Inquiries & suggestions made with a view of promoting the greater efficiency of the "Army Medical Department"

by Percy Leslie

Medicine, having for its object the preservation of health & the cure of disease, I need offer no apology for thus my probationary essay, on the eve as I hope, a desire of being admitted among the Disciples of Asclepius, which has for its end the promotion of comfort & health, or the prevention of their contraries among upwards of a hundred thousand souls, who have devoted each in his particular sphere, energies alike to the protection of a country, blest above all others for her civil & religious rights, her wealth, her extent & power.

Medicine, as applied to armies, embraces two offices in the fullest acceptance of their terms namely, Medicine & economy; the former comprising Surgery, Practice of Phy, Public & Private Hygiene; the latter the just proportion of means to ends.

But do not let it be supposed that I,
am now intent to reform or call to account, at the same time as a reasonable being, I am not expected blindly to follow, the doctrines, researches, or deeds of such men as Parn, Jackson, Wellington, Conde, Larrey, Howard, Mill, Alison.

all I wish is, that the present number of their followers, in one or other department, myself among the number, should all unite, in one great aim, the promotion of the efficiency of the army medical department.

It is with this view I write the present essay; and I hope that I may be pardoned should my opinions or suggestions appear too dogmatical, when one considers the amount of detail that I want to compress into one focus for the attainment of ends in a manner, not hitherto arrived at, as proved but too sadly by the past & present history of our armies.

For it is not my intention to take individual diseases & criticise this or that mode of treatment, to argue when one operation should be performed & when another, to discuss whether
expired air descends or ascends; if heavy showing accoutrements are as conducive to the health of the soldiery as light warm clothing, if green coffee can be roasted on snow; if Medical officers are to perform besides their own duties, those of nurses, purveyors, cooks, transport corps &c. No, I take the science of Medicine, Surgery, Hygiene, Economy as I find them in the present day, imperfect no doubt, but still capable, by a proper combination of bestowing immemorial at present unattained advantages on many communities & particularly on the one now under consideration. Not in order to do this, I must be allowed to take one thing for granted, namely that the organized army, as it at present exists in this country, is a system, perfect in every respect, as far as art, talent, & natural wealth, can make it—being no soldier I do not think myself qualified to question this point; and, will at all events devote more attention to the
object I have in view, namely to suggest means for rendering the medical department more competent for the fulfillment of its many varied duties. The subject may be considered under these heads.

1st. The sources from which medical men for the army are to be obtained, and their education.

2nd. Their relation, as regards number, rank, & pay, to the combattants.

3rd. Of what the Armamentarium, for the use of these medical men should consist. Of its equal distribution.

4th. The assistants or servants of medical officers — a conveyance or transport of materials.

5th. Of the organization & management of general hospitals for the reception of invalids, the work is no longer convenient to keep with their corps.

6th. Resümé. An ideal plan of operation, bringing the whole system into action.
Those professing the art of medicine have, in all times and countries, been regarded as important members of the community, generally looked up to with confidence and respect, deservedly so, for without taking into account the number of eminent men which have emanated from their ranks, they have always been prominent for the practice of many of the more ennobling moral and Christian virtues, which of themselves are sufficient to confer immemorial blessings on the human species. Then again, in order to perfect themselves in their worthy but onerous duties, they have ever been diligent students in every useful art or science, often also among their first promoters; and no where do we see this more than in the present day; but from the distinctness, magnitude, and importance of many sciences, in these times of research and improvement, the study and practice of one often absorb the devoted attention of a life time, so that many have left the band of general labourers in order to
follow up their favourite pursuit. All this has greatly added to the extent of medical education & made it a subject of momentous interest in every country, to impart all that is actually necessary for the practitioner to know, as also much more to make him what is called an “accomplished medical man”; it is with these latter we would supply our armies, for many obvious reasons, which will appear in the further journal of this outline, for founding a useful & economical army medical system.

