

APPENDIX No. 10

SOME CONSTANT FACTORS WHICH DETERMINE THE ARRANGEMENTS REQUIRED FOR THE TRANSPORTATION OF BATTLE-CASUALTIES

(i) THE PROPORTION OF STRETCHER CASES TO OTHERS

As was observed in the text¹ it is difficult to set any exact figure for the relative proportion of stretcher cases, "sitters" and "walkers"—the two latter commonly constituting the "walking wounded." Thus, two Field Ambulances cited in the *British Official Medical History*² reported "walking cases" as comprising 16.2 per cent. and 44.2 per cent. respectively of "total evacuations" from 1st to 3rd July, 1916. In the second unit 34 per cent. were "sitting cases" and 21.8 per cent. "lying cases." Confusion is caused, for example, by failure to state the transport circuit to which the figures should apply. As with most questions relating to transport, the problem involves a number of variables, chiefly circumstantial, *e.g.* transport facilities (no man would walk if he could get a ride), proportion of sick to wounded, number of gassed cases, and so forth. The circumstances of each campaign, even of a battle, will influence the problem. No rule or any precedent can ever replace the need for adaptation to particular environment.

On the other hand, this is not to say that the human constants do not weigh. Quite apart from convenience, there must obviously be types of casualty for whom rescue, even to the R.A.P. and much more to A.D.S. or M.D.S., will require that they be carried on a stretcher. The figure has been set (*loc. cit.*) at 50-50, but this is not to say that a larger proportion of walking wounded need never be carried nor that a smaller proportion of stretcher cases could not otherwise be saved. Some data from various sources will help to a useful approximation.

In the Battles of the Menin Road and Polygon Wood (September, 1917), for the four divisions concerned not more than one-third of the total wounded passed through the A.D.S. for stretcher cases. Of 600 consecutive cases passing through this station on September 20th-21st, 350 were sent by the long "A" route to C.C.S.—some fifteen miles; 160 to the M.D.S. by the "B" route for immediate treatment for "shock, gas, haemorrhage, etc."; and 90 by the direct "C" route to C.C.S., chiefly for abdominals. Of 1,078 wounded passing through this station, 35 died at the station; 895 passed by the "A," "B," or "C" routes; and the remainder were sent on to C.C.S. without admission.

A ratio of 70 per cent. "sitting or lying down" to 30 per cent.

¹ *At pp 273-4*

² *General, Vol III, p 42*

"walking" for the circuits forward of the "transfer station" (to M.A.C.) is proposed in the *British Official Medical History*³ as a provisional estimate "until experience is gained of local conditions." The comparable figures given by the *German Official Medical History (Vol. III, p. 61)* are "68 per cent driving, 28 per cent. walking, and 4 per cent 'untransportable' (*sic*)."⁴ Of American casualties carried by motor ambulance waggon, 5 were carried "recumbent" to 7 transported "sitting."⁴ The B.E.F. ambulance teams "over a long period" carried 58 per cent sitting and 42 per cent lying. For a period covering both active operations and quiet times, 75 per cent of the sick, 90 per cent. of the wounded, and 81 per cent. of total sick and wounded required evacuation to the Base—the evacuation rising to 98 per cent. with active operations

(II) THE DISTANCE-TIME FACTOR IN THE EVACUATION OF WOUNDED

(a) *Report (slightly abbreviated) by the C.O., 7th Field Ambulance "A.D.M.S., 2nd Australian Division.*

