

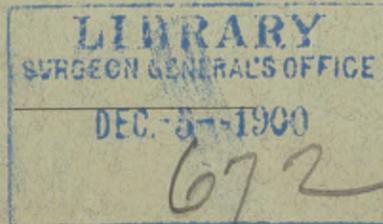
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MILITARY SURGERY IN GREECE
AND TURKEY

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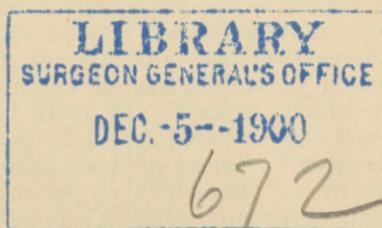
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REPRINTED FROM
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
AUGUST 28 and SEPTEMBER 18, 1897.



CHICAGO:
AMERICAN MEDICAL ASSOCIATION PRESS.
1897.

Military Surgery in Greece



MILITARY SURGERY IN GREECE

The war between Greece and Turkey is ended. It was a short and in many respects a remarkable combat. After six or seven conflicts little Greece was conquered by an overpowering foe. In a little more than a month the little kingdom found itself trampled under the feet of a fanatic and greedy conqueror. Fate was against Greece from the beginning of the conflict. The scanty resources of the country made it impossible to maintain an army upon a modern war footing and its citizens, the descendants of the proud and warlike Hellenes, are no longer the equals of their forefathers whose daring exploits and victories have been immortalized in prose and poetry. Centuries of subjugation to foreign power and policies have resulted in a loss of confidence and a diminution in the intrinsic resisting power of the nation that once, under the leadership of great statesmen and warriors, constituted the central power in Southern Europe. When Greece found herself confronted by a war with its envious and bloodthirsty neighbor, she discovered too late the lack of a well disciplined and well equipped army and navy. The first call to arms brought an army into the field of less than 60,000 men. Second-hand guns (Gras) bought from the French government were the arms used. Ammunition was scarce and frequently beyond reach when most needed. According to the testimony of all who were in the field, the Greek soldiers behaved heroically. The quick and complete defeat is evidently attributable more to defective leadership than a want of valor on the part of the troops. The campaign was badly planned by those who were in power and the first defeat resulted in a loss of confidence which was never restored. Turkey rapidly mobilized a well organized and splendidly equipped army of at least 100,000 men along the Grecian border, which at once assumed decidedly aggressive operations. The first battle was fought April 14, the last at Domoko, May 17. The great powers watched the unequal struggle with intense interest, and when it became evident that a complete annihilation of the Greek army was only a matter of a few days, they stepped forward and rendered valuable service by dictating the terms of peace. The Sultan has now to deal with the great powers in adjusting his claims against a conquered and humiliated country. The arms are stacked and the two armies are facing each other almost within speaking distance until the treaty is signed, when they will be withdrawn, and peace, at least for the time being, will be restored. Upon their return the Turks will sing the praises of victory, while the Greeks will bring sorrow and disappointment to their unhappy homes.

During my visit in Patras and Athens I have made faithful attempts to obtain reliable information concerning the treatment and transportation of the

wounded on the Greek side. I visited all of the military hospitals and interviewed many military and medical officers and nurses, but the reports received and the statements made were often so conflicting that I find it exceedingly difficult to write upon an authoritative basis. I shall harmonize the facts elicited as much as possible in preparing this report.

Transportation of wounded.—From what I could learn from different sources, the Greek army had few ambulances. The simplest kind of litters were used in conveying the wounded from the fighting line to the dressing station. Two-wheeled carts and donkeys were employed largely in transporting the wounded and sick to the field hospitals. As soon as possible the sick and wounded were conveyed to the nearest landing station and from thence by boat to the hospitals at Athens and Patras. It appears that the wounded bore the rough methods of transportation with great patience and fortitude.

Hospitals.—Germany and Russia sent field-hospitals, which proved of the greatest value during the short campaign. The large military hospitals in Patras and Athens were soon filled and additional room had to be secured for the rapidly increasing number of sick and wounded. In Athens the two military schools and Polytechnicum were transferred into temporary hospitals with accommodations for at least 700 patients. All of the hospitals were found in excellent order, comfortable beds and well-ventilated wards and rooms. The patients receive substantial nutritious food and a liberal allowance of native wine. In one of the hospitals I found twelve wounded Turkish prisoners who received, if anything, better attention than their former enemies. The hospital provided each one of the prisoners with eight cigarettes a day. The prisoners are model patients, but notwithstanding that they are treated with the utmost kindness they are anxious to return to their native land.

Medical officers.—Greece has more doctors to its population than any other country in the world. On an average, two thousand medical students attend the University at Athens annually. Five years is the time required to prepare the student for graduation. Doctors in Greece lead a life of leisure owing to the salubrity of the climate and the overcrowding of the profession. When the war broke out Greece could furnish doctors in abundance, hence the numerous applications of volunteer doctors from the different countries far and near were as a rule declined with thanks. Among the few foreign doctors who did service for the Red Cross Association must be mentioned Abbot, Moffat and Osborne of England. Dr. Abbot performed a number of operations and is highly esteemed by his Greek colleagues. Dr. Skoufas is the Surgeon-General of the Greek army, with the rank

of Colonel. He has served in this capacity for two years and during the campaign just ended was busy in his office daily, from 8 A.M. until 2 to 3 o'clock in the morning. He shows the effect of overwork at the present time. He is a most genial gentleman and did every thing in his power to further my object during my sojourn in Athens. He detailed Lieutenant Schultze, a member of his staff, to conduct Col. Forwood of the U. S. Army, Dr. Fowler of Brooklyn and the writer through all of the military hospitals in the city. Prof. Galvani of the University did service in Thessaly. He is the most persistent and ablest surgeon in Greece. He has charge of the Evangelismos Hospital, where he operates daily at 10 A.M. A number of our party, among them Dr. Lucy Waite of Chicago, and Dr. Southard of San Francisco, witnessed two of his operations, one ovariectomy and an amputation of the leg for advanced tuberculosis of the knee-joint. His conveniences for carrying out antiseptic details are limited and yet his results are said to be remarkable. He is a conscientious and pains-taking operator. Among the other prominent physicians of Athens must be mentioned Dr. Savas, the physician of the Crown Princess, and Dr. Kalopothakés, the first female physician in Greece, both of whom have done excellent service in the medical department of the army. The medical officers in the army are distinguished from the line officers by the color of the velvet on the collar of the uniform, which is a dark purple. The surgeons wear side arms and spurs in the hospitals and streets:

Graduates who desire to enter the army must study an additional year and are then commissioned after passing a satisfactory competitive examination.

Hospital corps.—The Greek army has three thousand soldiers who are instructed to serve as litter-bearers and render the first aid to the wounded, but of these only 300 are non-combatants, the remainder being detailed for special duty as emergencies arise. Before I received this information I was astonished to find the entrance of every military hospital guarded by a soldier wearing the brassard and handling at the same time a Gras gun with bayonet fixed.