The education of young men for the practice of the art of medicine in our armies is of peculiar moment. Extensive though it be for private practice, based as it is on so many accidents, here we require yet others, may more the character of the individuals should be different. We want men with all a soldier love for his country, with all the enthusiasm for the military profession found in every true officer, with that punctuality in the performance of duty seen in military disciplinarians: the army surgeon must be void of all
selfish desires, he must have the well being of his corps, the advance of science as his 
stimulants to action. But of course we 
cannot ensure getting such; we must trust 
to those who choose this department for 
their path in life, hoping they have done so 
for no other reason, than a knowledge that 
it is best suited for them. The point having 
been once settled on this point, let us con-
sider the education they should receive. The 
principal medical schools of Great Britain 
are situated in its three capitals, namely 
Dublin, Edinburgh & London. There hundreds 
of young men are yearly qualified for the 
practice of medicine in all its branches, in 
these the army medical student must be 
proficient, I need therefore say nothing 
more on this head, for it would be out 
of my province; But he must be instruc-
ted further. A regular professorship 
of Military surgery exists in Edinburgh & 
Dublin, I know not if there is one in 
London, but there ought to be, I shall therefore 
peak as if there were.
To render his course perfect, he would instruct 9 months in the year; a six month winter session & a three month summer session, the former to be devoted to a course of lectures, the latter to visiting a military hospital, with clinical instruction. The lectures should not be on Surgery, strictly so called, for the student should have already attended these with the ordinary professor, neither should it be on particular diseases requiring medical treatment, for these he also studies with the professor of that department. I cannot see where the actual practice of Surgery or medicine in the army differs from that of private practice, except in a peculiar class of diseases or injuries being more frequent in one case than another; but that is no argument. Should a surgeon to a colliery receive a different education from other medical men because he is constantly having to treat burns & contusions? In fact I think it is all the greater reason for not being so much lectured to, in consequence of knowing more in practice which is always better on an emergency
than theory: Let me not be misunderstood. I do not say that the army surgeon should not make more particular study of those diseases, injuries, which he will more constantly meet; but this, should be left to his own good sense; but he certainly won't learn anything more of after the ordinary professor B. has taught him the "principles" and "practice" relating to incised wounds, military professor D. should teach him the same relating to sabre cuts. I suppose a college of Surgeons takes care that a pupil does not obtain its diploma till he can manage a bullet wound; or what would be thought of the young surgeon, who had just set up in his country practice & on being called to such an accident, should bringle it? The same education that will do for him will do for the army surgeon, the difference will be in ten years hence, provided there has been a war. the latter will dress a dozen such wounds, while the former is doing one. No, the Regius Professor must teach something else, something that is not taught by other chairs. Let him instruct in the
peculiar duties of an army surgeon, to do this
he must expound the principles for the for-
motion of armies, to let the future surgeon
know with what class of men he has to deal
& the nature of their occupation, & the contin-
gents, to which they are liable in the performance
of their varied services. For the duties of a
medical man are not merely to give physic
to a man who is brought ill & laid at his feet,
no, his is a far wider sphere, he should thor-
oughly understand the whole economy of the
class from which his patients are derived, so
as better to enable him to preserve their
health; the fashionable physician must
understand the character, manners & customs
of the higher classes, or he will soon lose
their confidence; the foot-house doctor, must
make himself conversant with all the pecu-
liarities & eccentricities of the lower orders;
the navy surgeon must know what a sailor
is: the army surgeon must know what a solli-
is: but this phrase embraces a great deal,
not to be acquired without much study &
attention that is if you want men capable
of performing all their duty, for here is the rock
that our army surgeons have always founded
on, & what has often caused so much wholesale
discomfort, you might say misery, may, crimi-
nial neglect, even to death; not that it has
been entirely, nor even the greater part, the fault
of the Surgeons, no, it is the system which
has been at fault: what would be the value
of a beautiful set of clock works if put to-
gether by a clumsy artisan? It should there-
fore be the duty of this professor to point out as I
before said, of what the army consists as a whole
in detail, the nature of its different services,
the duties they have severally to perform, the
circumstances under which they at different
times found themselves. He must speak of the
human material of our army, this brings
recruits under consideration, their race, lo-
cality, climate, age, occupation, grade in
society, powers & capacities, etc. The
nature of services, will lead to a considera-
tion of Infantry, Artillery, Cavalry etc., with all
their attendant diversified movements &
exercises. Next the material of armies, will
bring the clothing, food, economy, &c., under examination. Their change of circumstances will enable him to teach the principles for the formation & management of barracks, hospitals, encampments, transport ships, ambulances &c., the duties of soldier, officer, & surgeon on the march in all weathers, conditions & situations, their duties, on a voyage, in the bivouac, in the battle, in the retreat, in the besieged town, in peace, there is a hundred of other matters which I cannot at present call to mind as costing, the pay of soldiers &c., afford ample room for instruction without encroaching on the domain of other professors, leading to loss of time & invincible comparisons. Some hold that a Regius professorship of military surgery is a waste of time & useless expenditure of government money, a benefit of insecure office. That is the fault of those who have the appointing of it; if properly organized, it might not only be a centre from which useful, practical instruction would always emanate, but could be made the depot of much military material, where it would be well preserved, often improved upon, & ever in readiness.
on the first emergency; but more of this hereafter.
I will only say now in order to point out the
peculiar instruction best suited to occupy the
attention of the military medical student during
the summer months, after he has had his
winter course in the theory of the formation &
management of armies, in all their departments.
I propose this, the regius professor, in each of these
towns, should essentially be the head of all
military medical concerns, that in each of the
capitals there should be a general hospital
for the reception of all invalided troops on the
station, if one or more regimental surgeons
are in the town they should each have the
men of their own corps in separate wards or
under their own care; but nominally acting
under the care of the said professor, who need
not interfere further than to see that every
thing is done strictly according to army regulations
in order better to instruct this class, who might
be brought two or three times a week a thoroughly
initiated into the discipline of a military hospital,
& some of the more attentive students might be
drafted into the surgeons to act as their
dressers, clerks, bookkeepers &c. Further, these towns might be the depots of army medical material, under the direct care of the said professors. Dublin & Edinburgh might each contain matter for 10,000 men, London for 20,000, thus an army leaving our shores might have at once all things necessary for the comfort of conveyance of 40,000 sick & wounded, by the shape of tents or houses, tents, beds & bedding, cooking utensils, invalid dresses, &c besides medical & surgical appliances, also carts &c of approved construction for conveyance & transport of the same; these should all be stored in appropriate store rooms in connection with the other military stores a subject to constant examination & report on their quality, capability &c. Thus the professors would have ample subjects for his clinical instruction during the summer, the practical management of the hospital, any interesting diseases that happen to be in the wards, then the overhauling of the medical materials & discussions on their relative uses, aptness &c varied with excursions into the country with troops on the station, to practise the preparation before an engagement &c
when tents might be put up, different modes of conveying the wounded practised, besides bandaging, & many other medical duties performed.

