MILITARY HYGIENE AND SANITATION: A RETROSPECT.

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The history of hygiene and military sanitation during the past fifty years covers the most important period as regards the progress of the science and art of the prevention of disease and the maintenance of health in the history of the Army. Not only has our knowledge of the science of hygiene increased to an extent that makes a retrospect into the middle seventies of last century almost like a glance into the Dark Ages, but at the same time our practical application of that knowledge, in other words the art of sanitation as applied to the circumstances of military life, has increased to an almost equal extent.

In studying the history of this progress I do not intend to encumber this paper with more figures than are necessary to illustrate my points, nor do I pretend to adhere meticulously to exact dates of the various changes that have taken place. My aim is to give a general sketch of the progress that has been made rather than a step by step account of the advance by which it has been achieved. Military sanitation is based on two factors: (1) The advice given by the medical officers of the Army, each in his particular sphere of responsibility; and (2) the carrying into execution of that advice by staff and regimental officers. To give good and trustworthy advice the medical officer must not only know the laws of hygiene, he must also be intimate with the details of military administration, the general conditions of military life, and the character and work of the soldier. To carry out such advice, in an efficient manner, staff and regimental officers must have an appreciation of the importance of sanitation as conducive to the success of the operations of war and a grasp of the basic principles of hygiene. Complete success can only be achieved in the prevention of disease when both parties understand each other's standpoint, trust each other thoroughly, and co-operate with a single eye to their common aim and interest—the good health of the soldier.

The history of prevention of disease in the Army must, therefore, be a history of our advance in knowledge, and at the same time a history of increased mutual trust between the two parties responsible for the execution of the necessary work by which that knowledge is applied.

Though I have written as if the demarcation of duties was definite, this is, of course, not actually the case in practice. Each side must advise the other; each must also help the other in execution. Still, the general demarcation remains, and is an essential part of military administration.

1 Reprinted from the Journal of the Royal Sanitary Institute, 1926.
I will not encumber this paper with figures, but since a few are necessary to indicate the \textit{termini ab quo} and \textit{ad quem}, and also certain milestones on the line of progress, I will give these at once and be done with them.

To begin with, the ratio of admissions per 1,000 strength to hospitals from all causes in the British Army, at home and abroad, was in the middle 'seventies, in round numbers, 1,060; in the 'eighties, 1,020; in the 'nineties, 850; in the earlier years of the present century, 500; and at present 480. Taking the Army in the United Kingdom only, the total fall has been from 843 to 360; in the Army in India from 1,480 to 660. These figures speak for themselves and need no elaboration.

This advance should, if my statements above be correct, be due to improved knowledge, and improved co-operation between the medical and other arms of the Service.

First, then, as regards knowledge. In addressing a professional audience it is unnecessary for me to dilate upon the general increase in knowledge of the causes and prevention of disease common to both civil and military branches of the medical profession, in the last fifty years. To show how great this advance has been, it is sufficient to remind you of what I wrote earlier in this paper, that a retrospect into the 'seventies of last century was like a glimpse into the Dark Ages. In those days the germ theory was in its infancy; inoculation as a preventive measure (with the single exception of vaccination) unknown; biological methods of the disposal of sewage undreamt of. To what lengths that list might be extended you all know, and yet just fifty years ago died the greatest of military sanitarians, Edmund Parkes. I need not remind members of this Institute of the work that he actually did accomplish with his necessarily limited knowledge, and the limited means at his disposal. What might he not have done if he had possessed that which we now have at our hands for the asking? It was his fate to be born before his time, but his example and his memory will never fail to be the inspiration of all military sanitary officers, in the hope that they, his better equipped successors, may by following his great example emulate his success, since they cannot expect to surpass his merits.

In discussing the advance in knowledge of the basic principles of hygiene in the other arms of the Service, and the increased recognition of the importance of co-operation between them and the Medical Service, I must go to greater length.

