

File of reports, sketches, plans, etc., re the work of a Casualty Clearing Station on the Western Front

Publication/Creation

1917-1918

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Cover for Documents.

40

Excl C

Nature of Enclosures.

1918

C.C.S Plans.

see also

Reports C.C.S.

Ligny

Borlean au Mont

ESCADOUVRES

Mons

Twin Tally

Rept 1000 ops.

Notes, or Letters written.

60

CCS

Cover for Documents.

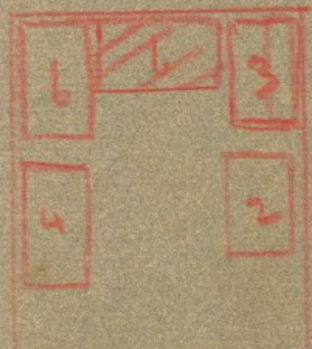
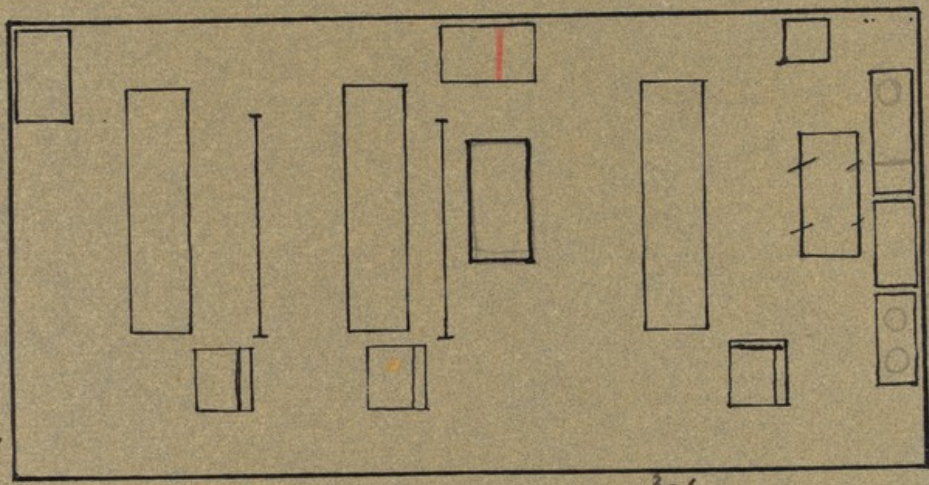
Exc.

Nature of Enclosures.

Twin Tables Report.

1000 Consecutive Operations

Notes, or Letters written.



Cloth
Mural

viii. A

ix. A

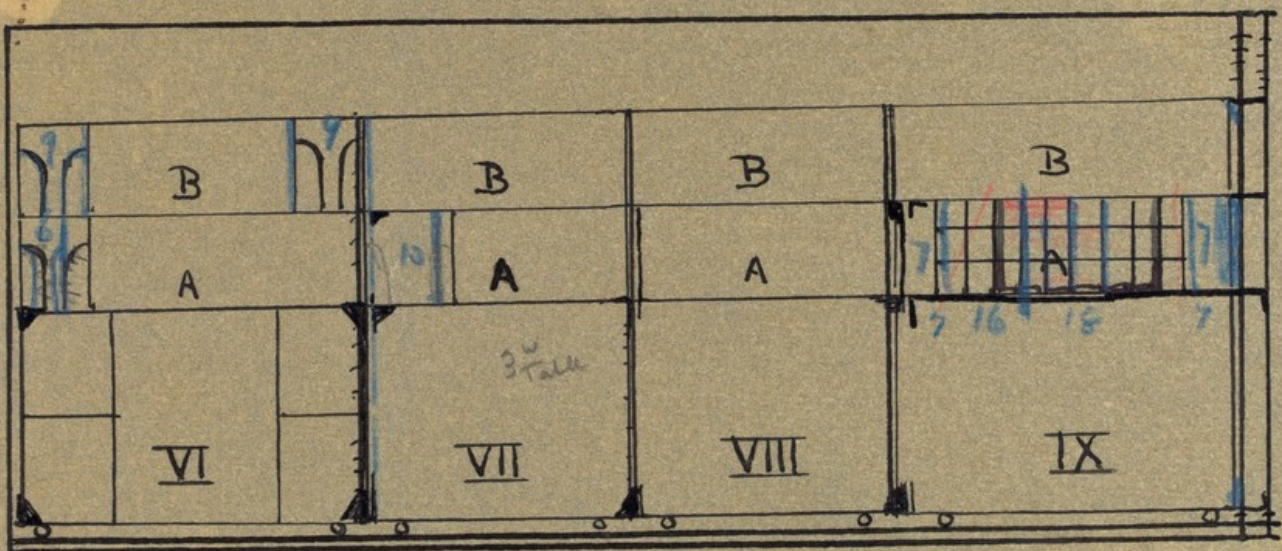
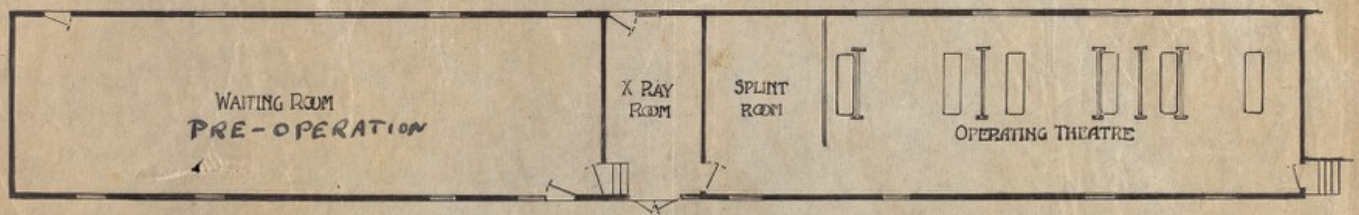


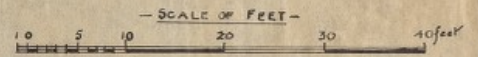
DIAGRAM OF RIGHT HAND SIDE

U

OPERATING THEATRE
Nº 23 C.C.S.



- PLAN -

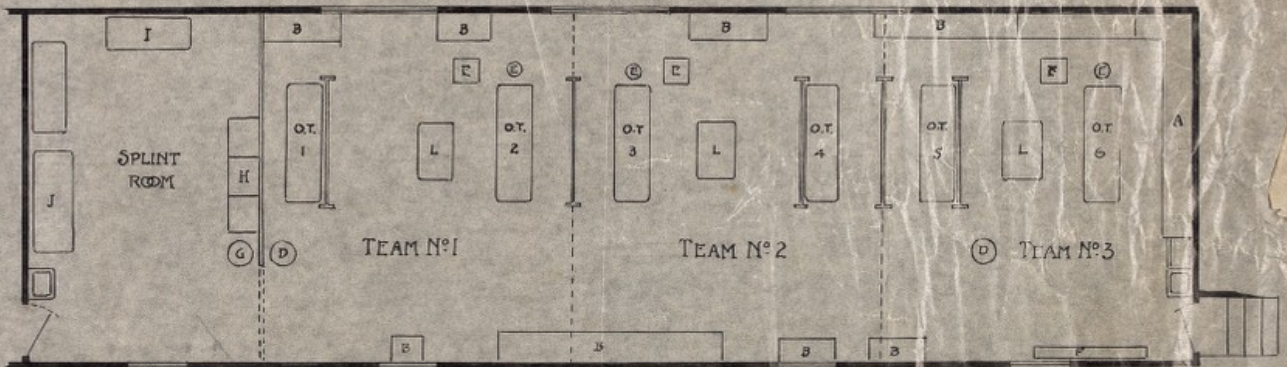


NOTE

- A - Fixed Cupboards & Shelves which can be dispensed with and Trailer Furniture used
- B - Trailer Furniture (containing shelves for dressings, lotions, &c) and Washup for Surgeons
- C - Operating Tables 1 to 6
- D - Stoves
- E - Anesthetic Table & Stool
- F - Form for Bearers
- G - Autoclave
- H - Sterilizing Rack
- I - Spine Rack
- J - Mackintosh Washup

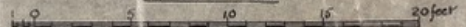
L - Instrument Table

OPERATING THEATRE N°23 C.C.S.
PLAN SHOWING ARRANGEMENT OF TWIN TABLES
MOVEABLE SCREENS & TRAILER FURNITURE . . .



- PLAN -

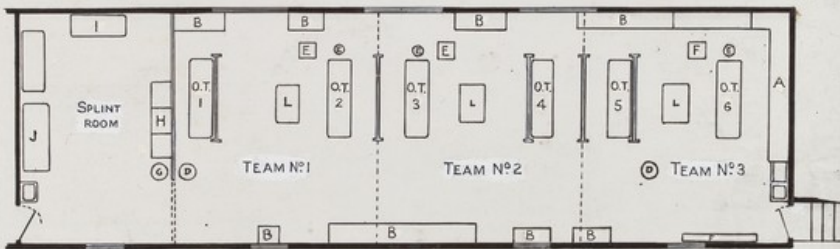
- SCALE OF FEET -



NOTE

- A - Fixed Cupboard shelves which can be dropped and will and Transfer Furniture used
- B - Transfer Furniture (containing shelves for dressings, lotions, etc. and washup for signatures)
- C - Operating Tables 1 to 6
- D - Stools
- E - Anesthetic Table & Stool
- F - Pans for Drains
- G - Autoclave
- H - Sterilizing Rack
- I - Suture Spots
- J - Mechanical Washup
- L - Instrument Table

OPERATING THEATRE N°23 C.C.S.
PLAN SHOWING ARRANGEMENT OF TWIN TABLES
Movable Screens & TRAILER FURNITURE . . .



- PLAN -

SCALE OF FEET
0 5 10 15 20 feet

5

14

$$\begin{array}{r} 165 \\ 83 \\ \hline 82 \end{array}$$

165

79

$$\begin{array}{r} 165 \\ 49 \\ \hline 86 \end{array}$$

$$\begin{array}{r} 83 \\ 89 \\ \hline 172 \end{array}$$

$$\begin{array}{r} 79 \\ 76 \\ \hline 155 \end{array}$$

$$\begin{array}{r} 10 \\ 16 \\ 38 \\ 16 \\ \hline 79 \end{array}$$

79
76

90

87
86
75

OC. No 1 C.C.S

Actually used Nov 1918
Monsieur Léon SI FLOCHET & ESCADOUVRES
(CAMBRAI)

no 23

Tables folded

Forms "

Camp stools

Sh. Pails 20.

Carpenter's tools 1 chest

Shovels 8

Picks 2

Axes 2

Lamps 30

Flux poles

POST CARD

THE ADDRESS TO BE WRITTEN ON THIS SIDE



no 22

Stretches 200

Tables Folding

POST CARD

THE ADDRESS TO BE WRITTEN ON THIS SIDE



No 25

Q. var. Störes

Received H. O. G. Adams General Post Office
No 1. C. C. S.

Box 100 Sept 18
25/1/18

No 100 H. O. G. Adams General Post Office



THE ADDRESS TO BE WRITTEN ON THIS SIDE

POST CARD

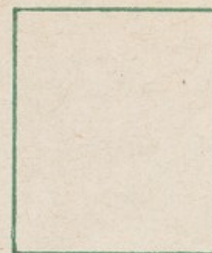
no 21

Stratches 200

Tables Folding

POST CARD

THE ADDRESS TO BE WRITTEN ON THIS SIDE



no 20

Margues v P 64

Lentz Bw P 14

POST CARD

THE ADDRESS TO BE WRITTEN ON THIS SIDE



No 19. Marques DP 9

5 old P. Marques

1 N. P. -

3 old P. - Standing

POST CARD

THE ADDRESS TO BE WRITTEN ON THIS SIDE

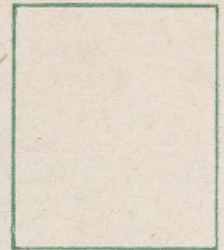


no 18

Marques N.P. 8 ✓
" O.P. 1. ✓

POST CARD

THE ADDRESS TO BE WRITTEN ON THIS SIDE



no 17. Marques NPg

8 complete 7-

1 Sqts Invs

1 opps Invs

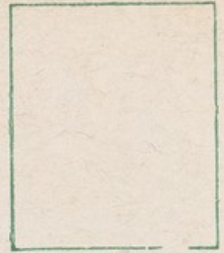
$$\begin{array}{r} 1 \\ \hline 1 \\ \hline 9 \\ \hline \end{array}$$

hw 16

Marquis NP 9L

POST CARD

THE ADDRESS TO BE WRITTEN ON THIS SIDE



no 15 Lorry
Marques N.P. 9 ✓

Cpl. Davis

POST CARD

THE ADDRESS TO BE WRITTEN ON THIS SIDE



No 10 Lorry

Petrol 48 gall

Oil 20. "

Carbide 1 drum

Spk mech. 20. galls.

Latrines seats

" Buckets

" Screens

" Frame Works.

Barrel

Cupboard

Coal

Wood

Bass Brooms

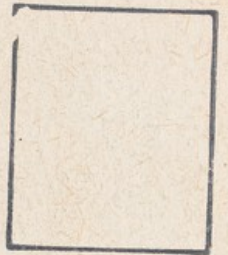
Brushes Sweeping

Soap + Soda

POST CARD

TO BE USED FOR WRITTEN OR
PRINTED MATTER

ONLY THE ADDRESS TO BE
WRITTEN HERE



7

2

no 13 Lorry

~~Back Books~~

~~200 St. Louis~~

Pharques N.P. 91 ✓

Ch. Duran

POST CARD

TO BE USED FOR WRITTEN OR
PRINTED MATTER

ONLY THE ADDRESS TO BE
WRITTEN HERE



no 14 Larry

Tents.

