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INTRODUCTORY LECTURE

TO A

COURSE OF MILITARY SURGERY.

DELIVERED IN THE UNIVERSITY OF EDINBURGH, 1ST MAY 1850.

BY

SIR GEORGE BALLINGALL, M.D., F.R.S.E.,

PROFESSOR OF MILITARY SURGERY IN THE UNIVERSITY OF EDINBURGH.

[FROM THE MONTHLY JOURNAL OF MEDICAL SCIENCE, JUNE 1850.]

GENTLEMEN,—It would be, in all respects, more agreeable to me to find myself at the conclusion, instead of the commencement, of my college duties, at this period of the year; but I have of late suffered so much from bronchitic attacks, that I was quite unable to encounter the cold of an Edinburgh winter, and was glad to seek shelter in the west of England. This, you will easily understand, has not given me the same opportunity of acquiring information in my own special department, which I enjoyed during a former absence, when I took occasion to visit the military hospitals and medical schools of the great continental states of Prussia, of Austria, of France, and of Belgium, our own military and naval hospitals at Malta, and the interesting establishment for the instruction of young surgeons at the military hospital of Grand Cairo in Egypt.

I have not, however, been altogether idle, but have been engaged in an extended inquiry into the state of hospitals generally, have once more visited all those in London, and have taken occasion to make myself acquainted with the localities and construction of the principal hospitals in Somerset and Devonshire, particularly those of Bath, Bristol, Taunton, Exeter, Barnstaple, and Plymouth. At the last-mentioned place, I had the pleasure of visiting the great naval hospital—one of the government hospitals which I had long desired to see—and found it in the most perfect order, under the superintendence of Dr Rae, of the Navy—an old friend, whose acquaintance I first formed at Madras, upwards of forty years ago. By his kindness, and that of one of his assistants, Mr McDonald, I am enabled to present to you this view of the institution over which he presides—an institution worthy of the naval character of the country, and to which (along with other views and plans of hospitals) I shall take an early opportunity of directing your attention, having always looked upon the site, the construction, the ventilation, and the interior economy of hospitals, as one of the most important of all topics to an army surgeon.

At present I proceed, without further preface, to lay before you, as I have hitherto done, some of those peculiarities which characterise military surgery as a separate branch of study, and to offer you a few historical notices of the progress of the art itself, and of those who have been distinguished amongst its practitioners. Exceptions have been taken to the term *military surgery*, as if it was desired to imply by it something different in principle, as well as in practice, from common surgery. Now, although I do not think it unnatural that the art and its professors should have taken their designation from that branch of it which, upon great and momentous occasions, constitutes its most distinctive feature, yet I wish to observe, once for all, that I employ this term as embrac-

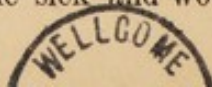
ing military and naval medicine and surgery in the most extended sense of the words—as embracing not only the more strictly surgical accidents and diseases occurring amongst soldiers and seamen, but also the treatment of those internal diseases which are prevalent on foreign service, and in our numerous colonial possessions,—in short, all that in either branch of the service contributes to the prevention as well as to the cure of disease ; for it cannot be too often repeated that it is by prevention, rather than by cure, that the efficiency of our fleets and armies is to be maintained.

All arts, trades, and professions, expose those who practise them to peculiar diseases, and of these, as affecting the part of the population employed in civil life, we have several interesting and valuable accounts. It will be easily understood that, while many of the exercises and habits of soldiers are undoubtedly of an invigorating and salutary description, there is no class of men exposed to more numerous or more fertile causes of disease in the frequent, sudden, and unexpected changes of climate to which they are subjected—in the urgent and unseasonable calls of duty, which they must not disobey—in the privation of food, of shelter, and of every comfort, to which they must occasionally submit ; and in the thoughtless excesses of every kind in which they are but too prone to indulge. If to the study of all these causes and their irresistible effects on the human frame, we add the considerations of those complicated wounds which it is their peculiar lot to receive, we shall find abundant occupation for all the talent which the most active and assiduous professional man can bring to bear upon the subject of military medicine and surgery.