Secondly, we will consider their relation, as regards, number, rank, & pay to the combatants.

Number. In what proportion should medical men be distributed among an army? The question is of importance in many points of view; the expense is of some moment, but of course not to be compared to the providing every man with proper medical attention; but I don't think this is to be done by over stocking the army, for then many sincere officers are sure to creep in, some will have more to do than others, & the consequence a spirit of carelessness, & indifference gets into all ranks.

The old proverb holds good here "too many cooks spoil the broth." I am certain that one good physician with a proper number of trustworthy nurses would keep an hospital for a hundred patients or so, in better working order & with greater benefit to the invalids than if the care was divided among three or four without such ample means. Losing sight of this has been a great fault in the British army
...herein the East India Company's Service, also Germany & France of late years, are far in advance of us. In a further division I intend to speak of the assistants of army surgeons. In calculating the most efficient supply of medical men, we may take such a paragraph as this into consideration.

"During a campaign, however, we ought not to calculate upon less than two sick for every 100 fighting men, a number which is often fearfully increased, if the army is very numerous & much concentrated, if it is encamped on wet ground, if it has experienced great privations, especially if it is discouraged by defeat or want of confidence in its chiefs. An army of 100,000 men may expect, according to Todd's calculation, to have 10,000 sick during a campaign, independent of any rencontre with the enemy, of which number 5000 or 6000 may be medical & the rest surgical cases; but after a battle the proportion will be reversed & under the most favourable circumstances, he calculates upon 10,000 or 12,000 wounded in addition to the above. To this we have sometimes to add the number of wounded left in our hands by a vanquished enemy, to
whom our cares are equally due." (P. 361, Ballingall)

Mr. Guthrie calculated, in 12,000 men 7500 are likely to be wounded in an engagement, i.e. 125 in each regiment. Dr. Maclean's analysis of the proportion of Surgeons in the Company's services, though of date some years back, still holds good. One Surgeon to every five hundred men of the standing army should be sufficient together with those distributed in General Hospitals. I will make my calculations on our army of 100,000 men 30,000 of these in corps of 750 men, the remaining 70,000 in corps of 1000 men: the former being regiments of cavalry, artillery & transport corps, the latter infantry. To each of these corps one surgeon & one assistant surgeon should be appointed, making in all 140 for the infantry & 80 for the other services, total 220. This is the supply for the working army, but we must not lose sight of our widely spread dominions, necessitating a somewhat more complex arrangement. Each of the following colonies has a staff appertaining thereto: Australian Colonies, Cape of Good Hope, Malta, &c.
to the number of some 26 or so, besides the base stations, at the outside we will say 50 in all.

But some of the above stations are of necessity of greater importance than others. (in a medical point of view these will be, with large hospitals attached, but in every one there should be such an establishment, under the direct management of the surgeon to the station.) To each one Surgeon should be appointed & where this is not sufficient, it should be made up by junior assistant surgeons, &c., &c. &c.

For instance a large military arsenal like Gibraltar may have a hospital with 200 patients, here an assistant surgeon should be placed, & if 50 more patients should be the general rule. Two assistants, &c., &c., &c., for every 50. In this way we have a fair grade of rank established & no insecure offices, it may be drawn up in outline thus.

1. Director-General
2. Three Inspector-Generals.
3. Staff Surgeons, care of a staff station with hospital attached.

Note, should be divided into Staff Surgeons of 1st & 2nd class according to importance.
5. Assistant surgeons: acting under surgeon's directions.

Then the professors of Military Surgery, for preparing Medical students for the army.

The director-Generalship, if vacated, should be filled up by Senior Inspector-General; this last by Senior Staff Surgeon. Staff Surgeon of 1st Class should be succeeded by the name of 2nd Class. He by Senior regimental surgeon. Regimental Surgeon by assistant surgeon of Regiment—a not by senior assistant Surgeon of Army. (I think this should be an exception to promotion by seniority, because of the advantage of keeping one who knows the men still among them, but an exception may be made here again provided the said medical officer has not been six years in Her Majesty's service, when the senior assistant Surgeon of the station should follow.