Red Cross.—The Red Cross Association of different countries did much to relieve the immediate wants of the sick and wounded. England and Denmark sent quite a number of well-trained nurses who did most efficient work in the field and city hospitals. The nursing in the Polytechnicum is performed exclusively by native female nurses. On my arrival in Athens I met two English nurses who had just returned from the seat of war and who were to return home next day. From them I obtained much valuable information regarding the worth of the Red Cross Association. They were Miss C. E. F. Bull and Miss Isabel Carter of Brighton. I requested them to give me some of their experiences in writing which was very promptly done by Miss Bull. It will be of interest to read in her own words a description of the retreat from Larissa.

"Being in Athens when rumors of war between Turkey and Greece were spread, I offered my services to the Greek Red Cross Society as a volunteer nurse for the front.

"On April 13 the first party of six English Red Cross nurses arrived with Mrs. Chant, and the following morning I received a command from H. R. H. the Crown Princess to go to the palace. There I found the English sisters, and was asked by H. R. H. to accompany herself and three of the sisters to Larissa, it having been arranged that two should remain at the Greek Red Cross hospital at Volo and that one should accompany Mrs. Chant to Crete.

"We arrived at Larissa on Easter Sunday and were taken around to see all the hospitals. At first we found it very difficult to get a footing in any of them, for the Greek doctors did not like the idea of female help. However, we installed ourselves in the theater of the military hospital, which was overcrowded with untrained orderlies, doctors *off duty*, wounded men *waiting* to be attended to; in fact, a crowd of useless individuals falling in each other's way and hindering the work of two or three really good military doctors who were trying to work. At last the value of the English sisters was discovered and by degrees the room was cleared, and we found ourselves hard at work in the operating theater with two clever young surgeons who, we were thankful to find, kept a most strict régime as far as antiseptic treatment was concerned.

"The wounded were brought straight down from the field on mules or in rough wagons. Very little attention could be paid to them in the wards, but when we got a few spare moments we did our best to find out those who were the most severely wounded and had them brought to the theater as soon as possible. Comfort for the poor fellows was out of the question, and it was with the greatest difficulty that a drink of milk could be got for a dying man who was craving for it. Our work was the same from morning till night, and lasted from Easter Sunday until the following Friday night. On the Thursday we had put up a model hospital of twenty beds which had been provided by H. R. H. the Crown Princess. Everything was in readiness for patients who were too badly wounded to be moved on to Volo, and we were to have received them on Saturday morning, but alas! the Turks had only to march in and find everything in readiness for them!

"On Friday night we retired at 11 o'clock, tired as usual after our day's work. The only thing we remarked was that the firing being very much nearer, the Turks were not far off; however, that did not make much impression on us, for we had been sleeping amid the boom of the cannon for the last six days.

"At midnight our hostess burst into our room crying out, 'Fly for your lives, the Turks are coming into Larissa!' We did not believe it, and when dressed I went over to the Crown Prince's headquarters to learn the truth. I was told that there was no occasion to fear, and on my return the sisters returned to their beds. We were not left quiet for long, for soon both host and hostess informed us that they were going, and carried out their intention by leaving the house and locking the doors after them; so that in one sense of the word we were prisoners. At about 2 A.M. a wagon under military escort was brought round, and in spite of any wish of our own to remain we were hoisted up on top of our kit bags and taken down to the railway station, which was surrounded by a panic-stricken crowd waiting for the first train to start, and expecting the Turks to swoop down upon them at the first dawn of day.

"All the wounded from the military hospitals were placed in the train, and to our lot fell standing room in a horse box.

"We left Volo on Saturday evening with the wounded on board the *Thessaly*, and arrived in Athens at 1 A.M. on Monday.

"On Tuesday I left for Arta Caravassera with a Greek lady and three English sisters. On the Epirus side we all settled down to steady hard work under a most clever and able surgeon, Mr. Zainie of the Greek Red Cross.

"CATH. E. F. BULL.

"July 26, 1897."

Only a few of the foreign nurses remain at the present time. I found a Danish nurse at the Polytechnicum and Miss Morris of Manchester, England, in one of the military hospitals. The German Red Cross Association was represented by von Reichenbach of Munich, who brought with him a large supply of medicines and dressing materials. Most all of the dressing material in the different hospitals is of German manufacture. Many of the rich Greeks living in foreign countries sent money, nurses and hospital supplies, which did much to alleviate the sufferings of the victims of the late war. A wealthy lady who lives in Marseilles endowed and maintained a large ward in one of the temporary military hospitals in Athens. The impression prevails on this side that the Turks did not respect the Red Cross, that the wounded prisoners were often tortured and mutilated, especially in the interior of Thessaly, where their conduct could not be watched by representatives of foreign countries. On the other hand, it is asserted that the Greek insur-

gents abused the privileges of the Red Cross, which angered the Turks, who in turn resorted to revenge by ignoring the Red Cross protection.

Turkish projectiles.—The Turko-Grecian war was characterized by an immense waste of ammunition. The wounds on the Greek side show evidences that the firing was done at great distances. It is related that as a rule the shooting commenced as soon as the enemy came into view. Capt. Dorst of the U. S. Army tells of a little incident which shows how reckless the troops were in the use of ammunition. The Turkish commander sent out about twelve cavalymen as scouts to determine the position and strength of the enemy. As soon as the men came into view one of the Greek soldiers more than a mile distant opened fire, and in less than a minute firing was heard all along the line at a safe distance from the Turks. The scouts had no difficulty in reporting to their commander the exact location and probable strength of the enemy without coming within reach of the Greek guns. According to all accounts the marksmanship on both sides was exceedingly poor. The Greeks used the Gras gun with a forty-five caliber bullet of lead as the projectile. The Turks used the Martini single breech-loading rifle with a bullet of the same caliber and material. A single Turkish brigade was armed with the Mauser gun of small caliber and jacketed bullets. The Greek military surgeons say that many of the wounds which they saw were small and presented all the appearances of having been inflicted with a projectile of small caliber. All of the bullets which I saw in the military hospitals of Athens were large bullets of lead, evidently the ammunition for the Martini rifle. Miss Morris, the English nurse, informed me that she saw two bullets of small caliber metal-jacketed removed in the field hospitals. In both instances the bullet was removed from a flesh wound of the leg. In neither case was the bullet depressed. It is evident that the injuries were received at a great distance from the enemy or that the force of the bullets was diminished by striking a medium between the contending forces. I saw a number of injuries inflicted by the contents of exploding shells. In one instance the missile was a small round bullet of lead of about thirty-two caliber.

The Greek soldier.—The Greek people are almost proverbial for their honesty, modesty and simplicity of habits. The Greek laborer is generally industrious, strongly attached to his family and anxious to provide for his children a good education equal, if not superior, to the peasantry of any of the other countries in Europe. Theft and premeditated murder are almost unknown. Murder is not infrequent but when committed it is the result of a quarrel, a sudden excitement of passion. Drunkenness does not exist in Greece. Old and young, rich and poor drink a moderate amount of native wine, but the favorite national drinks are coffee and water. The cafetiers and water-venders do a thriving business in restaurants and public places. Cigarette smoking is common, but the use of tobacco in any other form is exceptional. The temperate eating and drinking in Greece has created a typical race.

The ordinary Greek is below our average size without an ounce of superfluous fat, muscular and well calculated to do excellent service in a short active campaign. There can be no question that the excellent results which have followed the often imperfect treatment of the wounded during the late war are

largely due to the unvitiated, vigorous constitutions of the patients. The uniform and equipment of the Greek soldier are of the simplest and cheapest kind. All efforts at display are lacking.