The seventies of the last century were marked by two most important changes in military administration, namely, the introduction of short service and the formation of a unified medical department, replacing the old system, under which medical officers were largely regimental officers, wearing the uniform of the regiment to which they belonged. It would be idle to pretend that either of these changes was popular in the Army as a whole, completely as they have since justified the wisdom of their authors. The first entirely altered the nature of the population with which the sanitary
officer had to deal, the latter severed at once the intimate connection between the regimental and the medical officer, which the older system had encouraged. The regimental commanding officer missed the presence of the old surgeon major who had been, in many cases at least, his friend and brother officer for many years, and whom he trusted in both relations. In his place he got a stranger, a young medical officer straight from Netley, whose ignorance of army life was only equalled by his pretension to superior scientific knowledge, and his want of tact in submitting recommendations for the improvement of the sanitary work in the regiment. On the other hand, the regimental medical officer, rudely severed from the regiment which he had come to look on as his home, found himself burdened with administrative duties entailed by the charge of a large hospital, and often of a large station, for the execution of which duties his previous education had in no wise prepared him, and which he found in the last degree distasteful. Worst perhaps, of all, since sentiment plays so large a part in life, he found himself cut off from the regiment whose uniform he had worn for so many years, whose honours and traditions were part of his life, and placed in (what he considered) a new-fangled department without any traditions, and which had still to find its place in the military scheme. (I am, of course, emphasizing the shades of the picture: there were both commanding officers and regimental medical officers who were far sighted enough to realize the necessity and advantages of the new system, little as they liked the inevitable dislocation that it entailed.) As a general corollary there was undeniable friction between the Medical Department and the other arms of the Service, which did not facilitate co-operation or efficient work. I do not intend to refer, except in passing, to the long drawn out discord, evidenced by the various Royal Commissions that discussed the status of the army medical officer during the last twenty-five years of the nineteenth century. They may now be left forgotten in the limbo of "old unhappy far-off things and battles long ago." Nevertheless, they had their evil influence in their time, and they certainly postponed the advent of cordial co-operation between the different branches of the Service, which is the thing most necessary to the prevention of disease in the Army.

It has often been said that the South African War was the greatest Godsend that the British Army ever received. In no case is this more true than in the matter of sanitation. The appalling loss from disease in that war, in which the deaths from sickness were nearly ten times, and the deaths from enteric fever alone more than four times, the number killed by the enemy's fire, brought home to the most unthinking and careless of nations the truth that one of the essentials of victory in war was attention to sanitation. The lesson had indeed been written by every campaign that the British Army (or for the matter of that any other army) had ever fought. One would have imagined that the Crimean War alone would have stamped it into the brains and hearts of politicians, but Lord Herbert
was the only man who grasped the lesson, and he, only the first half of it. To his influence was due the founding of the Army Medical School, first at Fort Pitt, and afterwards removed to Netley. He did his best to improve the knowledge of the medical officer. He did not realize that it was just as necessary to teach the regimental and the staff officer that their responsibilities were as great as that of the medical officer in this matter. Not all the work and teaching of Parkes, great as his influence for good was, could produce the mechanism by which alone the advice of trained medical officers could be carried out. In addition, hygiene at that time was a young science, and, like all young creatures (I use this word in its original sense of something created), made many mistakes. Many discoveries made in the earlier years were later seen to be ill-founded, and worse still, as regards the Army, many recommendations, the carrying out of which caused both trouble and expense, turned out ineffectual. So much was this the case that Lord Wolseley, in his otherwise excellent "Soldier's Pocket Book" described a sanitary officer as the most useless officer in the Army, and recommended any general to whom such an encumbrance might in future be attached, to leave him at the base. I hardly think that any general who commanded a force in the late war would repeat the gibe. At the time, however, it had, from the great authority of the writer, an unfortunate influence, especially amongst those senior officers who were especially attached to Lord Wolseley. There was one marked exception, namely, Sir Redvers Buller. He not only fully recognized the value of sanitation in the field, but personally and actively enforced its observance. The result was shown in the far better health enjoyed by the Natal Army when compared with other forces in the South African War.