The ranks of the assistant surgeons of regiments should be supplied by junior assistant surgeons.
of longest standing, who as it were have still been continuing their education whilst serving in the hospitals under Staff Surgeons. These junior Surgeonships will of course be filled up by Medical Students who have passed through their curriculum of study all prescribed examinations. In time of war such an organised staff of medical officers, would be sufficient for all exigencies, without calling to the assistance, private medical practitioners at exorbitant salaries, who know nothing of military arrangement and therefore in that capacity are less useful than the youngest surgeon in the service, neither can they be more competent to treat the disabled soldier, than our officers of old standing who have passed their lives among them, visited every region of the globe & practically know the diseases incident to large bodies of men in different climates. Now to speak of the injustice of the system which ought not to be tolerated by any man of spirit. It is always to the advantage of the soldier to be treated by his own surgeon & among his own companions therefore in war, as in peace, the regimental hospital
should still be sufficient; but in all extensive military operations, a large body of men, will always be so far disabled as quite to incapacitate them for further service, for these a general hospital should be provided on the same plan, as those existing, or which should exist, in all staff stations before mentioned. If the seat of war is near any of these, there of course is the proper asylum for the disabled, till it is safer convenient for them to be removed home, or there also should be the convalescent hospital for all those, whose recovery will be too protracted to remain with their corps whilst on active duty, who, if allowed to accumulate, would only impede the movements of the regimental hospital. If no staff station is near at hand one can easily be formed from existing elements; the senior staff surgeon of 1st Class should be appointed to superintend it, material would be ready for the accommodation of 4000 men, or less, which would only require to be shipped off to the most convenient point near the seat of operations, all assistant surgeons of regiments not engaged in the war
should be told to hold themselves in readiness to serve in the said hospital, as should be removed there as required, as their places filled from junior assistant surgeons in staff hospitals, as these again replaced by men entering the army, the regimental surgeons of regiments engaged in active operations, if killed or disabled, should be succeeded by the assistant surgeons of the same regiments as their places again filled from the assistant surgeons employed in the large central hospital depot. By some such system as this all those irregularities, injustices, waste of public money, a forgetfulness of what is best for the soldier, would be avoided, as we should have the right men in the right place at the proper time. The subject of rank is of some importance, I may therefore say a few words, under this head. The relative ranks of one medical officer to the other I have already detailed. These should be as few as possible, for in the end, they are all members of the same medical school, should esteem the honour of their own immediate profession, far above any, that may be derived
from their serving in the army; but still, though rank should not be so great a consideration among themselves, as knowledge & experience yet to give the medical man that influence over those brought under his professional care, his situation should be invested with the highest station & authority possible particularly in the eyes of the men, who are taught to pay such respect to rank a properly so, for in proportion as this principle is inculcated, there do we find the most manageable soldiers. Let me make a comparison between the army surgeon and the private practitioner with a view of seeing what the former should reasonably expect. The army surgeon has or should have as I before stated more motives to action than those necessary for the mere practice of the profession in a village or town; therefore all these circumstances incident to the life of a soldier should be no hardship to him and must not therefore be taken into consideration. The life of the general practitioner with a few exceptions in those
propeking great talents and perseverance or substantial private means is generally one of great toil to obtain that gentlemanly competency. Nevertheless if they are good men the consciousness that they are performing their duty and the many opportunities they have of lessening another's woe renders their life so pleasant and happy as that which falls to the lot of any man not excepting the true minister of the gospel. 