NOTES ON DISTANCES WOUNDED TRAVEL

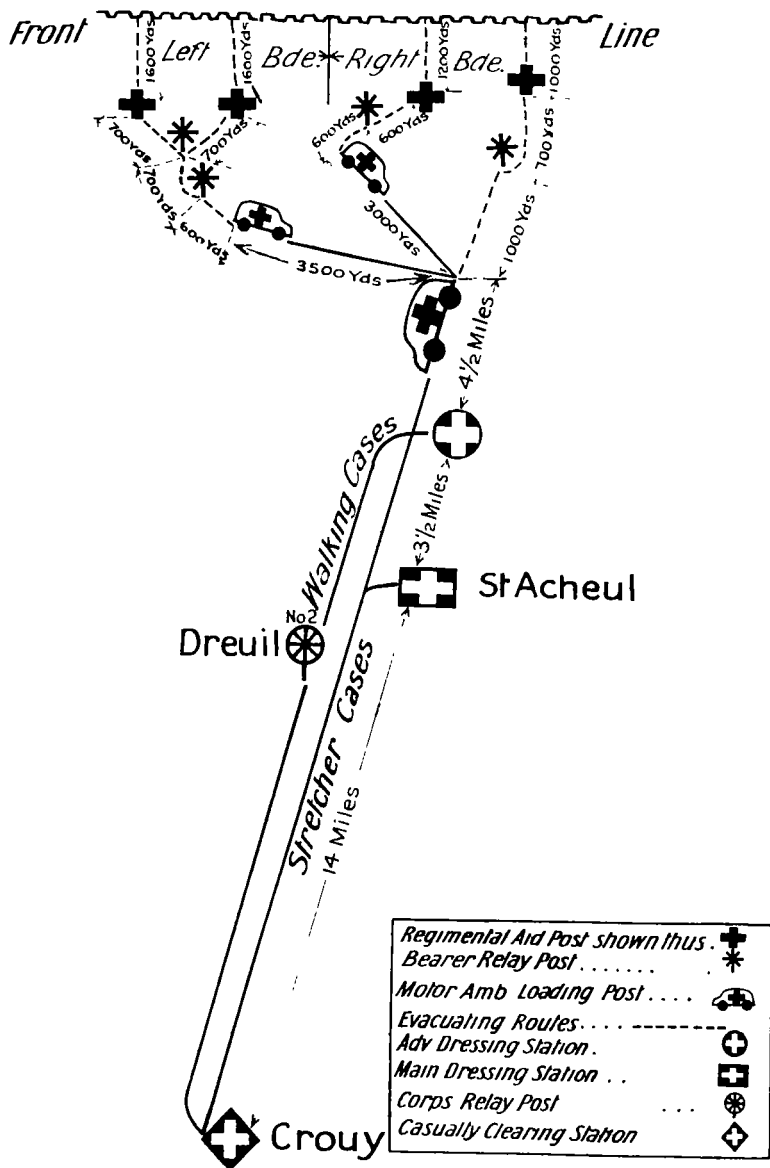
"It has always been a subject of interest in this Unit as to how long it actually takes for a wounded man to arrive at the C.C.S. where he can obtain sufficient operative treatment. Accordingly, in July, 1918, an attempt was made to have the time recorded on the medical card (*A.F.W. 3118*) of every patient passing through the Unit. The R.M.O.'s were all seen personally and the matter explained to them and also the ambulance M.O.'s and, in addition, the C.O. of the M.D.S. and C.C.S.'s expressed their willingness to record the cases. In addition, the number of times a case was re-dressed was recorded on the card. This proved of value in showing how few times a case need be re-dressed before reaching the C.C.S. The diagram gives a representation of the evacuation scheme. The distances are, of course, the great points of interest, together with the mode of conveyance. During this tour in the line, the chief object was to get men as quickly as possible to the C.C.S., and also that a minimum of dressings should be done. Urgent cases were not removed from the cars at the A.D.S., but were sent straight through from the Advanced Ambulance Post to the Main Dressing Station. It will be seen that, on the right, a soldier near the front line had to travel a distance of 24 miles, and on the left 25 to 26 miles, before obtaining effective operative treatment.

"The figures of times taken for the patients to proceed from the forward area to the C.C.S. are as follows:—

"750 cases actually had their times recorded on the *A.F.W. 3118*. Gas patients were not included in the records, as they were frequently detained for bathing and treatment at the M.D.S. Moreover, of these 750 cases, 200 were obviously detained en route for some reason, either because of the lightness of their wounds; or because of their severity—to permit of restorative measures being taken. Of the remaining 500 cases, the statistics are strikingly in accord. The variations in time are

³ *Statistical Volume, p. 44.*

⁴ *American Official Medical History, Vol VIII, p. 809.*



THE DISTANCE-TIME FACTOR IN EVACUATION SCHEME OF MOVEMENTS

due to the distance between the Advanced Ambulance Post (Motor Loading Post) and the place where the man was actually wounded. The time between the Advanced Ambulance Post and the C.C.S. is practically constant, and is about 4 hours, the first $1\frac{1}{2}$ being spent on treatment at the Advanced Ambulance Post, and the subsequent journey of 8 miles to the M.D.S.; the remaining $2\frac{1}{2}$ hours being expended in treatment at the M.D.S. and the subsequent journey of 14 miles to the C.C.S. Consequently, a man being wounded near a R.A.P. which was about 1 hour's journey from the Advanced Ambulance Post does not arrive at the C.C.S. until 5 hours have elapsed from the time of his being wounded. However, special cases, such as abdominal, often arrive at the C.C.S. in 1 hour less than this time, which, though satisfactory under present conditions, might be reduced by nearly 2 hours if an operating centre were nearer the line.