Fortunately at the close of that war there were two men who not only read the oft-repeated lesson, but had both the sense to grasp its meaning and the power to enforce its teachings. These were Lord Midleton, then Secretary of State for War, and Sir Alfred Keogh (then Lieutenant-Colonel), later Director General of the Army Medical Department.

The first important step taken was the transference of the Army Medical School from Netley to its present site on Millbank. This at once brought the teaching staff of the Royal Army Medical College (as it was then named) into closer touch with the War Office and with the Medical Schools in London. Instead of the cramped and out of date laboratories of Netley, the College was equipped with class rooms which are unsurpassed in Great Britain, if not in the world (that, at least, was the expressed opinion of the numerous foreign delegates who visited the College at the Congress of 1912), and endowed with an increased library grant.

Another great advantage consequent on the change of site was the closer touch maintained between the individual medical officers working in the War Office and the College respectively. The two staffs got to know each other in a way that had never been possible before.

To my mind, the founding of the Royal Army Medical College is one of the outstanding landmarks in military sanitation.
But if the reforms instituted by the two men I have mentioned had stopped there, their work would only have been half done. The other outstanding reform was the education of staff and regimental officers by lectures at the Staff College, at the R.M.C., Sandhurst, at the R.M.A., Woolwich, and to regimental units generally. And, lest the seed should fall on stony ground, the unfortunately necessary whip (I acknowledge and apologize for the mixture of metaphors) was supplied by the inclusion of sanitation in the passing out examinations at Woolwich and Sandhurst, as well as in the examinations for the earlier steps of promotion.

It is these two factors, then, the improved means of instruction for medical officers, and the new system of instruction for regimental and staff officers, that, from the administrative point of view, were the cause of the good health of the Army in France during the late war. It must be remembered that the war was fought over ground where British armies had often fought before, and that those earlier campaigns had always been marked by heavy mortality from dysentery and malaria. Cultivation had probably done a great deal to reduce malaria, but the fouling of the soil by a marked increase in population and intensive cultivation, had not tended to diminish the likelihood of intestinal disease. Yet dysentery was a comparatively rare complaint, whilst the total admissions from enteric fever in four years, for all ranks of British and Dominion troops, were less than the total deaths from this cause in the South African War in two and a half years, where the force engaged was so much smaller. It is true that in other theatres of war, Gallipoli and Mesopotamia, disease was more prevalent, but in those theatres the local conditions rendered the problems exceptionally difficult to deal with: there was no lack of combined effort to tackle them.

So far for administrative questions. To come to more concrete causes it will be necessary to refer to housing, food, clothing, and physical training. As regards the first, though a few of the older barracks still exist, in smaller stations, the improvement in the larger stations has been enormous. Those only who, like the present writer, can remember the old huts at Aldershot and compare with these the barracks that replaced them, can perhaps appreciate the advance that has been made. And since the construction of a barracks influences profoundly the mode of life of the soldiers who have to occupy them, the newer plans have permitted of increased comfort, improved methods of messing, and better sanitation in all directions. In such modern barracks as the Guards' Barracks at Windsor, and the barracks at Redford, near Edinburgh, everything that the soldier can want—food, amusement, and indoor recreation generally—is provided under one roof.

The best witness that can be called on this point is Field Marshal Sir William Robertson, who, in his book "From Private to Field Marshal," contrasts the conditions of the soldier's life at the time when he first enlisted at Aldershot with those that he saw when he served again at
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the same station as Chief of the General Staff thirty years later. Space forbids me to retail these changes at length, but anyone interested in the life of the soldier should read that chronicle: there are few books more interesting and instructive.

As to clothing, a few words only are necessary. The modern soldier's working dress is the well-known field-service uniform with which everyone is familiar, which though, for display, it cannot compete with the pre-war red and blue, is infinitely more suitable for a working man's attire (and the soldier is a hard working man) than the more attractive and resplendent uniforms of the old days.

