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SOME REMARKS
ON
MOUNTAIN CAMPAIGNING

FROM A
MEDICAL STANDPOINT

A PAPER PRESENTED TO THE
ASSOCIATION OF MILITARY SURGEONS
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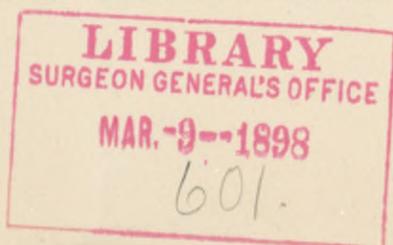
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FIELD service in a mountainous or broken country, where the use of wheeled vehicles is precluded and where actual hostilities are to be counted upon, has always presented difficulties to the military head of an expedition operating in such country, and the cares and responsibilities of the accompanying medical officer are, as a matter of course, proportionate to the difficulties of the general situation. To begin with, extended operations with large bodies of men are not often called for and expeditions of this kind usually set out from a supply camp, or station, comparatively near the scene of action and, as in this country, such operations have, as a rule, been conducted against rather small bodies of Indians, the commands have been proportionately small and have been made up with a view to the greatest possible utility of everything pertaining to the expedition. No dead weight, either in men or material, has always been considered an absolute and indispensable condition.

Such being the case and the medical officer being compelled to conform to the minimizing in bulk and weight, the question confronts him what, with the limited means of transportation at his disposal, can best meet the demands of the situation. The indispensable articles are, of course, medicines, instruments, and surgical dressings, and after these are to be considered means of transportation for the seriously wounded.

Let us first consider the matter of medicines, instruments and dressings. The small quantity of medicine that will suffice for a command composed of able-bodied, healthy men who are used to campaigning and who consequently do not suffer from avoidable errors of diet and the results of unnecessary exposure, is rather surprising. In the summer of 1885 I was attached to a command operating in the mountains of Sonora and Chihuahua, Mexico,



against hostile Apaches, and during a period of four months in a command of nearly 200 men—soldiers, Indian scouts, and civilian packers—I think I can safely say that all the medicines dispensed, barring quinine, and there was not much of that, could have been carried in the small hand emergency case such as is now issued to medical officers of the army. Of course, two rather exceptional conditions existed in this case; the men were thoroughly inured to the work and the country, although hot, was not unhealthy, but in a number of shorter scouts or campaigns, under similar conditions, my experience, generally speaking, was that a little medicine would go a long way.

If I may be pardoned for digressing a moment I would like to say, while on the subject of self-care among men in the field, that in visiting camps of the National Guard I have been struck with the lack of consideration paid to two conditions which probably have as much to do with the ultimate efficiency of the soldier in actual warfare as any two that could be named, viz: practical instruction in the means of protecting himself from the elements, and the imparting of some knowledge concerning the preparation of the ration that will be issued to him. A man may be perfect in drill, discipline, etc., but if he is on the sick list with rheumatism or catarrhal ailments from exposure, or indigestion and diarrhœa from improperly cooked food he is, of course, a burden rather than a help. The short time in camp usually allotted State troops undoubtedly renders it impossible to do many things known to be necessary, and furthermore many men will only learn to take care of themselves in the field by hard experience; but it would seem that some very essential knowledge could be imparted to the men, without greatly interfering with their other work, if instead of finding tents ready pitched, and nicely floored and ditched, and a caterer on hand to furnish them with the fare and dining-room appurtenances of a good hotel, they were compelled to do a little in the way of making and breaking camp, utilizing shelter tents and the like, and finally having at least a few men in each company taught something concerning the possibilities of the army field ration. One meal each day, for instance, might be made to consist of the army ration cooked, by the men themselves, on the Buzzacott field range or oven.

To return to the subject we are discussing: It might be said that with comparatively few exceptions the conditions calling for medical treatment will be those pertaining to the alimentary canal, principally constipation from the use of concentrated food with now and then a case of diarrhœa, rheumatic ailments in bad weather, as a rule sub-acute or chronic in character; and malarial diseases of course, when operating in a malarious country. The medical armamentarium might then be made to consist principally of laxatives, and anti-diarrhœal remedies, salicylates, quinine—in quantity depending on the locality—and a goodly supply of morphine, and—for fear I might forget it—a hypodermic syringe that will never fail. Of course many other articles in small quantity can and should be carried, and in tablet form will not require much space, but as I have said before, it is surprising how seldom you will be called upon to use other than the few remedies I have enumerated.