"The cases which arrived at the C.C.S. on July 4th, after the stunt of the capture of HAMEL, are of special interest. Zero hour was at 3.10 a.m., and the first cases arrived at the C.C.S. about 9 a.m. Owing to the early hour of the stunt, some considerable difficulty was experienced in collecting the wounded and the first Stretcher Cases arrived at the Advanced Ambulance Post about 5.30 a.m.— $3\frac{1}{2}$ hours later they were at the C.C.S. The average of $5\frac{1}{2}$ hours from the time a man was wounded till his arrival at the C.C.S. was maintained for the first batch of cases who were wounded near the jumping-off tape, but it gradually increased as the men got further toward their objective and finally reached about 9-10 hours for a few stretcher cases wounded just on reaching the final objective. Nevertheless, the time $3\frac{1}{2}$ to 4 hours from the Advanced Ambulance Post to the C.C.S. was maintained during the whole of the day.

"The cases arriving at the C.C.S. from the stunt on the evening of 7th July are also extremely interesting as regards time. On this occasion the Zero hour was fixed at 8.30 p.m., just at nightfall. It was a very dark night with enough rain to make some of the roads impracticable for the Ford cars and, in addition, made things very difficult for the horsed ambulances. The first cases arrived at the C.C.S. about 2.30 a.m., having taken about 7 hours. Owing to the darkness and the rain, the times between the Advanced Ambulance Post and the C.C.S. was increased to $4\frac{1}{2}$ to 5 hours, and the later cases of the stunt took 9-10 hours to arrive at the C.C.S. Had the weather conditions been favourable, the time would have been reduced considerably, as many of the cases were detained at the M.D.S. to allow of restorative measures being taken, as most of the patients were very wet and cold. In addition, another interesting fact was disclosed from the marking of the *A.F.H.* 3118 in the particular way described. Practically all the men were dressed by the Regimental Stretcher Bearers, but a large majority of these cases—about 90 per cent—were re-dressed by the R.M.O's, and acting on the Divisional Order, the majority of these cases were marked "OK. for C.C.S." After leaving the R.A.P., only about 10 per cent. of the cases were re-dressed at the Advanced Ambulance Post and the A.D.S., and about 20 per cent. were re-dressed at the M.D.S. In this way the majority of the cases were only re-dressed once, and about 30 per cent. twice, and very few more than twice before reaching the C.C.S. The Consulting Surgeons at both C.C.S.'s were interviewed about the condition of the cases arriving at the C.C.S., and they expressed themselves as well satisfied with the system as adopted.

"However, the main point for which the statistics were collected is as follows:—

"The distance from the M.D.S. to the C.C.S. is about 14 miles and at least 1½ hours in the car for a stretcher case. The road is extremely bad in parts and had not the C.O. of the 6th Australian Field Ambulance opened up the alternative route along the tow-path, many cases would have arrived at the C.C.S. in much worse condition. I should like to bring to your attention the advisability of establishing an *Operating Centre* as near as possible to the M.D.S.—for example at MONTIERS, thus saving the last trying 14 miles and two hours in the Motor Ambulances. In support of the suggestion, I should like to say that, during the operations at POZIÈRES in 1916, an operating centre was established at WARLOY, within a few hundred yards of the M.D.S. and undoubtedly was the means of saving many lives.

A. M. WILSON, Lt-Colonel,
C.O., 7th Aust. Field Ambulance."

(b) The following figures are from British experience quoted from *British Medicine in the War, 1914-1917*, p. 31:—

Time of Evacuation to Casualty Clearing Station.

Under 3 hours	24	} in first 6 hours	78	} in first 12 hours	134	} in first 24 hours	169	} 200
Between 3 and 4 hours	20							
" 4 and 5 "	24							
" 5 and 6 "	10	} in second 6 hours	56	} in second 12 hours	35	} in second 24 hours	31	} 200
Between 6 and 9 hours	34							
" 9 and 12 "	22	} in second 12 hours	25	} in second 24 hours	10	} in second 24 hours	31	} 200
Between 12 and 18 hours	..							
" 18 and 24 "	..	} in second 24 hours	..	} in second 24 hours	..	} in second 24 hours	31	} 200
Over 24 hours	..							