Catalogue of articles contained in the Museum of Military Surgery attached to the Army Medical School at Netley.

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For the Library
of the Royal College of Surgeons of England
with T. Longmore's Compts
Netley 20th March 1867

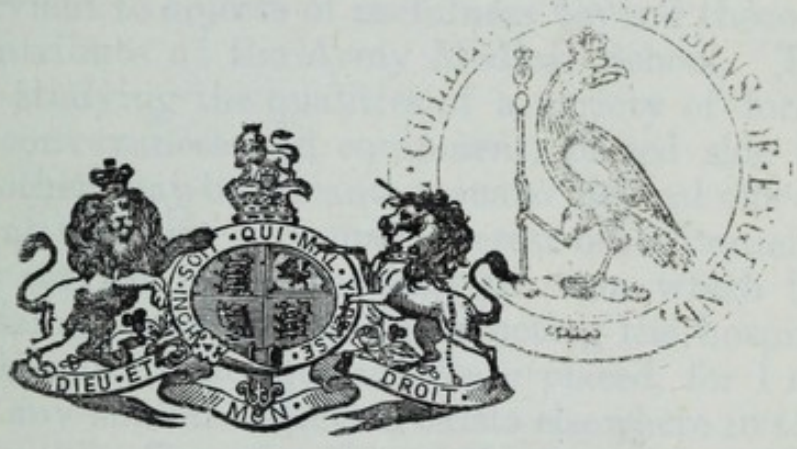
CATALOGUE OF ARTICLES

CONTAINED IN THE

MUSEUM OF MILITARY SURGERY

ATTACHED TO THE

ARMY MEDICAL SCHOOL AT NETLEY.



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PREFACE.

THE Museum of Military Surgery at Netley is chiefly intended to afford the means of illustrating certain portions of the course of lectures on Military Surgery at the Army Medical School, more particularly those parts of the course which refer to the duties of medical officers on field service. Some parts of the collection, as, for example, those which illustrate the various methods employed for transporting sick and wounded in different parts of the world, or proposed for the purpose, and those again which exhibit different forms of surgical field equipment, seem capable of being rendered subservient to objects of usefulness beyond those to which they contribute at the Army Medical School. The opportunity of studying the qualities of a variety of forms of ambulance conveyances and equipment, placed side by side with each other, may be advantageous to medical officers in general, and at the same time may interest other branches of the military service, more especially those in which the duties of organizing, supplying, and conducting the hospital transport and hospital field equipment are placed, for I am not aware that any similar collection exists elsewhere in this country. The publication of a list of the contents of the Museum appears, therefore, to be desirable, for the double purpose of making generally known how far the collection is at present available for useful reference and comparison, and also of showing how far, and in what particular directions, additions are required in order to extend the advantages already presented by it.

The articles contained in the Military Surgery Museum are most conveniently arranged under three distinct groups, viz.:

1st. The weapons and various instruments by which wounds and injuries have been, or are still, inflicted in warfare.

2nd. The articles of surgical equipment which have been placed at the disposal of army surgeons in the field for the treatment of the wounds and injuries to which soldiers are there liable ; and,

3rd. The means adopted for removing the wounded from the place of fighting to the places arranged for their surgical treatment.

The collection does not include illustrations of the wounds and injuries themselves—these are illustrated by the preparations contained in the rich pathological collection of the Army Medical Department; neither does it comprise illustrations of those preventive means by which it is sought to preserve the health and efficiency of soldiers under the circumstances of campaigning—these, again, are to be found in the Hygienic Museum in process of formation under the direction of Professor Parkes.

The details of the plan adopted for the arrangement of the several collections in the Museum do not need any lengthened description in these introductory remarks; the general principles on which it has been based may be seen at a glance, by reference to the analytical index which follows. The classification which will be there found was determined upon, not only because it appeared to be the best in regard to a systematic and orderly disposal of the articles at present in the Museum, but also because it equally afforded a convenient method for readily distributing in their proper places any additions which may be hereafter contributed to it. The three leading groups into which the collection has been divided have been already mentioned in a preceding paragraph. In arranging the articles contained in each group a chronological and developmental system has been followed, so far as the contents of the Museum have admitted of this being done. The brief description attached to each separate article enumerated in the catalogue will show that the list in which it is placed commences with the most primitive illustrations of the series; and that, as the numbers advance, the specimens attached to those numbers show also an advance in progress towards perfection of construction, or of other qualities, so far as perfection in these has been arrived at up to the present time. Thus, taking the "Projectiles propelled by mechanical means" for an example, the series commences with bows and arrows,

beginning with the most primitive forms of these weapons; arrows first armed with points of hard wood, then with bone, then with metallic points, these points being first of the rudest manufacture, then gradually improving in temper of metal, in the forms calculated for inflicting injury, and in other qualities; the projectiles at the same time exhibiting other improvements in their general construction, so as to secure for them greater accuracy of flight and power of penetration. These are followed by the arms and projectiles depending for their action upon the explosion of gunpowder, the same system being adopted in cataloguing the collection so far as it goes; the matchlock and flintlock weapons preceding the percussion musket; the smooth-bore weapons preceding the rifled weapons, and so on. Such a series of the variously constructed weapons by which wounds have been inflicted is calculated to supply interesting, and often useful, illustrations to the writings of the successive generations of surgeons who have left records of the surgery of the periods to which the weapons so classified have severally belonged.

A few words are necessary in reference to the sources from which the several articles contained in the Museum have been acquired. These are fourfold: viz., firstly, the Museum of Military Surgery which was formed at Dublin under the direction of Professor Tufnell, formerly the Regius Professor of Military Surgery in Ireland; secondly, a miscellaneous collection of objects of interest attached to the Pathological and Natural History collections of the Army Medical Department which were formerly at Fort Pitt; thirdly, grants from the War Department, either of articles or of money for purchase of articles; and, fourthly, private donations. Mr. Tufnell's collection was formed to illustrate the course of lectures on military surgery which that gentleman commenced to give in the year 1846, but was largely developed after the outbreak of the war with Russia in 1854, at which time the Chair of Military Surgery at Dublin was endowed with an annual sum granted by Parliament at the recommendation of the Government. This grant ceased on the 30th of June 1860, and the Military Surgery Museum was then transferred to Chatham, where it arrived shortly before the opening of the Army Medical School in October of the same year. A room in the new buildings erected for the school was allotted for its reception, and there the collection remained until the removal of the establishment to Netley

in 1863. At the time the Museum of Military Surgery reached Chatham there existed, as already mentioned, an unarranged collection of miscellaneous objects of general interest in the same building as the Pathological Museum and Museum of Natural History. Some of the articles in this collection, chiefly examples of weapons of savage warfare, were transferred to the Military Surgery Museum. Further additions have been made, as already mentioned, by grants from the Ministry of War. From this source have been obtained some of the examples of field equipment of the present authorized patterns, as well as models of the carts designed for its conveyance. Other specimens have been obtained by purchase out of the annual grant which is obtained from the War Department to meet the current contingent expenses of the school. Some articles of interest have also been kindly presented to the Museum by medical officers and others interested in improving the usefulness of the collection. Care has been taken in compiling the catalogue to indicate in every instance from which of the four sources just named the several articles comprised in the collection have been obtained, and to mention the name of the donor in every instance of a gift, when the donor's name has been attached to the specimen or could be otherwise ascertained.

An inspection of the list of contents of the Museum will show that the collection is still in an incomplete state, so much so, that some parts, which it is very desirable should be fully illustrated, can only be regarded as the nuclei of what they may be hoped to expand into in due time. The forms of field surgical equipment and articles of all kinds appertaining to the requirements and practice of surgery in the field, employed in other countries; patterns and models of field conveyances for sick and wounded in foreign armies; the projectiles of other nations, which, in case of hostilities, might be employed against our own troops; these are hardly at all represented at present in the Museum, and would all be valuable acquisitions. Other desiderata will suggest themselves on an examination of the articles enumerated in the subjoined lists. It is hoped that a desire to increase the usefulness of the collection may not be wanting among those officers by whom this catalogue is likely to be seen, and that through their means, as opportunities occur, the wants which at present exist may hereafter be supplied. The plan of leaving occasional intervals in the numbers between the termination of one group of

articles and the commencement of another group, as well as in other parts of the catalogue, and not numbering the articles in one continuously successive order, has been adopted for the purpose of leaving spaces for the insertion of descriptions of any fresh contributions that may arrive, and thus of keeping the catalogue available for years to come without interfering with its unity by the addition of appendices.

Lastly, I have to express my acknowledgments to Mr. Otto Striedinger, Secretary to the Army Medical School, for the valuable assistance which he has given me in the arrangement of the articles described in the catalogue.

THOMAS LONGMORE,
Deputy Inspector General,
Professor of Military Surgery.

Army Medical School,
Netley, November 1866.

ANALYTICAL INDEX

TO THE

MUSEUM OF MILITARY SURGERY.

A. Arms and Weapons.

CLASSIFIED CONTENTS

OF THE

MUSEUM OF MILITARY SURGERY.

A.—ARMS AND WEAPONS.

I.—For Close Combat.

a. BLUNT WEAPONS.

CLUBS.

1. Plain club, tapering in form; of very heavy hard wood.
* *Probably African.—F.P.*

2. Heavy club, similar in form to No. 1, but handle covered with plaited grass, and fitted with a loop of the same material to go round the wrist.
Probably African.—F.P.

3. Club, heavy; tapering; curved at the larger end and forked. Deeply roughened, and angular on one side of the upper extremity; rounded and smooth on the other side.
From New Zealand.—F.P.

4. Club, tapering in form; straight, very heavy, cleft at the larger extremity, and rounded on one side; roughened and cut to an angle on the opposite side.
Probably from New Zealand.—F.P.

5. Club, with long narrow stem; rounded head formed from the root of a tree; of very heavy wood.
From Caffraria.—F.P.
Presented by 2d Class Staff-Surgeon Sparrow.

6. Club, similar to the preceding one in shape; but with the handle

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* The remarks in italics following the description of each specimen are intended to show the station whence it has been obtained, and the donor's name. The absence of any previous catalogue or available records to assist in the completion of this catalogue, must be pleaded as an excuse for many omissions that will be observed under these heads. The names of the donors of the older specimens, as well as the stations from which the gifts were received, have only been obtainable from the labels originally pasted or otherwise attached to the specimens themselves; when these have not been forthcoming the donor's name has unavoidably been omitted, and the station only suggested or named from the characteristic features of the specimen under observation. If any officers whom this catalogue may reach should be able to suply this or any other missing information, and will kindly communicate the same to the Professor of Military Surgery at the Army Medical School, steps will at once be taken to place the communication on record, so as to render it available for rectifying the omissions in any future edition of this catalogue.—T. L.

curved, and head hollowed out, as if for the reception of some heavy material to add to its weight.

From Caffraria.—F.P.

