NOTES ON MILITARY MEDICINE IN EUROPE.

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DURING the summer of 1881 it was the good fortune of the writer to have the opportunity of being present at the great International Medical Congress, which met in London at the beginning of August, and subsequently of making a rapid trip on the Continent, in the course of which he visited, among other places, Berlin, St. Petersburgh, and Vienna, and had occasion to see something of the condition and working of the Medical Departments of the armies of the several countries. It has been suggested that some of the points which attracted his attention may be of interest to others, and the purpose of the present article is to give brief notes of some of these subjects, divested, as far as possible, of medical technicalities, and having no particular moral in view.

The Congress referred to was the seventh meeting of the kind which has been held in Europe, and was much larger and more important than any of its predecessors. Over three thousand physicians and surgeons were present, representing every civilized country and government of the earth, and including a decided majority of all the celebrated medical writers, teachers, and practitioners of the old world.

I have elsewhere sketched some of the general aspects of this assemblage ("International Review," January, 1882), and shall here only refer to those which relate to military medicine. All the preceding medical congresses had divided into sections, for convenience; one section being devoted to medicine, a second to surgery, a third to diseases of the

eye, etc.; but the London Congress was the first which has had a section especially set apart for military medicine and surgery. And when the members of the Section came together in the large, bare room allotted to it in the University of London, they certainly formed a striking assemblage to one who had some knowledge of the persons present, and of their history and work.

There were men who had been through the Indian Mutiny, the Crimean War, and New Zealand and African campaigns. There also were surgeons who won fame during the Austro-Prussian and Franco-Prussian wars, and others who had followed the Russian eagles to the walls of Constantinople. Scattered about the room were some of the old India surgeons, whose duties have been often rather civil and administrative than military or medical, but who have never lost their interest in the studies of their youth, and whose contributions to the literature of their profession are among the most valuable which we possess. As the representatives from different nations rose in turn and contributed each his best knowledge as to the particular point under discussion, stating what apparatus or device had been found useful in his own service, one could not help thinking how different their policy was from that of other army departments. The President of the Section, Surgeon-General Longmore, alluded to this very happily in his opening address. Said he: "Although belonging to all nations, we have the advantage of being able to meet together without national jealousy, and with no other rivalry than that of vieing with each other in endeavors to discover what may most benefit the sick and wounded. It is not with our province of thought and action, as it is in some measure with those other parts of military science and practice, on which national safety or superiority in power may depend. A certain amount of reticence in regard to them is justified by national self-interest. We can speak quite openly of all our professional plans and arrangements. If they contain

any features better than those belonging to our neighbors of other countries, we have no fear of imparting them. We hope, indeed, if they are really better, that they may be adopted and turned to account; for if practically applied, our own people may possibly be among those who will be benefited by their adoption. Even in time of war 'there are no enemies within our sphere of action.' It is true that this last statement must sometimes be taken as indicating that which ought to be rather than that which is, as was shown by a statement made by Don Nicario de Landa y Alvarez, of the Spanish Army, who, in speaking of the recent war in Cuba, said that both the wounded and the surgeons were killed when they fell into the hands of the insurgents, and that seven medical officers were thus lost; nevertheless, the feeling which such a statement arouses proves that such conduct is exceptional, and that the rule is that given by Professor Longmore, "There are no enemies within our sphere of action."

Among the various subjects brought before the Section the one which received the greatest amount of attention was the care of the wounded during active service of an army in the field, and especially the means for their transportation.

Surgeon-General Longmore devoted the greater part of his opening address to this subject, and pointed out that it is the impossibility of securing trained animals which makes the majority of appliances devised for this purpose useless in uncivilized and savage warfare. Where ambulances can be used, it was agreed by all that the American patterns are the best. The matter was summed up by Surgeon-General Roth, of the German Army, in the statement that the experiences of the last great wars, particularly the Franco-German and Russo-Turkish ones, have proved that the difference in the means of transport in different armies are of comparatively small importance. For large numbers of wounded we have to rely on stretchers, railroads, and boats, because ambulances can scarcely ever be collected in sufficient number at the places of most importance. He quoted approvingly the remarks of Pirogoff, that after all, the fate of the wounded soldier depends more on the Administration than upon the medical man, and agreed with Longmore that the most important point is the *personnel* of the army hospital corps. "For the inauguration of such an organization we are indebted to America,

from whence issued a model sanitary service formerly unknown in Europe. A well-drilled ambulance or bearer corps will make the best of whatever material is available, and the object should be the organization and training of such a corps, which should be at the disposal of the Army Medical Department."