In adverting to the origin of this department of medicine, it is to be regretted that we possess little or no detailed information regarding the provision made for the treatment of the sick and wounded in ancient times. That medicine was occasionally distributed in the Macedonian armies, is to be inferred from the historical fact of Alexander having once been exposed to the murmurs of his soldiery, in consequence of its omission. "*Vulneratorum magnam haberi curam æquum est*," was a maxim fully adopted by the states of Greece and Rome ; but this seems rather to have applied to those permanent provisions now given to disabled soldiers in the shape of pensions, than to any professional means of treatment in the recent state of wounds, or in the acute stages of disease. The first traces of field hospitals, or, as they are sometimes termed, flying hospitals, are perhaps to be found in the armies of the East, where certain followers, termed *deputati*, were distributed amongst the cavalry to carry off those wounded in battle. For this purpose they had on the left side of the saddle two stirrups, in order that they might more easily take up the wounded behind them, and for every person thus saved they obtained a certain reward.

Field hospitals were probably established in Germany before the middle of the 14th century ; at least we have frequent mention of field surgeons in the writings of that period ; and Fronsperger, speaking of the establishment of a corps of artillery, says there should be with each company a particular field surgeon—not, however, a paltry beard-scraper (*bartscherer*), but a regularly instructed, experienced, and well-practised man. The extraordinary alliance here alluded to between shaving and surgery, which has always been so unpalatable to the profession, would appear to have been fostered, or rather insisted on, by some governments, even up to the beginning of the present century. So late as 1801, certain Englishmen, who had entered the Swedish navy as assistant-surgeons, were dismissed the service, for refusing to shave the crews of their respective ships.

Spain, which has in recent times been so frequently the scene of conflict between hostile armies, would seem also to have been one of the first countries in which the wounded soldier found a comfortable home. In the Chronicle of the Conquest of Grenada, we are told that, in 1484, a large force was assembled, many of them the very flower of Spanish chivalry. Numerous surgeons accompanied it, who were to attend upon all the sick and wounded, without



charge, being paid for their services by the Queen, Isabella, who, in her considerate humanity, provided six spacious tents, furnished with beds and all things necessary, for the wounded and infirm. This was denominated the "Queen's Hospital," and has been vaunted as the first introduction of a regular camp hospital.

In France, field hospitals were first established, under the illustrious "Henri Quatre," at the siege of Ameins, in 1579, and the benevolence of the institution was so gratefully acknowledged by the soldiers, that they distinguished the campaign, in which they were established, by the name of the *velvet campaign*. Humanity to the wounded seems, even long prior to this period, to have been a trait conspicuous in the character of the French monarchs, St Louis himself, the ninth king of that name, having personally assisted in the cure of the soldiers whose wounds were the consequence of the wars undertaken for the purpose of expelling the infidels from the Holy Land, or of his contests with our Henry the Third.

In the British army we have been less distinguished by the early adoption of field equipments than by the perfection and efficiency to which our regimental hospitals have been brought. In this respect we have excelled all other nations; and it will be my duty, in subsequent lectures, to direct your attention to the economy and management of these establishments.

After this hasty sketch of the provisions for the sick and wounded soldier, I would now turn your attention to the sources of instruction laid open to those who are qualifying themselves for the public service of the state. The application of the principles of medicine and surgery to the preservation of large bodies of men during warlike operations has not at all periods of history obtained from those in authority that degree of attention to which it is entitled. Even the most warlike nations in Europe did not, till a very recent date, make any regular provision for superintending the health and treating the wounds and injuries of the troops. Soldiers and seamen were too often left to all the contingent hardships of war, without any adequate means of resisting the approach of disease, or treating it successfully in its earlier stages.

This was connected with the character of warlike operations during the early history of modern Europe, in which a campaign was for the most part of a few weeks' duration; and, after some violent and sanguinary struggle, the victorious and conquered party generally retired for the rest of the season to their respective homes. Thus in the long and sanguinary conflicts, during the 14th and 15th centuries, between England and France, the business of a campaign consisted in one, or at most two, great and extraordinary efforts between the contending powers. This activity and dispatch in military operations were required, not only by the insufficiency of the pecuniary means for fitting out and maintaining armaments in a foreign country, but also by the chance of sickness appearing, and thinning their numbers to an incredible degree. We know, from various creditable authorities, that if the battle of Agincourt, fought on the 23d October 1415, had been postponed but a single week, the English army would, in all probability, have been so much diminished by sickness and mortality as to have fallen an easy prey to the predatory attacks of the Norman peasantry. Though Henry V. had embarked at Southampton, on the 18th and 19th of August, with 50,000 men, and landed at Havre on the 21st, before five weeks had elapsed dysentery had attacked them so severely and extensively, that 2000 men are reported to have died of it in a single day, and not above a fourth part of the whole force was capable of bearing arms.