Presented by 2d Class Staff-Surgeon Sparrow.

7. Short club, with curved handle, narrow stem, and large rounded head of heavy wood.

From Caffraria.—F.P.

Presented by 2d Class Staff-Surgeon Sparrow.

8. Similar weapon, but of lighter wood, with plain handle.

From Caffraria.—F.P.

Presented by 2d Class Staff-Surgeon Sparrow.

9. Club, of heavy wood; stem narrow; rounded head.

From Caffraria.—F.P.

Presented by 2d Class Staff-Surgeon Sparrow.

10. Short club; coarsely finished.

From Eastern Africa.—F.P.

11. Short club of heavy wood with three facets on its knob.

From the East Coast of Africa.—F.P.

12 *a–i.* A series of nine club-sticks, similar to the clubs numbered 9, 10, and 11; heads rounded but small; stems plain or slightly ornamented; varying in size, weight, and length of stem; length 3 to 6 feet.

From Caffraria and Southern and South Eastern Africa.—F.P.

Most of these club-sticks were presented by 2d Class Staff-Surgeon Sparrow.

These club-sticks are carried, on ordinary occasions, like walking-sticks by the natives of Southern Africa, but are used on occasion as weapons in fighting.

OTHER WEAPONS, OR RUDE IMPLEMENTS USED IN THE PROPULSION OF WEAPONS.

21 *a–c.* Three woomrahs, each about 2 feet long and 5 inches wide at its broadest part in the middle. Workmanship very rude. Blade flat and thin with a projecting knob left at one end.

From Australia.—F.P.

Used by the natives of Australia in the propulsion of their spears. The foot of the spear is fitted under the knob of the woomrah, and both spear and woomrah are raised over the right shoulder. A vibrating motion is given to the woomrah which imparts itself to the spear; the spear is then thrown, but the woomrah remains held in the hand between two fingers.

22 *a–d.* Four implements or weapons longer and narrower than the woomrahs just described, measuring each 3 feet by 4 inches; the blade is thin, and furnished with a rude handle; the whole somewhat resembling a roughly cut wooden sword.

From New Holland.—F.P.

Presented by Drs. Muir and Davis, 39th Regiment.

23 *a–c.* Three implements or weapons, very similar in shape to the four preceding, but thicker and heavier.

From New Holland.—F.P.

Presented by Drs. Muir and Davis, 39th Regiment.

b. CUTTING WEAPONS OF UNCIVILIZED NATIONS, BATTLE-AXES, STONE IMPLEMENTS, ETC.

41. Ancient stone weapon of the South American Indians.
From Essequibo.—F.P.

42. Ancient cut stone implement.
Probably North American.—F.P.

43. Ancient cut stone implement, highly polished. Fine-grained marble of a green hue.—*F.P.*

44. Ancient American Indian axe.
From Potazanasn Village, Drummond Island.—F.P.
Presented by Insp.-General Dr. Forbes.

45. Ancient stone axe.
From South America.—F.P.

46. Flint axe, found when digging a 4-foot drain in the parish of Brenchley, Kent, in 1857.—*F.P.*
Presented by J. H. J. Hay Buxton, Chief Constable.

48. A well-made Patoo-patoo or Mery, for close combat; carved head of greenstone, with leather thong to fit on the wrist.
From New Zealand.—F.P.
Presented by Dr. F. McCrae.

49. Adze of heavy green-stone.
From New Zealand.
Presented by Dr. F. McCrae.

50 *a–h.* Ancient cut stone implements and weapons of various shapes and sizes.
Found in Canada.—F.P.
Presented by Staff Assistant-Surgeon Bawtree.

61. Ancient Caledonian battle-axe, made of siliceous iron.
From Scotland.—F.P.
Presented by Staff-Surgeon McLean.

62. A similar stone weapon to the preceding one.
From Scotland.—F.P.
Presented by Staff-Surgeon McLean.

64. Ancient implement of copper.
Found in Canada.—F.P.
Presented by Staff Assistant-Surgeon Bawtree.

65. Adze. Handle of light wood, highly carved, terminating in a head, into which is received a cut stone axe. The head is strongly secured in its place by a plaited grass binding; the handle is square and turreted.
From Otaheite.—F.P.

Capable of being used as a weapon of offence, and also for the ordinary purposes of an adze.

c. SHARP-EDGED WEAPONS.

(1.) *Weapons for Stabbing alone.*

66. Plain straight two-edged dagger, with the handle made of bone and wood.

From the Cape of Good Hope.—F.P.
Presented by Dr. Andrew Smith, Surgeon to the Forces.

67*a–b*. Two horn daggers, sharp pointed, with curved, ornamented handles; each dagger consists of one single piece of tough horn of dark colour, apparently buffalo horn.

From Caffraria.—F.P.
Presented by Dr. Andrew Smith, Surgeon to the Forces.

68. Double dagger made by two twisted antelope horns, joined together by iron bands, so as to make a handle in the centre. The extremity of each horn is tipped with iron, arrow shaped, and pointed for stabbing. The handle is very ingeniously contrived in this weapon, an oval space being left for the fingers by the natural curves of the two horns.—*F.P.*

69. Short curved dagger of highly tempered steel, with ornamented ivory handle. Point sharp, extremity rather rounded. The scabbard is made of wood and covered with cotton cloth dyed red.—*F.P.*

Evidently of Eastern manufacture.

70. Short dagger. Blade wavy and formed of elaborately twisted steel. The handle is richly carved and composed of ivory and gold. The scabbard is made of copper, lined with wood.—*F.P.*

Evidently of Eastern manufacture.

71. Short one-edged knife, with rudely ornamented carved wooden handle.

In use by the Totonatoma Indians of North America.—F.P.
Presented by A. S. Anderson, 82nd Regiment.

Appears to be more for domestic use than a weapon in warfare.

N.B.—For *Bayonets* see under III. *b*. "Fire Arms."

(2.) *Weapons for Cutting, or for Cutting and Thrusting combined.*

80. Short sword, or Ghoorka knife; much curved, one-edged, sharp-pointed, blade broadening towards the point, carved wooden handle. This weapon is designed for stabbing and ripping purposes. The scabbard is made of wood, and covered with leather.

India.—F.P.

81. Sardinian sword, plain, slightly curved, sharply pointed at extremity, brass handle. Waist belt and scabbard complete.

Probably obtained in the Crimea.—D.M.

82. Russian pioneer's sword. Blade very broad and strong, doubly serrated at the back so as to be used as a saw, point curved and sharp. —*D.M.*

83. Short Russian sword; blade sharp pointed, slightly curved, and broader towards the pointed end. The handle is made of wood, partly covered with leather.—*D.M.*

84. Sword bayonet; in present use by gunners of the Royal Artillery.—*W.O.*

85. One pair of fencing foils.

91. Long, straight, one-edged native trooper's sword; pointed at the extremity, with iron handle.

From India.—F.P.
Presented by Assistant-Surgeon Dr. Mapleton, 40th Regiment.

92. Long curved broadsword, with iron handle, cutting edge, and sharp point; scabbard made of wood, covered with leather.

Probably a Sikh sword.—F.P.

93. Long, straight, two-edged Scottish Highland sword (claymore); open iron handle, scabbard of plain leather. Found near the field of Culloden.

Three grooves exist in the middle of the blade on both sides near its handle. The middle groove bears the name of "*Andrea Ferrara;*" on the other two grooves are three Ws, or Ms, on each.

Presented by Duncan Forbes, Esq., of Culloden.—F.P.

94. Cavalry sword (old pattern).—*W.O.*

95. Cavalry sword (pattern 1853).—*W.O.*

96. Staff sergeant's sword (Infantry).—*W.O.*

97*a*. Drummer's sword (Infantry).—*W.O.*

97*b*. Drummer's sword, with scabbard (Infantry).—*W.O.*

100. Coastguard sword.— *W.O.*

101. Japanese sword; the blade having an edge of very hard steel welded to it.

Purchased in 1862, *at Yeddo, by Mr. Birch, now an assistant-surgeon in H.M. Indian Forces, and presented by him, in* 1866, *to the Military Surgery Museum.*

(3.) *Iron Battle-axes, Halberds, &c.*

121. Caffre battle-axe, with iron blade. The blade is directly inserted into the rounded head of the stem or handle. Stem straight.—*F.P.*

122. Caffre battle-axe, with iron crescent-shaped blade. The blade inserted into the rounded head of the stem by an intervening neck. Stem straight—*F.P.*

123. Caffre battle-axe, similar to the preceding, but with the stem curved.—*F.P.*

124. Caffre battle-axe, similar to the preceding, but more highly finished. —*F.P.*

125. Sergeant's halberd. British Service. Date unknown.—*F.P.*

II.—Weapons fit to be used both for Close Quarters and at Short Distances, but propelled or moved by Hand only.

a. boomerangs.

This class is not represented, at present, by any specimens.

b. darts, spears, lances, etc.

(1.) *With non-metallic points.*

151*a–e*. Five assegais of plain hard wood, simply pointed at both ends. Length 9 feet.

From the Cape of Good Hope.—F.P.

152. Weapon of hard wood, terminating at one end in a blade formed of the same piece as the handle. The blade is lance-shaped, with an elevated rib on both sides. Whole length 4 feet.

From the Cape of Good Hope.—F.P.

153*a–d*. Four assegais of plain wood; each being pointed at one end, and furnished with a handle, covered with skin at the other end. Length of each about 8 feet.

From South Africa.—F.P.

Presented by Assistant-Surgeon Courtney, 75th Regiment.

154 *a–m*. Twelve assegais, with plain thin shafts, and separate barbs of hard wood. The barbs are fixed into the shaft-ends by cord and cement. Length of each about 9½ feet.

From the Cape of Good Hope.—F.P.

Presented by Assistant-Surgeon Courtney, 75th Regiment.

155. Assegai of hard wood; carved at the upper end, for nearly 2 feet in length, into eight ridges, four of which are deeply toothed. The carved portion terminates by four large barbs at the posterior end of the ridges, and by a pointed conical extremity in front. The assegai gradually tapers off behind, and is not furnished with a handle. Whole length 6 feet.

From the Cape of Good Hope.—F.P.

Presented by S. A. S. James H. Frazer.

156. Assegai of bamboo, with a head of hard wood, barbed and serrated. The head is fixed to the shaft by skin lacing. Length 8½ feet.

From the Cape of Good Hope.—F.P.

Presented by S. A. S. James H. Frazer.

157. Assegai, shaft of bamboo, very similar to the preceding, but furnished with three serrated heads of hard wood, each 2 feet in length, firmly laced to the shaft. Length of the whole assegai 9 feet.

From the Cape of Good Hope.—F.P.

Presented by S. A. S. James H. Frazer.