Opening of their career is generally attended with great difficulties and they are often obliged to expend what little means they have or live on the kindness of relations for many years besides before full confidence is obtained in them their character frequently suffers severe shocks tending to retard their progress. Again in later years when the body would gain rest they are often obliged to strain every nerve to launch a family on the sea of life. Keeping this in view what is the fairest rank and pay for army surgeons, corresponding...
with the dignity of the professional character and education and relative to those among whom he is placed? I presume to suggest the following: Junior Assistant Surgeons with the rank of Ensign of the pay of 7/6 a day; Assistant Surgeons of Regiments to rank the same as first Lieutenants with the pay of 10/6 a day; Surgeons to rank as Majors with 16/1 a day; if of 20 years service 20/1 a day if of 25 years service 25/1 a day; Staff Surgeons of Second Class to rank as Colonels with 35/1 a day; Staff Surgeons of first class as Brigadier Generals with the pay of 40/1 a day. Though these allowances are more liberal than those at present given yet from the smaller number of men and the less irregularity of appointment the sum saved to the nation for the pay of medical officers would be enormous. I will not take the trouble to enter into details on the subject; the facts are easily to be ascertained by a little research but there is an extract from a letter to show injustice and a want of a proper system. The difference of pay is quite remarkable. Contrast these
two pictures. Army Assistant Surgeons and Surgeons 7½ d. 13½ per day; Civil Assistant Surgeons and Surgeons 2½ per diem and £1000 and £2000 per annum with a twelve months' pay on leaving the service. And when we consider that upwards of 600 medical officers have been employed during the present war in the proportion of about 1 to every 160 soldiers and most of these crowded at or near the seat of War when the proportion must have been still more preposterous considering how things were bungled and many of these paid with that reckless disregard to economy mentioned above I think the British Government has every reason to be ashamed of itself. I have grown that surgeons in the army the highest relative rank possible so as to make them to be respected as far as station in life can by both officers and men and I am sure that no combatant officers would shew the least jealousy on this account for they can never be in their way neither will they complain of the height, pay of the
pay of the Junior Medical Officers when they consider the slower promotion, the long professional education and the standing in society they must keep up solely on this allowance. To facilitate this latter and to make the medical officers independent of the Regimental officers as possible I think it might be an understood thing in all regiments that the former should have nothing to do with mess subscriptions and such like not that I wish to prevent the two associating all together but I think it is carried too far when the Surgeon is obliged to conform to every thing like other officers. It throws them too much into each other's society causing a want of respect and confidence little suited to the advantage of the one or the other when sickness arrives. In fact officers seldom let themselves be treated by their own Surgeons if they possibly have a private practitioners advice I wish the same privileges to be allowed an Army Surgeon as are permitted to a married officer, any one who has seen
anything of Regimental life will understand my meaning on this point. As to the authority and restraint that Surgeons should be under I think it cannot be too little, but wherein is the difficulty. The Medical men’s duties are not solely for the sick; he must see that the able-bodied are kept in health. If it was only the former the matter would be easy to arrange. In the Colonel has command over all sound soldiers, the Surgeon over all those not sound. The two would never clash and their authority would be undisputed. I think the relative authority in a Regiment might be established thus. No Officer should have any power over the Surgeons except the Colonel and his should only extend to the personal behaviour as that of any other Officer. In professional duties he should have no right directly to interfere, being no competent judge. If he sees or supposes he sees anything wrong and is decided that it may be rectified he must make his complaint to the Director General who will direct...
the nearest staff Surgeon to inquire into the matter, and report to him so that from him alone in the Director General should come orders on any way connected with no matter how remote their professional duties. But on the other hand it is of greater importance to facilitate the Surgeons speaking to the Colonel on any matter that may concern the well-being of the soldiers, to render this often unpleasant office as devoid of offence as possible, the following plan might be adopted: that no Surgeon should have right alone or without communication with the others to suggest or complain to the Colonel on any subject. If the two are on Duty at the same Station and have any communication to make they must first request an audience and then appear in company, state their complaint or suggestion, if received well and good, but if slighted or neglected they must have the right to say to the Colonel, "what we have just stated we are persuaded is in our own opinion for the best and of no
attention is to be paid to it we feel ourselves bound to apply to higher authority to corroborate our opinion and such a statement or one to this effect if made in a gentlemanly manner should never be permitted as a ground of complaint to the Colonel, because it is one induced by a higher authority than that of her Majesty herself. The Surgeons must then report their ground of complaint to the Director General of the Army Medical Department, who if he sees fit should communicate to the Commander-in-Chief of the Army that he may request from the Colonel his reasons for not complying with the suggestions of the Surgeons and between these two the matter must be settled both having equal authority on the subject; and if they cannot agree to nothing definite a Board of Inquiry must be instituted composed of equal numbers of Medical and Combatant Officers. It is to be hoped in these more enlightened times that extremes will not be necessary, but
they ought to be provided for on some good working basis and the same intimated in the Army Orders and Regulations. There is no doubt that Surgeons have not facilities enough for to encroach upon the authority of a thoughtful Colonel on the points connected with the health of the men. I have said nothing on the retiring or rewarding of medical officers, but a system founded on such a statement as this of Sir George Bulling all might be brought into force, that after a long period of service a man's full pay and half pay should approximate in amount to each other, and that ultimately the difference between the two should be so little that a man would have every inducement to retire and none to remain. Rewards might be given in pensions from £30 a year upwards.