Co's Office

" Kit

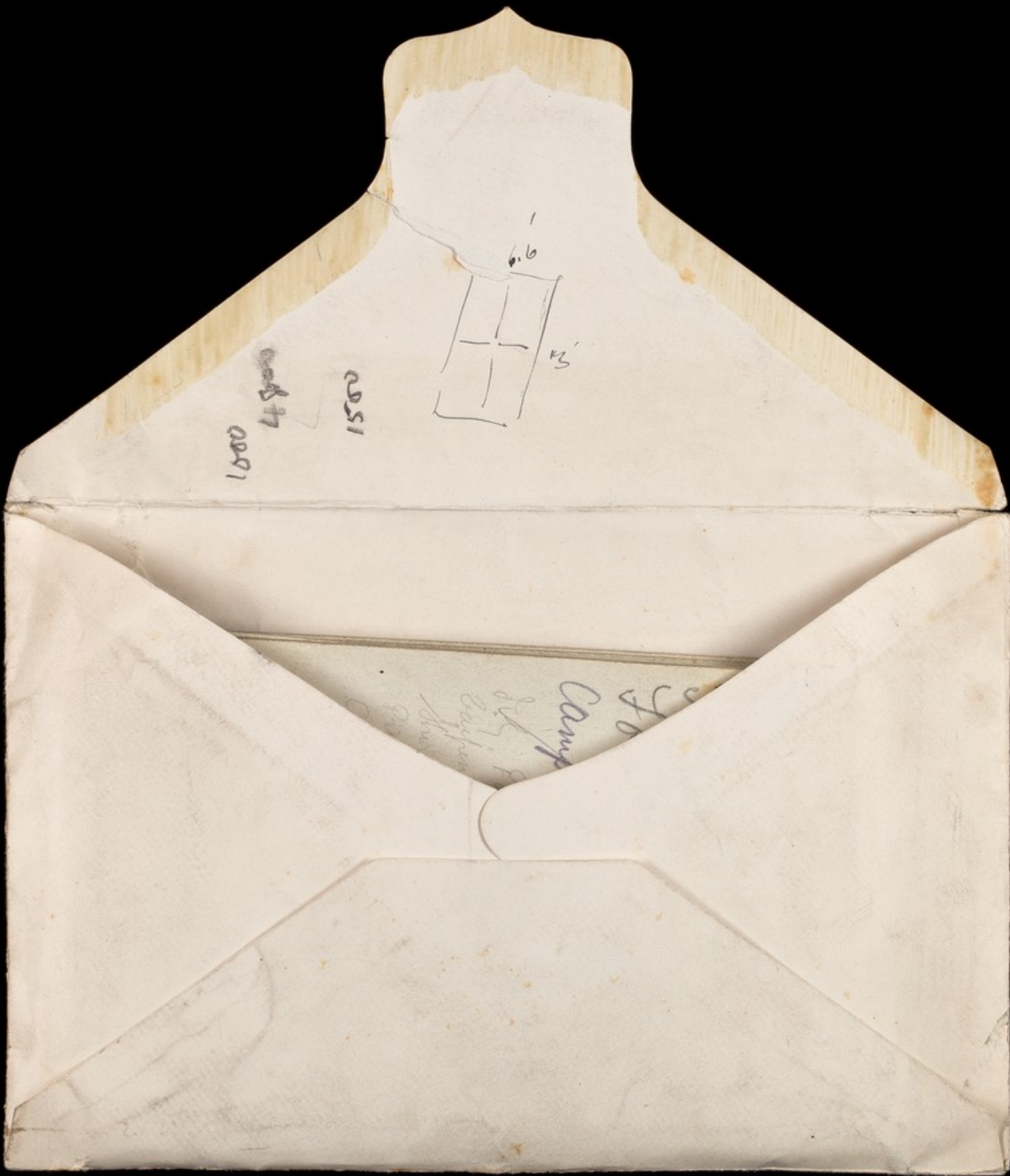
Armstrong Hut.

POST CARD

TO BE USED FOR WRITTEN OR
PRINTED MATTER

ONLY THE ADDRESS TO BE
WRITTEN HERE





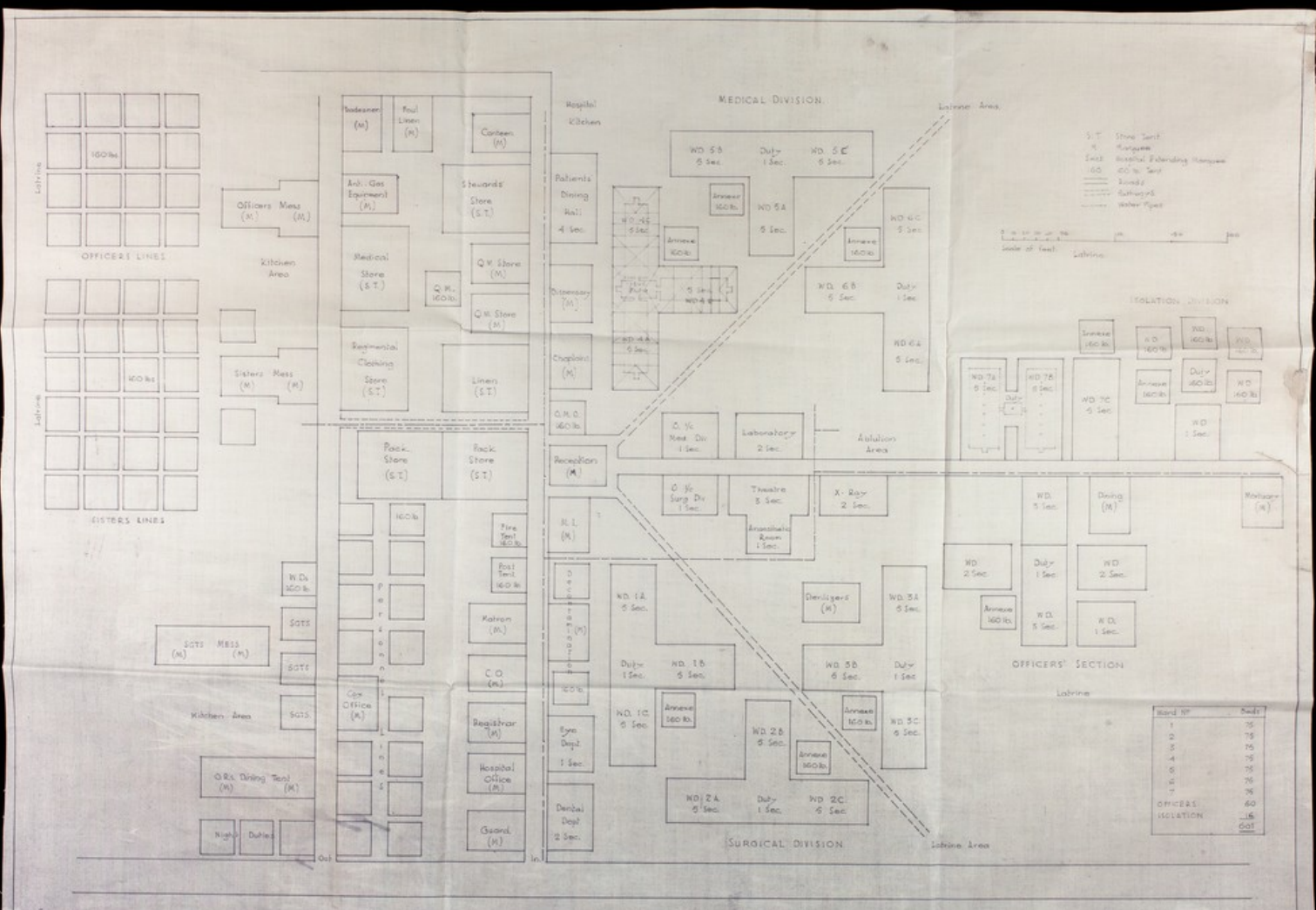
1000

4800

2051



Handwritten text on the bottom flap, including the word 'Camp' and other illegible characters.

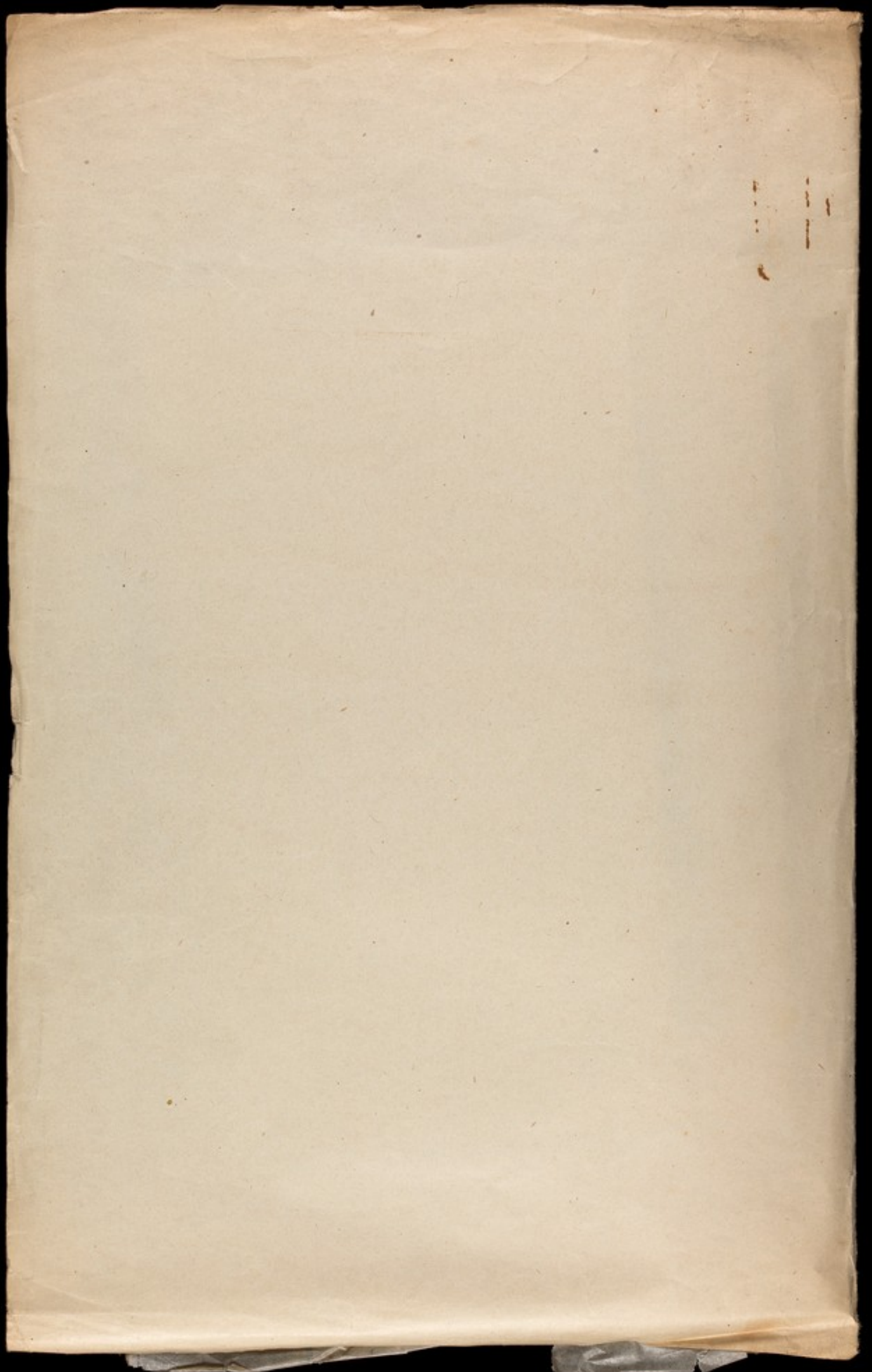


INDEX: 6th April 42. PROPOSED LAYOUT FOR 600 BED GENERAL HOSPITAL NO 70 GENERAL HOSPITAL. DRAWING NO 38/D.

Mouale 6-14(600)

1943

see



D.H. ...
First Army

1 CAS LIGNY

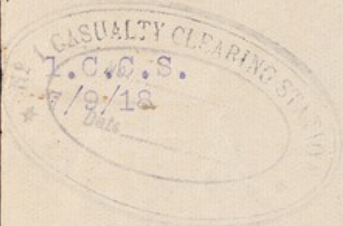
11/9/18

P.A. [Signature]
Orders
11/9/18

I beg to submit herewith a report of the recent move of No. 1 C.C.S., together with the surgical work performed during the following 10 days.

[Signature]

Lieut. Col. R.A.M.C.
O.C.L.C.C. Station.



D.H. Sand Consulting Surgeon to [Signature]

O.C. 1 C.C.S.

Read with much interest.

Wish to compliment [Signature] & all ranks on their rapid moves, and the large number of operations performed. H.W.T. Maj. Gen. D.M.S.

DIRECTOR OF MEDICAL SERVICES, FIRST ARMY.
No. 1663
Date 10.9.18

LIGNY

D.M.S., First Army. No.

Officer Commanding,
No. 1 Casualty Clearing Station.

DIRECTOR OF MEDICAL SERVICES, FIRST ARMY.	
No.	453/5.
Date

An experiment will be carried out to-morrow in order to test the mobility of your Unit.

Five lorries will report early in the morning and you will move a nucleus of your Clearing Station and occupy the tents at the Corps Rest Station site at Ligny St. Flochel.

This office will be notified when the move is complete and when you are in a position to receive cases.

Arrangements will be made re lorries etc. for returning to your present site on the completion of experimental move.