Woman soldiers.—Three Greek women have become famous during the war just ended. Conspicuous among them is Katarina, who joined the insurgents with her brother, did brave work, was wounded and was brought to one of the field-hospitals for treatment. The illustration shows her upon the cot in the hospital surrounded by nurses. Another woman did similar service with her brother. A third woman carried water to the wounded in the firing line, received several wounds, one of which made amputation of the arm necessary. She died eventually from the effects of the injuries.



THE GREEK SOLDIER.

First dressing.—The many wonderful recoveries from serious gunshot injuries which came under my own observation seem to prove that great pains were taken to prevent infection on the field and later in the hospitals. A representative of the staff of the Surgeon-General informed me that the wounds received early attention. The instructions were to shave the injured part, rub thoroughly with a solution of corrosive sublimate, dust the wound with iodoform and dress with antiseptic gauze. Wire splints were used mostly for immobilizing fractured extremities. In the hospitals plaster-of-paris was used to some extent for the same purpose. Diagnosis tags were not used, consequently many primary dressings were

removed unnecessarily, and I have no doubt in some instances to the detriment of the patient. All the primary dressings were applied by the military surgeons; the hospital corps were not expected to take an important part in this work, serving simply as assistants to the surgeons. Elastic constriction and antiseptic tamponade for the purpose of arresting hemorrhage on the field appear to have had only a limited application. One of the nurses whom I met expressed her belief that many lives could have been saved if more attention had been paid to this part of first aid to the wounded.

Operations.—Chloroform was used exclusively as an anesthetic without a single death that could have been attributed to this source. A number of amputa-

Greeks killed and wounded 50,000 Turks, while the Greek loss was 15,000. From the observations made in the different hospitals it is more than probable that the number of wounded on the Greek side did not exceed 3,000. Many of these wounds were slight and either did not disable the soldiers or they recovered from the injuries in a few days and returned to their regiments for duty. In no instance was a primary laparotomy performed for penetrating wounds of the abdomen. Dr. Socrate Sp. Tsakona, Prof. Galvani's assistant, informed me that he saw in the Evangelismos Hospital two patients recover from penetrating wounds of the abdomen. In both instances the bullet passed through the abdominal cavity at or above the level of the umbilicus in an antero-posterior direc-



KATARINA, THE GREEK AMAZON.

tions were made in the field-hospitals, but few if any primary resections. Secondary hemorrhage appears to have been very infrequent, undoubtedly owing to the aseptic conditions of most wounds. More or less rigid antiseptic precautions were always carried out, which explains the rapid handling of most of the operative wounds. The instrument supply was simple and obtained almost exclusively of French manufacturers.

Bullet wounds and results of treatment.—I found it impossible to ascertain even approximate data concerning the number of killed and wounded on either side. The statements made by different persons are so at variance that it is impossible at the present time to estimate the loss of the Greek army. A lieutenant of the Greek army had ready figures claiming that the

tion, passing through the body. In one of the military hospitals I saw a patient fully convalescent from a gunshot injury which implicated the cavity of the chest and liver. Bile escaped through the anterior opening for a number of days; no operation; rapid recovery under expectant treatment. Cases of erysipelas were few and mild. In gunshot fractures of the extremities progressive phlegmonous inflammation occasionally set in, necessitating extensive drainage or amputation. The Surgeon-General's office had no record of any cases of pyemia. Death caused by infection resulted from progressive sepsis. Field and hospital practice did not show a single case of hospital gangrene. Many of the large lead bullets obtained by extraction or amputation were greatly depressed. I will now give a brief account of some of the cases of

gunshot injuries which I had an opportunity to examine in the different military hospitals for the purpose of showing what modern surgery has done in the way of saving life and lessening suffering of those engaged in warfare, thus greatly mitigating the remote horrors of the battlefield. Antiseptic surgery can not claim all the good results which followed the treatment of the wounded during the last war, as after the battle of Bordinio in 1812, long before antiseptic surgery was known and practiced, comparatively few cases became infected. The good results in part at least are due to the favorable climatic influences and the excellent constitutional condition of the injured.

Marseilles Hospital.—This one of the temporary military hospitals has received its name in honor of a wealthy lady of Marseilles who endowed it so liberally for the present purpose. It is the Polytechnic school, and as soon as all the patients are disposed of will again become an educational institution. The nursing in this hospital has been done principally by a number of Danish sisters from Copenhagen, whose

are complicated by visceral injuries of sufficient severity to require abdominal section, or to become the immediate cause of death. The nursing in this hospital is done by soldiers and a few English nurses. The operating room is small, but is supplied with all the essential equipments and materials for aseptic work. All of the operations are performed by the regular military surgeons.

Case 1.—Gunshot wound of the head. The bullet entered above the orbit and passed out of the skull in the parietal region on the same side. No operative treatment. Healing of the wounds of entrance and exit by primary intention. No focal symptoms at any time. Patient fully convalescent.

Case 2.—Gunshot wound of forearm. No fracture of the bones. A German surgeon attempted to find and extract the bullet with negative result. A long scar marks the line of incision. Slight suppuration. Wound now nearly healed. Patient walking about with the forearm supported in a sling.

Case 3.—Bullet wound at the base of right thigh; wound of entrance near the border of the sartorius muscle, wound of exit near gluteal crease. Healing by primary intention.

Case 4.—Wound of right knee joint, received in Epirus. The bullet fractured the internal condyle of the femur, opened



MILITARY HOSPITAL AT ATHENS.

services have proved most acceptable to the authorities and patients. Of 100 patients admitted into this hospital suffering from gunshot wounds, only one died. At present about fifteen wounded soldiers remain, all of them on the way to recovery. The medical cases are made up of malaria and two typhoid fever patients.

Tratitikon nosocomion.—This is the regular military hospital, erected and used for the exclusive use of sick and wounded soldiers. It is sixty years old and has a capacity of 500 beds. It is built on the barrack system and is well lighted and ventilated. It is asserted that in this hospital three patients recovered without laparotomy who were admitted with perforating gunshot wound of the abdomen. The fatal cases of this kind of injury probably never reached their ultimate destination. There can be but little doubt that a number of cases of perforating gunshot wound of the abdomen recovered without operative intervention, which only goes to prove what the writer demonstrated years ago experimentally that not all perforating gunshot wounds of the abdominal cavity

the knee joint and was removed by an incision over the outer aspect of the joint. Aseptic healing of the wound with fair degree of motion of the joint. Considerable thickening of the capsule of the joint remains.

Case 5.—Gunshot fracture of leg, with extensive comminution of fibula. Wound received during the first week of the war. Healing by secondary intention and slow formation of callus.

Case 6.—Bullet wound of base of neck. The bullet passed transversely through the soft tissues of the neck, behind the vertebral column and probably caused a fracture of one or more of the spinous processes. The special symptoms due to concussion which followed the injury have now disappeared and were probably caused by concussion of the cord. Healing of the wound without suppuration.

Case 7.—Bullet wounds of chest. Three wounds of entrance over the anterior and upper aspect of the chest. One of the bullets passed through the chest on the left side of the sternum, point of exit over the scapula on the same side. The other two wounds were inflicted by the contents of a bursting shell. The size of the scars indicate that the missiles were less than 38 caliber in size. No attempt was made to locate and remove these bullets. Free hemoptysis immediately after the injury. The patient recovered without any grave complications setting in.