In the course of the discussion on the transport of wounded, Professor Gori of Amsterdam paid a high compliment to the late Surgeon George A. Otis, of the United States Army, declaring that his writings are the glory of the army to which he belonged, and that the army surgeons of all countries unite in deploring his loss. At the close of his remarks Professor Longmore arose, and in his peculiarly grave and courtly manner, but with a voice which trembled with emotion as he went on, spoke as follows :

"In the course of the observations which have just been brought to our notice by Dr. Gori of Amsterdam, that gentleman has made reference to a calamity about which there can be no discussion. I allude to the eloquent tribute which Dr. Gori just now paid to the services and untimely death of that learned and most distinguished American surgeon, Dr. Otis. All of us military surgeons who are in this room, to whatever nation we may belong—and every leading nation is represented here at this moment—all of us have greatly benefited, and so long as we are able to pursue our profession, must still be benefited by those grand, impartial, and comprehensive volumes of the surgical history of the great War of the Rebellion in the United States, which Dr. Otis was spared to complete, and which the Government of the United States have so largely and so liberally distributed among military surgeons in Europe. This seems to be a very fitting occasion, representatives as we are of the science and practice of military surgery in all countries, for us to express our profound regret at Surgeon Otis having been taken away from us before he was able to complete the greatest of all his many valuable professional works, as he had hoped to do ; and it seems also to be a fitting opportunity to convey to Surgeon-General Barnes, and through him, to all the medical officers of the United States Army, our heartfelt sympathy with them on the great loss their medical service in particular, and, at the same time, military surgical science in all parts of the world, has sustained in the death of their great colleague. I say these few words in the presence of an eminent friend and fellow-laborer of Dr. Otis—Dr. Billings—who occupies an important post in the Surgeon-General's Office at Washington ; and I beg to propose to the meeting that Dr. Billings be asked kindly to allow himself to be made the medium of communicating this, I may truly say, international expression of feeling—for I see plainly that you all share with me the sentiments which I have tried to express—to the distinguished chief at the head of his department and to his colleagues on his return to Washington."

This tribute of Surgeon-General Longmore to the merits of my friend and colleague was as unexpected as it was gratifying, and the scene was so impressive that it was with difficulty I could find words to return thanks and to express in behalf of the Medical Department a proper appreciation of the eulogy thus made. I could only promise to convey the message, and while this has long ago been done to the circle of his immediate personal friends, I am glad to have this opportunity to make it known also to the much wider circle of those who appreciated and admired him, although knowing him only through his works.

The most marked improvements in military surgery which have occurred since our own war consist in the methodical use of antiseptics and of Esmarch's bandage for the prevention of hemorrhage.

Even yet there has been but little experience of the results of the application of antiseptic methods to the treatment of wounds upon the battle-field; but these results as reported are so superior to those obtained by the old methods, that all military surgeons are bound to follow the new plan as far as possible. This, however, does not necessarily imply that all the details of what is known as Listerism, and more especially the antiseptic spray, are essential features of the method. Professor Longmore pointed out that the methodical use of the spray in operations on the battle-field is almost impossible, while, if this can be dispensed with, the question becomes a comparatively simple one, since there is no special difficulty in supplying antiseptic dressings under such circumstances.

The evidence of the Russian and German surgeons was all in favor of the antiseptic treatment of wounds in war, but it also went to show how difficult it is to carry out the method as practised in civil hospitals. The water available is often muddy—there is no time to boil or filter it—the spray producers become choked and useless, and there are other difficulties which it is unnecessary to specify; but it is satisfactory to learn that however much the completeness of applying details is interfered with, when applied at all it always confers benefits. Dr. Melladen's conclusion was: "Follow it as much as possible, for any part of it, however small, is better than none."