Headquarters,
First Army.
24th August, 1918.

J. P. ...
W. Col
Major-General,
Director of Medical Services.

Copy to - D.D.M.S., I Corps.

Move of No. 1 Casualty Clearing Station 25/8/18
and

1036

Report of Surgical Work accomplished in the following 10 days.

Sunday 25th,
August.

Bessoneau tent taken down at 6 am. Theatre Furniture loaded on Trailer. 10 lorries arrived PERWES 7.15 am, left in convoy 8 am, with loads for nucleus C.C.S. Arrived new site 9.40 am. Bessoneau and Store Tent erected immediately. Wards ready for 800 wounded by 12 noon. Remaining loads received and site at PERWES cleared during next 3 days.

26th.

Arrival of 4 Teams, commencement of surgical work. Cases received and operations performed during subsequent 10 days are shown in following table:-

Date.	Wounded.	Operations, 24 hours ending 9 am.	Operations %	Sick includ. rased.	Convoys.	
27th.	27/8/18	117	43	36.7	34	1
	28/8/18	262	96	35.9	63	2
	29/8/18	227	108	47.6	95	2
	30/8/18	69	43	62.5	84	1
	31/8/18	79	45	62.5	93	7
September.	1/9/18	87	66	75.8	97	7
	2/9/18	116	57	49.8	43	7
	3/9/18	554	163	29.4	49	4
	4/9/18	250	70	37.6	50	1
	5/9/18	110	74	63.8	88	1
		1876 *	764	40.8	641	15

* Of these 259 were Germans - 13.8 %

5th.

9 serious cases transferred to 33 C.C.S., remainder of sick and wounded evacuated. Ward equipment packed and hospital closed.

6th.

Canvas taken down and stores dumped. Teams and sisters sent away. Unit ready to move by 4 pm.

Remarks.

The Store Tent makes an admirable Operating Theatre for three Twin Tables. It is put up quickly, is light and well ventilated.

With these two theatres, Bessoneau and Store Tent, it was found possible to arrange for six teams (i.e. 18 tables) to be worked simultaneously as long as the pressure of work lasted, without undue fatigue to any member of the teams.

Lastly it was found that a Resuscitation Ward of less than 30 beds would have been adequate.

S.M. Powell

L.C.C.S.

Lieut. Col. R.A.M.C.

7/9/18

O.C. 1, C.C. Station.

APPENDIX IV

Front of Card
No. 6 Lorry
(Ward Equipment &c)

Back of Card

15 G.S.L. Tents
15 Bedpans, 25 Urinals
300 H. Towels
100 Tea Cloths
4 Boilers tin water
50 Hot water Bottles
1 Nest Saucepans (8)
4 Nest Night Stools
6 Small Folding Tables
50 Feather Pillows
6 Pails Slop Enamel
20 Basins Enamel 14"
10 Cans, Soap
50 Bars of Soap.

Sergt. Holbrook, i/c.

Pts. Cooke

" Nash

" Rodgers

" Berryman

APPENDIX III

List of Nine Lorry Loads, equipment for a 200 Stretcher C.C.S.

The Unit was moved on 26th August, from PERNES to LIGNY ST FLOCHÉL; in 9 lorries, to a site where canvas was already standing. It was found possible to deal with several hundred serious wounded before fresh equipment was brought up.

<u>LORRY</u>	<u>Contents</u>	<u>Personnel</u>	<u>Remarks</u>
1	Tentage	5	10 Marquees Completed
2	-"-	-"-	-"-
3	-"-	-"-	-"-
4	Kitchen Equipment	-"-	
5	Stretchers	4	200
6	Ward Equipment	5	
7	Blankets	4	600 + 100 Shirts & Pyjamas
8	Medl. Equip. & Food.	5	Panniers &c.
9	Operating Theatre.	6	+ Trailer.

Operations 9-9AM.

Leguy & FLOCHTEL

Date.	Wounded	op ^s	%	Sick	gassed	Conv ^o .	Mortality (Deaths 24 hrs)
Aug. 1918							
26-27	117	43	36.75	7	26	8	1
27-28	262	96	35.9	7	47	15	2
28-29	227	108	47.6	7	74	21	2
29-30	69	43	62.3	7	92	2	1
30-31	72	45	62.5	7	48	44	1
31-1	87	66	75.8	7	84	13	1
1-2	116	57	49.2	7	32	10	1
2-3	554	162	29.0	8	38	11	4
3-4	256	70	27.5	5	43	7	1 1/2
4-5	116	74	63.8	5	23	3	1
10	1876	764	40.8		641		15 1/2

Average 3.4
43%
6 days
48%

40%
10. 1896-764
299 16% G

10 (slight
18. Ws.)

13

114

THE UNIVERSITY OF CHICAGO

Boileau & an Mout

Sep 25 1918

No. 1 C.C.S

Walking Wounded

2nd Battle Cambrai

27.9.18 - 3.10.18

E.K.C.

Lieut. G. H. H. H.

Plan given in Office

Med Hist of the War.

Cos Copy

Report of work done at No.1 Casualty Clearing Station whilst
running Walking Wounded Centre from 27th September
to 3rd October 1918

Date.

- 23/9/18. Camp planned. Cdn. Engrs. (20 Off. & 88 O.Rs) in following 48 hours erected Cookhouse, Latrines (100 seats) and levelled ground.
24/9/18. 50 lorry loads arrived by nightfall. (C.C.S. equipment - from old site. 24 miles away)
25th & 26th. Canvas erected as shown in Appendix I. Electric Light installed.
26th. All ready.
27/9/18. At 12 noon wounded began to arrive, and were dealt with as under during following days:-

	<u>Wounded.</u>	<u>Sick.</u>	<u>Operations.</u>	<u>% Wdd. Op. on.</u>	<u>Evacuations.</u>	<u>Remarks.</u>
27/9/18	2772	175	106	3 . 6	2002	
28/9/18	1082	62	104	9 . 6	1112	
29/9/18	1485	9	76	5 . 1	701	
30/9/18	559	18	107 . X	19 . 0	1046	X Some of these
1/10/18	1099	84	28	2 . 0	1455	should have been
2/10/18	222	9	5	2 . 5	928	included in next
3/10/18	82	43	3	3 . 6	335	days.
	<u>7301</u>	<u>400</u>	<u>429</u>	<u>5 . 9</u>	<u>7579</u>	

Remainder of lightly gassed and sick, evacuated daily to Field Ambulance in ARRAS.

Remarks.

Details of working as shown in Appendices I & III.
The Reception accommodation was never too large. The last 3 days R3 was used as a switch evacuation ward for lying cases. At one time a total of 180 accumulated.
The Dressing Tent put through ^{up to} 200 an hour. Proportion of Dressers to Clerks required is 3 to 1.
Theatre - 4 Teams worked - 3 by ^{night} and 1 by ^{day}.
Cookhouse and Dining Tent - were hard worked. Every man sat down to a good meal. Occasionally the same 1000 men were fed more than once before leaving.
Evacuation block - 1000 men were put under cover and given blankets.
Officers Ward - 4 Marquees - quite sufficient. Beds on one side, stretchers on the other.
Personnel. - C.C.S. Personnel, reinforced by 2 Teams, 3 C.A.M.C. Officers, 36 O.Rs. and 14 extra and Theatre Sisters.

1.C.C.S.
5/10/18

E.M. Howell
Lieut. Col. R.A.M.C.
OC 1.C.C.S. Station.

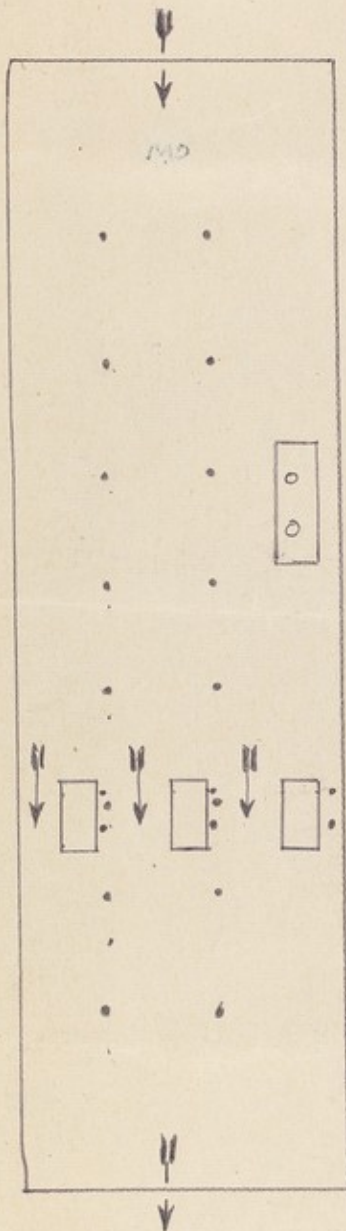
APPENDIX II

Reception Tent & Clerking Arrangements

R₁, R₂, R₃

Similar arrangements.

R₃ used as switch evacuation ward as occasion demanded.



Y.M.C.A. Bar: 1 Helper & 1 G.D.O.

Clerks - Total 35

3 pairs in each tent. Total 18 in 3 tents. Table "Shut down" according to circumstances for reliefs.

Record Office

1 N.C.O.i/c. 8 clerks in pairs. 3 Runners.

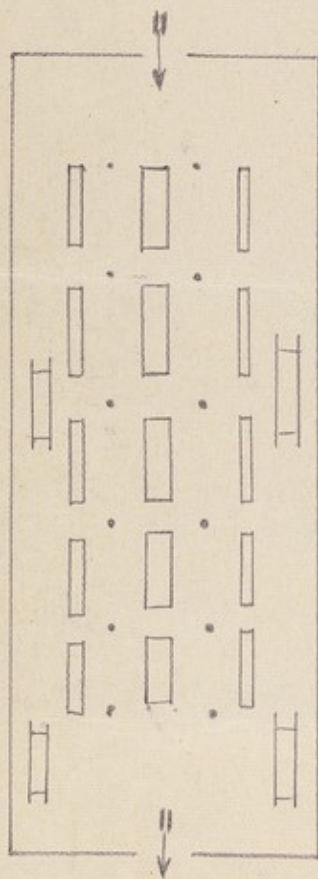
C.C.S. Office Records (Evacuations &c.)

Chief Clerk and 4 others.

*Still working
Subst. Room
of 1 clks.*

APPENDIX III

Detail of Dressing Tent



Personnel required.

Medical Officers 3.	1. Surgical Specialist. 2. Examine Fd. Medl. Cards. 3. Relief for night work.
Sisters. 8.	4 by day and 4 by night. (1 at each table)
N.C.Os. i/c. 2.	1 by day and 1 by night.
A.T.S. Orderlies. 12.	6 by day and 6 by night.
Dressers. 32.	16 by day and 16 by night. (4 at each table)
G.D. Orderlies. 4.	2 by day and 2 by night.
Stretcher Bearers. 8.	4 by day and 4 by night.
Police. 2.	1 by day and 1 by night. (To direct to Pre.Op. or Ward and supply with hat or respirator).

McLoughlin
Col. R. R. R. R.
Op. 1. C. S.
October 1918

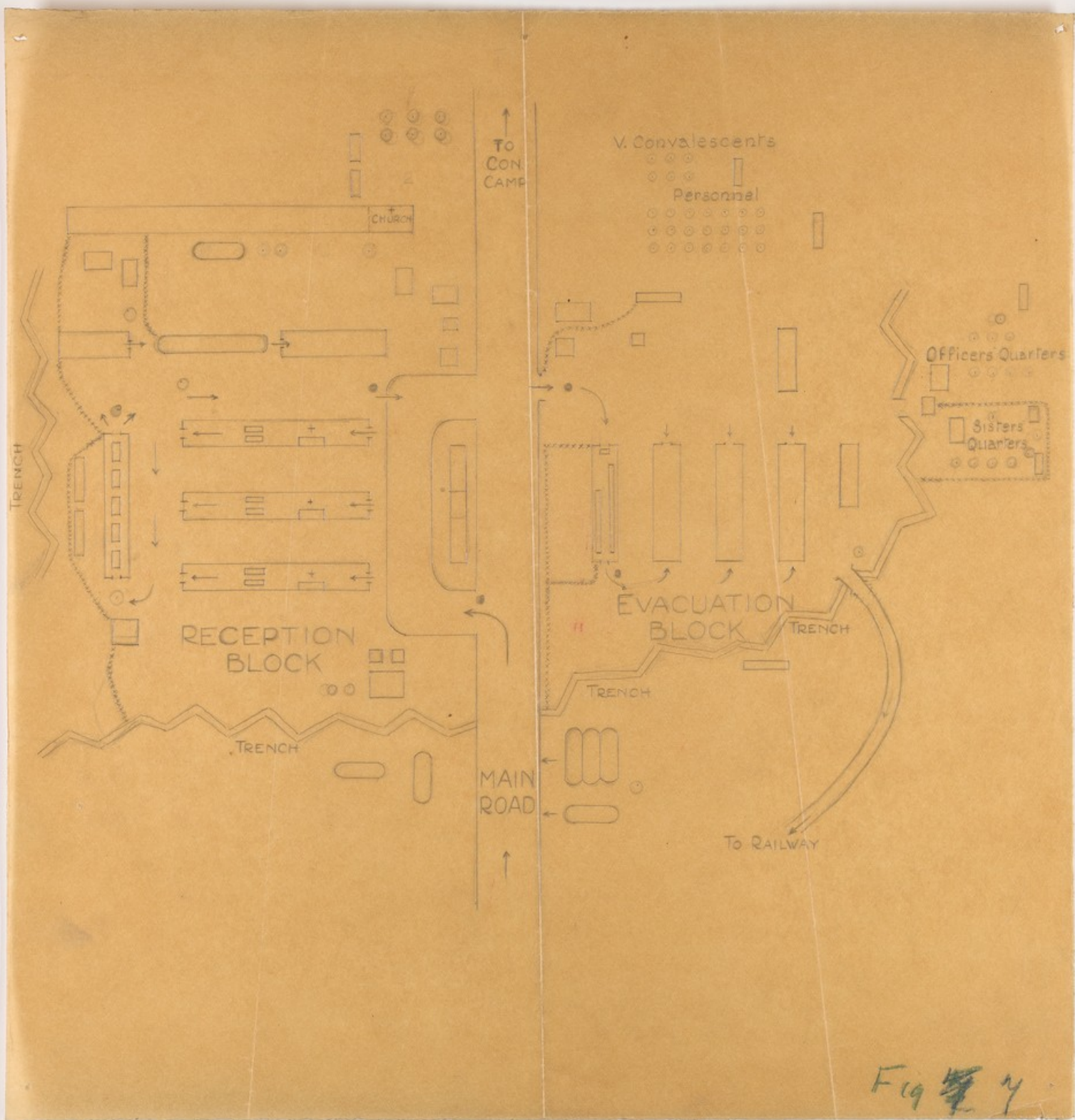
Dear Lowell.