Case 8.—Comminuted gunshot fracture of tibia. Many fragments of bone were removed soon after the injury was received,

leaving a large bone defect. Wound healed; no union and but slight callus production. An operation for pseudo-arthritis will become necessary in the near future.

Case 9.—Gunshot wound of chest with fracture of spinous processes of one or more dorsal vertebrae. Track made by bullet transverse, about the junction of the middle with the upper third of the dorsal portion of the spine. Pleural cavity not opened. Wound of entrance on one side of the spine, incision made for the extraction of the bullet on the other side on the same level. Spinal symptoms were well marked immediately after the injury was received and are disappearing rapidly. Wound healed without suppuration.

Case 10.—Gunshot wound of knee joint with extensive comminution of internal tuberosity of tibia. Patient a captain in the Greek army. First dressing applied fifteen hours after the injury was received, redressed on the sixth day. Bullet passed through the joint and escaped between the head of the fibula and the external condyle of the femur. Injury inflicted during the beginning of the war. Slight suppuration. Wound now healed; capsule of joint and para-articular tissues remain somewhat swollen and indurated. Considerable impairment of motion. No operative treatment.

Case 11.—Gunshot injury of leg. Patient a lieutenant in the Greek army. Bullet passed from before backward through the leg a few inches below the knee joint, between the tibia and fibula, without fracturing either of the bones. Primary healing of the wound without much functional impairment.

Case 12.—Gunshot wound of the shoulder joint. Wound of entrance two inches below the acromion process. The bullet passed through the head of the humerus and the shoulder joint and was removed in the field hospital at a point two inches below the middle of the clavicle. Conservative treatment. Healing of wound without suppuration. No ankylosis and no swelling of joint. Humerus at the seat of injury considerably enlarged by callus formation. Patient is able to raise arm at a right angle to the body.

Hospital Evangelismos.—This is the best hospital in Athens and furnishes accommodation for 150 patients. The surgical wards are in charge of Professor Galvani, who performs on an average 350 capital operations annually. During the war and at the present time this institution has been used largely in receiving and caring for sick and wounded soldiers. The care of the sick is in the hands of native female nurses. These nurses are devoted workers but lack a thorough training. My attention was called to a number of very interesting gunshot injuries involving different parts of the body.

Case 13.—Gunshot wound of knee joint. The bullet perforated the external condyle of the femur and passed out over the minor aspect of the joint. Course of active treatment. Moderate swelling of joint; no suppuration. The wound healed by primary intention. Recovery with fair action of joint.

Case 14.—Injury of ankle joint produced by the bursting of a shell. Slight infection, healing of the wound by granulation. Joint remains considerably swollen and somewhat tender to pressure. Motion of joint limited.

Case 15.—Bullet wound of soft tissues of the leg. Healing by primary intention.

Case 16.—Similar wound. Healing without suppuration. In both instances the bullet passed through the limb without producing any injury to the bones.

Case 17.—Cretan, gunshot wound of shoulder joint. Bullet passed through head of humerus and joint, point of exit below coracoid process. Fistulous opening remains, through which a limited amount of pus passes daily. Ankylosis not complete. Considerable atrophy of deltoid muscle which may be due to nerve injury.

Case 18.—Gunshot wound of chest. Bullet not extracted; injury followed by empyema. Free drainage without rib resection. Injured side of chest contracted; respiratory movements greatly diminished. Patient is pale and emaciated and shows the effects of prolonged suppuration.

Case 19.—Gunshot fracture of thigh. Injury received four months ago. Wound healed; bone united by massive callus; limb considerably shortened and femur curved.

Case 20.—Gunshot wound of chest and abdomen. Bullet entered dorsal side of chest on level with eighth rib four inches from median line, took a downward and forward course and escaped below costal arch an inch below cartilage of seventh rib. No operation. Bile escaped through anterior perforation for a number of days. Wound healed by primary intention. No serious inflammatory complications. Patient is now fully convalescent.

Case 21.—Gunshot wound of ankle joint. Moderate suppurative synovitis followed the injury. Wound of entrance granulating. Joint considerably swollen; heel retracted; motion greatly impaired.

Case 22.—Gunshot wound of patella opening knee joint. Secondary suturing of patellar fragments with satisfactory result. Motion of knee joint greatly impaired, which in part is due to the swelling and induration of the soft structures which still remain. Suturing material, silkworm gut; operator, Professor Galvani.

Case 23.—Gunshot wound of heel. Extraction of bullet in the field hospital. Suppurative; suppurating fistula leading down to denuded os calcis remains.

Case 24.—Perforating gunshot wound of the abdomen. Recovery without operation.

Case 25.—Gunshot wound of abdomen. Recovery without operation. Cases previously mentioned. Both of these cases entered the hospital ten days after the injury was received.

Case 26.—Gunshot fracture of both bones of the forearm. Bullet and loose fragments of bone removed in the field hospital. No union and no callus formation. Wound healed.

Case 27.—Gunshot fracture of the humerus. Bullet passed through the arm near the middle. Nerves escaped injury. Healing by primary intention. No splints. Fixation by bandaging arm to the side of the chest with forearm fixed and supported by the same bandage. Union by bony callus with good functional result.

Military academy transformed into temporary hospital.—This institution could readily accommodate 300 to 400 patients. It is well adapted for hospital use. Twelve English nurses were employed during the war in caring for the sick and wounded, assisted by soldiers. At present only one nurse remains and the number of patients has been reduced to less than two hundred.

Case 28.—Gunshot wound of thigh. Infection. Secondary amputation. Osteomyelitis of the bone made it necessary to perform a second operation, which consisted in enucleating the bone. Wound still suppurating and healing slowly by granulation.

Case 29.—Gunshot wound of clavicle and scapula. Clavicle united by a massive callus. Bullet passed from before backward, above the large vessels and nerves. Motion of arm greatly impaired.

Hypaxiomatikon Hospital.—This is another temporary military hospital. It is an old military school which was converted into a hospital soon after the breaking out of the war. More than five hundred patients have been treated here. It gives accommodation for 110 patients and is fairly well equipped for the present purpose. It is now used for convalescents almost exclusively. Of the present 110 patients 50 are recovering from injuries received during the war.

Camp and hospital diseases.—The prevailing disease among the soldiers in the field and in the hospitals is malaria. The average soldier is perfectly familiar with the use of quinin, which is the only drug used in the treatment of this affection. Typhoid fever and pneumonia have claimed a number of victims. As a rule typhoid fever pursues a comparatively mild course and is not treated by any of the aggressive methods. Complications are watched for and promptly treated when they appear.

Athens, July 28, 1897.