While little was done for alleviating the personal suffering of the soldier in the recent stages of disease, still less was done for the instruction or guidance of those who might be called upon to administer professionally to his wants. The first country in Europe in which medical knowledge appears to have been employed methodically to the benefit of armies was Austria. Placed with Hungary and the adjacent territories at the eastern boundary of Europe, the Austrian empire was almost incessantly at war with the Turks, and finding it

necessary to maintain a line of fortresses, or strong posts, on its eastern frontier, numerous reinforcements were constantly called for. Hungary is, however, in many respects, one of the most unhealthy countries of Europe. Traversed by a thousand streams, pouring their tributary offerings into the slow rolling Danube, its surface is extremely moist, and the solar heat, operating on this surface during the day, is followed by dense dews and fogs during the night; hence miasmatic diseases prevail with a force and virulence unknown in other countries. The agues, remittents, and dysenteries of Hungary appear first to have made an extraordinary impression in 1566, or, according to another authority, in 1572, when the Emperor Maximilian the Second led a numerous force to the banks of the Danube. Having encamped on a low humid island in the river, his troops very quickly sickened, and the majority were destroyed in a few weeks.

From this period the frequent occurrence of sickness and mortality amongst the Austrian troops rendered it indispensable for the government to provide a suitable medical staff, and to devote particular attention to those diseases incident to a military life. Accordingly we find that the first authors who devoted express treatises to the subject of military medicine were Austrian physicians, of whom we have a numerous list between the year 1664 and 1735; and the first person who appears to have undertaken the composition of anything like a complete treatise or manual of military medicine was "Raymond Mindererus," a physician of Augsburg, who had spent his earlier years in the Austrian army, and who is in some measure known to the profession by the prescription still occasionally bearing his name. In Austria is to be seen at the present day the Josephinum of Vienna, the most splendid institution in the world for the special instruction of army surgeons,—"*Schola Medico-Chirurgica militum morbis et vulneribus curandis sanandisque instituta.*"

In the capital of Prussia again we have a kindred institution, that of Frederick William the Second, at Berlin, destined by its royal founder "in the first place, to receive the surgical staff of the field hospitals which had acquired experience in the war with France, and to preserve it to the country; and, in the next place, to provide for the field hospitals in future a supply of well educated surgeons."

In France, various ordinances were issued between 1718 and 1747, containing some dispositions favourable to the instruction of the young army surgeons, and at the peace of 1763 Richard submitted to the Duc de Choiseul, the minister at war, the propriety of requiring the army surgeons to give a regular account of their practice; and from that time forward, particularly since the termination of the war with this country in 1815, the publication of the records of the military hospitals in France has gone on with a most commendable spirit and regularity, while we have in that country an admirable provision for the education of their army surgeons in the *Hôpitaux d'Instruction*, established at Paris, at Strasbourg, at Metz, and at Lille. To France we are also indebted for some of the earliest systematic works in the department of military medicine, particularly those of Colombier, one of their most distinguished physicians, who, in 1778, gave to the public a general and valuable "*Treatise on the Health of Soldiers*," in seven volumes octavo.

With reference to our own position, I may observe, that, while in other countries the whole profession may be said to be occupied in one train of inquiry, the army and navy surgeons of Great Britain have special fields of experience, observation, and research, open to no other body of professional inquirers. How fully the profession has availed itself of these opportunities may be seen by a single glance at the list, which I have appended to my text-book, of works on the "*Diseases and Accidents of Soldiers and Seamen*," published exclusively by medical officers in the service of her Majesty, or of the Honourable East India Company. But, while the *profession* has done much, the *state* has done little. While this country possesses (in the extent and variety of her colonial possessions) facilities for the improvement of military and naval medicine beyond any other—aye! beyond all others put

together,—we have nothing to be compared to those splendid establishments on the continent to which I have just referred, and which I have recently visited. Even the means of instruction afforded by the museums at Chatham, at Haslar, and at Plymouth, are more the result of professional energy than of government patronage, and, situated in provincial towns, they are but little available to the great bulk of the profession. In the Metropolitan School of Dublin a course of lectures on military surgery has been delivered for three years past, by Mr Tuffnell. But this is a matter of individual enterprise; and I blush to think that I still stand alone as the only professor of military surgery in this country endowed by the government, while there are so many others qualified, by their talents, information, and experience, to be advantageously employed in making known to the rising generation of army and navy surgeons the peculiarities of those duties which they will be called upon to discharge.