The Dms has
asked me to write and thank
you for the report on the
work done in 1 ccs.
during the recent battle
and also for the very
careful and well designed
plan sent in - it is the
best he has seen of its
kind.

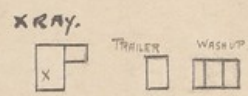
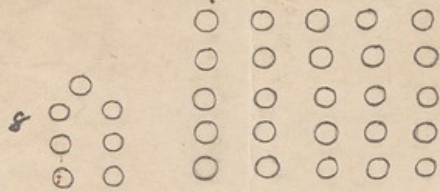
Yours sincerely

A. Stevens.

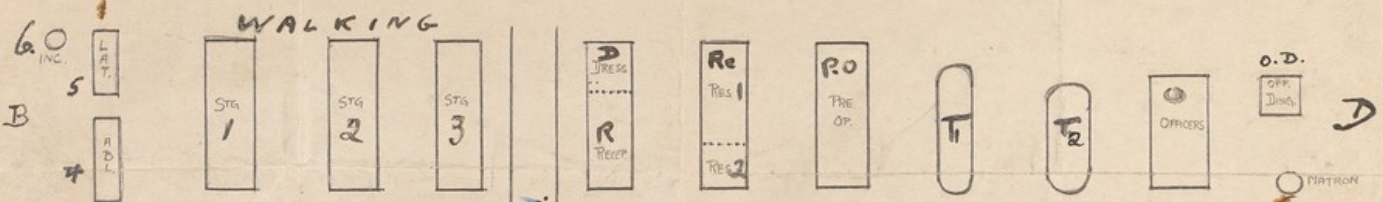
Advt^d HQ.
10¹⁰/18.



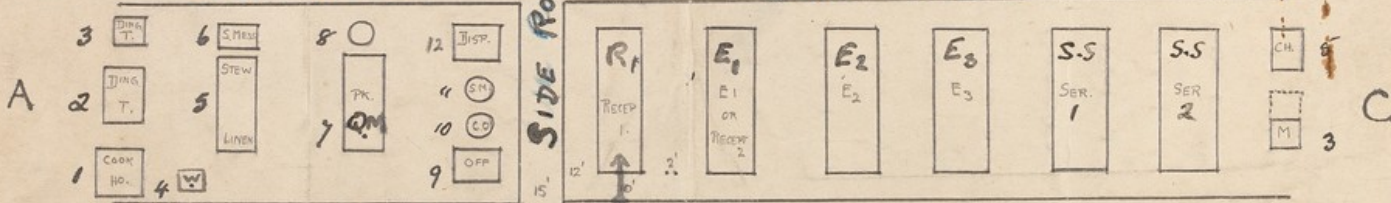
7. PERSONEL



WALKING



Duck Boards



SIDE ROAD

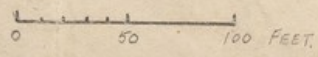
→ Front Line

METALLED ROAD

→ Rail head
RAIL HEAD
200 YDS

Officers
Quarters
Bell Tent

Escalobuyes
I.C.C.S.



Sisters
Quarters
Bell Tent

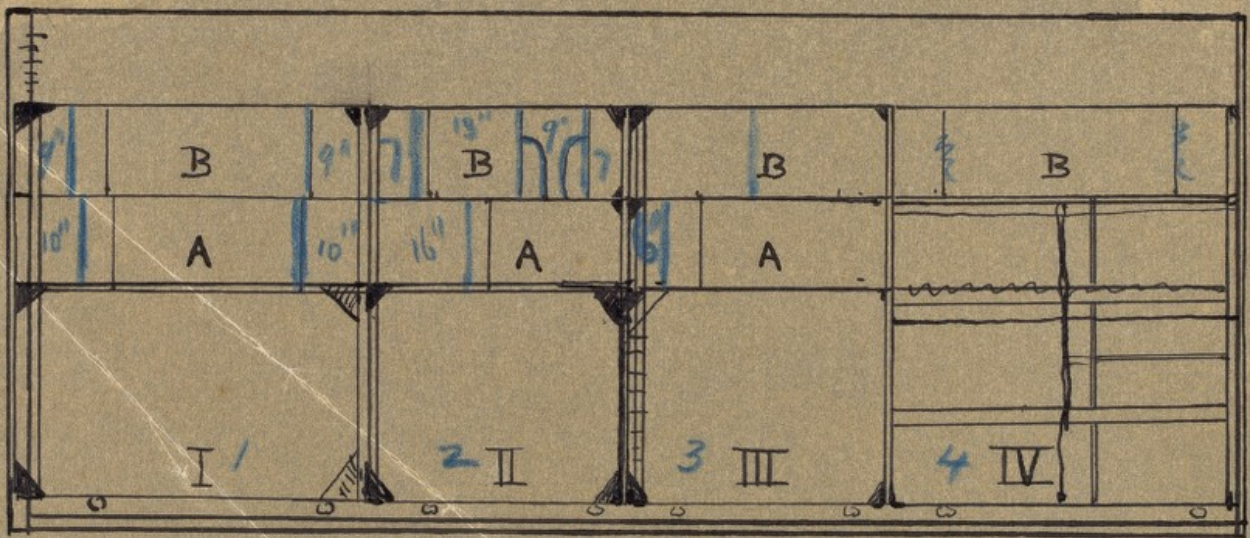


DIAGRAM OF LEFT HAND SIDE

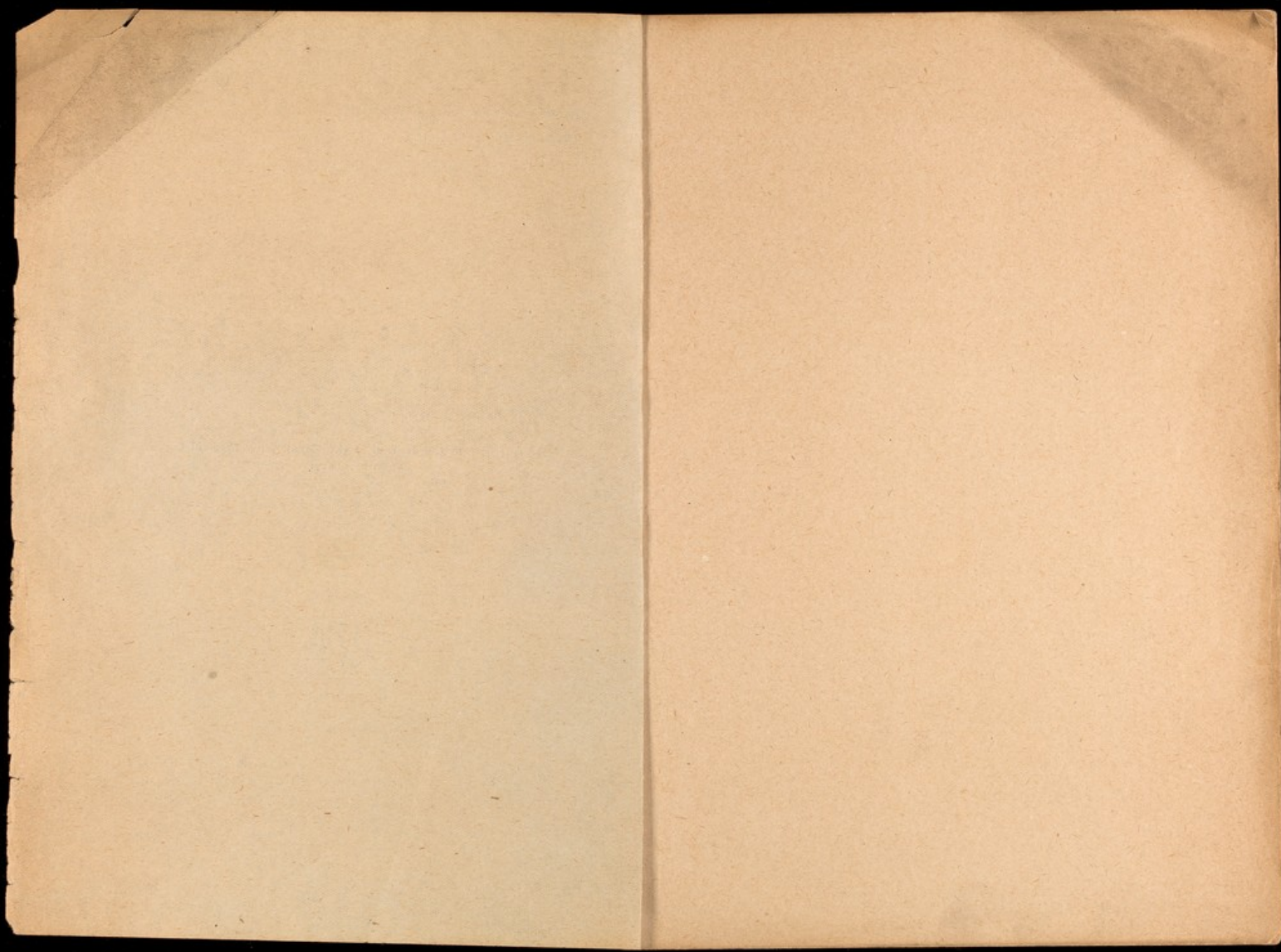
THE WALLACE - COWELL
THEATRE TRAILER . . .

By Captain E. M. Cowell, R.A.M.C.

Reprinted from the Journal of the Royal Army Medical Corps,
June, 1917.



LONDON: JOHN BALE,
SONS & DANIELSSON,
Ltd., OXFORD HOUSE,
83-91, GT. TITCHFIELD
STREET, W. 1. . . .



Clinical and other Notes.

THE WALLACE-COWELL THEATRE TRAILER.

BY CAPTAIN E. M. COWELL.
Royal Army Medical Corps.

The mobility of a casualty clearing station has always been a difficult problem. In particular the question of providing safe and rapid transport for the easily damaged furniture and surgical equipment of the operating theatre has for a long while occupied the minds of those responsible for these matters.

As far as the operating section of a casualty clearing station is concerned, the question would appear to be solved by the introduction of the "Theatre Trailer" with its portable furniture and sectional shelves.

In September, 1916, Colonel Cuthbert Wallace, C.M.G., proposed the idea of building a light body to be carried on a two-wheeled trailer, which would be drawn behind one of the casualty clearing station lorries. It was suggested that the interior of the vehicle should be fitted with shelves and pigeon-holes like the fittings on board ship.

The original idea, however, was amplified, and a structure finally built which could be easily lifted down off the wheels to serve as a theatre annexe, splint, or sterilizing room, or even a small operating theatre for one table. Moreover, instead of fixed pigeon-holes or compartments, a set of light but serviceable cupboards and shelves was devised, to serve the double purpose of providing permanent theatre furniture and also to secure both an easy and safe way of carrying dressings and all the equipment required to supply a large operating theatre.

Reference to the accompanying illustrations will make clear the various points mentioned in the description of this vehicle and its contents.

The body or superstructure consists of a pitch-pine framework covered with waterproof canvas, painted and varnished. Greased cloth windows provide ample illumination for the interior, which is closed at the tail end by a double curtain door. The dimensions (see Appendix I) are: Length 14 feet, width 6 feet 6 inches, height 6 feet 6 inches. The total weight of the superstructure and contents is one ton. During trial journeys it has been found that as much as one ton five cwts. can easily be carried behind the trailer lorry itself loaded to 2½ tons.

To prepare for travelling the empty superstructure is lifted up by four men while the trailer proper is run underneath. Four iron clamps hold the body in position.

The furniture, consisting of a series of cupboards and shelves, is now loaded. Each cupboard runs on four wheels to facilitate moving, and is



FIG. 1.—The Wallace-Cowell Theatre Trailer on the road, behind the tractor lorry. It follows readily wherever the lorry can go. Should the motor "break down" the trailer may be drawn to its destination by a pair of heavy draft horses hitched to either side of the traction pole.

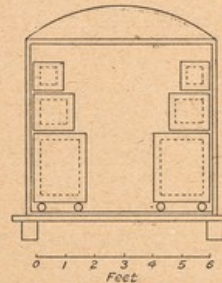


FIG. 2.—Cross Section. Showing arrangement of cupboards and superimposed shelves. The gangway permits of ready access to, and removal of any piece of furniture separately without disturbing the rest.

fitted to hold and carry without damage—dressings, instruments, bowl and enamel ware of the scheduled equipment (A.F.G. 1098-65), as well as Bowlby's outfit and the marmites, etc., in use in almost every casualty clearing station theatre.