Food is perhaps an even more important matter. Here, again, only those who can remember the dinners with which the private soldier had to be content, even forty years ago, can appreciate the change. Instead of having to eat, at the same table on which he cleaned his accoutrements, food that was badly cooked, and worse served, he now sits down in a comfortable dining-room to food that is not only good in itself, but also of ample variety, decently cooked and served, and substantial in quantity, while the dietary scale is based on scientific principles as to its components and suitability.

To put it shortly, the soldier on enlistment is better housed, better clothed, and better fed than he ever was in civilian life—far better than his predecessors of the 'seventies. Little wonder that his health should be good. In addition he gets plenty of work, is put through the best judged system of physical exercise that I know of, and has far more done for him in the matter of outdoor sport, and indoor recreation, than was conceivable even by the most progressive of military reformers fifty years ago.

A few words may here be said on the question of food on active service. A certain scale was laid down after the South African war for the field service ration which was considered sufficient for the demands of active service in the field. In 1909 and 1910 practical experiments were carried out, as a result of which substantial additions were made to the diet, especially in the matter of fats. This scale, which proved if anything to be redundant, was adopted, with certain modifications, in the last war. It was largely in consequence of this increased scale that the health of the Army was so good in the very trying conditions of the first six months of the war.

I will now touch briefly on physical training and equipment from the purely medical aspect. In 1909, largely owing to the advice of Dr. M. S. Pembrey, then a member of the Army Medical Advisory Board, the scientific study of the life and work of the soldier, in other words of the physiology of military life, was taken up seriously. Since the days of Parkes this study had been allowed to fall into the background, but as a result of Dr. Pembrey's initiative a special class was started at the Royal Army Medical College, whose duty was to study both practically and theoretically the influence on the soldier's constitution of the work demanded of him both in
peace and war. The effect of marching, with and without loads, on the
temperature, pulse rate, and blood-pressure was studied personally and
practically by the students themselves. They went through the ordinary
course of physical training required of the soldier, and their opinions on the
different exercises, their merits and shortcomings, discussed at the College
on their return from the Guards' Gymnasium, whilst the memory was still
fresh. They carried the soldiers' load on experimental marches, comparing
the British equipment with that of various foreign armies, of which the
College was fortunate in possessing a full collection. After leaving the
College these officers were posted to various central gymnasia, where they
had the opportunity of instructing the technical staff in the physiological
aspects of their work. Since those days the study of military physiology
has been much expanded, but the credit for its ever having been seriously
taken up is due to the man I have already mentioned. The Army owes
him a deep debt of gratitude for the interest he took in the beginnings of
the study, and for the liberality with which he placed all his knowledge
and gave much of his time to the instruction of the earlier students.

I may now pass to the consideration of certain specific diseases intim­
ately connected with military service. Since so large a portion of the
British Army serves abroad in tropical and sub-tropical climates the
diseases which I shall mainly consider are those which prevail in such
climates, and as the preponderating portion of the foreign service Army
serves in India I will use that country as an illustration.

I will begin with cholera: not because this is the most important, as
regards prevalence, but because when it does occur its incidence is so
sudden, its mortality so dreadful, and its moral effect on the troops attacked
so serious that it claims for itself the first place. Enteric fever is a burden,
often a heavy burden; cholera is a calamity, and may be an overwhelming
calamity. In time of war a severe outbreak of cholera might well decide
the fortune of the campaign as rapidly and decisively as a crushing defeat
at the hands of the enemy.

