free, for some days, from spasm, which gradually subsided after three weeks. The stump is fast closing up, and he walks about the ward, and is considered a convalescent patient."

"P.S. There are but two cases living of all who had this affection—this man and a French officer. His death was constantly anticipated by all, and by none more than myself, on account of the general ill success of our means in these cases."

In a second letter, dated August 20, Mr. Collier writes, "Voulitz will soon be well. His health is good, and the spasm has long since yielded. The stump is nearly healed."

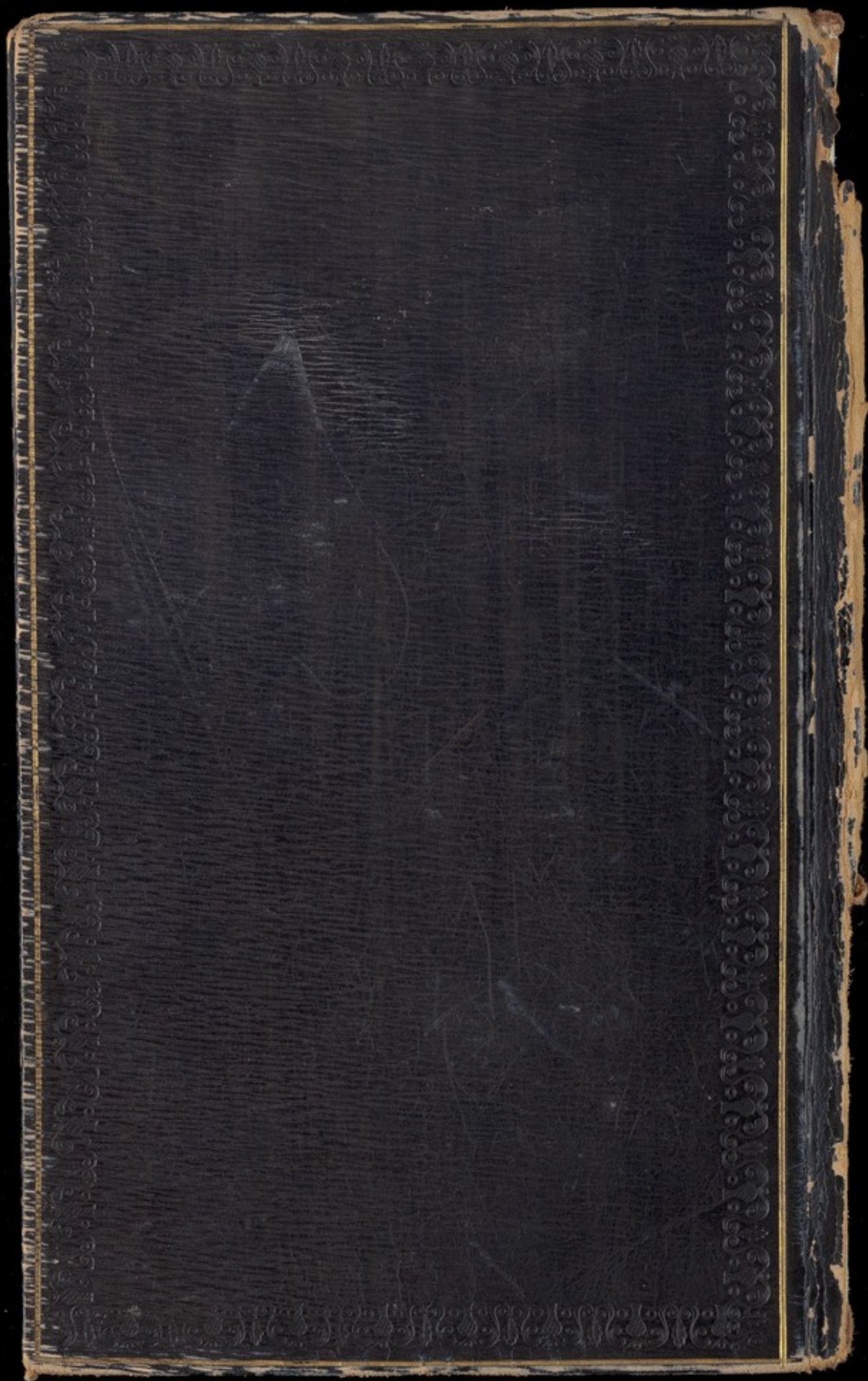
*Lower Extremity (Drawing No. 17).—*Gunshot fracture of the leg in its lower third; the bones comminuted; the orifice small; general swelling of the limb. The limb is supported by a splint made of a bundle of straw.

With the original drawing in the sketch-book are the following pencil notes:—

"This is an example of the state in which I found a great many limbs in the Gendarmerie, three of which I amputated this morning. On forcing my finger into the wound, it is in a sac or bag, with jagged sharp bone all around; as quantity of bad matter spouting out after the finger." There are also reference to these cases in the interleaved note-book.

The seventeen drawings, above described, have been protected by glass, and framed in oak frames, and are now hung upon the walls of the Pathological Museum of the Army Medical Department, at Netley. Mr. Shaw's catalogue is placed at hand for reference.

The sketch-book, interleaved copy of the "Dissertation on Gunshot Wounds," and the letters from the surgeons who had charge of the patients referred to in these works, after Sir Charles Bell had left Brussels, are placed together in an appropriate case in the same museum.