There is a great deal of truth in the statement of Professor Esmarch, that a great number of the most severe gunshot wounds remain free from septic trouble if not touched or examined by dirty fingers or instruments. And if the essential principle of antiseptic treatment be kept in view, it is easy to see why this may be so. The antiseptic treatment is designed to prevent decomposition of the fluids in the wound. This decomposition in the immense majority of cases, if not in all, is due to the coming in contact with these fluids of extremely minute particles of organic matter, such as are found in all ordinary river or pond water, and in the air of all

habitations, in the mouths and alimentary canal of all animals, and wherever there is decomposing organic matter; in other words, which are almost ubiquitous: these minute particles are, for the most part, living organisms, capable of rapid growth and multiplication in the presence of moisture, warmth and organic matter, all of which conditions are present in a wound. The result of their action upon a wound is to produce irritation, suppuration and sometimes a peculiar poison which passes into the blood and produces pyæmia or septicæmia, erysipelas, and other complications. Precisely how they do this, need not here be discussed; it is sufficient to know that the power of these particles to produce these results is suspended or destroyed by bringing them in contact with certain substances known as antiseptics—that is, substances capable of preventing fermentation or putrefaction. The antiseptic which is most used in the treatment of wounds is carbolic acid, and when properly employed, it is capable of entirely destroying the power of these particles or organisms to produce decomposition of organic fluids. The object of the use of antiseptics in surgery then is, as far as possible, to put a wound in the condition which it would be in if the skin had not been broken, the skin being a perfect barrier against the entrance of these particles or germs. Where the surgeon makes the wound himself, it is evidently possible for him to do it with instruments wet with the antiseptic solution, and in a cloud of antiseptic spray, which prevents any germ from entering the wound before it has been, so to speak, poisoned by the vapor through which it must pass. The true value of the antiseptic spray in an operation evidently depends on the number and character of these particles in the surrounding air. In an old hospital they are numerous and virulent, in any closed room they are dangerous in proportion to the number of inmates, the want of ventilation and the quantity of filth present; but on broad, open plains, and especially on mountains and high table lands, remote from human habitations, the danger from them is much less, so far as the air is concerned—the chief risk being from dirty fingers, and from clothing and water. It follows that on the field the least possible disturbance should be given to the wound, it should not be probed or explored with the finger, but simply covered with an antiseptic dressing, held in place with a bandage, and left until it can be handled with antiseptic precautions in all details.

This is the advice of Esmarch, who would have every soldier carry on his person a small parcel containing the materials for a simple antiseptic first dressing of a wound.

These packages, however, soon lose their antiseptic qualities if carried about the soldier's person, and for this reason it is better that they should not be distributed until just before battle.

Esmarch's bandage for the suppression of hemorrhage consists of a

simple stout elastic tube applied while extended two or three times around the wounded limb. Its use requires no special anatomical knowledge, as does the tourniquet, it is not interfered with by transport, and if the ends are properly secured, it cannot slip. Of course it should remain no longer than is necessary, and the wounded vessel should be ligated with antiseptic precautions as soon as possible. Professor Esmarch suggested that as india rubber gradually loses its elasticity and becomes brittle, suitable bands and tubing cannot be kept on hand for years, and in the event of a great war, at least in Germany, manufacturers could not supply them rapidly. To meet this difficulty he suggested that the soldiers be supplied with rubber suspenders or braces, so made that in case of need they can be used as an elastic bandage. Such braces would not cost more than others, and would be useful not only in cases of hemorrhage, but to prevent absorption from poisoned wounds, such as snake bites, and for other purposes. The limits of this paper do not admit of further notice of the proceedings of the Congress, and I will only add that after its close a majority of the medical officers of foreign armies visited Aldershot Camp to see a drill of the Army Hospital Corps in stretcher and cacolet exercise—removal of the wounded, applications of first dressings, etc.—all of which was admirably done, and showed careful and intelligent training.

