NOTE ON LIFTING WOUNDED.

By Lieut.-Col. H. E. DEANE.

Royal Army Medical Corps.

I am induced to write this note chiefly from experience gained at the recent Camp of Instruction for the Royal Army Medical Corps at Bulford, of which I had the privilege of being Commandant. On resuming duty with the Corps after service in India I noticed that men undergoing a recruit’s course in the hospital had vague ideas of moving a patient lying on a bed from his back to one side, and the reason was not far to seek.

(1) The preliminary training is carried out, necessarily and rightly, by means of healthy men acting as patients, but the men show a marked lack of appreciation of the necessity of looking on the acting patient as a possible real one. There is no doubt as to one reason for this, which is strikingly obvious in watching the drill for “lifting wounded”; the acting patients largely help themselves; and, indeed, I am not exaggerating when I say they more often than not do the chief part of the lifting themselves. I will illustrate my point about moving patients in bed from my observation.

How Not to Turn a Man in Bed.—I have put a healthy man on the bed and told the orderly to turn him on one side so as to fully expose the back. The orderly puts his hands on the shoulders and hips and the man turns over, but chiefly by his own efforts; it apparently looks nice enough. I have then told the acting patient to give no assistance whatever, but to lie as much like a log as he can and to act as though he were paralysed, and difficulties at once arise. The orderly puts his hands as before on the shoulders and hips and begins to pull; the only thing that happens is that the shoulder and arm are pulled forward, and the orderly then takes a grip of the clothes and proceeds to drag the man over on to his side in a way that might be very deleterious, and at the lowest estimate would be very uncomfortable, to a really sick man.

The orderly is taught to place his hands under the shoulder and hip, but fails to appreciate what that means. He puts one hand over the back part of the deltoid, if he does get as far back even as that, and the other somewhere about the great trochanter.

How to Turn a Man in Bed.—What he ought to do is to get both hands as near the spinal column as he can, one over the
scapula, and the other over the ilium, that is, near the centre of the weight to be moved; he then easily turns the weight of the body and the limbs go over with it, instead of dragging the weight of the body over by means of the limbs. Of course, this is a point which can be put right during the hospital training of the men, though there is always a difficulty in inculcating right methods when faulty ones have become more or less established.

All practice drills should be carried out on the supposition that the patient can give no assistance himself, and acting patients strictly prohibited from giving any. Such men are so in the habit of raising themselves to allow bearers to put their hands under them, that I found bearers under difficulties in knowing how to slip, or wriggle, or work their hands under a patient.

(2) It is obvious that advantage should accrue if two men could be got to do the work laid down for four, as efficiently and with no bad results due to over-work. As regards a Bearer Company this economy of men can be carried out with increased efficiency, and such a result is very desirable when the extent of a modern battlefield and the numbers of men engaged with possible wounded is remembered.

Four Men to Stretcher Unit Unnecessary.—I am informed by Medical Officers who served in the South African war that four men could never be sent out with a stretcher, but yet stretcher drill with four men is the mode most commonly practised on parades. This drill is absolutely wasteful of men, and opposed to the ordinary principles of lifting a weight. Two men can be taught to lift a man more comfortably to themselves and the patient, and I should always teach that first, and then, if thought desirable, a third man could easily cut in, but the drill with four men, however taught, I consider unnecessary, and with the existing drill as laid down in the Manual, might be abolished profitably.

The instructions in the Manual for lifting wounded with two bearers require complete alteration.

It is practically impossible for two men standing on the same side of a wounded man, as ordered in the Manual, to lift him.

I had men out to try it while in camp; no two men even nearly succeeded in doing it, and I abandoned the attempt, as it was attended by a danger of broken collar bones to the acting patients.

Two Men only Necessary for Stretcher Unit.—The method of lifting wounded by four men gives them no idea of how to lift wounded when there are only two bearers, and as on service four bearers are not available for each stretcher, the bearers are sent out
with no training in lifting a man with the maximum advantage to themselves and the patient. Accordingly I make my stretcher drill unit to consist of two bearers only, and they can be taught to lift a man of any weight likely to be found in the army, and as the possibility of it may, I know, be questioned, I may mention that I demonstrated the method at Bulford Camp to Col. Fenn, C.I.E., and Lieut.-Col. Coutts, when they visited the Camp, two small bugler boys lifting a man of 14½ stones on to and off a stretcher.

The faults of the existing drill are radical, that is to say, the bearers are taught to lift a man in a way that no one with practical knowledge of the subject would think of lifting a weight, and a wounded man must be looked on in the light of so many solid stones weight, before his possible wounds are taken into account.

Now, no man would think of trying to lift a weight when kneeling on one knee.

I know the present drill with four men does not provide for the wounded man being raised higher than to rest on the knees of the bearers, but surely the fact that the bearers may necessarily be required to adopt a standing position when holding the patient must be considered; and I have demonstrated the impossibility of doing that if the interests of the wounded man are to be taken into account. Further, as ordinarily done, the supposed patient in the four-bearer drill, invariably does the greater part of the lifting himself, and then gets into a position in which he can reach round and put his arms round the neck of No. 4 bearer, in fact, doing what a wounded man would be unlikely to do.

I have had this drill done with no assistance being given by the acting patient, and difficulties arose at once, naturally; the men cannot lift a weight when on their knees, and cause jolting to the patient which does not take place when only two bearers are employed. The position in which No. 4 bearer is placed with regard to lifting is absolutely impossible, a man of Herculean strength could not work against such mechanical disadvantages as trying to lift a weight on one knee with one arm stretched across the weight, nor is there the smallest reason why he should be asked to try.

As I said before, I make my stretcher unit to consist of two men, and first of all I show each of them how to lift a weight.