158. Assegai of hard and very brittle wood; fitted with nine sets of barbs, arranged in circles around the head of the weapon, and diminishing in size from the posterior circle towards the circle in front. The weapon terminates in a fine conical point. The jagged projections on the head are so carved as to be liable to be easily broken off and to be left behind on withdrawing the weapon from any substance into which it may have been thrust. Length 10 feet.

From South Africa.—F.P.

159. Assegai of hard wood, terminating in four sharp-pointed, diverging, heads, each 2½ feet in length. These heads are fastened to the stem by a highly worked binding of twisted grass cord. Length of shaft 6½ feet, of the whole spear 9 feet.

From South Africa.—F.P.

160 *a–e*. Five assegais; shafts consisting of light reeds, with points of hard wood, varying in length from 1 foot to 2 feet each, inserted into them, and securely fastened by hide-lacing. The length of these assegais varies from 5 to 8 feet.

From South Africa.—F.P.

Presented by Assistant-Surgeon Courtney, 75th Regiment.

171. Dart of very light wood or reed, with a jagged pointed piece of hard wood, 18 inches long, inserted into the shaft, and neatly fastened by a binding of thin cord and cement. The end is doubly feathered like an arrow. Length from end to end 6 feet.

British Guiana.—D.M.

(2.) *With Iron Heads.*

(With the exception of South Africa, and a few specimens from China, very few nations are represented in this class; and contributions of Indian, Tartar, and other Eastern as well as European lances and spears would be welcome additions to the collection.)

201. Spear or assegai; the shaft consists of reed, and is topped by a double-edged pointed iron blade, with a flat surface. The blade is about 6 inches long by 1½ inches wide, and inserted by a long neck into the shaft. The blade and shaft are held firmly together by means of a tight lacing of leather. Neck of blade not visible. Total length 5 feet.

From the Cape of Good Hope.—F.P.

Presented by Assistant-Surgeon Courtney, 75th Regiment.

202. Spear or assegai, similar to the preceding, excepting that 3 inches of the neck are exposed, and that the blade has a slightly-raised rib down the centre of each surface. Length 7 feet.

From the Cape of Good Hope.—F.P.

Presented by Assistant-Surgeon Courtney, 75th Regiment.

203 *a–b*. Two spears or assegais, with thick reed shafts, into which the blades are inserted, and spirally bound by broad strips of wrought iron. The blades have central ribs down each surface, dividing it into two halves. Each half is convex on one side and concave on the opposite side. Length of each spear 5 feet.

From the Cape of Good Hope.—F.P.

Presented by Assistant-Surgeon Courtney, 75th Regiment.

204 *a–f*. Six spears or assegais; blades varying from 6 to 18 inches in length; shapes, and mode of fixing, as described in specimen No. 203. No necks visible. Shafts of tough but light wood. Total length varying from 5 to 6 feet.

From the Cape of Good Hope.—F.P.

Presented by Assistant-Surgeon Courtney, 75th Regiment.

205 *a–y*. Twenty-three assegais, very similar to the preceding specimens in respect to the shapes of their blades and kinds of shafts. The width and length of the blades slightly vary in the several specimens. All of them have the necks of the blades exposed, rounded, smooth, and from 2 inches to 1 foot in length. Average length of the whole assegai, blade included, from 5 to 6 feet.

From the Cape of Good Hope.—F.P.

Presented by Assistant-Surgeon Courtney, 75th Regiment.

206 *a–c*. Three assegais, similar to the preceding specimens, but with the necks longer, squarer, and finely serrated at the margins. Length 4½ to 5½ feet.

From the Cape of Good Hope.—F.P.

Presented by Assistant-Surgeon Courtney, 75th Regiment.

207. Assegai, of bright tough wood, without blade, but furnished instead with a four-edged pyramidal iron point 18 inches long. This point is fixed to the shaft in the same manner as the fixing of the blades described in the preceding specimens. Length of assegai, point included, 5½ feet.

From South Africa.—F.P.
Presented by Assistant-Surgeon Courtney, 75th Regiment.

208. Assegai, in general character similar to the foregoing specimen, but having in addition a serrated neck between the pyramidal point and the shaft. Length 4½ feet.

From South Africa.—F.P.
Presented by Assistant-Surgeon Courtney, 75th Regiment.

209. Assegai of tough, light, wood; blade barbed like an arrow-head; neck of barb smooth and 2 inches long. Length from end to end 4½ feet.

From South Africa.—F.P.
Presented by Assistant-Surgeon Courtney, 75th Regiment.

210 *a–b*. Two assegais with blades barbed similar to that of the preceding specimen, but with necks quadrangular and serrated at the edges. These serrated necks are 4 and 6 inches long respectively. Total length of weapons 5 and 6 feet.

From South Africa.—F.P.
Presented by Assistant-Surgeon Courtney, 75th Regiment.

211. Assegai. The neck is single and serrated like the last-named for about one-half of its length, but is then separated into two lateral halves, leaving an open space between them of half an inch in width. These parts again meet and converge into a single neck close to the spot of insertion into the shaft. Length from end to end 5½ feet.—*F.P.*

221 *a–b*. Two spears. Shafts made of thick bamboo. The heads are flattened and closely resemble the blades of ordinary knives. Each head is 15 inches long by 1½ inch broad, with one cutting edge, and is pointed at the extremity. Leather lacing is bound tightly round the top of the shaft where the blade is inserted. Total length 5½ feet.

Presented by Inspector-General Dr. Muir, C.B. (1863.)

222. Assegai or spear. Shaft thin, made of hard tough wood, head heart-shaped, tapering to a fine point with a thick prominently raised rib down the centre of both surfaces. Neck 8 inches long, cylindrical, and hollow. In this weapon the neck of the blade is not inserted into the shaft, as in the preceding specimens, but the shaft is itself inserted into the neck. The foot of the shaft is conical and braced with a strip of iron which is bound spirally round it. This foot serves to balance the weapon when about to be thrown and to keep it level during its flight. Length 6 feet.—*F.P.*

223 *a–d*. Four spears, shafts stronger and heavier than that of the preceding specimen, blades heart-shaped and pointed, thicker in the centres on both surfaces, and ground flatly towards the edges. The necks, which evidently were flat originally, are bent round and fitted into a depression in the top of the shaft so as to embrace it firmly without completely touching each other's margins. A flat piece of iron of fish-tail shape, with a sharp broad horizontal blade, is fixed to the foot of each weapon in the same manner as the spear-head itself. Whole length of each spear 6 feet.—*F.P.*

224. Spear, similar in general characters to the specimens above described. The blade is however much larger and stronger. The neck is completely cylindrical and has the head of the shaft inserted into it; it is also furnished with two ornamental ferrules, one of which has the

appearance of being made of brass. It is fitted with heavy iron foot-pieces, the shape and mode of fixing of which are exactly like those of the four preceding specimens; length 6 feet.—*F.P.*

225. Spear, with shaft of strong bamboo, and head made of an iron bar eighteen inches long, marked by four distinct divisions. The upper fourth of the head is conically pointed; the remainder of the bar is octagonal. The second and fourth divisions of the head are each furnished with two rows of long, jagged, barb-like projections from their sides, and alongside of them are two other rows of similar but shorter barbs. The neck seems to be inserted into the cane, but the place of insertion is hid by an ornamental leather covering, terminating in a loose fringe of strips of the same material. The foot of the cane is inserted into a fish-tail shaped piece of iron. Length 6½ feet.—*F.P.*

226. Lance, with long, thin, tapering blade, sharp at one edge. Neck cylindrical, strong and hollow. A thick round shaft of planed dark wood is inserted into the neck of the blade. Length 7 feet.

From China.

Presented by Inspector General Dr. Muir, C.B.

227*a*. Spear, ending in a short, conical, plain iron head; the lower end or base of the head is hollow for the reception of the shaft, which is made of heavy smooth wood, painted and ornamented by intricate patterns in oil colours. The foot end of the weapon is provided with a heavy iron handle. Length 7 feet.—*F.P.*

227 *b*. Spear, similar to the above, with the exception that the shaft is painted an uniform red colour and that the handle is all made of wood and ornamented with patterns in red and yellow colours. Length 7 feet. —*F.P.*

227 *c*. Spear, similar to the preceding one. Head longer and ending in a pyramidal point. Shaft painted, and ornamented by a device of intricate pattern. Handle plain. Total length 8½ feet.—*F.P.*

241 *a*. British lance of the 9th Lancers. Pattern. Length 9 feet.—*W.O.*

241 *b*. Regulation lance of the 5th Lancers. Pattern (1856); length, 9 feet.—*W.O.*

III.—Projectiles Propelled by Mechanical Means.

a. Bows and Arrows.

aa. Arrows.

(1.) *Non-metallic points.*

301 *a–c*. Three reed arrows, tipped with pointed pieces of plain hard wood, which vary in length from 9 to 18 inches. The wood is inserted into the reed, and fastened by cement. The total length of these arrows varies from 2 to 3 feet.

From Southern Africa.—F.P.

302 *a–c*. Three arrows similar to the foregoing; but fastened by fine grass lacing.

From Southern Africa.—F.P.

303 *a–c*. Three arrow tips, like those above described, detached from their shafts.

From Southern Africa.—F.P.

304 *a–b*. Two arrow tips, of the same class as the foregoing; but each having its point formed of the serrated spine, or dart, of the Sting Ray fish.

From Southern Africa.—F.P.

305. Arrow of light reed tipped with hard wood, pointed and barbed. The tip is inserted into the reed, and fastened with grass or bark binding; not feathered; whole length 3½ feet.

From the West Coast of Africa—F.P.

306 *a–g*. Seven arrows, of reed, with tips of pointed and barbed wood; fastened by cord binding at the point of insertion. The tail-ends bear traces of having had four or more feathers each, fastened by string; length of each arrow nearly 4 feet.

From the West Coast of Africa.—F.P.

307 *a–z*. Twenty-five arrows, of reed, tipped with short pieces of sharp, conically pointed, hard bone. They are bound round at the points of insertion of the bone tips, and at the tail-ends with a kind of catgut lacing; not feathered. For about an inch from the point the bone head of each arrow is covered with a dark gum. Length, 1 foot 8 inches each.

From the Cape of Good Hope.—F.P.

308. A bundle of very short and light reed arrows, tipped with pieces of bone; the bone points bear marks of having been covered with gum. Average length of the arrows 18 inches.

From South Western Africa.—F.P.

309. Arrow. The shaft is formed of wood; the head consists of a roughly worked, triangular, piece of bone, one of the angles of which has been cut so as to form a barb. Two feathers are inserted into the tail-end; the upper ends of the feathers are stuck into a slit in the shaft; the lower ends are held to the shaft by means of skin lacing; the rest of the wings are left free. Total length 2 feet 4 inches.

South Coast of Africa.—F.P.

310 *a–b*. Two reed arrows, with elaborately wrought tips, consisting partly of wood and partly of bone. The points are made of wood; no feathers. Length, 3 feet.

Cape of Good Hope.—F.P.