Probably the features of the English Army Medical Department which would be of the most interest to the readers of this Journal, is the Army Medical School at Netley Hospital, near Southampton. This hospital consists of an immense three-story brick building, picturesquely situated on rolling ground, facing an arm of the sea, and to it are brought the invalids of the British Army from all quarters of the world. Is there a campaign on the Gold Coast or at the Cape—soon after, some of the inevitable results in the shape of convalescents, cripples and chronics make their appearance by the ship-load in Southampton Water, and pass on to Netley on their way to furlough, discharge, or the grave.

The great variety of cases thus presented led to the selection of this hospital as a Medical School, at which those graduates in medicine who have passed the Army Examining Board, remain a year for special training in military hygiene, medicine and surgery. I shall have occasion to speak presently of other Military Medical Schools in Europe, but with none of them are our medical officers so familiar as with Netley. The names of its professors are household words in our Post Hospitals, in every one of which will be found the works of Parkes, Longmore, and Aitken, while Maclean and De Chammant are almost equally well known to all of us.

The school does not receive the attention and support which it merits. It ought to have as complete a set of laboratories, including all forms of

apparatus, chemical, physiological, pathological and sanitary, as could be provided—and a library to match—but the funds allowed it are ridiculously insufficient, and its library, museum, and much of its apparatus are in the main contributed by the officers themselves, and speaks well for their interest in the school and in their work.

Nevertheless, Netley has done, and is doing, thoroughly good work, and it is to be hoped that the time is not far off when its needs will be better appreciated by those in power than they now seem to be. Until quite recently the young medical officers of the British Navy also received their training here, but they are now sent to a school of their own in connection with the great Haslm Hospital, at Portsmouth, a change of which the expediency seems extremely doubtful.

Of all European cities, the one in which the military element is most prominent is undoubtedly Berlin. Officers and soldiers—but especially officers—are met with everywhere, and in every possible variety of uniform, and regiments daily traverse the streets on their way between the scattered barracks, and the great drill and parade-ground of the Tempelhof. Just beyond the parade-ground is the best permanent military hospital in the world, the second Garrison Hospital of Berlin, completed about three years ago. This hospital contains 500 beds, and is connected with all the barracks of the city by means of a branch of the general system of street railroads, or tramways, as they are called abroad.

The hospital has an ambulance car, neatly fitted up, and by its means patients can be brought from barracks several miles away, and quite on the other side of the city, with the least possible jarring or trouble of any kind. The buildings are of brick, and the wards are on the pavilion plan —one group being connected with each other and with the kitchen, by means of a corridor, while a second group consists of buildings which are entirely isolated.

The details of drainage, heating and ventilation, etc., have been most carefully worked out regardless of expense, and the results obtained are excellent. One of the buildings of this hospital is a large fire-proof storehouse, containing a complete outfit for a large field hospital, all ready for immediate use. It will be understood that this hospital of the Tempelhof is what we would call a depot hospital, and is unique in its way. The great majority of the military hospitals pertain to regiments, and each regiment has also its own hospital outfit for field work.

On the opposite side of the city is a hospital belonging to the city, and known as the Moabit Barrack Hospital. This was built in the spring of 1872, and is of the cheapest possible construction, the general plan of the buildings being that of our temporary hospitals during the late war. It consists of 15 isolated barrack buildings, each containing from 30 to 40 beds, and is now the only large municipal hospital upon this plan. It

forms the strongest possible contrast to the two other great city hospitals, namely, the Charité, which is very old, and badly planned, and the Friedrichsheim, which is a model of a permanent hospital, having been built under the supervision of the same architects who planned the Tempelhof Hospital, and upon the same general plan.

Near the Charité is an institution of great interest to army surgeons, —namely, the Friedrich Wilhelm's Institute, better known during the first half of this century as the "Pépiniére," which may be roughly translated as the "digesting establishment." It is not, however, material, but mental food which is to be digested there. This institution owed its origin to the very great difficulty which all governments in Northern and Western Europe experienced about a century ago, in their attempt to secure an adequate supply of skilled medical attendance for their armies. This difficulty became so pressing, that in Austria, Saxony, Prussia, and France, it was decided to establish schools whose main purpose was to educate medical officers. The first step in this direction was taken in Prussia, by the formation of a Medico Chirurgical College at Berlin, which still exists under the title of the Friedrich Wilhelm's Institute. This was connected with the Charité Hospital, and the junior army surgeons were sent there for instruction. The supply, however, remained insufficient.