_How Not to Lift a Weight, and How to Lift a Weight._—If asked to lift a weight before he has been taught how, the man stoops down with his back bent and knees perhaps only slightly bent and his feet probably some distance from his object to
be lifted, and begins to lift by bending his arms. He finds he cannot lift the weight comfortably. This position is shown in fig. 1. I then teach him that to lift a weight he must get as close to it as possible, so as to bring the centre of gravity as near

![Fig. 1](image1)

![Fig. 2](image2)

the centre of gravity of his body as possible. Then keep the feet firmly planted on the ground, separated at a distance about equal to the width of the shoulders, but each man soon finds his own most comfortable distance; then bend from the hips and
knees, keeping the back straight, till the hands can grasp the weight, then keeping the arms straight, straighten the hips and knees (see fig. 2). The back being rigid affords the greatest mechanical advantage to the lifting muscles, which are those of the loins and hips. The man finds the weight now is raised easily.

They then apply this to a supposed wounded man.

(a) Two Bearers Lifting a Wounded Man.—The bearers stand on opposite sides of the patient, one opposite the lower part of the chest, and the other opposite the hips, on the side of the wounded lower limb. They then stoop, and in adjusting their hands under the patient they may be allowed to raise their heels, but before attempting to lift the patient, their feet must be flat on the ground. The bearer opposite the patient’s chest passes his, say, *left* hand and forearm well beneath the scapula, as far as he can, his *right* hand and forearm under the ilium. The second bearer passes his *right* hand and forearm under the patient’s ilium, and if possible, clasps the first bearer’s right hand; he places his *left* hand and forearm under the patient’s legs. The patient is then raised with ease, with no jolting, and his body is kept straight, and the weight is firmly supported and evenly distributed on the bearers’ arms.

It must be particularly impressed on the bearers that their forearms must support the patient’s pelvis and not be merely placed
beneath the upper part of the thighs, which allows the pelvis to drop and the straight line which it is desirable to maintain, becomes broken. In this way the patient can be carried a considerable distance, as I have demonstrated in the Camp of Instruction (see fig. 3).

(b) Two Bearers Lifting a Wounded Man by Aid of Slings of Stretcher.—Now suppose that a man is too heavy and bulky to be lifted in this way by two bearers, I then teach them to utilise the slings of the stretcher. The bearers pass one sling beneath the patient's head and neck, and then, each taking one end, and pulling alternately against each other, pass it by a zig-zag movement downwards till it is beneath the scapulae. The second sling is passed under the small of the back, and in the same way is pulled down till it lies across the pelvis, not the upper part of the thighs. The slings should be of about equal length on each side of the patient.

The bearers then stand either at opposite sides, or both on the same side of the patient. In the rough sketch they stand on the same side for diagrammatic purposes, but it is practically more or less immaterial which they do. One bearer takes the upper sling, the second the lower. They bring the ends of each sling together over the front of the body, and give them a couple of twists, leaving a space between the sling and the body.

The bearer with the upper sling then passes his left hand and forearm beneath the sling, between it and the patient's body, and takes a firm grip of the loose ends of the slings, and supports the head with his right hand. According to the length of the bearers' forearm, the sling will rest either quite in the bend of the elbow, or on the forearm. Either way he gets tremendous purchase.

The second bearer passes his right hand and forearm in a similar manner beneath the lower sling, and places his left hand and forearm beneath the legs.

They both rise together, the patient being in this way kept perfectly straight, and carry the man head first or feet first on to the stretcher, according to circumstances (see fig. 4).

In teaching the men to perform these methods of lifting on parade I have asked them if it were easy or not; and they were unanimous that it was easier than the at present prescribed methods.

After the first instruction the men lifted the acting wounded on parade as one man, whereas according to the prescribed method they were tumbling all over each other.
(3) I wish to say a few words regarding the waggon drill. This can equally well be performed with two bearers, as I have demonstrated at the Camp of Instruction, and more easily than the present method with four men, and with no jolting to the patient, which is not the case at present.

Two Bearers Loading the Waggon.—The stretcher is placed close to the tail of the waggon, and the two bearers stand on opposite sides, stoop down in the correct manner for lifting a weight and grasp the poles with their hands at about the distance of their own shoulders, and then rise, keeping their arms perfectly straight.

They may then be able to lift the stretcher till the wheels rest on the floor of the waggon, then they only have to push it home. But if the patient is heavy and the bearers small men, they may not be able to do this.

In that case, they put the handles of the stretcher on the floor of the waggon as far as they will go, and one bearer then shifts his hands along his pole till he can grasp each pole handle and supports the stretcher, while the second bearer gets into the waggon and raises that end of the stretcher to allow of the wheels being placed on the floor of the waggon.

Unloading the waggon can be done equally well.

The radical principles of lifting weights are also at fault in the prescribed method of loading a waggon with four bearers as in lifting the patient himself. The men are instructed to grasp the poles with one hand at the centre and the other at the handle of the pole. I have tried this personally, and with my height, over 6 feet, I have no power to lift the weight, and a short man is handi-
capped still further. The hands in lifting a weight properly must not be further apart than about the width of the shoulders.

In practice the men immediately appreciated the difference, and the ease with which the work was done was apparent to any onlooker.

My attention was drawn by Colonel Donovan, C.B., at his inspection of the Camp Instruction, to one point connected with the prescribed way of loading wagons. When the bearers have grasped the handles of the poles, and raised the stretcher so as to place the wheels on the floor of the waggon, there is not enough room for their hands at the side of the waggon, and the grasp has to be shifted at the critical time, causing jolting of the stretcher. This is avoided by having the stretcher lifted on ordinary principles of lifting a weight, when the hands are entirely clear of the pole handles.