Military Surgery in Turkey

MILITARY SURGERY IN TURKEY

The journey from Athens to Constantinople at this time does not reveal anything that would remind the traveler that a war raged so recently between the two countries. The olive trees, which are seen everywhere, are laden with their oily fruits, and the endless vineyards promise a rich harvest of luscious grapes. The patient donkey carries his burden to the market in slow measured steps as though nothing had disturbed so recently the financial prospects and calculations of his master. In the many fatherless houses the dusky black-eyed children sing and play merrily, ignorant of the violent political eruptions which so recently threatened their lives and homes. The great caravans of camels bringing grain, fruit, spices and oil from distant parts of Asia wind their way along the narrow, crooked streets of Smyrna unmindful of the presence of armed soldiers who are arriving daily from the late seat of war. The few birds that inhabit the rural districts chirp and sing the praises of their Creator with the same regularity and devotion as before the war cry between the two angry nations disturbed the atmosphere in which they breathe and move. The Turk who has returned from the scene of war is a different man from his less fortunate opponent. He is conscious of his victory and all that pertains to it. He holds his head high and in loud and emphatic language relates to admiring crowds the story of the war, the many hairbreadth escapes, the successive victories won, and in prophetic words paints the future glory and prosperity that await his country. The haughty victorious Turk has placed his foot upon the prostrate, trembling little Greece, demanding a war indemnity that they may eventually promise but which they never will be able to pay. The Sultan, intoxicated by the effects of an easily won victory, is defiant and counts himself among the leading rulers of the world. It is impossible to predict the ultimate outcome of the war. What now appears as a defeat for Greece may eventually reflect to her permanent advantage. This faint hope is cherished by all civilized nations and by every lover of art and science.

The average Turk is opposed to innovation and progress. In many respects he resembles the North American Indian. He takes no interest in history and tradition. To him the past is a blank and the future immaterial. His mind is engaged with the present. His inborn wishes and desires are in appropriating day after day, from his surroundings, everything within reach that will satisfy his flesh, leaving his soul to die of gradual starvation. He has no sense for beauty. Turkish architecture has gone into decay. Some of the magnificent mosques erected centuries ago are neglected and crumbling into dust. Science and art never had a foothold in this country, and there are no prospects under the present form of government that they will receive attention for centuries to come. The most auspicious national trait of the Turk is his laziness. Indolence is apparent everywhere. Even the numerous dog population of Constantinople has imbibed this national vice. The miserable half-starved brutes, half wolf and half dog, lie listless and motionless on the stone pavements all day, obstructing sidewalks and streets, and if perchance stepped upon have not sufficient energy to change their position or resent the intrusion in genuine dog fashion.

Over all bony prominences the hair and often the skin is worn away at points where the almost lifeless carcass rests against the hard, rough bed of stone. During the night they muster up sufficient courage to prowl about for their scanty food supply and clear their dusty throats by violent efforts at barking. These hideous nightly concerts are the trial and terror of the traveler. The scavenger duty these dogs perform is but an inadequate recompense for the noise and disturbance they create during the night. They are the property of the community and eke out a miserable existence by gathering up the bones and crumbs which fall by the wayside. They are local tramps without a single legitimate function. The fanatic Turk would revenge a wilful injury to one of these beasts as quickly as if it had been inflicted upon a member of his family. The foot passengers and drivers are very careful to walk and drive around them for their own peace and safety as well as to prevent unpleasant street scenes. The dogs know that the Turks are their friends and behave themselves accordingly. The filthy streets and the whole aspect of the business world furnish additional evidences of the widespread indolence that prevails here. If it were not for the influx of immigration from countries where indolence does not exist to the same degree as an epidemic disease, the Turks would have died out long ago from starvation. Constantinople, with its nearly a million of inhabitants, is the most cosmopolitan city in the world. In its streets representatives of all nations can be seen. A free mixture of races for centuries has resulted in staining the skin various shades from an almost pure white to an ebony black color. Similarity of dress is unknown here. From the primitive dress of the original races inhabiting Asia and Africa to the most costly costumes of the Parisian tailor, there are innumerable grades. The red fez is the distinctive headdress of the Turk, whether civilian or soldier. The white and green turban distinguish the Mohammedans in mosque and street. The green turban is an evidence that its wearer is a direct descendant of the great prophet. The Turkish women are in reality married nuns. From the time they reach puberty they are shut out from the gaze of infidels by veil and screen. The windows of every house occupied by a Turk are permanently screened. The women are seldom seen in the streets and public places. In various ways the Turk secures their isolation from the outer world. They are to a certain extent prisoners in their own homes, slaves in more than one sense of the word. The inferior position occupied by women has had its decidedly baneful influence in degrading the male population. It is my opinion that greater freedom of the women would be the very best measure to rouse their sluggish husbands to greater activity and to awaken a keener sense of domestic and national responsibility. Let the women attend the little shops and put the men to work in the fields, workshops and streets, and Turkey would soon be able to pay her debts and become one of the most prosperous countries of Southern Europe.

The Turk as a soldier.—It is not generally known that the material for the Turkish army, with the exception of the medical office, is recruited exclusively

from the Mohammedan portion of the population. Every Turkish soldier is a believer in the Mohammedan faith. The military schools and barracks are closed to every Armenian and Greek. The Sultan has no faith in the patriotism of any of his subjects who differ with him in his religious views, and he places his own safe-keeping and the fate of his family exclusively in the hands of the Faithful. The Greeks, Armenians and other nationalities, who are citizens of Turkey but do not confess the faith of Islam, subject to military duty, pay a special tax of twenty piastres every year for the support of the army. The Turkish soldier as a rule is larger and stronger than the Greek soldier. The Greek is temperate in his habits of life as far as alcoholic drinks are concerned. The Turk is an almost complete abstainer. Coffee is his national drink. It would be difficult to find a habitual drunkard anywhere in the country.

of death. On the Turkish side the last war was noted for the quick mobilization of troops and well planned sudden attacks, a repetition of Moltke's methods of warfare. In observing the maneuvers of the troops the hand of German drill-masters can be seen everywhere. The organization of the Turkish army is closely patterned after the German army. The Turkish fleet is in a somewhat deplorable condition, far inferior to that of the Greek fleet. A naval war between Greece and Turkey would be a more equal contest than the late conflict on land. The privates and non-commissioned officers possess a common school education, as education is compulsory in the country. The officers receive a careful military education in the military schools at the expense of the government.

Boy soldiers.—During the late war a number of boys from 13 to 15 years of age, served as volunteers. In one of the military hospitals I was shown three



A TROOP OF TURKISH CAVALRY.

Masticho, a mild beer, and native wines are about the only alcoholic drinks used, and always with great moderation. The use of tobacco is limited largely to cigarettes and the water-pipe. The men are physically well developed and present the appearances of robust health. Among the officers many handsome men can be seen. The greatest diversity in uniform prevails. The cavalry horses are splendid animals. They are of medium size and high-spirited. The riding equipment is plain but practical. From what I have seen I am not astonished that the Greek feared the Turkish cavalry. The mounted force brought terror and consternation whenever it made an onslaught in earnest. The cavalry and artillery are armed with Winchester rifles, the infantry with Martini and Mauser guns. The Turkish soldier is brave when led by a competent commander and when he sees victory ahead. The faith in his religion takes away his fear

of these little heroes who faced the Greeks on the battlefield. All of them received serious injuries but fortunately recovered. They were anemic and emaciated, but happy in the thought that they had contributed their share in saving their country from foreign invasion. One of the officers took great delight in praising the courage and endurance of these faithful patriots and made the remark that when they did move it was always in the direction of the enemy. Let us hope that the Sultan will recognize their services and that he will see to it that when they leave the hospital it will be with a decoration for heroic conduct, which they can show to their relatives and friends as precious mementoes of their patriotic deeds.