Two cupboards are set apart for sterile dressings, overalls and towels, and contain a sufficient supply for 'one day's operating. The rest of the

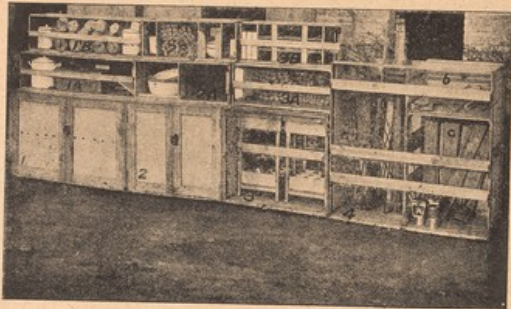


FIG. 3.—Contents of left-hand side lifted out of the trailer.

15 Cupboard 1. Dressings Cupboard. All cupboards are mounted on small wheels or castors. Doors made to take off their hinges to economize space. Shelf as dotted line. Length, 4 feet; front to back, 2 feet; height, 2 feet 6 inches.

Cupboard 2. Instrument Cupboard (doors open in fig. 5). Eight shelves, all interchangeable, and made to fit on one side entirely for travelling. The other half of the cupboard may now be filled with dressings. Length, 3 feet; front to back, 2 feet; height, 2 feet 6 inches.

Cupboard 3. Two Anaesthetic Tables (for details see Appendix IVa). When unloaded the cupboard serves as washing bench for surgeons. The jugs and waste-water pails stand inside. Length, 3 feet; front to back, 2 feet; height, 2 feet 6 inches.

Cupboard 4. Splint rack. Three compartments: (a) Long splints, thigh; (b) short splints, arm; (c) leg splints. Length, 4 feet; front to back, 2 feet; height, 4 feet.

Shelves: 1A, 1B; 2A, 2B; 3A, 3B. Shows method of packing. For details see Appendix IVb. The shelves are fitted with dowels on their under surface which fit into slots cut in the piece below. For use see fig. 5.

dressings are sterilized in Schimmelbusch drums, of which six complete sets are carried.

In all, sufficient dressings for 500 operations may be stored in the trailer.

Lotions are made up in quart bottles and packed in a specially

¹About 150 major cases—two surgeons and four tables.

designed case fitted in one of the shelves. Boiled water and saline are taken in sterilized petrol tins. The instruments are packed in "bandoliers," made by stitching together webbing straps from the field fracture box, which are strapped on to the shelves of the cupboard. If necessary, the eight shelves can all be placed on one side, thus allowing the rest of the cupboard to be filled with dressings.

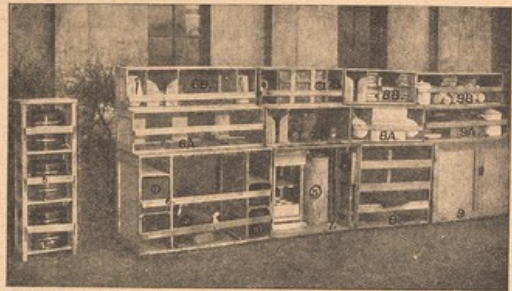


FIG. 4.—Contents of right hand side. No. 5 stands across the far end of the vehicle.

No. 5. Stand for copper cauldrons. Each cauldron may be conveniently boiled up on a Primus stove.

No. 6. Primus cupboard, tin-covered top. Shelves for Primus stoves. (1) Metal stand which takes Primus stove and supports sterilizer (2) in 7b. The paraffin and methylated spirit are carried in petrol tins (3). The central space may also carry four anaesthetic stools (4) in 7. Length, 4 feet; front to back, 2 feet; height, 2 feet 6 inches.

No. 7. Anaesthetic cupboard. Two tables advisable. The generator of "atoz" acetylene lamp (5) may be carried in the lorry. Anaesthetic stools (4) carried in No. 6. Length, 3 feet; front to back, 2 feet; height, 2 feet 6 inches.

No. 8. Cleaning materials cupboard. Solid top, movable bars. When empty used for scrubbing mackintosh sheets, etc. Carries pails, cleaning materials, mackintosh sheets, blankets, etc. Length, 3 feet; front to back, 2 feet; height, 2 feet 6 inches.

No. 9. Dressings cupboard. Identical with No. 1. Sterilized dressings carried in pillow slips.

Shelves: 6A, 6B, 4 feet lengths; 7A, 7B, 8A, 8B, in use in fig. 5, 3 feet; 9A, 9B, 4 feet lengths.

Three¹ anaesthetic tables and folding stools are packed into two cases, which, when unpacked, can be used as surgeons' washing-up benches. The bottom shelf of all three anaesthetic tables contains nine com-

¹Further experience has shown it is advisable to increase the number to four.

partments, each of which will hold a two-pound bottle of chloroform or ether. Two other shelves contain the anæsthetic apparatus, masks, gauze, etc.

The remainder of the cupboards comprises: (1) a tin-covered table with pigeon-holes for Primus stoves and compartments for petrol tins filled with oil and methylated spirit; (2) a cupboard for cleaning materials, dirty dressing, pails, etc.; (3) a rack for splints; and (4) a stand for the lotion copper cauldrons which are so valuable an addition to the theatre equipment. Two longitudinal bars are fitted to two movable transverse bars and prevent lateral movements during the journey.



FIG. 5.—Wallace Cowell Trailer furniture in actual use, with regulation pattern table, operating and case (1), 1 foot; (2) anæsthetic table and stool, 2 feet; (3) dressings cupboard—top used as a table; (4) instrument cupboard—the doors are now made to lift off and thereby save space; (5) tier of shelves, 3 feet length; (6) lotion case—iodine and concentrated solutions in quart bottles; (7) shows method of introducing bowls into compartment; (8) marmites—different sizes—carried in 8 A and B, 9 A and B, 1 A and B; (9) cauldron stand. The four-foot length shelves are also placed where required and make convenient linen cupboards, with tops useful as table.

The sectional shelves are made to fit one above the other, and may be conveniently built up in any order that may be desired to form dressers or small cupboards. Used in this way they are particularly useful in tents where it is impossible otherwise to utilize the walls for shelves. When packed in the superstructure the double tier of shelves rests on the tops of the cupboards. Each row is kept in position by

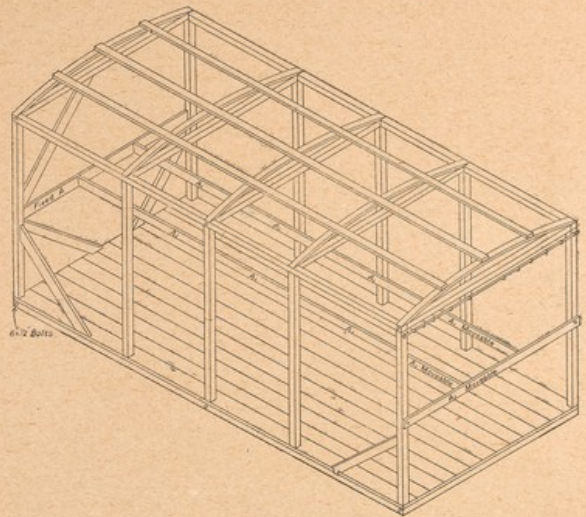


FIG. 6.—Framework of "superstructure" or "body." Tracing of isometric projection (not showing furniture). Scale $\frac{1}{4}$ inch to the foot.

Details.—Framing, pitch pine, 2 $\frac{1}{2}$ inches by 2 inches; braces, pitch pine, 2 $\frac{1}{2}$ inches by 1 inch; roof-laths, pitch pine, 2 $\frac{1}{2}$ inches by $\frac{1}{2}$ inch; fixed bar A, pitched pine, 2 $\frac{1}{2}$ inches by 1 inch; portable bars A1, pitched pine, 2 $\frac{1}{2}$ inches by 1 inch; floor T and B, red pine, 6 inches by $\frac{1}{2}$ inch. Structure to be covered with canvas and have greased cloth windows as shown in plan and elevation. Frame and canvas doors will replace curtain at tail end. Length 14 feet, width 6 feet 6 inches, height 5 feet 10 inches, 6 feet 6 inches in centre.

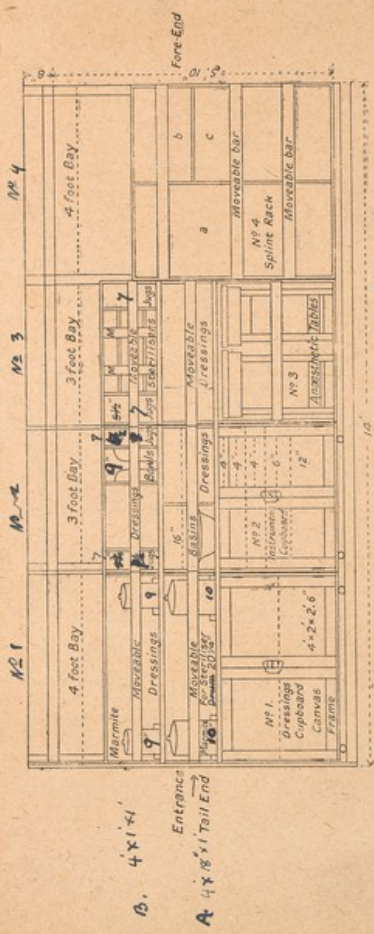


Fig. 8.—Longitudinal section showing details of furniture of left-hand side. (Compare photograph, fig. 3.) Scale 3/4 inch to the foot.

Details.—(1) All ends, backs, doors, and shelves to be framed and have canvas panels. (2) Cupboards Nos. 1, 2, and 3 to have solid tops and bottoms. Other tops and bottoms to be framed and 1 inch panels. (3) Shelves carry movable bars. (4) Shelves in No. 4 Cupboard are interchangeable and fit one above the other. (5) All top sections (shelves) to have one-inch dowels in underside to hold in position when travelling. (6) Cupboard No. 3 carries two anaesthetic tables.

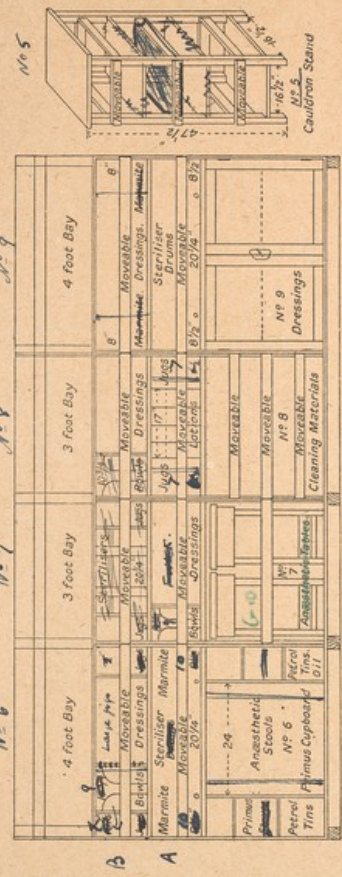


Fig. 9.—Longitudinal Section, right-hand side. (Compare with photograph, fig. 4.) Scale 3/4 inch to the foot.

Details.—No. 6. Trimmis cupboard, solid top, tin covered. Compartments carry stoves and oil in petrol tins. Centre carries anaesthetic stools. No. 7. Trimmis cupboard, solid top, tin covered. Compartments carry stoves and oil in petrol tins. Centre carries anaesthetic stools. No. 8. Solid top, movable bars. No. 9. Solid top, movable bars. These cupboards are held in position when travelling by movable longitudinal bars which fit into the transverse bars—also movable—shown in the isometric projection. No. 5. Stands under the end window and carries the three copper cauldrons. A point-of-light (not shown) is placed on the front of the third; a gas-sensing and lighting stand (not shown).

3rd 12" x 3' x 3'



APPENDIX IV.
INVENTORY OF CONTENTS OF FURNITURE.

A. Cupboards—Left Hand Side.

No. 1. Dressing Cupboards (contents sterilized):—
 Bottom shelf Overalls, 12, packed in pillow case 2
 (see Note 1) Towels (144 triangular bandages) .. pillow case, 1 6 doz. T.
 Swabs (450 per pillow case) 2
 Cellulose (96 pieces per pillow case) 1/5
 Top shelf Gauze (150 pieces per pillow case) 3
 Gauze rolls (18 per pillow case) 1
 Many-tailed bandages, 30 1

No. 2. Instrument Cupboard:—
 Left-hand side Eight shelves, instruments strapped in bandoliers.
 Below: Strapping, 3 dozen reels; syringes; instruments,
 operating, 1 case; needles; ligatures; gloves;
 safety pins, etc. *scalpels, sissors*
 Right-hand side Small Schimmelbusch drums packed 12
 (see Note 2) Field medical cards, pencils, operation book.

No. 3. Anesthetic Case (2 tables):—
 Each table consists of top tray—
 Masks, 2; gag, tongue forceps, etc.
 Drop bottles, list, hypodermic syringes, pituitary extract,
 brandy, antitetanic serum, etc.
 Middle tray—
 Gauze for masks, Shipway's apparatus, etc.
 Lower tray—
 18 lb. chloroform in 2-lb. bottles.

No. 4. Splint Rack (see Note 3):—
 Thomas's hip splints 12
 Liston's long splints 12
 Back splints, leg 24
 Arm splints, various 36
 Tow for padding splints 1b. 50

Right-hand Side.

No. 5. Cauldron Stand:—
 Three copper cauldrons carried empty.

No. 6. Primus Cupboard:—
 Shelves .. Primus stoves 6
 Paraffin in petrol tins 2
 Methylated spirit in petrol tins 1
 (Candles (matches) brushes (scrubbing), soap, etc.)
 Centre .. Atoz acetylene lamp (see Note 3).
 Acetylene lamp, hand 2
 Hurricane lamp 1
 Dressings (see Note 2).