As regards the anna menturium, I need say very little, as it is according to army regulations managed as well as one can wish. Every Regimental Surgeon has
for the use of a thousand men a chest of medicines and materials and every assistant surgeon has a smaller one in case of being sent on detachment. These are all supplied by a chemist and instrument maker appointed by government and all deficiencies are replaced by sending a proper order according to tables drawn up for the purpose. Every staff station of course can have a more complete set as also medicines and materials in larger quantity. When in barracks the kit of the men and the articles supplied by the barrack department is sufficient to furnish the Hospital. The addition that I think necessary to be made is a supply of materials capable of giving shelter and comfort to 4000 disabled men as I said before distributed for 2000 in London, for 1000 in Edinburgh and Dublin respectively, which might be sent as required to any point where there is no barracks accommodation as a camp or tent of war in order to form a Central Hospital Depot for the ac-
commission of convalescents, disabled
and those requiring a long time to re-
cover. These materials should consist of
iron and wooden horses made according
to approved models of which there are
several in these days of mechanical
ingenuity, some capable of being treated
in an incredibly short space of time
and combining strength with lightness
and easy stowage. Besides these stand
beds or beds, an only difference being that for the
same number packed in a canvas case
capable of being converted with the aid
of a little straw into serviceable
mattresses, into which case might also
be placed a metal plate saucepan
and cups together with a Knife, Fork
and Spoon, also a complete set of cook-
ing utensils grates tea and a supply of
all medicines which do not spoil
by keeping. Kept in cases or bottles,
corresponding with those used in the
Regimental Chests, & the Depot should
be kept also Medical tents and three
Carrajas for conveyance of necessaries,
also a supply of ambulance materials to suit himself, mules or marnel portage. In tents and casts I am about to suggest some improvements which have struck me as desirable; tents have the great fault of not being properly ventilated and of being continually blown down generally from the ropes or tent pole. To obviate this I think they might be constructed thus. I take the simplest form for illustration, the same principle might be extended to all others. It is an iron ring with pieces of iron terminating in a hole projecting downwards and slanting upwards thus to the outer border of the ring the upper part of cap of the tent should be fitted and to the hooks the main tent cloth (as shown in Section). Thus a free opening would be obtained at the upper part through which rain could not pass in consequence of the cap coming lower down than the tent cloth proper. To obviate the poles or ropes breaking which they
generally do from change of weather in consequence of contraction of the materials I propose a spring box to be placed in the ground for the reception of the end of the tent pole which would be strong enough to admit of the tent being firmly fixed and yet would yield to the contraction of a rope or sudden gust of wind. B is such a box (See Section). To send a Surgeon with a Regiment without his chest of materials would be like sending a gun without his ammunition carriage and yet this often happens from not having any proper means for the conveyance of the said necessary when they get mixed up with other regimental baggage, to be slowly transported or altogether neglected. Now this ought never to be. The appliances of medicine and Surgery should be as thoroughly attached to the Surgeon so to speak as the ammunition box is to the Gun Carriage. I am referring now more particularly
to times of war for in peace and going from one Barrack to another no need of hurry is necessary. The Surgeon and Assistant Surgeon should each have a proper case for the conveyance of their Medical chest, the former larger than the latter in consequence of the greater weight to be carried, but often the country will not admit of wheeled vehicles when the things should be carried in the backs of animals or even on those of men. To meet these emergencies I propose a case like the following, as seen from behind: A platform A on wheels constructed to be used with or without springs with a locker B fixed in the centre running the whole length divided into partitions the lid opening upwards into which should be packed an extra supply of those necessaries likely to be most wanted as bandages or any particular dress or drugs. C, D, E, O, are square boxes on each side of the locker and resting on the platform in which shoes, &c. should be packed.
good order the whole regulation medicine chest also instruments and utensils of the whole fastened by straps on the main carriage; according as it is the Surgeon's or assistant Surgeon's the number of boxes should vary but each should be of a size and weight capable of being separated from the carriage and placed on a porter's shoulders thus:

or two might be placed across the back of a mule or horse; in this way if a Regiment is landed on a foreign shore the means of curing and alleviating their maladies and accidents would always be at hand even if porters hired from the peasantry or the servants of the medical men of whom I am about to speak should have to carry the cases on their backs, leaving the carriage with its treasure full of extra supplies in the ship or nearest
convenient place. Another advantage of this sort would be, after all the cases had been taken off it would serve for conveying wounded men from one place to another sitting on the central locker, their feet resting on the platform.