While the few standard authorities (of foreign countries) to which I have already referred in the medical branch of the subject, are comparatively of recent date, "military surgery," properly so called, has long ago acquired a more tangible and instructive shape. We find that the Italian surgeons, who were the first to distinguish themselves in the successful pursuit of anatomical science, were amongst the first to produce express works on the treatment of wounds and injuries received in battle, from the warlike weapons of the 13th century; but the invention of gunpowder, and its employment in battle, produced such essential changes in the features of war, and in the character of the wounds presented to the army surgeons, that it seems to me quite superfluous to dwell upon the imperfect traces of our art, as practised by the heroes of antiquity, or noticed in the writings of historians.

It is not very wonderful that the novelty and mortality consequent upon gunshot wounds should have led surgeons, as well as soldiers, to indulge in the opinion of their poisonous character, which was very generally entertained until overthrown by Ambrose Paré, a man who united to all the knowledge of his time, a singular degree of originality and talent, which enabled him to deviate widely from the line of his predecessors and contemporaries, to discard many of the foolish superstitions and crude practices then in use, and thus to simplify and improve greatly the treatment of wounds. The circumstance of his being attached to the army in one of the most warlike periods of the history of France, and of his being surgeon to four, if not five, successive sovereigns, gave him a field of practical experience in military surgery which none of the Italian surgeons had yet enjoyed, and which, since that time, has scarcely fallen to the lot of any individual.

[Here the lecturer introduced a historical sketch of the writings of the more distinguished military surgeons of England, as already published in his "Outlines," and proceeded to notice the labours of his friend, Mr Guthrie, as follows.]

Mr Guthrie's "Treatise on Gunshot Wounds" was first published in 1815, and in subsequent editions has been greatly enlarged and improved, embracing observations on "Inflammation, Erysipelas, and Mortification," on "Injuries of Nerves," and on "Wounds of the Extremities, requiring Amputation." Here the author enters into the consideration of gunshot wounds in general, and illustrates his doctrines by a reference to the events of the Peninsular war, and to the most extensive experience, which perhaps any of his countrymen have ever enjoyed. To Mr Guthrie the profession has subsequently been indebted for several important surgical works; and the young surgeons of the army are particularly indebted to him for his Clinical Lectures, in which he has powerfully advocated their interests, and given a vivid picture of the realities of the service. In a series of "Lectures on Wounds and Injuries of the Chest and Abdomen," which have been published in one of the journals, and of which Mr Guthrie has put me in possession in a separate form, we find him with all the energy of his younger days advocating the cause of the wounded soldier,

lamenting the insufficient numbers of the medical staff in the recent conflicts in India, as well as upon former occasions, and remonstrating with the authorities on the subject. He concludes this remonstrance with an apology, which, I believe, no one but himself will think at all necessary. "I have been asked," says he, "why I presume to obtrude my opinions on any one, much more on the great civil authorities of this country, who do not desire them? The answer is simple. There is no one who *ought* to understand the subject so well, although there are many, perhaps, who do understand it better. It has been inquired what place I am seeking to obtain? The answer is more simple still. I am a man without a wish—without desire—for anything which belongs to this world; I seek a place, in which I and all the authorities I have ventured to address, shall one day stand before Him, by whose all-seeing eye our inmost thoughts will be laid bare; and where I earnestly pray that my endeavours on behalf of the helpless may be favourably judged."