311. Unusually long arrow; the shaft consists of a light, unjointed reed, into which a tip, 20 inches long, of hard and tough wood is inserted and fixed by string lacing; the uppermost point of this wooden tip is split and tied again with string, as if for the reception of an iron or other point; in its general character this arrow is similar to those described under 306; at the tail-end it has two feathers, neatly bound to the shaft by string. Total length 6 feet.

Probably from the West Coast of Africa.—D.M.

312. Arrow 5 feet long, but apparently broken short at its foot end: in general construction exactly like No. 311; but the wooden tip is armed with a single-barbed hook at the extreme end and a spur of iron, forming a second barb, about 3 inches from the top; a string lacing secures both the hook and the spur to the wooden tip.

Probably from the West Coast of Africa.—F.P.

(2.) *Arrows with Metallic Points.*

313 *a–c*. Three reed arrows, with bone heads, somewhat similar to the arrows numbered 307; the top of each bone head is partially divided by a fine slit, into which a sharp triangular iron point is inserted; the point

is held in its place by lacing; the end of the bone for about an inch behind the iron point is thickly plastered with some dark gumlike substance.

From Southern Africa.—F.P.

314. Arrow similar to the foregoing, but of larger dimensions.—*F.P.*

316 *a–b*. Two arrows, or darts; the shafts, heavier than the preceding specimens, are of wood, and the iron heads are more elliptical in form. They are barbed and thickly plastered with gumlike substance, like the preceding specimens.

Evidently African.—F.P.

319. Reed arrow; with a roughly wrought, quadrangular, iron tip, nearly 3 inches in length, with a single barb on one side.—*F.P.*

321 *a–n*. Twelve light reed arrows, each 2 feet in length, and having a delicate, doubly barbed iron head fitted into the reed by a long neck. At the point of insertion the reed is strongly bound round by grass-cord, strengthened with cement. The blade of the head is divided into two halves by a raised rib, and each half is convex on one side and concave on the other.*

From West Coast of Africa.—D.M.

325 *a–b*. Two arrows, each 2½ feet in length. with iron tips sharp-pointed, not barbed, well finished, inserted into their shafts, and bound by cord; coloured green and red; at the tail-end of each arrow there are five feathers, strongly and neatly fixed by a circular binding of fine cord.

East Indies.—F.P.

326 *a–b*. Two arrows, somewhat similar to the preceding, but rather longer and with their tips triangular in shape, flat and sharp-pointed at their extremities. One angle at the base of each iron tip is prolonged to fit into the shaft, the other angle is left free and forms a barb. Tail-end five-feathered.

East Indies.—F.P.

327 *a–c*. Three arrows, each nearly 3 feet in length, similar in general form to the foregoing, but less highly finished. They are four-feathered, and the heads are lance-shaped, barbed, and inserted by a central neck.

From East India.—F.P.

328 *a–n*. Thirteen arrows, each more than 2 feet in length, with reed shafts, and heads spear-shaped. The end of the shaft into which the neck of the tip is inserted has been split for its reception, and afterwards tightly bound round by some kind of catgut. The arrows are feathered, sometimes with three, sometimes with four feathers, the feathers being fixed in grooves without any cord-fastening. The tail-end of each weapon is deeply indented. Above the feathers the shafts are ornamented with painted bands of yellow, red, white, and black colours.

Probably from Eastern India.—F.P.

329 *a–d*.—Four arrows, each 2½ feet in length, with reed shafts, short, quadrangular, pyramidal tips, and four-feathered. The feathers are not inserted into grooves, but are simply stuck on the shaft with glue or paint. The end of the shaft, where the tip is inserted,

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* On comparison, all the iron spear heads from the West Coast and from part of the South of Africa will be found to be fashioned in exactly the same manner as these arrows, viz., with one convex and one concave half on each surface.

is secured by cord, painted green. About 7 inches of the tail end of each of these arrows is ornamented by bands of various colours and patterns.

From the East Indies.—F.P.
Presented by Dr. Burke, Insp.-General of Hospitals.

330 *a–c.* Three arrows similar in general character to the preceding, but with flat, triangular heads.

From the East Indies.—F.P.

341.—Arrow, 2½ feet long, with reed shaft, painted black; iron tip, crescent-shaped; and four-feathered. The two points of the crescent are sharp. The crescent is inserted into the shaft by a strong neck, and this neck has been secured by a binding, which has been elaborately painted and gilded. The tail end is also painted for 7 inches.

From the East Indies.—F.P.

342 *a–z & aa–kk.*—Thirty-four arrows; each 2¼ feet in length, with octangular tips three quarters of an inch in length and tapering to a fine point; four-feathered. These arrows are very carefully finished, and are highly ornamented at both ends with bands of delicate colours.

From Burmah.—F.P.
Presented by Dr. Burke, Insp.-General of Hospitals.

343 *a–c.* Three arrows, similar in some respects to the preceding, but with tips spear-shaped, elaborately worked, and secured to the shaft by metal ferrules. The tail-ends are delicately ornamented. Five-feathered.

From Burmah.—F.P.
Presented by Dr. Burke, Insp.-General of Hospitals.

346 *a–b.* Two arrows, one 2 feet the other 3 feet in length; with reed shafts, pyramidal iron heads, and three-feathered. The feathers are both glued to the shaft, and secured by cord on the upper and lower ends.

From Japan.
Presented by Staff Assistant-Surgeon Birch, H. M's. Indian Service, formerly R.N.

Both of these arrows were obtained by Mr. Birch at the action of Simonoseki, Japan, in September 1864, one of them after having wounded one of the attacking party.

351 *a–y.* Twenty four arrows, each 3¼ feet long. The shafts consist of wood; the iron heads are somewhat oval in shape, flat on their surfaces, have rather sharp edges, and are not barbed; they are each inserted by a projecting neck into the corresponding end of the shaft. They are four-feathered; the feathers, each of which is one foot long, are cut elliptically.

From China.
Presented by Dr. Muir, C.B., Insp.-General of Hospitals (1862).

360. A collection of 15 arrow heads, showing various modifications in shape and number of the terminal points and barbs.

From the East Indies.—D.M.

361. Arrow head, triangular and barbed, with poison attached; described to be in common use among the more uncivilized tribes of central India for shooting wild animals.

From the East Indies.
Presented by Surgeon Irwin, 1st Batt. 15th Regiment (1864).

(3.) *Blow-pipe Arrows.*

370. Three hundred and forty poisoned blow-pipe arrows. They consist simply of thinly-split pieces of bamboo pointed and dipped in a poisonous material, said to be the same as the Woorara poison.
From British Guiana.—F.P.

bb. BOWS.

400. Bow, formed simply of a rough, light, elastic stick, 4½ fee long, with a notch and leather lacing on one end.—*F.P.*

401 *a–c.* Three bows, 5 and 6 feet long, of plain bamboo. Two of them are pointed at both ends, the third is furnished with a turks-head lacing of leather to hold the bow-string in position.—*F.P.*

402. Bow made of bamboo, 6 feet long. The string is formed by a strip of bamboo, secured to the bow by a cord and leather lacing.—*F.P.*

403. Bow made of light, elastic wood, planed and furnished with a deep, narrow groove on the outer surface, apparently the natural cavity from which the pith has been removed. The bow is 5½ feet long, pointed and notched at both ends for the reception of a three-stranded, well made, bow-string.—*F.P.*

405 *a–b.*—Two bows, each 5 feet long, made of hard, elastic wood, and having a shallow, central groove cut into the outer surface, to give the bow additional elasticity. One of these bows is ornamented by carving at both ends.—*F.P.*

406 *a–b.* Two bows made of hard wood ; one 3½, the other 4 feet, long ; both carefully rounded. They are furnished at both ends with neat hide lacing which forms at the point intended to receive the string a projecting knob.—*F.P.*

407.—Bow 5½ feet long, elliptically planed ; made from the outer portion of the stem of a palm-tree. The material is evidently the same as that of the points of the arrows numbered from 302 to 306.
Probably from South Africa—F.P.

410. Bow ; highly finished ; straight ; 6½ feet long ; elaborately painted in various patterns, the ground colours being red and yellow.
From the East Indies.—F.P.
Evidently of the same workmanship as the spears numbered 227 *a*, *b*, and *c*.

421 *a–c.* Three bows, more or less ornamented.
From Burmah.—F.P.
Presented by Dr. Burke, Insp.-General of Hospitals.

422. Bow, similar in general construction to the preceding, but larger.
From the East Indies.—F.P.
Presented by Assistant-Surgeon Laing, 86th Regiment.

423 *a–b.* Two bows ; one 4½, the other 5½ feet, long ; fitted with ivory shoulders.
From China.
Presented by Insp-General Dr. Muir, C.B. (1862).

425. Cross-bow ; fitted with a box for the reception and consecutive discharge of nine arrows.
From China.
Presented by Insp-General Dr. Muir, C.B. (1862).

cc. ACCOUTREMENTS.

451. Quiver, of very rude construction, being formed of part of a hollowed bough of a tree, and furnished with a cap of buffalo hide, and a short strap of untanned hide.
From the West Coast of Africa.—F.P.
Presented by Assistant-Surgeon Courtney, 75th Regiment.

452. Quiver, very rudely made of a piece of tanned hide sewed together, with a cap, and strap also made of leather.
From the West Coast of Africa.—F.P.
Presented by Assistant-Surgeon Courtney, 75th Regiment.

453. Bushman's quiver, made of buffalo hide. It is generally similar to the preceding specimen, but the hair is not removed from the hide.
From South Africa.—F.P.
Presented by Assistant-Surgeon Leslie, 45th Regiment.

454 *a–c*. Quiver; made very elaborately of ornamented and pressed leather, with long fringes; with waist belt and pouch belt. All of very neat workmanship.
From Sierra Leone.—F.P.

455. Quiver, of small size; apparently intended for very light, probably blow-pipe, arrows.
From South America (?).—*F.P.*

456 *a–c*. Two quivers and one arm shield, of very superior workmanship; made of leather and velvet, and embroidered with gold and silver thread.
From Burmah.—F.P.
Presented by Insp.-General Burke.

460. Oval shield of tanned buffalo hide, with the hair on the outer surface. Diameters 2½ feet and 4 feet respectively.
African (?)—F.P.

461. Circular convex shield, made of papier-mâché, japanned, and furnished with four ornamental gilt knobs, to the inner surfaces of which two arm straps are fastened.
East Indies (?)—F.P.

b. FIREARMS AND PROJECTILES.

(1.) SMALL ARMS.

(*a*) FIRELOCKS; SMOOTH-BORE AND RIFLED.

471. Ancient Turkish Pistol.
From Santa Maura.—F.P.
Presented by S. A. S. Robertson.

473. Indian pistol, with flint lock; barrel and handle inlaid with gold.
East Indian.
Presented by Assist.-Surgeon Jopp, M.D., 2nd Regiment.
Taken at the storming of Kelat, and supposed to have belonged to one of the chiefs.