Red Cross societies.—The Red Cross Societies of Germany, Russia and Austria sent physicians, nurses and hospital supplies to the Turkish troops. The

German Red Cross Society was represented by three surgeons and twelve nurses. Russia sent four surgeons and Austria three. Most of the surgeons and nurses did duty in the regular military hospitals under the supervision of the medical staff. The Turkish troops were well supplied with native doctors and there was, therefore, little need of physicians from foreign countries. The English Red Cross sent financial aid. All of the nurses and doctors that remained in the city on my arrival left for their respective homes the next day. The appreciation of the Sultan, of the services rendered by the German branch of the Red Cross Society, was manifested by a gala dinner at the royal palace to the representatives of Germany and Austria the evening before their departure. A notice of this event appeared in one of the daily papers the next day. "The members of the Red Cross Missions sent by their Majesties, the Emperors of Germany and Austria, and who are about

was to bring aid and comfort to soldiers disabled for duty by sickness or injury. This movement was undoubtedly conceived and fostered by Florence Nightingale, who was then stationed here. After the war the Society remained in existence, but very little interest was taken in its work until after the founding of the Red Cross Association at Geneva during the great War of the Rebellion. The Turks, for obvious reasons, objected to the red cross as the insignia of neutrality of the new society, and adopted in its place the red crescent on a green field. The red crescent has never been popular in Turkey. Not a single member of the army has joined it. It is composed of a few prominent wealthy Turks but the bulk of the list of members is made up of foreigners. The non-combatant soldiers who serve as nurses and litter-bearers wear the red crescent on the left sleeve. The hospital flag bears the same insignia. Practically, the red crescent is equivalent to and is used as a substi-



TURKISH ARTILLERY.

to return to their countries on the accomplishment of their task, were entertained at dinner at the Imperial Palace of Yildiz yesterday, Monday. Their excellencies, Mavroyeni Pasha, physician-in-chief of his Imperial Majesty, the Sultan; Munir Pasha, Grand Master of Ceremonies, and Dragoman of the Imperial Divan; and Marshal Shakir Pasha, Chief of the Imperial Military Household, were also present at the dinner. His Majesty was pleased to confer decorations upon his guests, who received them on taking leave after enjoying the Imperial hospitality." Although the Turk is not in sympathy with the work done by the Red Cross societies, he is beginning to appreciate the blessings which these societies bring to the sick and wounded soldiers in time of war irrespective of creed and nationality.

Red Crescent.—During the Crimean war an organization was effected in Turkey, the object of which

tute for the red cross in the Turkish Army. During the war just ended the Red Crescent expended 8,000 francs for the relief of the sick and wounded and fitted out a hospital ship which transported many of the wounded from the seat of war to Constantinople. No members of the Red Crescent attended the troops on the battle-field and in the field hospitals. A better organization of the Red Crescent Society is very desirable and should be encouraged and assisted by the Red Cross societies, particularly by those belonging to adjacent European countries.

Medical corps.—The Turkish troops are well supplied with medical officers, who are specially trained for military service. This branch of the military force is open to all nationalities, including the Greeks and Armenians. The medical officers are educated at the expense of the government. The University of Constantinople is attended by about two thousand

students, of which number five hundred belong to the Medical Department. The medical course extends over six years, when the candidates for graduation are examined by the Faculty. If the examination proves satisfactory the candidate is reported upon favorably to the Civil Medical Council, in whose hands alone rests the power to grant the degree or licence to practice. As the only university in Turkey is in Constantinople it is somewhat unusual and refreshing to know that the Medical Department contains such a small number of students. The medical student who chooses the military course must pursue his studies the same length of time. The department for medical officers is distinct and the final examination is conducted by a board of examiners composed of seven military surgeons. The president of this board is the Surgeon-General of the Army, who has the rank of a major-general. This board is called the Council of Hygiene and besides deciding upon the merits of the candidates for the medical corps, superintends and controls the work of the medical department of the army. The old custom of training barber-surgeons for the army is still in vogue in Turkey. This low grade of surgeons is composed of men with a limited preliminary education. The barber-surgeon is required to attend lectures and demonstrations for two years before he is permitted to come up for examination prior to his entering the army. His rank in the army is low, his pay scanty and his duties menial. He is allowed to cup, bleed and blister as in years gone by, but is always under the strictest supervision of the military surgeons. He is not allowed to dress a recent wound or prescribe. In a most humble capacity he assists the surgeons in their work. By extraordinary effort and perseverance occasionally such a surgeon is commissioned, when he leaves the barber's trade and is entitled to enter the medical service proper. Two of these surgeons are assigned to each regiment. The medical officers enter the service with the rank and pay of captain. The pay is small and promotion slow unless favored by strong political influences, which here as elsewhere, are the easiest stepping-stones to position and rank. The medical officer in the Turkish army is known by the *Aesculapius* staff in the center of the narrow shoulder-straps. The rank is indicated by stripes of gold braid on the lower end of the coat sleeve, the stripes running parallel with the sleeve. Officers of high rank are known by the number, color and direction of the stripes. The medical officer, when he enters the army, pledges himself to serve for twenty-six consecutive years, when he can retire with a pension. If, for any reason except disability, he leaves the service before the expiration of this time he is obliged to refund the government for his expenses incurred in obtaining his medical education. That advancement in the medical corps of the army does not always take place in the regular order was made very plain to me when I was introduced to the chief of staff of the Yildiz Military Hospital, who is a pasha with the rank of brigadier general, and is only 27 years old. I was informed later that this rapid advancement was at least in part due to his being the son-in-law of an influential politician who has great influence with the Sultan. It must have been somewhat discouraging to the many gray-haired captains and colonels who have served their country for more than twenty years, to see one so young promoted over their heads. Specialism in military practice is recognized by the Turkish Gov-

ernment. I met two military surgeons, with the rank of colonel, who for years have devoted their whole time and attention to ophthalmology. They attend large wards in the military hospitals set aside for this special kind of work. Both of these men appeared to be familiar with the great advances that have been made during the last twenty-five years in this branch of surgery. There are few men in Turkey who do anything like a large surgical practice. The *furor* of operations has not reached this part of the world. The ovaries and prostate gland are comparatively safe. The Turkish women are not as anxious to be operated upon as their American sisters. The proposal to castrate a Turk for enlargement of the prostate gland would mean personal danger to the would-be operator. The military surgeons are entirely conservative in their work. Unnecessary operating is universally condemned.

Dr. Marie Siebold, a graduate of a Swiss university, is the only female doctor in Turkey. Her sex prevents her from receiving a diploma from the Constantinople University. She has, however, obtained a license to practice her profession. She is an earnest student, a careful and able practitioner and, while not fully recognized by her male colleagues, she is certainly fully their equal. Dr. Siebold has seen military surgery, but during the last war took no active part.

Hospital corps.—The hospital corps is composed of 3,000 non-combatants specially trained for the transportation of the wounded and the care of the sick; litter bearers, detailed as emergency demands, and hospital stewards. The hospital stewards are graduates in pharmacy and are enlisted as such after having passed a satisfactory examination. The army is supplied with 8 ambulances and 200 litters. This equipment for the transportation of sick and wounded during the late war proved inadequate and the most of the wounded had to be carried from the battlefield to the field hospitals on mules, donkeys and rough carts. It is said that many cases of penetrating wounds of the abdomen were strapped on the back of donkeys and died before reaching the hospital. The dressing materials which I saw in the different military hospitals were either of French or German manufacture. Considering the many modern improvements which have been made in the arms and equipments of the Turkish army, it is to be regretted that so little money has been spent in bringing the hospital corps up to the high standard of the present requirements in field and hospital practice.