The four anesthetic stools may be carried here instead of Cupboard No. 7.

No. 7. Anesthetic Case:—
 *One table (see No. 3).
 Stools, folding 3
 Generator of Atoz lamp (see Note 3).
 Jar of irrigator 1

*Two tables now carried (see Note under No. 6, p. 4).

B. Shelves—Left-hand Side.

No. 8. Cupboard for Cleaning Materials (see Note 5):—
 Bath for washing mackintosh sheets; pails, boilers, &c.;
 blankets, 3; mackintosh aprons, &c.; dirty dressing
 pails, 2.

No. 9. Dressing Cupboard (see Note 1):—
 Identical with No. 1.

Right-hand Side.

No. 1A. Marmites, large size (gloves) ✓ 2
 Schimmelbusch drums, large 2
 ✓ Bandages, 3-inch, packets of 10 16
 Inventory board.

No. 1B. Marmites, small size (ligatures, etc.) ✓ 2
 Wool, 1-lb. rolls (see Note 6) 12
 ✓ Bandages, triangular, packets of 10 (see Note 7) 16

No. 2A. Bowls, enamel, 16-inch ✓ 3
 ✓ Bandages, triangular, packets of 6 (see Note 7) 6
 No. 2B. Jugs, enamel, 1-pint ✓ 4
 ✓ Bowls, enamel, 8-inch ✓ 6
 ✓ Bandages, 3-inch, packets of 10 (see Note 7) 26
 No. 3A. Instrument trays, largest size ✓ 6
 ✓ Gauze rolls, bundles of 12 20
 No. 3B. Schimmelbusch sterilizers (see Note 8) 1
 ✓ Instrument trays, small ✓ 6

No. 6A. Marmites, large, Lane's infusion bags, etc. ✓ 2
 ✓ Schimmelbusch drums, large 2
 ✓ Bandages, 3-inch, packets of 10 20

No. 6B. Bowls, enamel, 10 1/2-inch ✓ 3
 .. small sizes ✓ 3
 Methylated spirit cans, small 2
 Jugs, 2-pint 2
 Wool in 1-lb. rolls (see Note 3) 10

No. 7A. Kidney dishes, various ✓ 12
 ✓ Gauze rolls, in packets of 12 16

No. 7B. Schimmelbusch sterilizers (see Note 8) 2
 Jugs, 1-pint (see Note 3) 2

No. 8A. Lotion bottles, 2-pint, screw top (see Note 3) 6
 ✓ Jugs, largest size 2

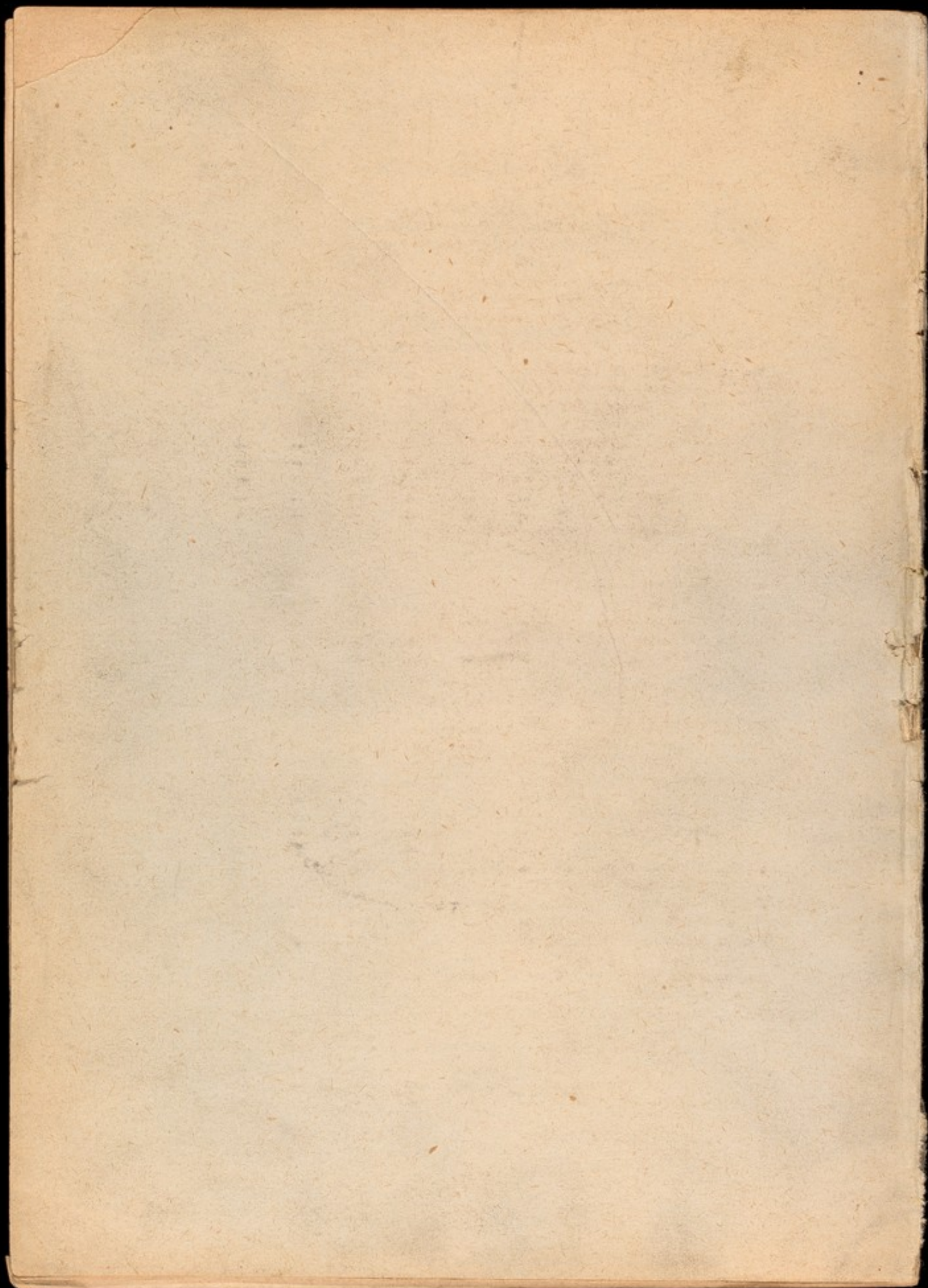
No. 8B. Bowls, enamel, 10-inch, and various ✓ 12
 ✓ Cellulose, 1-lb. rolls 10

No. 9A. Marmites, large, Carrel's tubes, etc. ✓ 2
 Schimmelbusch drums (see Note 7) 2
 Bandages, 3-inch, packets of 10 (see Note 3) 16

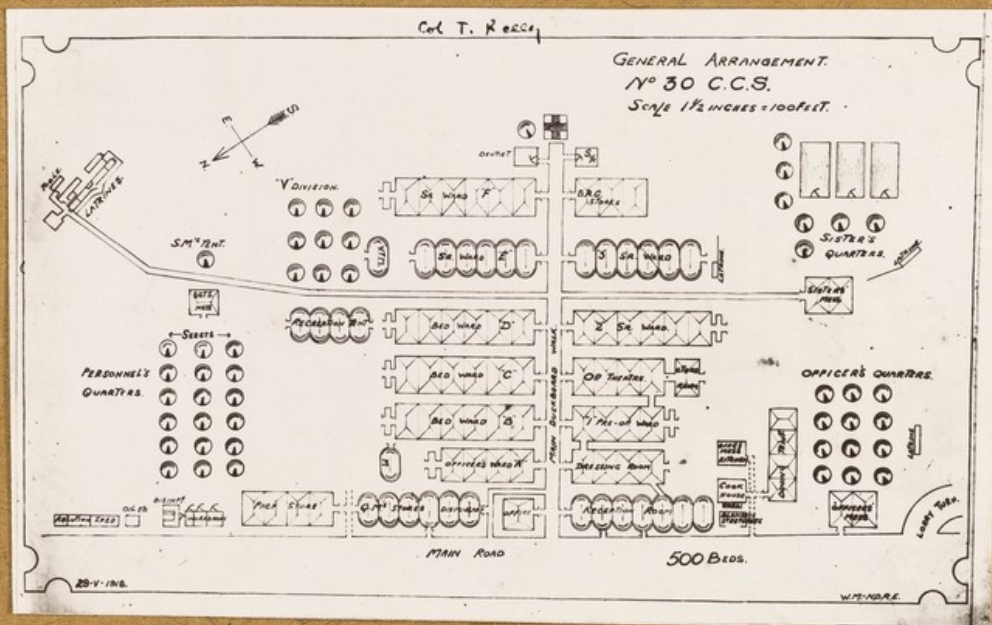
No. 9B. Marmites, small, Higginson's syringes, etc. ✓ 2
 Bandages, 3-inch, packets of 10 20
 Cellulose rolls 10

NOTES.

- (1) Dressings are most conveniently packed in double pillow cases—each when full weighs 5 lb.—and sterilized in the Thresh apparatus. The cupboards will hold double the amount, if necessary.
- (2) Only if urgently required.
- (3) Double quantities, if necessary.
- (4) May be packed with dressings.
- (5) Should be loaded early. This cupboard now has a solid top and portable bars in front, so that this does not apply any longer.
- (6) Eighteen rolls, if necessary.
- (7) If required.
- (8) Room for three.

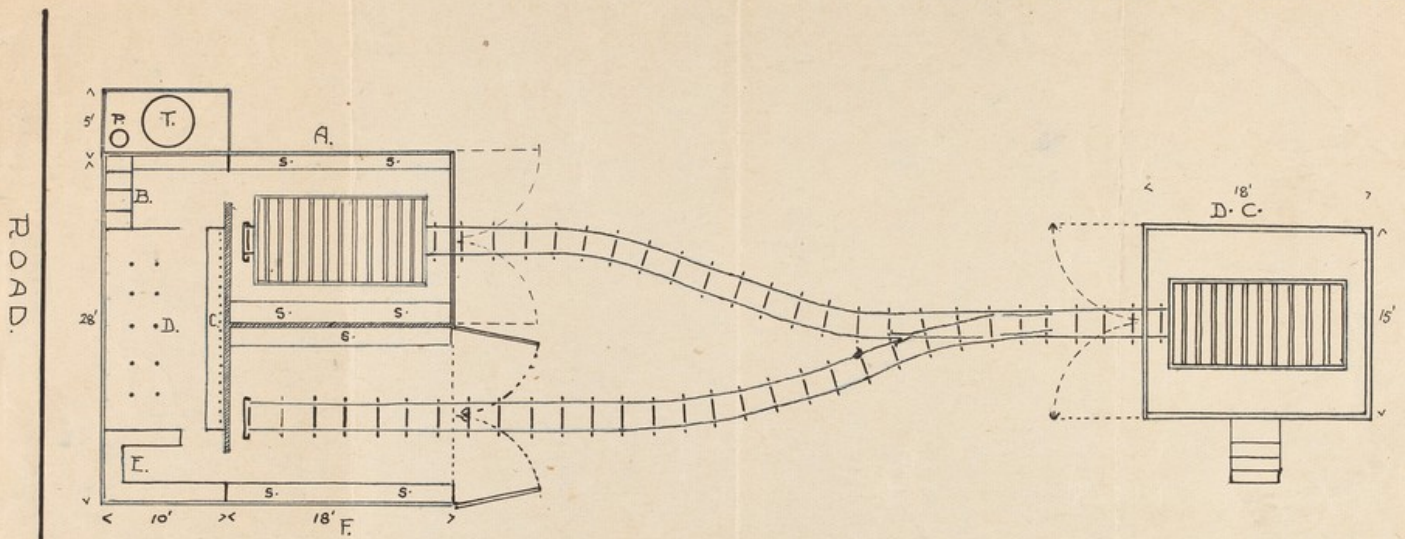


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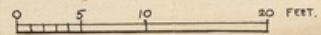
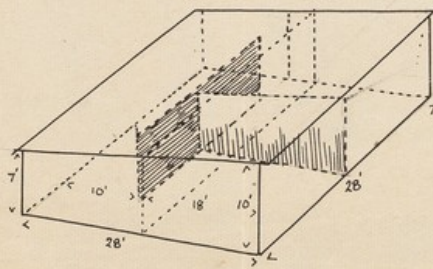