475. Rifled British cavalry pistol.—*W.O.—D.M.*

491. Matchlock.
From the East Indies.—F.P.

492. Matchlock, highly ornamented.
From the East Indies.—F.P.

495. Russian musket, with ramrod and bayonet.
From the Crimea.—D.M.

497. Sardinian rifled musket, with ramrod and bayonet.
From the Crimea.—D.M.

501. Old British regulation musket, or "Brown Bess;" percussion musket, with ramrod, and bayonet.—*D.M.*

503. British regulation rifled musket; pattern of 1853; with ramrod, and bayonet.—*W.O.*

512. British short rifled musket; pattern of 1853; with ramrod, and sword bayonet.—*W.O.*

509. Rifled carbine (Lancaster's), as used by the Sappers; with ramrod, and sword bayonet.—*W.O.*

514. Rifled carbine, with ramrod, and sword bayonet; as used in the Royal Artillery.—*W.O.*

(β.) ACCOUTREMENTS FOR SMALL FIREARMS.

551 *a–b*. Two horn powder flasks.
From South Africa.—F.P.

553 *a–c*. Powder flask of buffalo horn, with two pouches.
From Burmah.—F.P.

554 *a–b*. Two powder flasks, with belts and cartridge pouches.
From Burmah.—F.P.
Presented by Insp.-General Burke.

(γ.) SMALL ARM PROJECTILES.

581. Tray, containing round balls, conical projectiles, &c., in use in the Russian army during the Crimean war.
Presented by S. A. Surg. Dr. Carte to the Dublin Museum of Military Surgery.

582 *a–b–c–d–e*. Five trays of Russian projectiles, exhibiting the different shapes assumed by them after being fired and brought into collision with hard substances. Many of these specimens were extracted from wounded soldiers in the Crimea.
Presented by S. A. Surg. Dr. Carte to the Dublin Museum of Military Surgery.

583 *a–b*. Two trays, containing (*a*) round balls, (*b*) conoidal projectiles, used in the British army during the Crimean war.—*W.O.*—*D.M.*

584. Two trays of British service cartridges, of the same period.—*W.O., D.M.*

585. Case of round balls and cylindro-conoidal projectiles, authorized for use, A.D. 1866, for the various descriptions of small arms in the British army.—*W.O.*

593. Collection of projectiles, cartridges, &c., for small arms, both of service patterns, and of patterns proposed, but not authorized, for use in the British army.—*W.O.*

603. Double-bladed projectile, contrived and attempted to be used by the rebels in Ireland in 1848; it consists of two straight iron blades fixed to a short central hollow stem, the latter being made to fit round the muzzle of a firelock; it was intended to be driven forward by the force of the discharged bullet.—*D.M.*

(δ.) MISCELLANEOUS ARTICLES CONNECTED WITH FIREARMS.

611. Contrivance for exhibiting the relative directions of the "motion of rotation," and of the "progressive motion" or "line of flight," in round bullets projected from smooth-bore weapons, and in cylindro-conoidal bullets projected from rifled weapons.

The round ball is shown to revolve on an axis which is always at right angles with the line of flight; while the cylindro-conoidal ball is shown to revolve on an axis which is coincident with the line of flight.

Designed and constructed by Sergeant Shortell, A.H. Corps, under the direction of Deputy Inspector-General Thos. Longmore.

(2.) CANNON AND THEIR PROJECTILES.

(α.) CANNON.

619. An ancient cannon or culverin; date uncertain; said to have been found in the bed of the river Medway.—*F.P.*

621. A Russian gunlock.
From the Crimea.—D.M.

(β.) PROJECTILES.

Solid Shot.

a. Loose Round Shot.

631 *a.* Solid iron shot for 32-pounder.
Authorized for use in the British army.—W.O.

631 *b.* Section of ditto.—*W.O.*

(*b.*) *Elongated Shot, Bolts, etc.*

641. Solid shot for 100-pounder Armstrong gun.—*W.O.*

642. Ditto for 40-pounder Armstrong gun.—*W.O.*

643. Ditto for 20-pounder Armstrong gun.—*W.O.*

(*c.*) *Combined Shot. Grapeshot, Case or Canister Shot.*

651. Grape shot for 32-pounder gun.—*W.O.*

652. Case or canister shot for ditto.—*W.O.*

661. Grape shot, altered in form by contact with other shot at the time of projection.
Picked up, after the storming of the Redan, by T. Longmore, Surgeon 19th Regiment, now Deputy Inspector-General, by whom it was presented to the Military Surgery Museum.

662. Plates of grape shot, altered in form after being fired.
Picked up, after the storming of the Redan, by T. Longmore, Surgeon 19th Regiment, now Deputy Inspector-General, by whom it was presented to the Military Surgery Museum.

665. Loose specimens of grape and case shot of various sizes.
Sent from the Crimea to the Dublin Museum of Military Surgery.

Hollow Projectiles.

(*a.*) *Round Hollow Projectiles.*

671 *a*. Common shell for 32-pounder gun.—*W.O.*
671 *b*. Section of ditto.—*W.O.*
672 *a*. Diaphragm Shrapnell shell for 32-pounder gun.—*W.O.*
672 *b*. Section of ditto.—*W.O.*
673 *a*. Naval shell, for 32-pounder gun.—*W.O.*
673 *b*. Section of ditto.—*W.O.*
675 *a*. Carcass for 32-pounder gun.—*W.O.*
675 *b*. Section of ditto.—*W.O.*
679. Hand-grenade; 6-pounder shell; sea service pattern.—*W.O.*
680 *a*. Loose 8-inch mortar shell.—*W.O.*
680 *b*. Section of ditto.—*W.O.*
683. Pieces of shells picked up in Sebastopol.—*D.M.*

(*b.*) *Elongated Hollow Projectiles.*

690. 100-pounder common Armstrong shell.—*W.O.*
691. Section of 40-pounder Armstrong common shell.—*W.O.*
692 *a*. 12-pounder Armstrong segment shell.—*W.O.*
692 *b*. Section of ditto.—*W.O.*
693. 6-pounder segment shell.—*W.O.*

(*c.*) *Rockets.*

698*a*. Twelve-pounder congreve rocket.—*W.O.*
698*b*. Section of ditto.—*W.O.*

(γ.) FUZES, ETC.

711*a*. Armstrong time fuze.—*W.O.*
711*b*. Section of ditto.—*W.O.*
712*a*. Armstrong concussion fuze.—*W.O.*

712*b*. Section of ditto.—*W.O.*

713*a*. Armstrong pillar fuze.—*W.O.*

713*b*. Section of ditto.—*W.O.*

714. Fuze adapter for Armstrong shell.—*W.O.*

715. Iron burster for 12-pounder Armstrong shell.—*W.O.*

B. SURGICAL FIELD EQUIPMENT, AND MEANS OF CONVEYING STORES AND EQUIPMENTS IN THE FIELD.

I.—Separate Appliances and Instruments.

a. Tourniquets, Splints, Bandages, etc., for Immediate Use, in the Field.

801. Field tourniquets of present army patterns.
From the Army Medical Stores.
N.B.—(In the field case marked No. 851.)

802. Improved American pocket tourniquet, for use in field surgery. It is furnished with concave metal pads, projecting wings, and elastic bands for additional pressure.
The circulation of the principal blood-vessels only is restrained by this form of tourniquet.
Presented by Professor Lee, of New York.

803. Circular military tourniquets, invented by T. P. Salt, Birmingham.—*D.M.*

804. Circular tourniquet, invented by Mr. Bulley.—*D.M.*

805. Read's lever tourniquet.—*D.M.*

811. Box containing a set of splints, labelled "Hospital conveyance cart, No. 32." Crimean period.
From the Army Medical Stores.

812. Set of wooden splints authorized for use in the French army. These splints have printed upon them the particular portions of the body for which they are severally designed.—*D.M.*

813. Professor Tufnell's wheaten straw splints.

813*a*. For leg or thigh, with printed directions for using them in the absence of a medical officer.—*D.M.*

813*b*. For the upper arm with directions as above.—*D.M.*

813*c*. For the lower arm with directions as above.—*D.M.*

813*d*. (*d*.) Wheaten straw used in the manufacture of the splints designed by Professor Tufnell, both unbroken straw, and straw prepared for use.—*D.M.*

817. "Portable fracture apparatus," or field splints, invented by Staff-Surgeon (now Deputy Inspector-General) O'Flaherty, and arranged to be carried in holsters in the same way that pistols are carried.
Presented by the inventor to the Dublin Museum of Military Surgery.

(For drawings and full description of these splints *see* "The Dublin Quarterly Journal of Medical Science," No. IV., Nov. 1846, p. 557. A copy is in the Museum.)

818. Set of Duncan's cane splints.
Presented by the inventor to the Military Surgery Museum.

819*a*. French wire-net splints; close pattern.—*D.M.*

819*b*. French wire splints; open pattern.—*D.M.*

820. Box of Hide's leather felt splints.
Presented by the inventor to the Military Surgery Museum.

821*a*. Assalini's short splint with footboard; old pattern; wooden.
From Army Medical Stores.

821*b*. Assalini's long splint; old pattern; iron.
From Army Medical Stores.

822. Model of portable leg splint and fracture apparatus, invented by Dr. Spencer Thomson of Burton-on-Trent.
Presented by the inventor to the Military Surgery Museum.

831. Field crutches, to assist soldiers wounded in one leg or foot in walking from the field of action, and arranged for use by men of different heights. Manufactured by Messrs. Fischer & Co., of Heidelberg.
Purchased.

b. SURGICAL INSTRUMENTS, SEPARATE AND IN CASES; FIELD COMPANIONS; MEDICAL FIELD PANNIERS; MEDICAL COMFORT BOXES, AND FIELD HOSPITAL APPLIANCES.

841. A case of bullet explorers, and extractors, containing 19 instruments, labelled as follows:—

Explorers:

(1.) Nelaton's test probe.—*Purchased.*

(2.) Tieman's modification of Nelaton's test probe.—*Presented by Insp.-General Dr. Muir, C.B.*

(3.) Lecompte's Stylet-pince.—*Purchased.*

Extractors:

(4.) Coxeter's bullet scoop; authorized for use in the British Army.—*D.M.*

(5.) Savigny's bullet forceps, with separate blades; authorized for use in the British Army.—*D.M.*

(6.) Screw tire-balle; authorized for use in the French Army.—*D.M.*

(7.) Bullet forceps; authorized for use in the French Army.—*D.M.*

(8.) Tufnell's bullet scoop. Read's pattern.—*D.M.*

(9.) Tufnell's bullet scoop. Savigny's pattern.—*Army Medical Stores.*

(10.) Weiss' bullet scoop, with concealed sliding spring.—*Army Medical Stores.*

(11.) Luer's long screw tire-balle.—*D.M.*

(12.) Baudens' tire-balle.—*D.M.*

(13.) Sailmaker's needle, as a substitute for Baudens' tire-balle.—*D.M.*

(14.) Weiss' bullet forceps, with cross action.—*Army Medical Stores.*

(15.) Ruspini's bullet extractor.—*Army Medical Stores.*

(16.) Tieman's bullet forceps, with sharp points.—*Presented by Insp.-General Dr. Muir, C.B.*

(17.) Evan's bullet forceps.—*Army Medical Stores.*

(18.) Bullet forceps used in field cases of instruments (old pattern.) —*Army Medical Stores.*

(19.) Read's forceps for balls or angular fragments.—*D.M.*

842. Surgeon Barclay's pocket case of bullet extractors. These instruments were designed by the inventor for obviating certain special difficulties in extracting bullets surrounded by cellular envelopes, or lodged in the soft tissues of the body.