Military hospitals.—All of the field-hospitals were either buildings used for this purpose temporarily or hospital tents. The permanent military hospitals in Constantinople are large and commodious structures. Everyone is located on an eminence surrounded by ample grounds beautified by semi-tropical trees and flowers.

Yildiz Hospital.—This structure embraces twenty-two barracks and overlooks the palace of the present Sultan. Before the war a few old barracks furnished ample accommodation for the sick of the military force in that part of the city. When the war broke out new barracks were built, and in less than four weeks it furnished room and ample accommodations for 1,000 patients. This is the hospital to which most of the wounded were brought and in which most of the operations were performed. At the time of my visit it contained 900 patients, most of them surgical.

It is under the charge of Djemil Pasha, who is chief of the large medical staff. The surgeon-in-chief is only 27 years of age and is a graduate of Paris. He is a fine-looking man, a polished gentleman and is said to be the best military surgeon in Turkey. The oculist in this institution is Professor Behdjet, who, in the army has the rank of colonel. Colonel Behdjet has a large number of cases under his care and has made some very interesting observations on wounds of the eyeball and orbit. He has had under his personal observation twenty-two cases of traumatic destruction of the eye without a single case of sympathetic implication of the opposite organ, although in a number of cases enucleation was refused. In several cases shown the injured eyeball had been removed, the patients wearing a glass eye with most excellent cosmetic result. It is a somewhat singular circumstance that in all cases it was the right eye which was injured. One of the barracks is used exclusively for operative work. There are two operating rooms, one at each end of the building, one of which is used for aseptic the other for infected cases. Attached to each of the operating rooms is a small ward with four beds where the patients who have been operated on are taken care of until they have recovered from the immediate effects of the operation. The operating rooms are supplied with all the materials and instruments for aseptic work. Until recently two barracks were in charge of four German female nurses belonging to the German branch of the Red Cross Society. The patients are well fed. The day I visited the hospital the bill of fare for dinner included soup, rice, spaghetti, roast mutton and squash. The evening meal includes vegetables. The coffee and bread are better than in the average restaurant and hotel in the city. Wine is served only when prescribed by the attending surgeon.

Haidar Pasha Hospital.—This hospital is one of the oldest in the city. It was erected a few years before the Crimean war. It is located across the Bosphorus in Scutari, is an enormous structure with a capacity for 1,000 patients, and is surrounded by beautiful grounds extensively supplied with trees, shrubs and plants. This hospital has been made famous by the work of Florence Nightingale. It is here that during the Crimean war so many soldiers received her skilful and faithful services. I was somewhat astonished not to find a reminder of her unselfish humanitarian work. The Turks speak of her with great reverence and respect, and in many ways manifest their highest esteem for her, but have done nothing, as far as I could see, to commemorate her memory. The Turkish military hospitals are closed to the outside world. All foreigners have to obtain permission through the minister of war to visit them. The doors once open every possible courtesy is shown from the highest to the lowest officials. Coffee is invariably served at the conclusion of the visit. Soldiers, officers and visitors are expected to smoke cigarettes whenever they feel inclined to do so. As the doors and windows are always wide open this general practice does not vitiate the atmosphere. The Turkish soldier eyes the visitor with great interest and is always willing to subject himself for examination. He is especially pleased to exhibit the effects and marks of recent gunshot injuries. The Haidar Pasha Hospital is now occupied by a large number of convalescents, medical and eye cases; it contains but few cases of recent gunshot injuries. The ophthalmic

department is in charge of Col. Dicran Bey Adjeinian; it now numbers 140 patients. Colonel Adjeinian is a graduate of Berlin and devotes his whole attention to diseases of the eye. He has had a large experience in the treatment of ectropium. During the last five years he has operated on forty-two cases by the use of Thiersch's grafts. The contracting scar is excised; the margin of the wound away from the free border of the eyelid is transfixed at two points with a needle armed with silk. The silk sutures are fastened upon the surface of the skin with collodium in such a way as to secure extension, thus widening the wound as far as possible. The raw surface is then covered under strictest antiseptic precautions, with one Thiersch graft. The graft is covered with a few layers of gauze wrung out of a 1 to 5000 corrosive sublimate solution, over which a thick compress of absorbent cotton is placed, the whole confined in place with an ordinary or gauze bandage. In applying the dressing, care is exercised to secure equable compression of the wound. The dressing remains for six days. He has operated by this method forty-two times with twenty-seven perfect, ten partial successes and five failures. He claims that in the cases which terminated favorably there was no tendency to relapse, and that the functional as well as the cosmetic results were excellent. The operating theater is well lighted and furnishes all the necessary equipments for aseptic work.

Formerly typhoid fever was common, but since the water supply has been changed it has almost disappeared. The drinking water is now brought in casks from the mountains. The nursing is done exclusively by male nurses.

Kumuch Sou Hospital.—This is the third large military hospital in Constantinople. It is used for medical and surgical cases. It has about the same number of beds as the Haidar Pasha. Each of these hospitals is in charge of a chief of staff, assisted by the requisite number of surgeons.

Killed and wounded of the late war.—It has been impossible for me to obtain reliable data relating to the strength of the Turkish army or the number engaged in the last war. From what I could ascertain the war footing of Turkey is in the neighborhood of 750,000, and of this number about 100,000 to 150,000 were sent to the front. At the present time Constantinople is full of soldiers. All of the barracks are crowded and nothing indicates that a large army still occupies Thessaly. Last Friday I had the pleasure of seeing the Sultan drive from his palace to the mosque, which he attends every week on the same day and at the same hour. This is always a gala day for the military. On this day at least 10,000 soldiers in full dress, representing the infantry, cavalry and navy, were drawn up to do honor to their chief and protect his person when outside of his prison palace. The officers and soldiers made a splendid appearance and the whole exercises passed off with a regularity and dispatch that would do credit to any country. The cavalry attracted special attention. The soldiers for this branch of the military service are selected with special care and the horses are the finest I have ever seen. The Greeks used large caliber guns and lead projectiles. The wounds on the Turkish side were all inflicted by large lead bullets. Although the Greeks were defeated, the victory seems to have cost many lives. The Turkish army lost 1,450 killed and 2,850 wounded; many of the latter died subsequently. The wounded were dressed on the field and were con-

veyed as quickly as possible by such means as could be secured to the field hospitals. A good many died here from the immediate and remote effects of their injuries. Those that could be transported were taken either by boat or railway to Constantinople, where ample room and accommodations were furnished by the regular military hospitals. I was given an opportunity to see and examine at least one thousand cases of gunshot injuries, most of them on the way to recovery. Infection was much more frequent on the Turkish than on the Greek side. A partial explanation for this difference is probably furnished by the size of the bullets in use and the difference in distance in conveying the wounded to the permanent hospitals. I took notes of a few cases of interest of which I will give brief accounts.