In the sixties of last century cholera was an ever-present menace.
Every year saw an outbreak, roughly every other year one of appalling
dimensions; and, since its incidence was capricious, and as a rule it struck
only a few stations in full severity, where it did strike it swept the station
it selected as with a besom. In the 'seventies it was still constantly present,
but the outbreaks were less severe; in the 'eighties and 'nineties the
improvement continued, and during the present century the number of
admissions per 1,000 of strength has rarely been more than a fraction per
1,000 of strength. The explanation to my mind is clear. Cholera has dis­
appeared because water supplies have improved, and for no other reason.
The connexion of water-supply with cholera was not generally recognized
in the 'sixties. In the 'seventies the teachings of Parkes began to bear
fruit, and during that decade and the next increasing attention was paid to
this matter as the essential connexion between it and the disease became
more and more clearly realized. The culminating point was reached in 1894, when an outbreak in the East Lancashire Regiment, at Lucknow, inseparably associated with the name and gallant behaviour of the late Major-General Sir Henry Neville Thompson (then Surgeon Captain), showed in the clearest possible manner that water, and water alone, was the vehicle by which cholera was ordinarily conveyed to man. Incidentally it demonstrated the powerlessness of the ordinary form of portable filter, then in use, to deal with bacterial infection. Sporadic cases of cholera have occurred since then, and even small outbreaks: such are to be expected as long as the disease continues to be endemic in certain parts of India. It may confidently be expected that it will never again appear in the form which it assumed in the 'sixties and 'seventies.

The outbreak at Lucknow originated a reform in our system of filtration. The story is too long to recount in detail. Berkefeld and similar portable filters were tried for a time, but found too fragile for field service, in the South African War. Eventually, after many experiments and failures, it was not until shortly before 1914 that, mainly by the energy and labour of Colonel Sir William Horrocks, the present form of filtering and sterilizing water cart was introduced. This passed through the test of the late war with brilliant success.

The next disease with which I shall deal is enteric fever in India, since it is in that country that its chief manifestations, in peace time at least, have occurred. Here we are at once confronted with the difficulty of nomenclature. In the 'sixties and 'seventies enteric fever was either rare in India, or at least rarely recognized. As time went on more cases were returned under this heading, and the question at once arises, was this increase due to an actually increased prevalence of the disease, or to the fact that medical officers of the 'eighties and 'nineties were, as regards this disease, using a different dictionary from that used by their predecessors of the 'sixties and 'seventies? The only way to decide this question is, in my mind, to take all diseases with pyrexia as their prominent feature and note their prevalence and mortality during the last sixty years. Using this method we shall, no doubt, include a great many cases of fever which were not enteric, but, at the same time, we shall undoubtedly include all true cases of that disease. (Fortunately for our purpose, in this connexion, the exanthemata are extremely rare in India.)

If, then, a curve be constructed showing admissions for "All Fevers" and the mortality per cent of cases treated, we get the following result. In the 'sixties and 'seventies the admission rate for "All Fevers" was very high, amounting as high as 700 and even 950 per 1,000 of the total strength. At the same time the death-rate per cent of cases treated was low, only twice amounting to 0·8, and being, as a rule, well below that figure. In the 'eighties there was a marked fall in the number of admissions, accompanied, however, by an even more conspicuous rise in the mortality. In the 'nineties the total admissions were slightly lower than in the 'eighties, but
the mortality rose to an alarming extent, culminating in 1896 to 1898 in rates per cent of cases as high as 2.25. The years of the Boer War, 1899, 1900 and 1901 showed a fall both in admissions and deaths, but in the four following years, though admissions continued to fall the death-rate rose to 1.9. From 1904 the death-rate fell steadily, but it was not until 1910 that it reached a level below that of the worst years between 1860 and 1885.

Now, if we were dealing with a single disease we should be justified in saying either that its type had changed, and that it had become more deadly, or, otherwise, that the population concerned had become less resistant. Dealing, as we are, with a group of diseases we are, I think, entitled to conclude that the most deadly of the group had increased in prevalence. I have long since come to the second of the above conclusions. It is notable that the critical year is 1886. That year marks the final disappearance of the old "long service" soldier, and a consequent reduction in the age of the Army. It is remarkable, too, that during the years of the Boer War, when few drafts came from England, and few men went home to the Reserve, the age of the Army increased and the death-rate from fever diminished. As soon as that war was over and young drafts began to come out, the death-rate rose, until in 1904 when inoculation supplied the necessary artificial resisting power. Since then enteric fever has ceased to take the dreadful annual toll of young lives that marked the last fifteen years of the nineteenth century. Inoculation has, in my mind, been the chief cause of the victory over enteric fever in India, a victory only paralleled by its success in the late war.