Presented by Staff-Surgeon-Major A. Barclay, M.D.

851. Portable field case of surgical instruments. Peninsular period. Labelled "Received from surgical stores at Lisbon."

From Army Medical Stores.

861. Lancet used for variolous inoculation. The handle is marked "Small-pox."—*F.P.*

871. Arrault's "Giberne Chirurgicale," or "Combatant Officer's Field Pouch and Necessaire;" for use in the absence of a medical officer. Weight complete, 1 lb. Contents in body of pouch:—One compartment for 36 pistol cartridges; six hæmostatic plaister bandages; one long bandage; charpie; nitrate of silver in case; bisturette; one lancet; one forceps; one painting brush; one oz. bottle of perchloride of iron; one oz. bottle of Arrault's hæmostatic tincture. Inside the lid:—Twenty decigramme doses of sulphate of quinine; six doses of emetic powders; one pair of scissors; one shoemaker's awl; one small étui, containing one ligature needle; six straight needles; 20 pins; six large and six small bone buttons; three pieces of white, black, and red cotton twine; one piece of pitched shoemakers' twine; one sheet of "Instructions."

Presented by Monsieur Arrault, the designer, to Professor Longmore, and by him given to the Military Surgery Museum.

875. Havresack for the use of medical officers in the field. The havresack contains some bandages, tourniquets, a drinking flask, &c. Designed by Dr. Jephson, K.D.G.

Presented by Dr. Jephson to the Dublin Museum of Military Surgery.

881. Medical Field Companion.

Army Medical Stores.

(For description and list of contents, see the medical regulations, page 238.)

882. Water bottle; to be carried with the Medical Field Companion.

Army Medical Stores.

886. Monsieur Arrault's modification of the French Army "Sac d'Ambulance," or ambulance knapsack. Weight 21 lbs. 3 oz.

Contents of knapsack: charpie, 1 kilogramme; 32 bandages; 54 compresses; 1 body bandage; 2 arm-scarves; carded cotton, 150 grammes; agaric, 100 grammes; tape; needles; pins; sewing-thread; wax; corks; pencil; paper; sponges; 5 drinking cups; hæmostatic adhesive plaister, 10 yards; jointed splints, calculated to meet the wants of 10

or 12 fractured limbs; and the following medicines and instruments:—Ammoniaque, 60 grammes; alcool camphré, 250 grammes; perchlorure de fer, 250 grammes; extrait de saturne, 250 grammes; vinaigre de vin, 60 grammes; 2 strong bistouries; 1 strong forceps; 1 artery forceps; 2 tourniquets; 1 pair of strong scissors; 2 ligature needles.

Purchased from the inventor and manufacturer.

(For further description see Mons. Arrault's pamphlet, "Notice sur les secours aux blessés du champ de bataille." Paris, 1866.)

891 *a* & *b*.—One pair of field panniers, No. 1 and No. 2. (Old pattern.)—*D.M.*

892 *a* & *b*. One pair of field panniers, No. 1 and No. 2. (Present pattern.)—*W.O.*

On a full-sized stuffed pony, from the Dublin Museum, to show the manner in which the panniers are carried in the field.

901. Indian lotah, or brass chattie, adapted to answer the purpose of applying irrigation to inflamed wounds in field hospitals. Designed by Staff Assistant-Surgeon H. M. Webb.

Presented by the Inventor.

906. Arm-bath.

Army Medical Stores.—W.O.

907. Junod's "Exhausting Boot."

Army Medical Stores.—F.P.

921. Candlestick, with spring, for use in camps.—*D.M.*

922. Pocket candlestick, with spring, and compartment for matches for camp use.—*D.M.*

931. Model of field table for hospital use, designed by Mr. Turner, of Northfleet.

Presented by him to the Dublin Museum of Military Surgery.

951 *a–b*. One pair of new pattern A and B field hospital canteens; with contents complete.—*W.O.*

952 *a–b*. One pair of medical comfort boxes, marked "No. 1," and "No. 2."—*W.O.*

c. ARTIFICIAL LIMBS, CRUTCHES, AND OTHER APPLIANCES FOR MILITARY INVALIDS.

Artificial Limbs (*upper extremity*).

1001. Stump arm with cap; and extra strap for support from the neck and across the chest. For use after amputation below the elbow.—*W.O.*

1002. Improved stump arm, for use after amputation above the elbow. With hook, fork, and vice, appliances.—*W.O.*

1003. Improved stump arm of a lighter description, for use after amputation below the elbow.—*W.O.*

1004. Stump arm with moveable strap joint at elbow. Adaptable to stumps of different sizes. For use after amputation below the elbow.—*W.O.*

1005. Jointed stump arm, for use after amputation below the elbow, fitted with a small and large hook, and a fork.—*W.O.*

1006. Stump arm, with ring-joint at the elbow. For use after amputation below the elbow.—*W.O.*

Artificial Limbs (lower extremity).

1021. Wooden bucket leg, for use after amputation above the knee; with stump cap and pillow.—*W.O.*

1022. Box leg, for use after amputation below the knee, with pillow. —*W.O.*

1023. Socket leg, for use after amputation below the knee, with stump and pillow.—*W.O.*

1024. Palmer's artificial leg. For use after amputation above the knee.

Presented by the Inventor to the Dublin Military Surgery Museum.

1025. Model of another description of jointed artificial leg. For use after amputation above the knee.

Presented by the Inventor to the Dublin Military Surgery Museum.

II.—Ambulance Conveyances and Appliances designed for the Transport of Medical Stores, Surgical Instruments, &c.

(N.B.—For Field Equipment Carts, capable of being adapted to the conveyance of wounded men also, see below, under C. II.)

a. PORTABLE, OR MOVEABLE, BY HUMAN LABOUR.

None.

b. CARTS AND WAGGONS DRAWN BY ANIMALS.

1071. Model of Regulation Two-mule Cart for the conveyance of Surgical Equipment. Authorized for use in the British Army. Two-wheeled.—*W.O.*

Manufactured in the Royal Carriage Department, Woolwich.

1072. Model of the 4-wheeled Medical Store Waggon. Authorized for use in the British Army.

Manufactured in the Royal Carriage Department, Woolwich.

c. APPLIANCES DESIGNED TO ASSIST IN THE TRANSPORT OF MEDICAL AND SURGICAL EQUIPMENTS.

Pack Saddles.

1081. For the conveyance of the Field Medical Panniers.—*W.O.* (See No. 892.)

1082. For the conveyance of the Medical Comfort Boxes.—*W.O.* (See No. 952.)

1083. For the conveyance of the Regulation Litière.—*W.O.* (See No. 1251.)

C. PATTERNS AND MODELS OF AMBULANCE CONVEYANCES DESIGNED FOR THE TRANSPORT OF SICK AND WOUNDED TROOPS.

I.—Conveyances for the Use of Sick and Wounded exclusively.

(*a.*) Appliances and apparatus borne by men.

1201*a*. Appliance made to be worn by a bearer. Designed for carrying a wounded man from the field of action "*en cheval.*"

1201*b*. Strap, for use with the above, to support the patient.
Purchased from the inventors and makers, Messrs. Fischer and Co., of Heidelberg.
(For full description see Army Medical Reports, vol. 6, page 479.)

1202*a*. Turner's patent hammock litter. Pattern. Weight of hammock and nettings, 3¾ lbs.; of pole, 4¼ lbs.

1202*b*. Set of shoulder slings to be used by the orderlies employed in carrying wounded by Turner's hammock litters.
Presented by the inventor, Mr. Turner, to the Dublin Museum of Military Surgery.

1202*c*. Set of shoulder slings, made of strong canvas girthing, and designed for use by orderlies of the Army Hospital Corps, when carrying wounded by means of the regulation stretchers.
Presented by the Inventor, Mr. Turner, to the Dublin Museum of Military Surgery.

1203*a*. Model of "Iron Band Stretcher." This ambulance litter was invented by Sergeant-Major Jones, R.E. The iron bands which are here applied for use in forming a stretcher are used by Sergeant-Major Jones for a variety of purposes, such as making gabions, bridges, field bedsteads, &c., &c. The whole contrivance is readily taken asunder for package.

1203*b*. Bedstead formed of the same iron bands as the litter.

1203*c*. Gabion formed of similar iron bands.
Presented by Sergeant-Major Jones, R.E., to the Military Surgery Museum.

(For full description, see a pamphlet published by Sergeant-Major Jones, entitled "The Iron Band Gabion; and its Applicability to various Field Purposes.")

1204. Model of Millingen's field stretcher. This stretcher consists of a looped cloth through which two poles, or halberts, are passed. A bent cross piece is placed at each end, and through the two cross pieces the poles are made to pass in such a way that the stretcher is raised from the ground and may be used as a field bedstead. The separate portions of this stretcher, when not in use, are intended to be carried on the persons of two bearers.—*D.M.*
(For full description see "The Army Medical Officers' Manual upon Active Service, by J. C. V. Millingen, M.D., London, 1819.")

1205. Model of Redford's portable field stretcher. Stretcher divisible into two equal portions; each portion when the stretcher is not in use being intended to be carried by a separate bearer.

Presented by George Redford, Esq., late Staff Assistant-Surgeon, to the Military Surgery Museum.

(See full description in Mr. Redford's pamphlet on the subject.)

1206 *a b & c.* Looped canvas stretcher with feet. Pattern. The traverses through which the poles pass are made of iron. The feet fold up crosswise, and are hinged by a simple but secure joint to the traverse. Weight of stretcher and two poles 9½ lbs.—*D.M.*

1207. Captain Russell's spring stretcher or dhooley. Pattern. The feet are iron, and are constructed so as to act as springs. They are arranged to fold up and to be secured along the side-poles for package. The stretcher is provided with hoops and a canvas hood or cover. Weight of the whole 50 lbs.

Presented by Captain Russell, Shropshire Militia Regiment, to the Military Surgery Museum.

1208. Model of regulation stretcher.—*D.M.*

(N.B. Attached to the model of the Chinese Ambulance Barrow, marked No. 1341.)