Frederic, in his Silesian Campaigns, was in great need of surgeons, and was obliged to bring a number from France. He also sent some of the younger Prussian medical officers to Paris and Strasbourg to complete their education, and to fit themselves to instruct others. In those days surgery was considered to be distinct from, and subordinate to, medicine, and those destined for surgery were usually apprenticed to barbers, and were men of an inferior class, having little or no education. Finally, in 1795, as the result of urgent appeals from Gorcke, the Surgeon-General of the Prussian Army, setting forth the absolute necessity of providing better medical attendance for the troops, the Pépiniére was reorganized under its present name, and made to include both medicine and surgery in its curriculum.

The Medicinish Chirurgisch Joseph's Academie at Vienna was founded by the Emperor Joseph II., in 1786, and placed under the direction of Surgeon Brambilla, of the Austrian Army, the object being the same as that of the Berlin institution. In 1820 the scope of the teaching of this Academy was enlarged to that of a medical faculty of a university, and it was given power to confer degrees. At the same time it was made a sort of a medical advisory council for the army. There were two courses of study. The higher included all branches of medicine, and occupied about six years; the lower was less comprehensive, and lasted only three years; those who took the highest course, entered the army as full sur-

geons, with a prospect of promotion to higher grades, while those who graduated from the lower course could not rise above the rank of assistant surgeon.

In Dresden a Medico-Chirurgical College was established in 1748, having the double purpose of educating practitioners of a lower grade for the rural districts, and of training army medical officers. In 1814 this was changed into a Military Medico-Chirurgical Academy, with a full course of instruction.

In France the Revolution destroyed all medical schools. The evil results of this were brought to the attention of the National Convention by the fact that properly qualified medical officers could not be found to replace those who died in the service of the armies of the Republic. By direction of the Convention, the celebrated chemist Fourcroy prepared a plan for organizing medical schools to meet this want, and this plan was carried out by the law of 1794, which established schools at Paris, Montpellier, and Strasburg. The method adopted to secure students for these schools was peculiar and effectual. From each district in France a young man between 17 and 26 years of age, whose name had not been drawn in the first conscription, was selected by the Government authorities, and was forwarded at the expense of the State to one of the three schools referred to, 300 being allotted to Paris, 150 to Montpellier, and 100 to Strasburg. Three years were allowed for their instruction, and as soon as they were qualified, they were given the title of Officiers de Sante and sent to join the troops. These were really, then, military medical schools; they did not confer the Doctorate, and had for their object the manufacture of medical officers as soon as possible. This brief historical sketch may aid in understanding the condition of some European army medical departments of the present day.

At present there are five military medical schools in Europe, viz : the school connected with the Netley Hospital, already described ; a military medical school at Dresden, which is a recent creation due to the energy of the present Surgeon-General of the Saxon Army, Dr. Roth ; a French school in connection with the Hospital of Val de Grace ; the German school of the Friedrich Wilhelm's Institute ; and the Medico-Chirurgical Academy at St. Petersburg. The Dresden school is modelled somewhat upon that of Netley, but its work does not consist so much in supplementing the teachings of the ordinary medical schools as in giving instruction in special branches to the younger medical officers of the army, who are sent there in turn, and also in teaching them how to teach. The Military Medical School of France, located at the Hospital Val de Grace, furnishes special training to about three-fourths of the medical officers entering the army, the other fourth being selected by competitive examination. The organization of this school preceded that of Netley, and

is in many respects analogous to the special school for engineers at Metz, and the General Staff School in Paris. The work of the Friedrich Wilhelm's Institution at Berlin is in the main auxiliary to that of the medical department of the University of Berlin. It has one of the best medical libraries in Europe, and has undoubtedly exercised a strong influence for good upon the medical department of the Prussian Army.