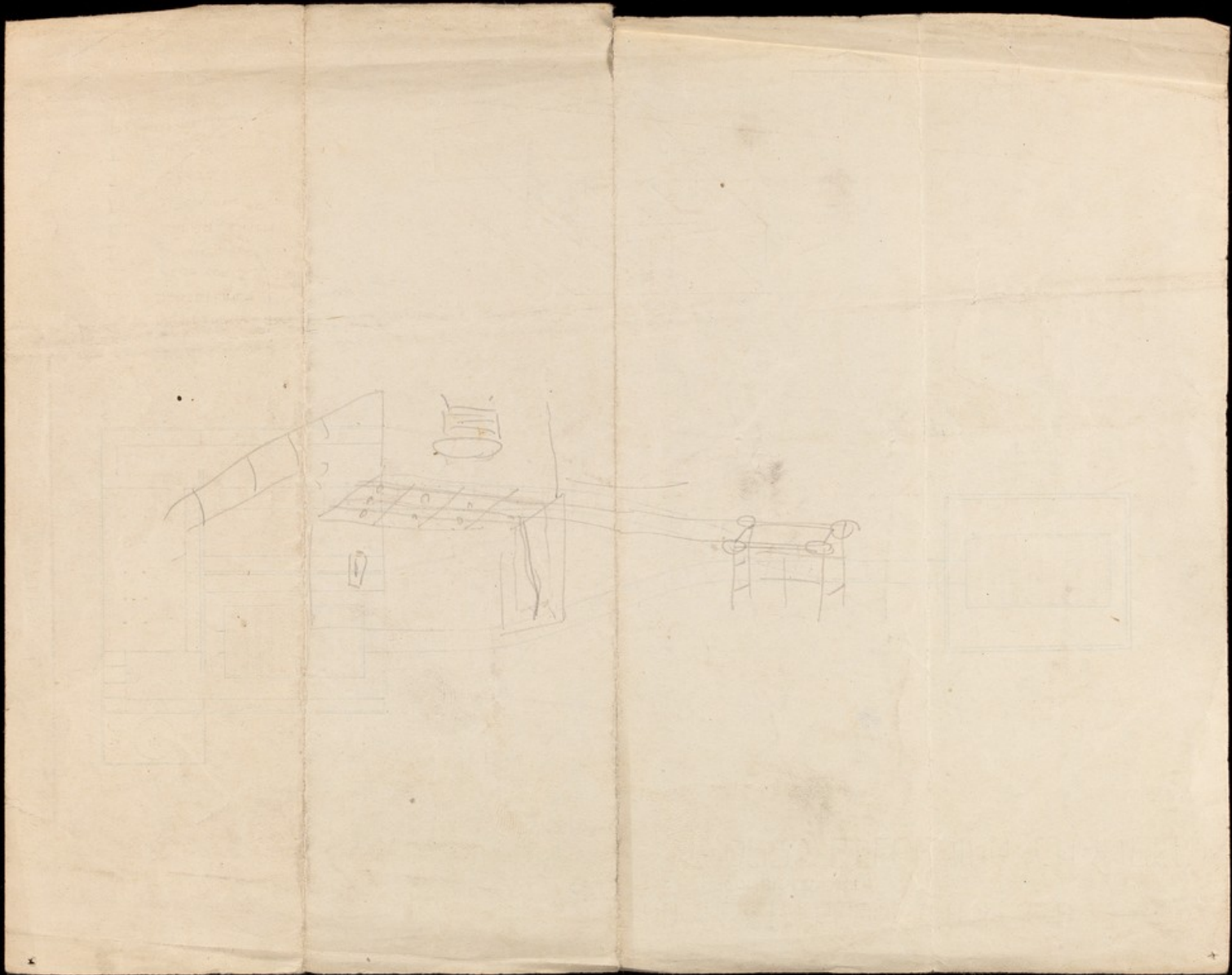
14

PLAN OF BATH-HOUSE N^o 1 C.C.S. —
 COMBINED WITH
 ORR'S DELOUSING CHAMBER.

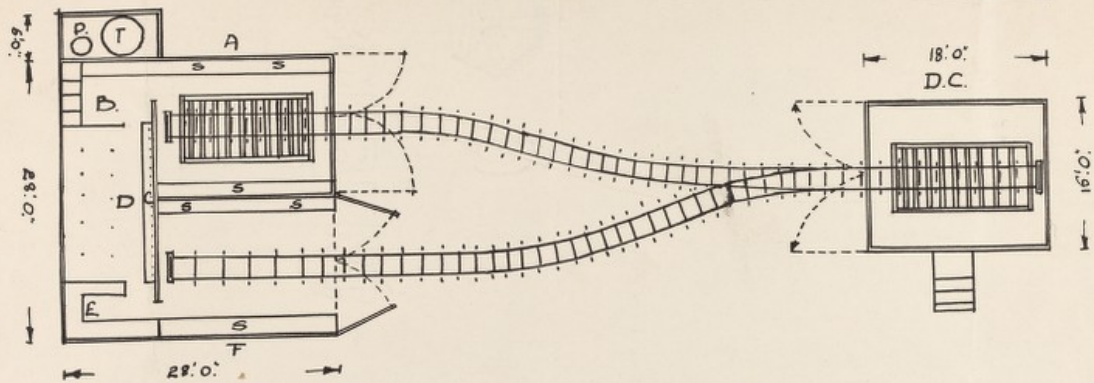


- A. UNDESSING ROOM.
- B. SOILED LINEN BIN.
- C. PEGS FOR S.D. BAGS.
- D. SPRAYS.
- E. CLEAN LINEN
- F. DRESSING ROOM.
- S.S. SEATS
- T. WATER TOWER.
- P. FIRE.
- D.C. DELOUSING CHAMBER.

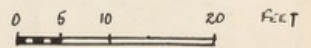
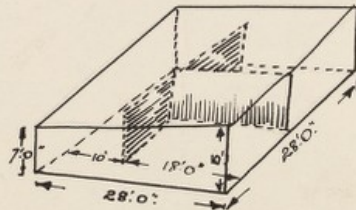




PLAN OF BATH-HOUSE COMBINED
WITH ORR'S DELOUSING CHAMBER.



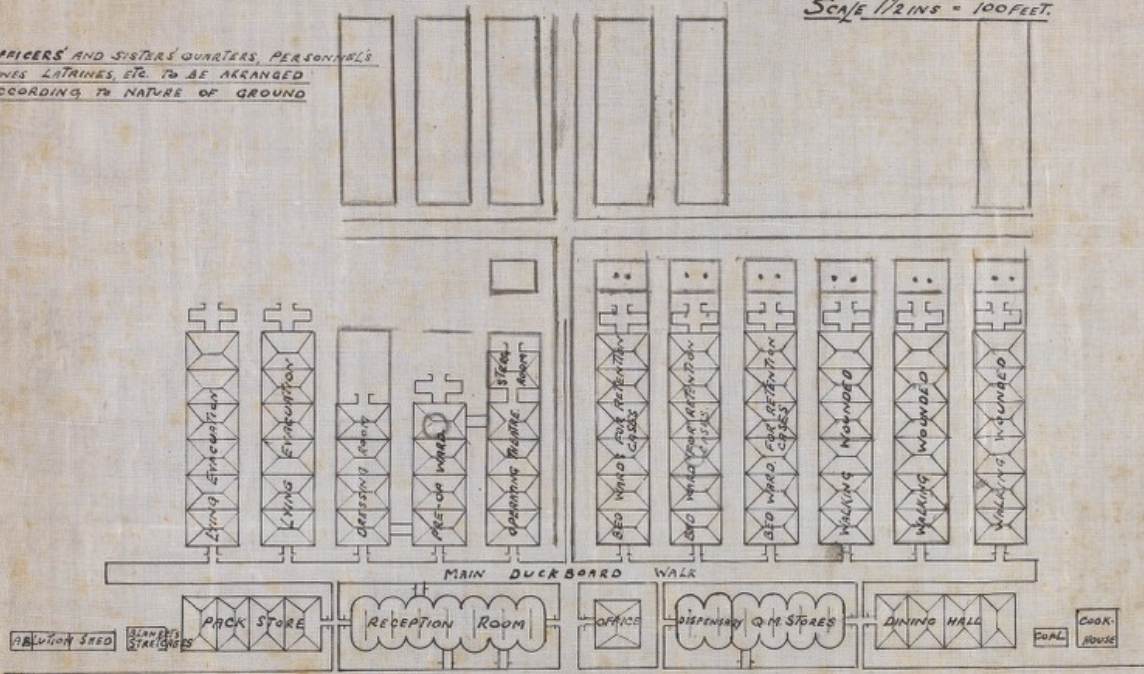
- A. UNDRASSING ROOM.
- B. SOILED LINEN BIN.
- C. PEGS FOR S.D. BAGS.
- D. SPRAYS.
- E. CLEAN LINEN
- F. DRESSING ROOM.
- S.S. SEATS.
- T. WATER TOWER.
- D.C. DELOUSING CHAMBER.



Designed Jan 1918
S.M. Lowell
D.D.M.S. 2 CORPS.
S.M.C.

PROPOSED ARRANGEMENT
OF A C.C.S.
SCALE 1/2 INS = 100 FEET.

OFFICERS' AND SISTERS' QUARTERS, PERSONNEL'S
LINES LATRINES, ETC. TO BE ARRANGED
ACCORDING TO NATURE OF GROUND



JUNE 27 1918.

V.M.N.D.R.

Report on the 'Twin-Table' System in use in the Operating
Theatre of No. 23 C.C.S. April - August 1917.

During the pressure of work in April and again in August of this year, the 'Twin-Table' system has been thoroughly tested and proved most satisfactory. By this ~~system~~^{method} the Surgical Team can perform the maximum amount of operative work in the minimal time.

From April 9-11, ^{APRIL} the theatre was run continuously for 44 hours; 3 Teams were working 16 hours 'on' and 8 'off'. During this time a total of 229 cases were operated on, approximately 25% of the wounded admitted.

Only the more serious wounds were dealt with therefore - ~~a few~~ abdominal cases, compound fractures and multiple wounds. Wounds of the limbs were dealt with in the proportion of 2 lower to 1 upper. Including stops for meals, this gives an average of 2.6 cases per team per hour.

Excluding rests and meal stops, one team working a total of 24 hours operated on 107 cases, which equals 4.5 cases per team per hour. These cases included the bulk of the heavier cases. The general line of treatment was free incision and introduction of Carrel-Dakin tubes.

In August, 3 teams worked simultaneously for 12 hour stretches by day and a fourth team operated at night, being reinforced by a day team if necessary. This arrangement was more satisfactory, since 16 hours continuous work in the theatre, day after day, is too great a strain on the sister and orderlies-even if the surgeon can stand it.

It was found that the longer the team had been operating ~~the~~ without adequate rest, the less work per hour it did.

The pressure of work was not so great in August, and it was found possible to deal with from 45-50% of the wounded admitted without delaying their evacuation. This is only some 10% short of 'peace' figures.

The Team already quoted, in a total of 32 hours actual ~~operating~~^{work} - excluding meals and sleep- operated on 102 cases, which equals 3.25 cases per team per hour. The same class of case as before was dealt with, but in place of incision and drainage, excision and suture was performed in the bulk of the cases.

The general working of the Theatre Block may readily be appreciated by reference to the appended figures. In plan No.2 the detail arrangement of operating tables and theatre furniture may be seen.

In the Waiting Room the patients are got ready for the Theatre in the usual way. A routine hypodermic injection of morphia and atropine (gr.1/6 & 1/100) is given unless contraindicated. This is a great comfort to the patient, ^{while he is waiting operation;} saves time in the induction of anaesthesia and lessens the amount of anaesthetic required. In addition, when he is evacuated to the Base a few hours ^{later} ~~after operation~~, the journey is rendered less trying.

In the Theatre itself the 60 feet by 18 feet available space is apportioned as follows. The first 12 feet are partitioned off to form a room where mackintoshes are washed, splints are stored, sterilising is done and patients' stretchers with their boots are kept. The remaining 48 feet is divided equally between the three teams. The six tables are placed at rightangles to the long axis of the hut, so that a gangway is left as seen in plan No.2. By using moveable screens on castors it is found that this allotment of 16 feet is ample for the 'Twin-Tables'. Twelve feet are sufficient for table No.1 at which the surgeon is actually operating, while the remaining four feet allows a stretcher to be carried alongside table No.2, on which the next patient is anaesthetised and cleaned up. After each operation the space is readjusted by moving the screen and instrument table over; so that the four foot now becomes the twelve foot space, and vice versa.

In order to watch the progress of the work, a small blackboard is

kept in a prominent place in the theatre ^{on which} and the number of patients waiting operation is chalked up every hour.

Personnel.

The personnel that has been allotted to the Theatre is proportionately large, but is necessary in order to cope rapidly with large numbers of wounded. Each of the four teams working on 12 hour shifts is constituted as follows.

Surgeon.	Anaesthetist.	Sister.	NCO Clerk.	RAMC Orderlies.	Bearers.	Total.
1	1	1	1	2	3	9

The two bearers bring in the cases from the Waiting Room and after operation carry them 30 yards to the Evacuation Wards. The third bearer mops up the floor after each case, removes dirty towels and scrubs waterproof sheets, leaving the RAMC orderlies free to sterilise instruments and clean up the patient.

With three teams working simultaneously it will be seen therefore that 27 people are present at the same time. The arrangement of tables and furniture leaves ample room for however for every one to move about without getting in each others way.

June 25
1917
S/MC

Analysis of a Thousand consecutive Operations at a C.C.S.

- A. 500 'Battle cases' April 9-30 1917.
- B. 500 'Peace cases' May 1-June 24 1917.

Class I. Superficial Flesh Wounds. Treated by incision and drainage.

Single Wounds.		Upper Limb.		Lower Limb.		Total.
Conservative.	Amputation	Conservative	Amputation	Conservative	Amputation	
Shoulder	9-21.			Buttock.	29-33.	
Arm	11-23	Arm .	1-0	Thigh	42-52.	Thigh 3-1.
Forearm	4-14			Leg	48-42.	Leg 3-4.
Hand	6-7.			Foot	9-5.	
Multiple Wounds.				Both lowers		22-28.
Both uppers		3-1.		U. & L.		31- 9.

Totals..... 32-66..... 179..... 179-169..... 6-5. 318-249
456

Class II. Compound Fractures. Treated by free incision- Carrel-Dakin.

Upper Limb.		Lower Limb.	
Conservative	Amputation	Conservative	Amputation.
Clavicle.	2-2.	Pelvis.	1-5
Scapula.	4-8.	XFemur.	38-19. Thigh 11-3
Humerus.	23-17.	XTibia.	25-27. Leg 16-10.
	Arm... 3-3.	Fibula.	7-10.
Radius.	6-7.	Both	8-2.
Ulna	4-5.	Foot	3-3. Foot. 6-1.
Both	3-5.		
Hand	3-11. Fingers 4-8.		