1209. Model of Surgeon Moodies' (R.N.) stretcher. This stretcher consists of an angular iron framework so jointed and arranged that it may be used as a stretcher for carrying wounded, or as a hospital bedstead. It is provided with support and an awning.

Presented by Staff Surgeon Moodie, R.N., to the Military Surgery Museum.—F.P.

1221. Stretcher adapted for two bearers carrying a wounded man sitting. Pattern. The bearers can either carry the stretcher walking abreast or marching one behind the other, as with ordinary stretchers.

Purchased from the makers, Messrs. Fischer & Co. of Heidelberg.

(For full description, see Army Medical Reports, vol. 6, page 481.)

1222 *a.* Rough skeleton model of Bengal dhooley, designed to show the arrangement of the cover and curtains. The usual cover is made of canvas, painted and made waterproof.

Presented by Staff Assistant-Surgeon Webb.

1222 *b.* Model of a Bengal dhooley. The model consists of the framework only, and is designed to show the mode of suspension by triangular upright ends as well as the arrangements for the removal of the pole and roof when the dhooley is used as a bedstead in a hospital tent. The bottom is made of interwoven canework or bamboo. The dhooley represented by this model is carried on the shoulders of four bearers, two additional men being necessary as reliefs. A bamboo pole is used.

Presented by Dr. Stack, 86th Regiment, to the Dublin Museum of Military Surgery.

1223. Model of a Madras dhooley. The roof and poles, as well as the cover and side curtains, are shown to be a fixed part of the dhooley, not separate as in the Bengal dhooley.

Presented by Dr. Stack, 86th Regiment, to the Dublin Museum of Military Surgery.

1224. Model of a dhooley, adapted to act also as a hospital bed. It is arranged to be carried by iron suspension bands which can be entirely removed from the dhooley for stowage, or when used as a bed. The bands pass outside, and are fixed in position by screws and nuts when the conveyance is used as a dhooley.

Modelled by Mr. Mack, Government Contractor, and purchased at Chatham, 1861.

1225. Model of a dhooley, designed to act also as a hospital bedstead. It is fitted with iron suspension bands, which are attached permanently to the conveyance, and fold inside the framework to facilitate stowage. A portion of each foot is made to turn up, so as to be out of the way of obstructions when the dhooley is being carried over broken irregular ground. The sides and bottom are made of canework.

Modelled by Mr. Mack, Government Contractor, and purchased at Chatham, 1861.

1226. Model of a dhooley, designed to act also as a hospital bedstead, with removable leather suspension bands. The feet are fixed, the sides and bottom are made of canework.

Modelled by Mr. Mack, Government Contractor, and purchased at Chatham, 1861.

1227 *a*.—Model of a dhooley capable of being used as a field bedstead. Designed by Inspector-General Dr. Muir, C.B.

The iron suspenders are fixtures, but are made to fold within the sides of the litter, which are open. The same action that causes the suspenders to fold down, causes the iron feet of the dhooley to fold up close to the canework bottom.

Modelled by Mr. Mack, Government Contractor, and purchased at Chatham, 1861.

1227 *b*. Full-sized pattern of the dhooley last described. Weight of the dhooley complete, 44¾ lbs.

1227 *c*. Pole to ditto. Weight 11¼ lbs.

Made by Mr. Mack, Government Contractor, and purchased at Chatham, 1861.

1231. Model of Bengal palanqueen or palki, in carved wood. The roof, sides, bottom, and poles of this carriage are made of wood. It is fitted with sliding doors.—*D.M.*

Presented by Dr. Lord, 14th Light Dragoons.

1228 *a*. Full-sized pattern of the dhooley constructed for use in China during the war of 1860. Weight of dhooley, without pole or equipment, 45 lbs.—*W.O.*

Received from China. Sent by order of Inspector-General Dr. Muir, C.B.

(For description see Army Medical Reports for 1860. Published in 1862, page 377.)

1228 *b*. Bamboo pole of a Chinese dhooley. Weight 15 lbs. 10 oz.

Sent from China and presented by Surgeon W. Snell, 99th Regiment.

1230. Model of a basket-work cot to be carried either in stretcher or dhooley fashion.

Modelled by Mr. Mack, Contractor, at Chatham.

1241. Model of a jampan conveyance used in the Himalayas.

From Simla.

Presented by Staff Assistant-Surgeon H. M. Webb.

1242. Model of an ordinary stretcher adapted for carriage, jampan-fashion, so as to be capable of being used in mountainous districts.

Sent from India by Staff Assistant-Surgeon H. M. Webb.

This Model was sent by Surgeon Dr. Guthrie to the Inspector-General's Office, in India, to show the kind of conveyance he had employed in transporting sick from Lohoo Ghât, seven days' march to Nynee Tal.

1243. Model of a dandie, a conveyance used in the Himalayas.

From Bareilly.

Presented by Surgeon Franklyn, 7th Dragoons.

1245. Model of a dhooley arranged to be carried jampan fashion. Invented by Surgeon Porter, 97th Regiment.

Presented by the inventor.

See Report on this dhooley, dated Army Medical School, Netley, 22nd January 1866.

(*b.*) APPLIANCES AND APPARATUS BORNE BY ANIMALS.

1251*a*. A regulation mule litière and mule cacolet. Patterns of 1859. They are attached to a regulation pack-saddle so as to show the manner in which they are usually borne in the field.—*D.M.*

The litière and cacolet are borne upon a stuffed horse sent from Dublin with them which bears the following inscription: "Charger taken at "Salamanca and subsequently ridden by Sir Colquhoun Grant at Water-"loo. Presented by Sir C. Grant."

1251 *b*. Model of a mule litière. This model is altered in form from the regulation mule litière so as to make it suitable for additional use as a hand-stretcher, and also for carrying a patient in a sitting posture. With this form of litter a wounded man could be carried from a distance to the place where the mule may be waiting for his reception.

Designed and manufactured by Sergeant Shortell, Army Hospital Corps, Netley.

(C.) WHEELED CONVEYANCES.

(1.) *Drawn or propelled by Human Labour.*

1261. Evan's hand-wheel litter, for conveyance of two patients, one lying, the other sitting. Pattern.—*W.O.*

(For full description and drawing see Army Medical Reports for 1863, vol. 5, page 507.)

1262. Pirogoff's hand-wheel litter, for conveyance of two wounded men, in a semi-recumbent position. Pattern.

Purchased from the manufacturers, Messrs. Fischer & Co., of Heidelberg.

(For description see Army Medical Reports for 1864, vol. 6, page 471. The drawing of Dr. Neudörfer's two-wheeled litter, in vol. 5 of the Army Medical Reports, page 509, closely resembles this litter.)

1263. Neuss's two-wheeled litter for conveyance of one wounded man in a recumbent posture. Pattern.

Purchased from the manufacturers, Messrs. Neuss & Co. of Berlin.

(For a drawing and a report on this litter see Army Medical Report for 1863, vol. 5, page 505.)

1246. Gablentz' hand wheel litter, or adaptation of a stretcher to wheels. For the conveyance of one wounded man in a recumbent posture. The stretcher can be used either on or off the wheels. Pattern.

Purchased from the manufacturers, Messrs. Fischer & Co. of Heidelberg.

(For full description and drawing of this conveyance see Army Medical Reports for 1864, vol. 6, page 477.)

1265. Arrault's *brancard roulant*, or adaptation of a stretcher to wheels. For the conveyance of one wounded man in a recumbent posture. The stretcher can be used either on or off the wheels.

Purchased from the inventor, M. Arrault of Paris.

(For description of this conveyance see Army Medical Report, for 1864, vol. 6, page 483.)

1271. Model of a regulation stretcher, placed upon wheels and resting on two elliptical springs.

Designed and manufactured by Serjeant P. Shortell, Army Hospital Corps, Netley.

1271*a*. Full-sized pattern of the same.

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2. (*Drawn by Animals.*)

(*a*) *Two-wheeled.*

1301. Model of Baron Larrey's original "*Voiture d'Ambulance Volante.*"

Presented by M. Arrault, of Paris.

(For full description see Mémoires de Chir. Mil, et campagnes de D. I. Larrey; Paris, 1812, vol. 1, page 150.)

1302. Model of Indian cart, or bandy, of the Goojerat district, drawn by two bullocks.—*F.P.*

Presented by Staff Assistant-Surgeon Dr. Clarke, 13th Light Dragoons.

1303. Model of the Madras hospital cart, drawn by two bullocks. It is made to convey four men in a sitting position, two on each seat, with a back common to both seats. The seats are slung by straps, and are moveable, so that two men can be accommodated lying at the bottom of the cart, instead of the four men sitting. The cart is not supported on springs, and consequently is very rough and jolting for weakly men. Dr. McPherson's ambulance cart (see 1304) was intended to remedy the inconveniences experienced in this sick-cart.—*D.M.*

Presented by Dr. Stack, 86th Regiment.

1304. Model of Inspector-General McPherson's two-wheeled ambulance cart, contrived for either bullock or horse draught. It is made to hold four men sitting inside, or two men lying down. It is furnished with springs, and is provided with a fixed awning, with moveable flaps for the passage of air and for shade. In the account which accompanied this model, it is stated: "This cart has been tested in Madras, and is reported to have stood the test without a nail starting, and to be able to keep up with cavalry or horse artillery." Length of model, exlcusive of shafts, 9 in.; breadth between wheels 7 in.; height from ground to top of cover 10 inches.

From Madras.

Presented by Insp.-General Dr. Duncan McPherson, Madras Army.

1305. Model of Professor Tufnell's ambulance conveyance, constructed on the general principles of the Irish jaunting car. It is supported by double springs, a combination of the C-springs, and springs on the elliptic principle, invented by Mr. Corbett. The conveyance is designed to transport three men lying at full length, or one lying at full length and six or eight men sitting. It also carries two tents for 12 men

10 gallons of water, instruments, &c. The centre seat on being removed forms a stretcher. The vehicle is provided with a moveable awning.—*D.M.*

1311. Model of McAdam's steel spring suspension ambulance conveyance for two wounded men lying at full length; especially intended for men suffering from compound fractures of the thigh. The cart is suspended from a steel-bar spring which is made to work on an axle placed above instead of below the conveyance. When this conveyance is travelling, the part in which the patients are laid will remain constantly level, like a swinging lamp on board ship, and jolting from passing over a rough road will be, in a great measure, prevented. It is provided with a cover, splash board, place for packs, arms, &c. The conductor leads the cart instead of driving.—*D.M.*

1312. Model of McAdam's elastic-band suspension cart. This ambulance-cart resembles the preceding, with the exception that the suspension is effected by four elastic bands which connect the framework with the body of the vehicle. The elastic bands are attached to four iron hooks, one of which is placed at each bottom corner of the cart. The suspension is direct from the shafts and axle, the latter being placed above the cart as in No. 1311. Undue motion of the body of the vehicle is restrained by short chains which proceed from the four upper corners of the cart to the shafts.—*D.M.*

1313. Model of McAdam's suspension cart for four men in a sitting position. The ambulance cart in this instance is suspended above the axle which passes through an opening in the body of the cart between the seats for the wounded men. The suspension is effected by four elastic bands which are carried from the four corners of the bottom of the cart to four hooks fixed in the shafts. The wounded men sit back to back with a partition between them. The packs, arms, &c., are carried under the seats, which are made locker-fashion. The cart is provided with cover, splash board, &c.—*D.M.*

1321. Model of a Maltese cart fitted as an ambulance conveyance, and furnished with two folding litters; made to scale. This ambulance conveyance was authorized at one time for use in the British army.—*W.O., D.M.*

Prepared in the Royal Carriage Department, Woolwich.