Improved sanitation, the result of the appointment of special sanitary officers (a step in which, for once, India led the way, owing to the influence of the late Surgeon-General Sir William Taylor) no doubt has had its share. Sanitary work has been better organized, and co-ordination, which previously was sorely lacking, is now the rule. Such measures have had excellent effect, but without inoculation the goal would not have been attained so soon, and in their fight against enteric fever sanitary officers would have been fighting with one hand tied behind their backs.

I will now pass to the discussion of malaria, but very shortly. The diseases included under this heading, though responsible for a high degree of disability, have not since the early 'sixties caused much mortality in the Army in India. The non-fatal fevers, which were so prevalent in that and the following decade, must have belonged mainly to this class. In the 'nineties the admission rate was a little over 100 per 1,000 and fell fairly steadily till 1913, when it was less than half that amount. Since the war it has again risen to nearly 100, and is now about 70. This rise is doubtless due to military operations, since the war, in malarious parts of the Indian Frontier. No one who has not served in India can estimate the difficulty of the malarial problem. That the disease can be kept in check there is no doubt; that it can ever be totally eradicated is impossible. The needs of irrigation, especially in the Punjab, and the presence of a heavily infected
native population, acting as a constant reservoir of infection, render such a hope unduly optimistic. The most interesting example of what can be done, and has been done, is the island of Mauritius. The small garrison of this island suffered severely from malarial fevers during the earlier years of the present century, the admission rate being usually from a quarter to a half of the total strength. In 1908 Sir Ronald Ross visited the island and made certain recommendations. The result may be briefly stated. The total number of admissions for five years subsequent to that visit were just about equal to the average annual rate for the five years immediately preceding it. Mauritius is, however, a small station, and cannot, therefore, be compared in this respect with a sub-continent like India, where troops serve under a variety of different conditions of climate, soil and surroundings.

The last class of diseases which I shall consider is that of venereal diseases. In the early 'seventies the number constantly sick from all forms of this class of infection was just below thirteen per 1,000. In 1873 a fall occurred to about nine per thousand, and the number constantly sick continued at that figure till about 1877, rising slightly the year following to about 10·5. The cause of this fall was probably largely administrative, since between October, 1873, and November, 1879, any man admitted to hospital for this class of disease forfeited, by Royal Warrant, the whole of his pay during the period of his treatment. As a result concealment of disease, combined probably with resort to outside medical aid, became frequent. Immediately on the removal of this penalty the constantly sick-rate rose rapidly to over twenty per 1,000 in 1884. From that date there was a steady and almost uninterrupted fall to the year 1900, when the figure was as low as seven. This fall was followed by a rise in the next four years to nearly twelve in 1904, with a subsequent fall to a little over four in 1918, the last complete pre-war year. After the war, in 1921, there was a slight rise to about 5·5, immediately followed by a steady fall to the present figure of 3·3. These are the dry bones of the history of these diseases. A short commentary is necessary.

To go back somewhat. In 1864 the Contagious Diseases Acts were introduced in fourteen principal stations in the United Kingdom, and lasted, with some modifications of a minor nature, till 1886, when they were finally abolished. The enforcement of these Acts had no effect apparently in controlling the prevalence of venereal diseases, the constantly sick-rate rising, as I have already said, from the low figure of 1874 to the maximum of 1884. Nor was their abolition in 1886 followed by any rise in the figure; on the other hand, the beginning of the steady fall, which I have already mentioned, coincided very nearly with that abolition. Personally I think that this conjunction was largely a matter of coincidence. It is open to others to hold a different opinion. One opinion that certainly is untenable is that the Contagious Diseases Acts had any effect on reducing the incidence of disease. On the other hand, I cannot see any causal connexion between their abolition and the reduction of disease.
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The true cause in my mind of the fall in the curve is the fact that in the later eighties great efforts began to be made to render the soldier's life in barracks a more comfortable and civilized one than it had been before. At the same time the Army Temperance movement began to take hold of the man in the ranks, and as a result he began to conduct himself si non caste caute tamen. The improvement in the conditions of life in barracks has steadily continued, and the incidence of venereal disease has declined pari passu with that improvement.