Totals 45-55..... 11-16..... 82-66..... 27-17.... 175-154

Class III.

Joints. Treated by Arthrotoomy-lavage-generally suture.

Upper Limb.		Lower Limb.	
Conservative	Amputation	Conservative	Amputation
Shoulder	1-2	Knee	26-14. Knee 2-6.
Elbow.	9-8.	Ankle	3-8.
Totals.	10-7.		39-22..... 2-6..... 41-35

329.

76.

Class IV. Wounds of the Trunk.

Abdominal penetrating.	12-4.		
Appendicectomy superficial	0-2.		
Appendicectomy.	4-5.		
Genito-Urinary	5-3.		
Chest penetrating	2-2.		
" superficial	5-4.		
Back	9-11.		
Totals.....	43-29.....		43-29

72.

Class V. Wounds of Head and Neck.

Scalp...	4-3.		
Jaw	2-5.		
Face	5-13.		
Neck	6-8.		
Penetrating Skull	1-4.		
Removal of Eye	5-6.		
Totals.....	31-36.....		31-36

57.

Class VI. Wounds of large blood vessels and nerves.

Bloodvessels	2-5.		
Nerves	1		
Multiple wounds already included under one of the above			12-10
			61-70

Op. Ser.

Move to
Escadovres

1 ces

Op. Ser.

W.D. 2.

DMs

Cons. Sup.

REPORT ON THE MOVING OF A CASUALTY CLEARING STATION EQUIPPED
FOR 500 PATIENTS.

To ensure the move being carried out quickly and smoothly, the lorries were numbered and grouped as they arrived (a total of 50 lorries, 25 each day). The loading of each group was entrusted to a N.C.O., who was made responsible that the unloading was carried out at the right spot on the new site, in order to save unnecessary handling later.

The same loading parties were told off as far as possible to each lorry on the occasion of every move. Cards 1 - 50 were drawn up and kept ready for use - Appendices II, III & IV. The men thus became familiar with their work and were able to load rapidly and skilfully, putting the greatest bulk into the smallest space.

As regards time taken, the hospital when pitched as an ordinary tented C.C.S., of sufficient size to hold 500 serious cases, could be dismantled and got ready for loading in from 10 - 12 hours in fine weather. This time has also been kept by parties working all night in the moonlight. In putting up the tentage, the un-reinforced personnel could only lash the marquees in fives slowly, so that 36 to 48 hours elapsed before all the wards were ready to be equipped. This however could be done in from 2 to 4 hours. With a larger personnel, working in day and night shifts, and double the transport, (i.e. 50 lorries in one day) this time can be halved. But for practical purposes it was found possible to evacuate the patients, take down the marquees and transport them 20 - 30 miles over bad roads, re-pitch and open on the fourth day.

A 446

APPENDIX IILoads of Equipment sufficient for 500 bedded Tented G.C.S.

<u>No. of Lorry</u>	<u>Contents</u>	<u>Lorry Loads</u>	<u>Personnel</u>	<u>Remarks</u>
1	Cook - House	1	2 * 1	N.C.O. 1/o. { Inclusive of 1000 lbs
2	-"-		7 Men	
3	Pioneers	1 * 1/2	1 N.C.O. 3 Men	
4	Operating Theatre	2 * 2 1/2	1 N.C.O. 6 Men	{ Theatre Band Complete Barracks C.I. Set
5	-"-			
6 - 17	Tentage	12 1/2 * 5	2 N.C.Os. 30 Men.	Canvas Bottoms.
18 - 21	Stretchers	4 2 * 2	1 N.C.O. 8 Men	Total 800
22 - 24	Blankets	3 * 2	1 N.C.O. 6 Men	Total 2000 (rolls of tents)
25	Office & Sgts Mess	1 * 1	1 N.C.O. 4 Men	Load 100 lbs 200 lbs
26	Dispensary	2 1 * 1	1 N.C.O. 4 Men	
27	-"-			
28	Officers & Sisters Mess	1 * 1	4 men	
29 - 32	Stewards Store	4 } 3 * 2	1 N.C.O. 6 Men.	Including 1000 Res. Rat.
33 - 35	Utensil Store	3 } 2 * 1	1 N.C.O. 6 Men.	Including 50 G.S. Panniers.
36 - 38	Linen Store	3 } * 1	4 Men	Including Clothing
39 - 43	Beds & Bedding	5 * 1	4 Men	120 Beds 200 Pillows
44	Oil, Coal & Petrol	1 * 1		
45 - 48	Tables & Forms	4 2 * 1	1 N.C.O. 10 Men.	Spare space Packed with Stretcher pillows
49	X Ray	1	3 Men	
50	Ablution	1	4 Men	Tables, bowls &c.
	Duckboards	5		500
	Floorboards	10		Sufficient for serious wards.

36 (21)

(129)

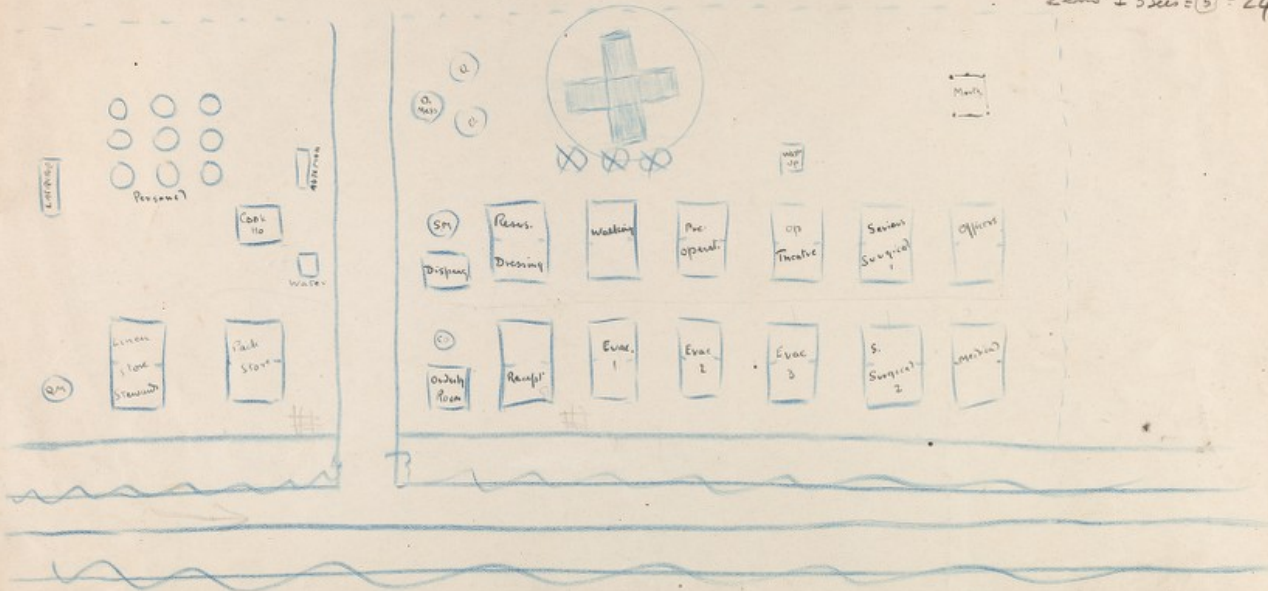
2 parcels

Adv. CCS (200 Stretchers)

1 Sec = 6 Amb

2 Amb = 1 Tent = 6

2 Amb + 3 Sec = 18 = 24 Amb

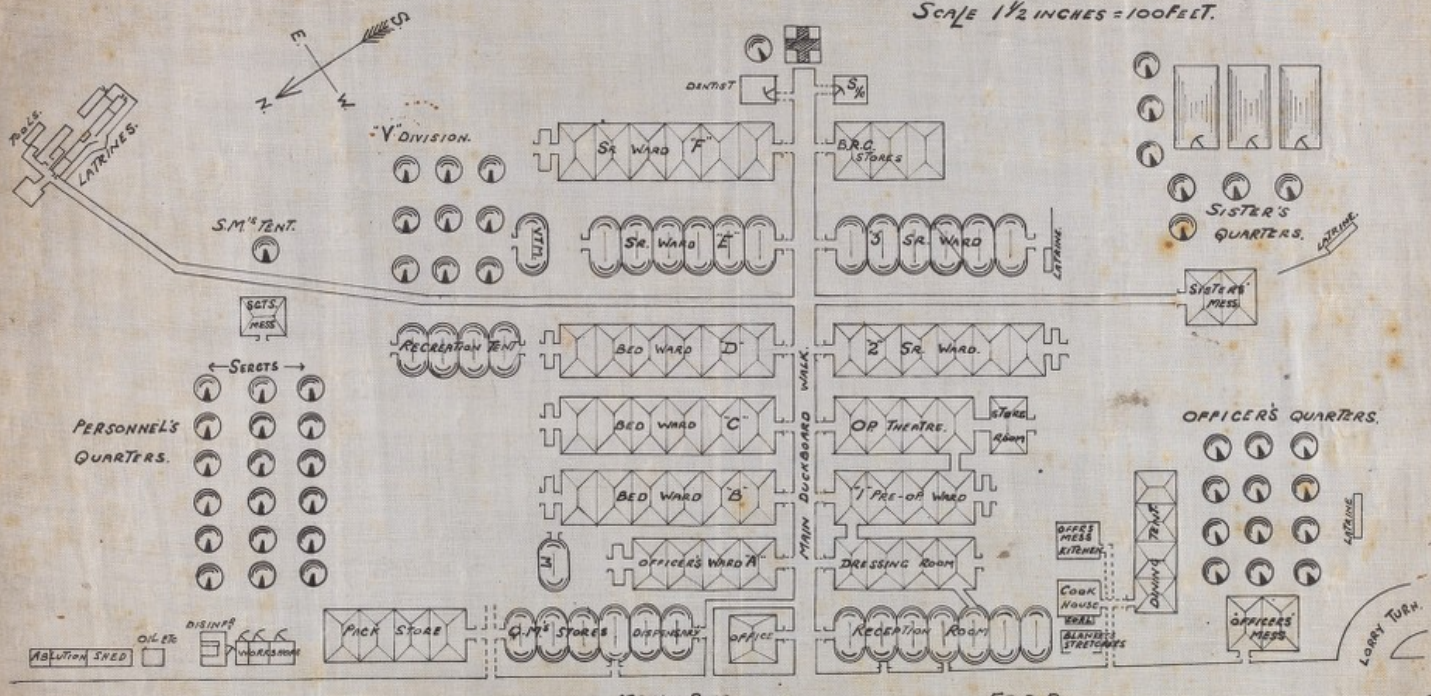


No	Name	Missile	Treatment	Open or Closed	Antiseptic Used	Days in CCS	CCS Result	Base	England
1	Pte. DeLyra.	Shell casing	Arthrotony, irrigation	Sutured	Saline 5%	2	-	-	healed first intention
2	Pte. Drake.	Grenade	do.	do.	do.	2	-	-	do.
3	Pte. Bangloo.	Grenade	do.	do.	do. (same)	1	-	-	do.
4	Rflm. Holey.	Shell casing	do.	do.	do. 5%	7	-	-	healed. Small shell above
5	Snr. Bolton	do.?	do.	do.	do.	30	-	-	Repaired from England as Perfect Result.
6	Sgt. Hodgson	Bullet?	do.	do.	do.	3	-	-	movement 90% & no the later
7	Pte. Heron.	Trunk broken limb	do.	was. pate extem.	Essal + Saline	23	-	-	movement limited.
8	Sgt. Burgoin	H. & casing	do.	Suture	Essal + Saline	17	Septic	-	Stiff knee.
9	Rflm. Paice	Grenade	Transverse arthrotony	open	Salt. paste.	8	Clean.	-	Stiff knee.
10	Pte. Archer.	Shell casing	Arthrotony irrigation	Suture	Essal.	9	-	-	Requires further operation
11	Pte. Morris	do.	do.	Suture	Essal.	9	Suppuration around wound	-	Stiff probably stiff.
12	A.B. Viskery	Grenade	do.	do.	Essal + Saline	10	-	-	healed first intention. good movement.
13	Major Clark	Bullet	do.	do.	Saline	9	-	-	wound clean
14	P. Muekel	Bullet. Shrapnel.	do.	Sutured	?	2	-	-	healed first intention, promising Result!
15	A.B. Inman	Shrapnel casing	(Secondary hamuss arthrotony)	open & cast. plug.	?	12	-	-	good Result.
16	L. Gp. Whitehead	?	Arthrotony + irrigation	closed	Saline	14	-	-	amputated (Sepais)
17	L. Gp. Jones	?	Arthrotony	open	-	10	-	-	amputated (Sepais)
18	L. Gp. Jones	Shrapnel casing	Arthrotony	open	-	24	-	-	amputated (Sepais)
19	Lieut. Richardson	Bullet	Aspiration & excision of wound. Cast	indirectly open per Tibia	-	5	-	-	amputated (lower) for Sepais.
20	Pte. Lambourgh	Grenade Tibia	Excision of Tibia & Cast Treatment	do.	-	12	-	-	died - Broncho-pneumonia (Knee joint showed early infection)
21	Pte. O'Hara	Shrapnel casing	Arthrotony + irrigation	Sutured	Essal.	10	-	-	good Result movable joint

compriso
for rent

Col. T. Kelly

GENERAL ARRANGEMENT
No 30 C.C.S.
SCALE 1 1/2 INCHES = 100 FEET.



29-V-1918.

W.M.-N.D.R.E.



No 23 Cds

Lozengh

Sept 1915 For Love

"Hypelens"