In the way of instruments the Surgeon's field case now issued to the army (7x5x1 $\frac{3}{4}$ in.) enclosed in a leather pouch with a sling for carrying it over the shoulder, a small pocket case, and possibly a few additional hemostatic forceps would probably meet the requirements; a number of field tourniquets, depending on the size of the command, should be on hand, and Esmarch's packets might be issued to the men if they know how to use them intelligently, otherwise they will do more harm than good, and finally, in the matter of chloroform and dressings: take all that can be reasonably carried. I do not mention ether for the reason that it is not only too bulky, but it does not compare with chloroform as a field anæsthetic. The orderly pouch issued by the Medical Department of the Army would be found very useful; the contents are as follows: Ammoniz spiritus aromaticus, in flask with cup, c. c. 60. Antiseptic tablets, bottle, 1. Bandages, roller, No. 6. Case, pocket, No. 1. Chloroform, in case, gms., 100. Catheters, Eng., rubber, in box, No. 1. Diagnosis tag and pencil book, 1. First-aid packets, No. 4. Gauze, plain, one yard pieces, No. 4. Jack-knife, with saw blade, No. 1. Ligatures, catgut, assorted, bottle, 1. Mist. chloroformi et opii, in case, c. c. 30. Pins, common and safety, of each, paper, 1. Rubber tourniquet, No. 1. Scissors, No. 1. Splints, wire gauze for, in roll, yard 1. Surgical plaster, spool, 1. Syringe, hypodermic, No. 1. Tray, No. 1. It

is carried slung over the shoulder and with the small Surgeon's field case, referred to above, carried in like manner by an intelligent orderly with some training as an assistant, the medical officer would be fairly well equipped to meet almost any emergency that might arise. The orderly's instructions, of course, would be to remain in constant attendance upon the medical officer.

And now a few words on means of transportation for the wounded. The contrivances used for this purpose under the conditions we are discussing have been mainly the travois, horse-litter, and cacolet. The travois, to my mind, is far the best arrangement of the three. The idea of the travois was taken from the Indians, among whom it has been in use for a long time, not only as a means of transporting the sick and injured, but as a sort of general utility cart for carrying camp effects and at times the women, children and even the dogs. It consists, as is generally known, of two poles about 15 feet in length, the smaller ends (about two inches in diameter at the extremity), forming the shafts between which the animal is hitched, the butt ends dragging on the ground; two cross bars either nailed or firmly lashed to the poles hold it together; they—the cross bars—are so placed as to allow 6 feet space for the resting place and about 6 feet shaft room for the animal, the lower bar being about 3 feet from the butt ends. By firmly securing a strong blanket or piece of canvas between the poles and cross bars a fairly comfortable place can be made for the patient. If one pole is made 8 or 10 inches shorter than the other, the motion, in passing over rough places, will be more equally distributed and the shock lessened. The travois, as may be seen, can be readily improvised. The Indians generally utilized for the purpose a couple of lodge poles and a wicker arrangement or buffalo robe. Two modifications of the original travois have been devised, known as the Greenleaf and the McDougall, after the originators—Colonel Greenleaf of the Medical Department of the Army, and Captain McDougall, retired, formerly Seventh United States Cavalry. They both accomplish the same object, viz: Keeping the patient in an approximately horizontal position in a somewhat different manner. The Greenleaf travois, which I believe has been exhibited before the Association, is intended to be used with a litter and by suspending the front handles of the litter to the forward cross bars and securing the rear legs to