The only one of all these military medical schools which is not dependent upon other medical schools for its material, but gives a complete course of instruction from the beginning, is the Medico-Chirurgical Academy at St. Petersburg. This academy has a large hospital, fine laboratories, a splendid museum, and the largest distinct medical library in Europe. The course of instruction is well arranged, being essentially that of the German universities, and it is evident that good scientific, as well as educational work, is being accomplished. The only other medical educational institution in St. Petersburg is for the education of women, the most important resources of the city being destined for army surgeons, and every graduate of this school must serve in the army for a certain length of time. At other universities in Russia, at Moscow, Dorpat, etc., this rule does not prevail, the graduates of the medical school being in the same position as in other countries in Europe ; but at St. Petersburg it seems to be the purpose of the Government to throw the weight of its influence in favor of the education of women for civil practitioners, reserving the men for military service. A large and valuable medical journal in the Russian language is published by the Medical Department, through which the members of the corps are kept well informed as to the most recent discoveries and improvements in other countries.

Allusion has been made to the large and valuable medical libraries of the Friedrich Wilhelm's Institute of Berlin, and of the Medico-Chirurgical Academy of St. Petersburg. These were especially interesting to me, as being among the five or six largest and best arranged medical libraries in Europe, and as being, like our own libraries of the same kind, under the direction of Army Medical Departments. The Russian includes a large number of works on natural history as well as medicine, and is a matter of just pride to those having it in charge.

The hospitals of St. Petersburg are large and numerous, and they need to be to accommodate the great number of sick poor who must be constantly present in the city. The majority of them are large three-storied structures of the old pattern, and are overcrowded and badly ventilated. It is in some of these old hospitals that the benefits of the antiseptic treatment of wounds, heretofore referred to, are most strikingly apparent. Before the introduction of this method almost every operation was followed by erysipelas or septicæmic troubles of some kind ; even the ampu-

tation of a finger was a dangerous matter, and the graver operations were so fatal that the surgeons in these hospitals were very reluctant to undertake them. Now such sequelæ of wounds are rare, and although the effects of overcrowding and impure air are seen in the lowered vitality and delayed convalescence of the patients, yet the results obtained are on the whole very good. There are, however, some excellent hospitals in St. Petersburg, and one of the most interesting of these is the Roschderstnensky City Hospital, which contains the first barrack pavillion wards erected in Russia. Two of these were opened in 1871, and the results obtained in them were so satisfactory that several others have been added. It was considered very doubtful as to whether a simple one-story wooden barrack hospital, having windows on the opposite sides, could be so constructed as to secure comfort to its inmates during the intense cold of the Russian winter, but experience has shown that there is no difficulty in doing this. One of these barrack pavilions measures about 95 by 32 feet, the height of the ward being 15 feet, and contains beds for 21 patients. The walls are hollow, and have a double air space, the whole being about 40 inches in thickness. The building has seven double-sashed windows on each side. The ceiling of the ward is arranged like that of a Pullman car, giving free ridge ventilation in summer. The heating is effected by a large German porcelain stove, about 14 feet long, 5 feet wide, and a little over 6 feet high, standing in the centre of the ward. Although I have spoken of this as a stove, it is in reality the top of a furnace, which is placed in the basement below, and in which all the fuel is introduced. Through this stove pass eight apertures, which are connected with the external air, and through which the fresh air supply of the ward is introduced. Originally this air was taken directly from the basement, but this was found to be unsatisfactory, and it is now brought from the exterior. The foul air is removed by tubes, which open at the floor near the side walls between the beds, and then passing downwards, converge to the furnace below, which they enter, a prolongation of the smoke flue.

Besides the central stove, there are other similar ones connected with the service-rooms of the ward, one being devoted exclusively to the closets. The total amount of fresh air supplied is about 3,200 cubic feet per hour per patient. When the temperature is about the freezing-point, and not lower than 24° Fahrenheit, the large central stove is heated up but once, viz., in the morning. When the temperature falls to 5° Fahrenheit it is heated twice, and when it falls below zero four firings become necessary daily.