We may now consider our fourth subject. Though one of such importance it has of all others been most neglected in our armies giving rise to great confusion and expense whenever an emergency occurs, such as obtaining the aid of private practitioners at enormous salaries, taking students away from their studies to act as dressers, obtaining surgeons and junior assistant surgeons to do work proper for men of less capacity and lower wages, employing untried and inexperienced persons about hospitals with their attendant nurses, idleness, pilfering, drunkenness, &c. To obviate all this an adequate number of attendants should be organized and well exercised in their varied duties. Every general hospital according to its size besides
its staff surgeon and Junior assistant surgeons should have an apothecary and clerk if necessary, Storekeeper, Cook and Under Cook ordered for performing the various duties as nurses, barber, attendants in bathroom, messengers &c. The female attendants should be as few as possible, such as a Matron to look after the linen, laundresses, etc., while superintended by a steward who can keep the books of expenditure. Each of the three stores of medical stores should be kept by an experienced clerk with assistants under him who must all be thoroughly acquainted with the articles under their charge as to their uses, weight, space in storage, so that if an order came for materials to accommodate 10,000 men they should at once say how much ship room should be wanted, superintend the shipping, some stores accompanying the supply toCook after the dinner. Nature, also the creation of horses and distribution in teams of beds, utensils, kitchen appliances, &c.
whenever the general hospital is to be established, be it the shores of a foreign land or en-
my country, or experimental camp. It is of the assistants in Regiments I would
more particularly speak. Eight men of good character, able to read and write,
who might volunteer for the service and receive a pay of 1/6 a day, and be disposed
of in the following manner: Two to act as servants to the Surgeon and assistant
surgeon; the same as combatant offi-
cers have a servant changing with the
others every month or so; the training
post be employed in the Regimental
hospital, dividing its various duties among
them and changing every week. One should
have the care of the surgery and be in-
structed in preparing the drugs for use
but always under the direction of the
assistant medical officer. Another
might superintend the cooking and
distribution of food to the patients
one to act as night nurse for the week
and so on. Each should have an equal
number of patients directly under his
control. Once a week they might be made to go through a routine of duties as packing everything contained in the surgery into their proper cases and with these on their backs to go through a short drill after which they might be exercised in preparing for use the different appliances for carrying the sick or wounded, specimens which must be kept in all barracks, as for their drugs and equipment the one proposed by Baron Percy and modified by Milligan is perhaps the best. (See page 23 Milligan’s Medical Manual.) I may here add that straps worn over the shoulders for carrying knapsacks are generally found to irritate most at their edges. I think this might be obviated by making the sides thinner than the rest of the straps thus. This would have the effect of making them less rigid so that they would take the shape of the round of the shoulders and distribute more equally the pressure during different movements.
of the arms particularly forwards. For then these men might be instructed by the
apostate surgeons in bandaging different
parts of the body, comprising the prin-
cipal arteries, applying turniquets,
&c. Such a corps of men, for in an
an acting army of 40,000 they would
amount to some 320, would render
valuable service during an engagement.
In time of war should this not be deemed
insufficient each of these trustworthy
men (for such they should be) if not they
must return to the ranks, might take
a young man in charge and instruct
him in all he knows or those few
regiments not employed might be sent
leaving a fresh set to be organized by
themselves.

On the 17th Free Day very
little leaving it to be included in
the resume. Just a word about Stationary general hospitals. It is to be regre-
ted that Government has not some
fixed plan on which such institutions
should be erected, for many have been
built at great expense which have afterwards proved quite useless either from unhealthy situation, faulty construction or some other cause; they are often left to the taste or caprice of architects whose guards the money or ornaments which ought to be devoted to the comfort and health of the inmates. Now this might easily be obviated by a competition for such reward among medical men, architects and engineers, in order to obtain the best plans to be judged of by a committee composed equally of members of the three professions. I would venture to propose the following as a basis of a universal plan; let this represent the ground plan of the building and have two or three stories above according to the size required but each should be partitioned out in the same manner. It is not necessary for me here to calculate the measures for each individual part. Let it be understood that the prize should correspond to the accommodation to be given allowing to each individual not
left than 800 cubic feet, something I have made as small as possible for they are often the recipients of dirt, bad air and full of draughts. It is always better for wards to communicate freely with the external atmosphere. N is the front of the building and should always look to the north as the entrance and the parlour included in the dotted line should be the only face of the building to be left to the architect's ornamental skill. The rest should be all plain and solid, e.g., the two main wings facing respectively east and west, they might be made of any length according to circumstances to accommodate from 20 to 40 patients each. S is the back of the Hospital. In this way all the sun exposure possible is obtained as may be seen by a dotted line xxx and another ward for a single row of beds except on ground floor where it may be used for other purposes such as rooms for attendants, bêche apartments for officers, store rooms, Surgery etc. to be distributed.
ed on each flat as most convenient.

P. Hall leading to passage right and left.
E.G. Staircases and privies of Kitchen
and Wash house. In Dead house and out-
door privies; in case of emergencies tem-
porary buildings for accommodation of
invalids might be erected on sites e.g.
G.G. ad libitum. The whole grounds to be
nicely laid out and attended to by con-
valescent patients. The long wards to have
well constructed windows on both sides
with large ones at each end also efficient
means for ventilation and heating. If
it was proposed to establish an Hospital
on a certain station or construct a new
one, a committee of medical men and
engineers should be called to select the
healthiest and most fitting locality. The
plan should then be distributed among
builders their contracts examined into
the materials, expense, and style of
ornament for front should each be con-
sidered and the most promising chosen.