the rear cross bars, the litter is not only maintained in a horizontal position, but the suspension of the front handles eases the motion materially. I have not used this travois in the field, but I tested it in the rough foot hills about Ft. Grant, Arizona, and it will do all that a travois can. The modification in the McDougall travois consists in bolting or otherwise attaching to the shaft poles, at an angle of about 30 degrees, two poles or pieces about six feet in length; the upper ends of these pieces are attached to the shafts near the upper cross bars and the angle at which they are fixed gives them a horizontal position when the travois is fastened to the animal; the rear ends are held in place by props fixed to the butt or trail-ends of the shaft poles and a couple of cross braces at the ends makes a horizontal frame to which canvas is attached for the resting-place. A shade of canvas or oil cloth resembling a buggy top protects the occupant. Two of these were sent out to Ft. Cummings, N. M., in 1883, for trial. I saw them used in a campaign, and while correct enough in principle, they were structurally too weak for the rough country and broke down. The two-horse litter is simply an ordinary litter with rather deep bed and with long poles or handles which are used as shafts for two animals, one being placed before and the other behind the litter. I have had no practical experience with it myself, but I have been told by some who have that unless the animals used are much more docile than the average army horse or mule that they would hesitate before putting even a sound man in it. For that matter though, none but perfectly reliable animals should be used in any of these contrivances and they should always be *led* by trustworthy men, for even the quietest beast will at times object to being hitched to them. As a matter of fact if there was much work of this kind to be done the animals would have to be specially trained for it.

The French have, as a part of their ambulance equipment, a so-called mule-litter which consists of a wrought iron frame and canvas litter bed about $6\frac{1}{2}$ feet in length jointed into three parts so that the whole may be folded up compactly. A pair of these are attached to an animal equipped with a pack saddle, one on either side; they are fitted with a canvas hood for protection against sun and rain and also an apron of the same material which can be drawn up so as to completely cover the patient. The occupant

lies at full length, head first, and it would seem from the confined and rather rigid position the patient is compelled to assume that the arrangement must be a very uncomfortable one, even at rest, not to mention the pitching, swinging movement imparted by the motion of the animal.

The cacolet is essentially a folding chair with a foot board arrangement—the frame being of wrought iron—capable of being hooked to a pack saddle, one on each side of the saddle. The cacolets are for patients who can be carried in the sitting posture, while the mule-litter, as stated, is for those requiring a recumbent position. Both of the above-mentioned contrivances were first introduced as articles of ambulance equipment in the French army in Algeria, and they were found to be so useful that it was said that the country could hardly have been conquered without them, so dispiriting would have been the effect upon the troops if they could not have felt secure that they would have been saved from the Arabs if wounded while operating in the mountain regions. Mule-litters and cacolets were afterward used by the English in the Crimean war, and Longmore speaks well of them.

Major McElderry of the Medical Department of the Army devised a hinged litter, capable of being adjusted at any desired angle so that a patient could be transported in a recumbent reclining, or sitting posture; the litter is secured to the animal by means of the *aparejo*, or Mexican pack saddle, and it was said to have been found very effective in transporting the wounded during the Modoc campaign in the lava-beds of Oregon in 1873. An awning, or shade, can be attached to it and when in place on the animal, with this attachment, it resembles somewhat the howdah on the camel or elephant. I have been told by some officers who saw it tried at the San Carlos Agency, Arizona, that its appearance was rather terrifying to animals, although the inventor distinctly states that the average pack-mule does not object to it. I have never seen it myself.

I have had some little experience with the travois, and in my opinion it will be found more generally useful for the work in question than any of the others, but unless a man is so seriously hurt as to absolutely prevent his sitting up he will prefer the ordinary saddle, and will not ride in the travois or anything else of the kind. I have had a number of sick and in-

jured men request to be taken out of the travois after a short ride over a rough trail, they preferring to ride in the saddle if able to remain in it, and whenever their condition permitted it I allowed them to do so. While speaking of the travois I would say that if the country is very rough the trail end of it will have to be carried by men, often for long distances, and by temporarily lengthening the trail poles so as to throw the burden of the load upon the horse, the patient can be made quite comfortable with comparative ease to the men. A distinguished and much lamented officer of cavalry who was mortally wounded in the Sierra Madre, Mexico, was carried for five days preceding his death over an exceedingly rough country in this manner.

In conclusion it seems hardly necessary to say that the foregoing remarks were written only for the purpose of calling attention to a few points that might be worth remembering by one called upon to participate in a mountain scout or campaign and that the discussion of general considerations pertaining to field work at large was not contemplated.