Case 1.—Secondary resection of shoulder joint. Bullet entered in front, passed through the head of the humerus and escaped behind. Resection of about three inches of the upper end of the bone was made, anterior and posterior incisions, and pieces of cloth removed from the wound. Infection. Fistulous opening remained in front; the posterior incision healed. Very little use of arm. Patient's general condition good.

Case 2.—Gunshot wound of knee joint. Bullet comminuted internal condyle of the femur and opened the joint. Extraction of bullet and atypical resection of joint in the field-hospital. Primary healing. Joint partially ankylosed, with leg in useful position.

Case 3.—Bullet wound of orbit. Bullet entered over the right superciliary ridge, passed backward, outward and downward, and escaped below and in front of external ear. Wound healed and patient is wearing an artificial eye with comfort.

Case 4.—Gunshot wound of knee joint. Bullet located by the use of the Roentgen ray. No suppuration. Incision of joint on both sides and removal of bullet. Primary healing of wounds. Motion of joint almost perfect.

Case 5.—Gunshot fracture of the spinous process at the junction of the dorsal with the lumbar vertebrae. Paraplegia complete immediately after receipt of injury. Paralysis remained until laminectomy at the seat of injury was performed. Operation followed by prompt improvement. Patient is now able to walk without the use of crutches. Depression of fractured vertebral arch was found to be the cause of the paralysis.

Case 6.—Typical resection of shoulder joint for comminuted gunshot fracture of head of humerus. Wounds of entrance and exit were enlarged, through which the fragments and projecting pieces of bone were removed. Wounds healed. Fair degree of motion.

Case 7.—Gunshot injury of shoulder joint. Bullet passed obliquely through joint. Anterior and posterior incisions made through which loose fragments were removed. Operation performed in field-hospital. Slight infection. Fistulous opening remains behind; anterior incision healed by primary intention. Use of arm very limited.

Case 8.—Gunshot wound of shoulder joint. Débridement in the field-hospital. Rapid healing of wounds of entrance and exit. Function of arm returning gradually.

Case 9.—Gunshot injury of axillary plexus. Bullet entered below the level of the shoulder joint and on the inside of the surgical neck of the humerus, and escaped behind, half way between the scapula and the dorsal spine. Complete paralysis. Patient complains of great pain, which he refers to the paralyzed limb and caused probably by a traumatic neuritis or neuroma. Secondary nerve suture is being considered.

Case 10.—Gunshot injury of elbow joint. Bullet passed obliquely through the joint, fracturing the internal condyle of the humerus. Primary atypical resection of joint. Infection. Fistulous opening remains behind the joint. The injured parts were exposed by a posterior bayonet-shaped incision. Active motion, none; passive motion, slight.

Case 11.—Gunshot injury of spine in lumbar region. Paralysis complete from the beginning. Bullet remains in the tissues. Wound healed. Cord has probably been crushed by the bullet or fragments of bone.

Case 12.—Resection of knee joint for gunshot injury. Great comminution of articular ends of femur and tibia. Primary resection. Healing of wound without suppuration. Consolidation not complete after two and a half months.

Case 13.—Secondary resection of knee joint for gunshot injury. Slight infection. Healing by granulation. Limb in good position. Bony union quite firm.

Case 14.—Gunshot injury of right crest of ilium. Partial

resection for the purpose of removing bullet and loose fragments. Wound healed. Abdominal cavity not opened.

Case 15.—Loss of right eye caused by gunshot injury; loss of a portion of the orbital arch. Wound healed. Patient wearing artificial eye with comfort.

Case 16.—Retrolbulbar gunshot wound of right eye. Bullet entered orbit, passed behind the eyeball and escaped in front of the external meatus on the same side. Traumatic optic neuritis destroyed the eyesight completely. Patient refuses enucleation. No sympathetic complications.

Case 17.—Loss of right eye from gunshot injury. Enucleation of stump. Complete healing of wound. Wears artificial eye without any inconvenience.

Case 18.—Gunshot wound of right groin. Bullet entered one inch above Poupart's ligament to the under side of the large blood vessels and escaped through the perineum on the same side. Intestinal fistula remains. Use of limb not much impaired.

Case 19.—Volunteer, 13 years old. Wound of right iliac region. Infection followed the injury and resulted in the formation of a large perityphlitic abscess, which was later opened and drained. Rapid recovery. Boy much emaciated and very anemic, but able to walk about the hospital grounds.

Case 20.—Volunteer, 14 years old. Gunshot wound of arm. Bullet passed from behind backward about an inch to the inside of the surgical neck of the humerus. Healing of wound by primary intention. Little or no impairment of function of the muscles of the arm.

Case 21.—Volunteer, 13 years old. Flesh wound of leg. Healing of wound under primary dressing.

Case 22.—Gunshot injury of skull. Primary operation. Removal of depressed fragments of bone. Wound healed leaving a pulsating cranial defect.

Case 23.—Secondary amputation of arm for gunshot wound. Stump healing by granulation.

Case 24.—Gunshot wound of superior maxilla. Partial secondary resection. Wound healing by granulation.

Case 25.—Partial resection of lower jaw for comminuted gunshot fracture. Considerable deformity.

Case 26.—Gunshot fracture of humerus. Great loss of bone caused by the injury and later by an operation for the removal of sequestra. Although periosteum was saved there is no callus at the end of two months, and a false joint without further interference will be inevitable. No nerve injury.

Case 27.—Gunshot wound of right groin. Abscess formation. Incision and drainage. Rapid improvement. Fistula remains. No intestinal complications.

Case 28.—Resection of shoulder joint. Wounds healed. Arm remains almost useless. Great muscular atrophy.

Case 29.—Gunshot injury of skull. Removal of fragments of bone. No focal symptom. Wound healed leaving a pulsating scar.

Case 30.—Loss of right eye from gunshot wound. Wound healed. Wearing artificial eye.

Case 31.—Gunshot wound of nose and hard palate. Bullet entered the center of the bridge of the nose and entered the mouth through the hard palate. Patient spit out the bullet from the mouth immediately upon the receipt of the injury. The perforation in the hard palate was closed by a plastic operation. External wound healed. Saddle nose.

Case 32.—Gunshot wound of face and lower jaw. Bullet entered over the ascending ramus of the lower jaw on the right side, entered the mouth, perforated the tongue and escaped through the mouth. A suppurating fistula communicating with the jaw remained. Recently this fistulous tract was laid open and a detached tooth was removed, after which the fistula closed rapidly and permanently.

Case 33.—Gunshot wound of ascending ramus of jaw on right side. Bullet chipped away part of the bone and lodged behind near the spine, from where it was successfully removed by a tedious and difficult operation. Movements of lower jaw limited, otherwise no functional disturbances.

Case 34.—Resection of elbow for gunshot injury. Secondary operation through posterior bayonet incision. Fistulous openings and considerable swelling of soft parts remain. Muscles of arm and forearm much atrophied.

Trephining for traumatic abscess of the brain.—Djemil Pasha, of the Yildiz Hospital, informed me that trephining for abscess of the brain following gunshot injuries with lodgement of the bullet in the cranial cavity, was performed three times. In all of the cases the indications for the operation were furnished by the intracranial suppuration. In all of the cases the abscess was found and the bullet removed. Two of the cases recovered and one died.

Constantinople, Aug. 6, 1897.