Waterloo

Wound by a horse shoe shell -
found on the field - no blood. Flaming
11 days.



The glans of the
Scaphoid and base of the clavicle
considered - The artery drawn
out - tied - in precaution. H. S. G.

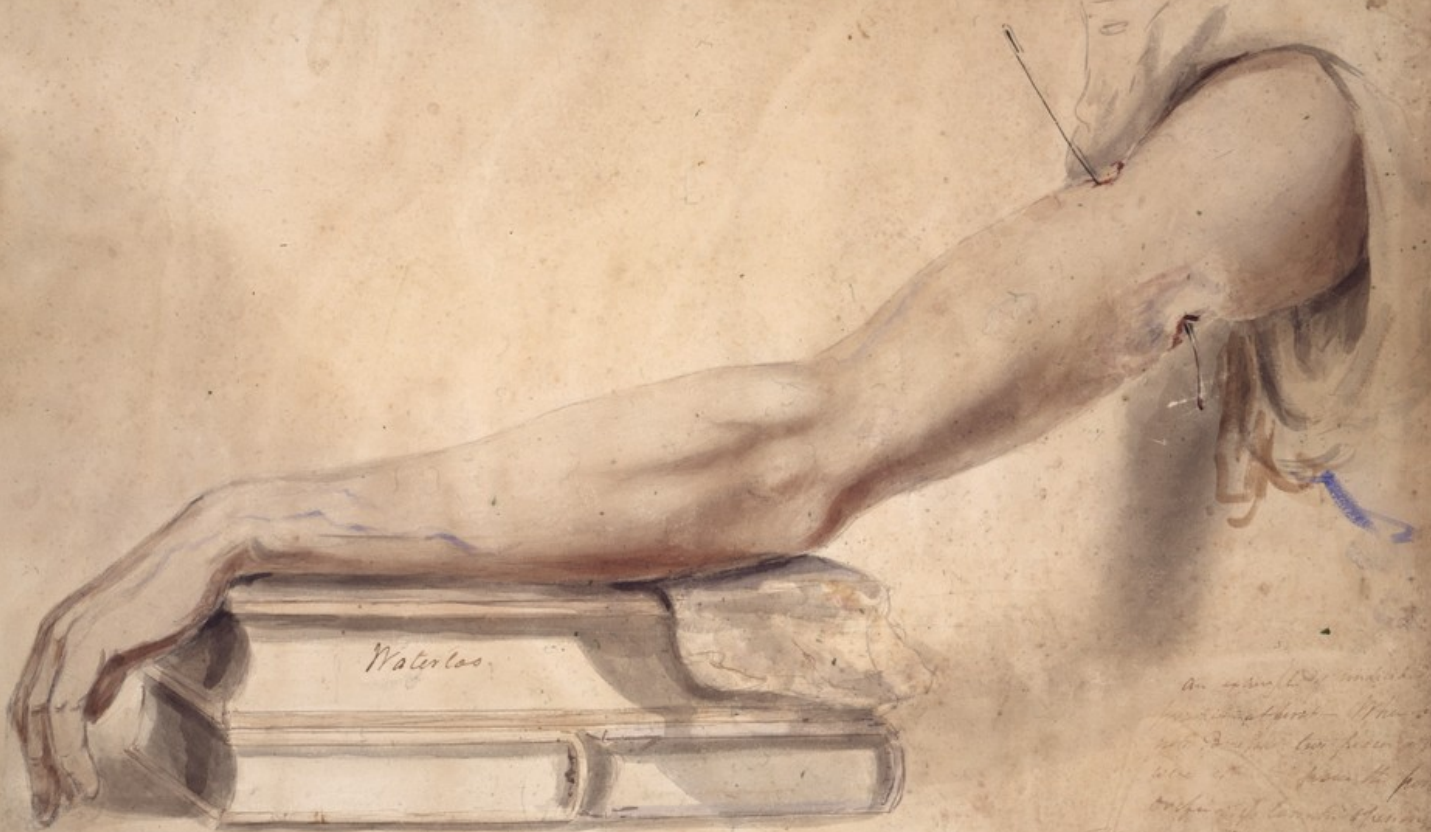












Waterloo

Art. Hospital. B. 110

When I grasp the arm of the forearm, the
He can not raise it, or extend it.
The muscles are not wounded or inflamed.
The inflammation?

The humerus is necrotic.
The arm is solid and uncompressible.
The whole arm is in a state of
rigidity and heat.

An arm, the middle
of the humerus is
broken, the bone is
in a state of
rigidity and heat.
The arm is in a
state of
rigidity.

When pieces of bone
are separated from
the arm, the arm is
in a state of
rigidity.





On removing the bone both
 Brain and blood escaped - and
 a Coagulum lay between the Brain
 & Skull.
 He became sensible three days after
 Operation & from that time he recovered
 his strength & was able to walk & ride.

TV

Warrant of R. 15

Case of a Leg

on 5th day after the operation
 a portion of the bone was detached
 from the skull & lay on the forehead
 by the wound.
 It was not possible to extract it without the
 loss of the eye.
 He was quite insensible during the operation
 and became so insensible the next day
 after being bleeded.



V



Ball grazed nose
both eyes - lost also
the feeling of handling -



He lost the sense
of handling & the left eye
to gutter darkness the work
taunted -







XI



Waterloo