Such are a few, and only a few, of the most conspicuous names in the province of what may be more strictly termed military surgery; but were I to stop my enumeration here, I should lead you to form a very imperfect and erroneous opinion of the nature of the service,—of the duties which devolve on a military medical officer,—and of the merits of many who have performed these duties with honour and success. The carnage even in the great battle of Waterloo,—an event sufficiently unique and distinguished to mark the age we live in,—is in no long time equalled by the mortality amongst those brave men who are employed in defending our foreign possessions; and it would be unpardonable to omit mentioning numerous authors who have written well upon the diseases to which our troops are exposed in distant and unhealthy climates. I have yet said nothing of the writers on the diseases which afflict the soldier in camp and in garrison; in this list the venerable names of Pringle, Brocklesby, Monro, and Cleghorn stand particularly conspicuous. Amongst writers on the diseases more peculiarly incident to seamen, Lind, Blane, Trotter, and Burnett hold the most distinguished place; and from a numerous catalogue of writers on tropical diseases, I would particularly recommend the works of Hunter, Jackson, Bancroft, Chisholm, Curtis, Johnson, Annesly, Martin, Twining, and Geddes. Into anything like even the most brief analysis of these writings, your time forbids me to enter, and it is perhaps less necessary, inasmuch as they are more generally known to the profession, and, I believe, more frequently referred to in other classes, than those which I have previously noticed.

With reference to the course upon which I am now about to enter, I have already hinted, that it is not without reluctance that I am compelled to transfer it to the summer session. By lecturing every day, instead of three times a week, I shall be enabled to deliver the usual number of lectures, and in this respect the course will not be shorn of its due proportions. To young men burdened, I may say overloaded, with compulsory study during the winter months, the change may in some degree be a matter of convenience; but to me it makes this very essential difference, that I cannot expect the same amount of attendance from gentlemen in the army, the navy, and the Honourable East India Company's service, with which I have generally been honoured. From such gentlemen, coming home from the most remote parts of the world, I have been constantly favoured with numerous and recent communications on the health of our soldiers and seamen, enabling me, I trust, from year to year, to make these lectures more instructive to my hearers; but many of my old pupils and professional friends, while they return from foreign climes with enlarged experience, return also, I am grieved to think, with impaired health, and must seek to renovate this by relaxation from study, travelling, and other enjoyments, to be obtained only during the summer season.

From letters which I have hung up for your inspection, from my colleague, Mr Syme, the President of the College of Surgeons, from Sir James M'Grigor, Sir William Burnett, and from Doctor Scott, the examining physician of the East India Company, you will observe that this summer course will obtain from

the several bodies or departments over which these gentlemen preside, the same recognition which my winter course has heretofore enjoyed.

While I have upon many occasions deplored the tardiness of the government in instituting a class of military surgery in the metropolis of this great empire, and leaving its establishment in the sister isle to the unaided zeal and energy of a talented young surgeon, formerly in the army, I have had no cause to complain of want of patronage or encouragement from the heads of the medical departments of the army and navy. They have done all that, under existing circumstances, they can do to recommend the study of military medicine to young men preparing for the public service, and in this they have been well supported by the periodical journals, both military and medical. Within the last few months a series of well-written and emphatic articles have appeared in the "*Lancet*," urging the institution of a class of military surgery in London, and pointing at the possibility of doing this even without the assistance of the government. This last is the only point on which I differ from the writer of the articles to which I allude. While so much is done to instruct our military and naval officers in the scientific destruction of their foes, I do not see why more should not be done to instruct our medical officers in the preservation of their friends; and I do not see why, even in these economical times, the public should not extend to London and to Dublin the same moderate endowment which has been given to the chair in this University. I have elsewhere observed, that "this were a cheap compliment,—this were a very becoming attention to the health of that army and navy which have served the nation so faithfully and so efficiently,—which have preserved the country from foreign invasion,—which have protected its commerce in perilous times,—and which have opened up vast empires to the spirit and enterprise of the British merchant."