6th To form a resumed view

Suppose an auxiliary operation to be carried
on against the French for instance and the site of war shall be Algiers and the number of our army 40,000. The object of the War to take the Town of Algiers after which to engage the enemy in open battle at Biscarosse upon which place we will suppose them to have retired this latter being about 300 miles distant from Algiers and 120 in a direct line from the Coast. According to the system I have drawn up how should the Medical Department comport itself? Let us first see the materials we have on hand 40,000 men will give us some 80 medical officers and 320 organized assistant medical corps. In England one of the Hospitals in whole or in part will be cleared out for the reception of troops to be returned home. At Gibraltar the Hospital should be temporarily enlarged in the manner I have before pointed out for the reception of say 1,000 invalids. This will require some 20 junior assistant surgeons to be sent to that spot who will then come directly under the command of
the Staff Surgeon of the Station which should rather be appropriated to those disabled from sickness and not from wounds, these latter it would be better at once to send on to England as soon as removal is safe or proper as of course they could no longer be of any use whereas the former when recovered might return to their duties. As every Regiment is embarked the Surgeon and assistant Surgeon must each have their full stock of materials embarked with them. Cast and all which from its form when the wheels were off would be little any other square package. One ship should be fitted out as an Hospital as of course we cannot tell what the result of a bombardment of Algiers might be if we are to get into it or not, another ship must be adapted for the conveyance of materials from one of the three Medreil depots from Dublin for instance where the order would come to supply them say for 500 men. The Medreil there will his as-
Distant fleets will directly be able to give the exact weight of every article wanted and by some simple multiplication we should know that tonnage ships should be required. This cargo will be the reserve in case of need during further operations. The work of taking the town will devolve chiefly on the Navy with some assistance towards the end from the Military. We will suppose this time to have come a feasible entrance having been obtained and their duty is to dislodge the enemy from certain forts or strongholds in or near the city, the Surgeons disembarking with their Regiments with the Medical Wounded Corps carrying on their backs only those cases containing surgical appliances. From the dress proposed these will have with them the manual ambulance another supply of which might at the same time be disembarked from the Reserve ships and given over to some hands to assist in carrying the wounded.
or ambulances suited for horse or mule pannage might be despatched on land, as these animals would be found in plenty. A house, church, or any other building near the field where heat once decayed or was the centre to which all the wounded might be carried to which some of the surgeons in the ships at sea might resort. Those belonging to the Regiment actually engaged must keep near their men to attend to them when first injured, the Medical Work-Corps always remaining near to render assistance. The doctors or bandaged with the horse ambulances would suffice to remove the disabled to the building of reception from which if necessary they could be shipped on to the Hospital Vessel. But in the event of success this would not be necessary as we must here establish a Staff Station as a central Medical Depot during the operations. We will suppose the day won and the French retiring a long way, these to await us to decide the question in the open field.
The army would then be entirely disembarked, in a clump of buildings close as hospitals and storage houses into which the cargo of the medical reserve ship should be lodged under the superintendence of the accompanying clerks who should be responsible that everything is in proper place and order so that when required they might be forth coming. Senior Staff Surgeon of first class arrives to superintend the whole and with him a proper number of assistant Surgeons of Regiments not engaged in the war whose places would be supplied by the Senior Assistant Surgeons from the different Staff Stations. The Assistant Surgeons should at once set to work and organize the Hospital and see that those already wounded or sick are comfortably housed and supplied. The Army by this time would be on the march in pursuit of the enemy, the Regimental Surgeons having with them all their materials surgical and medical.
the country not being suited for wheel carriages or at any rate but at a very slow rate of travelling; the cases should be carried on horses, camels, mules or any other beasts of burden that can be got hold of or by potters forced or hired from the peasantry; the transport corps, which don't care and will always be attached to our armies will take the medical tents along with other regimental supplies. As the army is in ignorance of how long the expedition will last, if the army is entrenched or not in the town, measures should be at once set on foot for conveying after the troops the medical stores in the shape of horses beds &c in proportion calculated on by the Staff Surgeon of the newly established station and with them the wheel carriages belonging to the Regimental Surgeons, they will be of use not only of bringing a reserve of supplies but also for the purpose of conveying the sick and wounded. As the country is here very
hot hoods might be sent out to cover them in the shape of four upright poles with a canvas top. As might be expected the army on coming up to the enemy find them firmly entrenched and not to be dislodged by any hasty movements. The hospital horses being erected with beds and other comforts distributed in them whilst preparations are being made either to attack the enemy or to entrench himself and wait for rein forcements. A line of communication must be established between the army and Algeria or the nearest point on the coast along which all those troopers too much disabled for further service should be returned; those only slightly so might remain and be treated in their respective Regiments or in the hospital horses. The assistant surgeons should have the care of these latter divided into fronts of six or any other convenient number and taking the duty in turns, whilst the surgeons should
remain in the more immediate vicinity of their regiments in order
to treat disease and accident at the very first; should the press of disease
be extreme junior assistant surgeons
might be sent out in any number from staff stations but this would hardly
necessary when a good outlet to the place can be established. Surgeons or
assistant surgeons if killed or disabled will have their places supplied
from the assistant surgeons working in the hospital at algeria. Employment
enough would fall to the medical work corps and from their multifarious acquirements they will be
of no small service as may be conceived. I will say nothing of be-
haviour during action for that according to army regulations is well
managed with the exception of not having the work corps of which I
have spoken and which has been so often insisted on by military medical
writers and yet never adopted in the
British Service

Percy Leslie.