The only important break in the reduction of these diseases, in the years following the South African War, I attribute to the return of men who had during that war led perforce restricted lives, and to the considerable number of young soldiers who replaced the men who passed to the Reserve at its conclusion. Other causes have doubtless contributed to the reduced prevalence. The introduction of more scientific methods of treatment, especially in the matter of syphilis, with which the name of the late Colonel...
F. J. Lambkin is honourably associated, has had a great effect. I name that officer especially, for though the methods he introduced have long been disused and replaced by others of more efficacy, nevertheless he was the first to point out that the treatment of syphilis gave just as much scope for scientific work as that of enteric fever and other diseases, and that the venereal wards were worthy of much more careful attention than was accorded them under the old routine methods of treatment, when, as a rule, they were apt to be left in charge of the last-joined officer, or those who displayed somewhat less attention to scientific study than their brother officers. Others have handed on the torch that Lambkin lit, and made it burn brighter, but his was the hand that did light that torch, and those of us who still remember him know how hard and uphill was the struggle.

As this is the Jubilee year of the Royal Sanitary Institute, it is but fitting that I should say something of the help the Institute has given to the medical officers of the Army in their fight against disease. The following specific instances of late date may be cited, though without pretending

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<td>7.09</td>
<td>7.14 Quinquennial period 7-05</td>
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Great War

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</table>
C. H. Melville

that these exhaust the list. Shortly after the introduction of the Territorial scheme a course of lectures on Military Sanitation was given by the then Professor of Military Hygiene, under the auspices of the Institute, to the London Sanitary Companies, which were well attended and appreciated. Much more important are the special lectures annually given at the Institute, arranged at the request of the War Office, on Meat and Food Inspection, to officers of the Royal Army Service Corps. These lectures are accompanied by demonstrations at the meat market and other places. Officers of that Corps who had attended these courses have expressed to the present writer the extreme benefit they reaped from them.

Lastly, and most important of all, was the teaching of the men of the Sanitary Companies during the late war. I had the pleasure of having several of these in Egypt in 1916. The knowledge and the keenness displayed in fitting up demonstration centres, and supervising unskilled labour, were beyond praise. There were no more efficient units in the Force. This was a great work, and the Institute may well be proud of its achievement. But, indeed, there has always been a close touch between the Institute and the Army. The Duke of Cambridge was for many years its President, the Duke of Connaught Hon. President of the Portsmouth Congress, and Prince Arthur of Connaught Patron of that held at York. Other names similarly connected with the work of the Institute are those of Seely, Galton, Scott-Moncrief and Jones, so well known for his work at Aldershot; and, of course, many members of the Medical Service.

The movement of the Royal Army Medical College to London of course brought both the teaching staff and the pupils at the College into much closer touch with the Institute, and I gratefully acknowledge the help that I personally received in the free use that was granted to my classes of the Parkes Museum in the Institute building.

To conclude an already lengthy survey of military sanitation during the last fifty years, I will add the saying of one of the most distinguished Army Commanders in the late War. Whilst speaking to His Majesty he described the Army Medical Service as "the one department that never let us down." Such a tribute more than counterbalances the remark of Lord Wolseley quoted earlier in this paper, and it well justifies the motto of the Royal Army Medical Corps, In Arduis Fidelis.

The praise was given to the Corps as a whole, and in the same way the reduction of disease in the last fifty years has been the work of the Corps as a whole, not merely the work of those officers who made the prevention of disease a special study. There are, however, outstanding names which I feel I cannot omit mentioning. These outstanding names are those of Keogh, Leishman and Horrocks, worthy successors to their spiritual ancestor Parkes.