From what I have now said, you will, I think, readily understand the views and feelings with which I enter on the duties of the ensuing session; and in endeavouring to carry these views into effect, I proceed, under the impression that the department allotted to me in this great medical school, is a department of all others the most purely practical; and although I cannot but feel that a long and distant seclusion, in my earlier days, from the schools of medicine, and the seats of modern science, deprived me, in the first instance, of many advantages enjoyed by others, I am nevertheless encouraged by the hope, that many of the best years of my life, passed in an intimate acquaintance with sick and wounded soldiers, in the study of their habits, and in the treatment of their diseases, may enable me to lay before you some practical information on those subjects with which young men, destined for the public service, are more particularly called upon to make themselves acquainted. I will now, therefore, briefly advert to the arrangement which I think it expedient to follow, and to the topics which I think it incumbent on me to discuss. The course consists of *three* great divisions. In the *first* of which, as already hinted, will fall to be considered the selection and examination of recruits for the army,—the diet, clothing, and exercise of the troops,—their accommodation in camp and in quarters,—the diseases to which they are more particularly subject in these respective situations,—and the means of prevention; next, the situation, construction, and economy of military hospitals; and lastly, the means of transporting the sick and wounded. These are topics of which it will be difficult for young men, inexperienced in the service, duly to appreciate the importance; but the numerous authors to whom I shall have occasion to refer, in illustration of my views, will afford the best possible proof of the value in which they have always been held by the most able and most practised of our military and naval surgeons. In reference to these topics, and to the safety and success of armies, it has been observed, "that in the progress of time and events, there is not a single man upon whom a call may not be made for the exertion of faculties and acquisitions of great variety and extent, and on whose knowledge there may not depend the lives of hundreds of thousands, the expenditure of millions, and, finally, the security or downfall of the state to which he belongs."

There is, perhaps, no individual in an army to whom these reflections more forcibly apply than to the head of the medical department ; and it is consolatory to think, that even in seasons the most inclement—under privations the most severe—in climes the most ungenial—and encampments the most unwholesome—the resources of our art have been successfully opposed to the disasters of war.

In entering upon the *second*, or surgical, division of the course, I introduce it with a few observations on inflammation, which are followed by the consideration of burns, ulcers, and hospital gangrene. To this will succeed the consideration of wounds in all their forms and bearings, of all the various complications with which they are attended, and of the several operations which become necessary in their treatment.

In the *third* and concluding division of the course, will fall to be considered the geographical distribution of diseases, the diseases incident to soldiers and seamen in long voyages, on foreign stations, and particularly in tropical climates. A knowledge of these subjects is obviously connected with the nearest and dearest concerns of the state, and with the successful pursuit of those great interests which particularly distinguish this sea-girt isle. Here I find a field of observation so extensive, that although, as a young man, I entered upon it without hesitation, I have long felt myself unable to do justice to the valuable observations of my successors ; but I would fain hope that my personal experience may at least enable me to point your attention to what is most important.

With reference to the means of illustrating my views, I must notice the obligation under which I and my class have in later years been laid by the *Senatus Academicus*, in procuring for the instruction of the students of military surgery (and of the medical students generally), the valuable collection of preparations made by Mr Rutherford Alcock during the recent campaign of the British Legion of Spain. This is a collection containing many interesting specimens, illustrative of the injuries done by fire-arms, and to which I shall have frequent occasion to refer in the progress of the course. When I contemplate the advantageous position in which the possession of this collection, and of the many other articles for which I am indebted to my friends in the public service, has now placed me, I cannot but look back with some degree of regret to the imperfect manner in which I fear my duties to my pupils were fulfilled, in the earlier period of my tenure of this chair. I console myself, however, with the reflection, that the defect was unavoidable, and that I have now laid the foundation of a collection, *unique* in its kind, and illustrative *exclusively* of subjects of paramount importance to the military and naval service of the country.

Here I must also acknowledge the several fasciculi of Lithographs from the Museum of the medical officers of the army at Chatham, and the Statistical Reports on the health of the army and the fleet, printed under the authority of Parliament, for which I am indebted to the courtesy of Sir James M'Grigor and Sir William Burnett. In these I find many apposite illustrations of my remarks. They are here more frequently, I believe, than anywhere else, brought under the notice of the pupils ; and it is, I apprehend, only in courses of this kind that the information contained in these voluminous records can be fully appreciated or advantageously diffused. I have seen nothing to change the opinion which I expressed upon this point seven years ago in the following words :—"These reports have been prepared at an enormous amount of labour to the authorities at the Horse Guards, the Army Medical Board, and the Admiralty, and at a very considerable pecuniary expense to the public. All this labour, all this expense, will, I confidently assert, be in a great measure lost to the service, unless means are taken to concentrate the valuable information embodied in these reports, to put it in an attractive and impressive form, and to keep it constantly before the present and the rising generation of army and navy surgeons."