(*b.*) *Four-wheeled.*

1331. Model of Inspector General Macpherson's Madras waggon, intended to be drawn by four horses or bullocks. This waggon is arranged for the conveyance of eight wounded or sick men sitting, or two lying and three sitting. It is covered by a fixed covering with moveable flaps for the passage of air and for shade. It is provided with an arm rack for eight rifles beneath the seats with two field stretchers, one being fixed on each side of the waggon, and with receptacles for packs and stores. This waggon is reported to have been subjected to a severe trial over bad roads at Madras and with the result that "not a nail started."

From Madras.

Presented by Inspector-General Dr. Duncan McPherson, Madras Army.

1333. Full-sized vulcanized indiarubber spring for suspended ambulance conveyances; invented by Col. Tulloh.—*W. O.*

In use in the British Service.

(*d.*) APPLIANCES FOR FACILITATING THE CONVEYANCE OF SICK AND WOUNDED IN COMMON WAGGONS BY RAIL OR BY WATER.

1334. Suspension litter, consisting of three separate parts connected by hinges, for railway waggons, or for slinging a patient over the side of ship.

Invented by Messrs. Fischer, of Heidelberg, and purchased from them for the Military Surgery Museum.

1335. Moveable head rest for use on the floor of a railway carriage or in hospitals.

Invented by Messrs Fischer, of Heidelberg, and purchased from them for the Military Surgery Museum.

1336. Litter furnished with telescope handles, and moveable cross supports, intended to rest on the seats of a first-class railway carriage.

Purchased from the Inventors, Messrs. Fischer & Co., of Heidelberg. (1866).

1337. A similar contrivance for use in third-class carriages.

Purchased from the Inventors, Messrs. Fischer & Co., of Heidelberg. (1866.)

1338. Suspension battens, with girths, straps and hooks, to adapt goods vans for the conveyance of sick.

Purchased from the Inventors, Messrs. Fischer & Co., of Heidelberg. (1866.)

1339. Canvass rest, fitted with cross staves, to serve as a temporary bed for slightly wounded during railway transport.

Purchased from the Inventors, Messrs. Fischer & Co., of Heidelberg. (1866.)

1340. Suspension field bed, principally designed for use in railway vans, but capable also of being used in hospitals and camps as an ordinary bedstead.

Purchased from the Inventors, Messrs. Fischer & Co., of Heidelberg. (1866.)

1341. Boat litter or cot, arranged for raising patients from shore or boats on board ship, or, *vice versâ*, for lowering patients from shipboard into boats or on to a shore.—*D. M.*

II. CONVEYANCES COMBINING ARRANGEMENTS FOR THE TRANSPORT OF STORES WITH THE CAPABILITY OF CARRYING WOUNDED TROOPS.

(*a.*) BORNE BY MEN.

None.

(*b.*) BORNE BY ANIMALS.

None.

(*c.*) WHEELED CONVEYANCES.

1345 *a*. China ambulance hand-barrow; adapted to serve either for conveyance of Commissariat stores, or for the carriage of one wounded man. *Pattern.—W.O.*

(For full description and drawing, see Army Medical Reports for 1863, vol. 5, page 508.)

1345 *b*. Model of China ambulance hand-barrow. Made to scale. —*D.M.*

1351. Model of Veterinary-Surgeon Cherry's cart; designed both for Commissariat and ambulance purposes. The main feature of this cart is the ingenious contrivance by means of which it can be used as a vehicle without or with springs, by shifting two blocks which rest upon the axle. These blocks, by simply moving a lever, can be brought under the framework of the cart, when the weight is taken off the springs and lies chiefly upon the blocks; or, by moving the lever in the opposite direction, the blocks can be shifted at a moment's notice and be brought under the floor of the cart, when the cart rests upon the springs only. It is provided with moveable suspended seats, receptacles for medical stores, framework for awning, &c.—*D.M.*

1352. Model of Mr. Storekeeper Butcher's field cart, for Commissariat, ammunition, and ambulance purposes. In this cart the seats are so hinged and arranged that they can be unfolded and turned up to cover and protect the contents of the cart when it is employed for conveying Commissariat stores or ammunition. The cart is suspended on common carriage springs. Beneath the cart, in two side compartments, are two sets of tent poles, and in a third compartment between them are cases for field equipment, and for small arm ammunition when carried in the cart. As an ambulance carriage, this vehicle was designed to convey six men sitting, or two recumbent, together with the driver; as a Commissiariat cart, to carry ten tents, with poles and appliances complete; as an ammunition car, twelve quarter barrels of ammunition, or 6,000 rounds. —*D.M.*

1353. Model of the Bulgarian Araba, which was extensively used as a conveyance for sick by the English Army in Bulgaria in the year 1854.—*D.M.*

D.—MISCELLANEOUS ARTICLES CONNECTED WITH THE DUTIES OF ARMY SURGEONS.

1501. Model of a bell-tent supported over ground which has been excavated and suitably arranged as a place for the performance of surgical operations. Designed for use in a standing camp, so as to avoid the necessity of performing amputations and similar operations in the presence of other patients in a hospital marquee.

Modelled by Sergt. Shortell, A. H. Corps, under the direction of Professor Longmore.

1502. Model of a portion of the Green Hill (Chapman's) Battery before Sebastapol for the purpose of showing the assistant-surgeon's bomb-proof quarters in the battery.

Made by Staff Assistant-Surgeon Dr. Carte, attached to the left attack during the winter of 1854, *and presented by him to the Dublin Museum of Military Surgery.*

1503. Naval cat-o'-nine-tails.—*D.M.*

1504. Military cat-o'-nine-tails.—*D.M.*

Although the duties of army surgeons connect them with the treatment of injuries inflicted by these weapons, it did not appear consistent to place them under the heading A.

E. APPENDIX.—DRAWINGS OF ARMS, FIELD APPLIANCES INSTRUMENTS, CONVEYANCES, &c.

Fire Arms.

Diagram of the law of projectiles (133).—*D.M.*

Diagram illustrative of the effect of the passage of a musket ball (134). —*D.M.*

Diagram illustrative of Dr. Teevan's views concerning gunshot injuries of the cranium (137).

Drawing, illustrative of one of the effects of rotation of a conical projectile (141).

Respective effects of round and conoidal projectiles on striking certain bones (191 and 192).

Projectiles for rifled small arms as used in the British service (115).

Projectiles of various forms which have been proposed for use as well as those used in the French service (116).

Rifle ball of Nessler, in use in the French army in 1863 (118).

Shells and bolts for rifled ordnance (Armstrong and Whitworth) (111).

Thirty-five plates illustrative of all kinds of amunition prepared in the Royal Arsenal at Woolwich.—*W.O.*

Surgical Instruments.

Various patterns of tourniquets (161).—*D.M.*

Lee's tourniquet (166).

Various kinds of bullet extractors (151, 152, 153, 154).

Medical Store Carts and Waggons.

Baron Percy's ambulance conveyance for medical officers and surgical materials (401).

Russian cart for medicines and instruments, taken on the march to Sebastopol in 1854 (405).—*D.M.*

Camp tray (410).—*D.M.*

Field panniers, as carried on the back of a bât-animal (415 *a*).

Field panniers, connected and arranged for an operating table (415 *b*).

Medical store cart, packed (421 *a.*). (2 copies.)—*W.O.*

Enlarged drawing of the same (421 *b*).

Plans and elevations of the divisional and battalion boxes for medical *c* omforts. (422). (3 copies.)—*W.O.*

Litters and Stretchers.

New Zealand native stretcher (451).—*D.M.*

North American Indian hammock stretcher (452).—*D.M.*

Baron Percy's brancard and brancardiers; three sets of drawings (455 *a. b. c.*)

Sergeant-Major Jones' iron band litter (461).

Mr. Turner's tent hammock in use as a stretcher (464).—*D.M.*

Mr. Tuffnell's field stretcher (465).—*D.M.*

Mr. Redford's portable stretcher (467).

French stretcher and bearers, showing the mode of breaking step. (470).

Hindostanee dhooley and bearers, showing the mode of carrying. (476).—*D.M.*

Hindostance dhooley showing the construction and fittings (475).

Colonel Crichton's swinging car for the carriage of sick and wounded (480).

Ambulance Conveyances borne by Animals.

United States horse litter, and Wood's New York "field sedan" (491).

United States two-mule litter (492).

Medical horse litter and chair (493 & 494).

Larrey's Egyptian camel litter (501).

Indian camel chair, or kadjowa (502.)—*D.M.*

Kadjowas and dhoolies on the march in India (503).—*D.M.*

French ambulance conveyances used in the Crimea (504).—*D.M.*

British regulation mule litter (505). 3 copies.—*W.O.*

Wheeled Ambulance Conveyances pushed or drawn by Manual Labour.

British patterns of stretchers, hand-barrows, &c. (511).—*W.O.*

Neuss' two-wheeled litter (513).

Ditto drawn by Animals.

Mr. Tuffnel's ambulance car (521 *a & b.*)—*D.M.*

Mr. Guthrie's hospital conveyance cart (524).—*D.M.*

Regulation hospital cart (531).—*W.O.*

Maltese cart (532). 3 copies.—*W.O.*

Millingen's ambulance waggon (540).

British ambulance waggon (541). 3 copies.—*W.O.*

Hospital waggon (542).—*W.O.*

Dr. Smith's hospital conveyance waggon, three views (550. *a. b. & c*).—*D.M.*

Ditto moved on Railways.

Contrivances for transporting sick and wounded in railway cars, used in the United States campaigns of 1863–5 (555).

Miscellaneous.

French ambulance in the Kanabelnaira Ravine (1856). (No. 580).

Raft (590).—*D.M.*

Sledge (591).—*D.M.*

Three sheets of photographs of Messrs. Fischer's ambulance vehicles, and other contrivances for transporting sick and wounded (561, 562, & 563).

Messrs. Fischer's illustrated catalogue of field conveyances and hospital equipment (564).

Three sheets of photographs of the ambulance conveyances authorized for use in the Prussian army, A.D. 1866.

Presented by Assistant-Surgeon H. Chalmers Miles, R.H.A,

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