These results will not be considered surprising by those officers of our army who have served in the Northwestern Territories, but they were something quite new in Russian experience, and in consideration

of the large amount of air supply which is furnished, giving complete ventilation even in the coldest weather, I do not know that the results have been surpassed anywhere.

Of course a large amount of fuel is required for heating such an immense quantity of air, from zero to 62° Fahrenheit, which is about the temperature maintained. The best hospitals in St. Petersburg are devoted to the care of women and children, and one or two of these are not surpassed anywhere in the perfection of their arrangements for preventing the spread of contagious disease within the hospital.

Although my visit to St. Petersburg was at the end of August, when every one who can manage to do so has left the city, when all schools are closed, and neither scientific work nor entertainment of any kind is going on, I found it nevertheless a most interesting and instructive place, which was largely due to the fact that I saw it under the guidance of a medical officer of the Russian Army, Dr. Weljaminoff, whose knowledge of what ought to be seen there by an army surgeon was only excelled by the courtesy with which he made this knowledge available for my benefit. St. Petersburg is a very unhealthy city, owing in part to its low situation in the swamps of the Neva, rendering it so difficult to supply it with proper drainage and sewerage that the problem has not yet been solved, and in part to the habits of the lower classes of the population, they being huddled together in huge tenement houses, where they are poisoned by their own filth.

At the time of my visit spotted fever, relapsing fever and diphtheria were prevailing in the city, and I found in my room at the hotel a significant notice, printed in French, German and Russian, warning strangers not to drink of the ordinary water supply, which comes from the Neva.

My visit to Vienna was so timed as to enable me to be present at the meeting of the German Public Health Association. A feature of this meeting was the number of army medical officers present, including the Surgeon-Generals of the Austrian and the Saxon armies, the latter being practically an army corps of the German Army. The prevention of disease is being more and more a subject of special interest and study among the medical men of European armies, more so, probably, than among physicians in civil life, and it is easy to see why this should be so. It is distinctly to the interest of the army surgeon that the men under his charge should be kept in good health as far as possible, and his attention is daily called to the subject by the sick report. This is true even in our little garrisons containing from 50 to 100 men, while in Europe, where in a barrack or garrison there is never less than a regiment, the effects of preventable causes of disease become so magnified as to render them promptly apparent.

The importance of preserving the health of the soldier simply as a

matter of economy is also more urgently felt in Europe than with us. Modern military hygiene may be said to date from the close of the Crimean War, the most important steps being the publication of the reports of the English Barrack and Hospital Commission, the issue of "Parkes' Military Hygiene," and the publication of our own experience during the late war.

The Royal Commission appointed in 1857 to investigate and report upon the sanitary condition of the British Army, besides examining barracks and hospitals, and making recommendations with regard to them, considered also the duties of the army medical officer, and in the new system of regulations prepared under the direction of this Commission, the army surgeon was made a sanitary official as well as a medical attendant. The systematic teaching of medical hygiene at Netley by Dr. Parkes, soon acquired such reputation that medical officers from European armies would visit the school for the purpose of taking advantage of this instruction, and the issue of his work on military hygiene exerted a strong influence in the minds of medical officers of all armies. The possibilities as to what might be done by very simple means, for securing fresh air for the sick and wounded of large armies, and the results of so doing were strongly manifested in the results of our own war, more especially as regards the results obtained in the simple, cheap one-story barracks or the tent hospitals which were so largely used. This same organization was found of equal advantage by the Germans, in the Franco-German War.

Military hygiene is, however, not only of importance to armies, but it is of the greatest interest and value to the community at large. The reason for this is that in the army, the facilities for observing the effects of changes in the environments upon the health of man, are far greater than in civic life. The test of the effect of a certain set of conditions upon the health of those subjected to them is the amount of sickness produced. This can be ascertained in a garrison, but not as a rule in a town or city in which the best that can be done is to learn the number of deaths.

I find, however, that I am not only exceeding the space which is allowed to this paper, but am getting rapidly near the point where a moral would come in, and this moral it was promised should not be inflicted. Clearly, therefore, it is time to stop.