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The health of Italian troops and prisoners during World War I

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SUMMARY

During the Great War, which involved Italy from May 1915 until November 1918, the Italian Army paid an extremely high price in terms of suffering; around 600,000 soldiers died. About 100,000 of these deaths were caused by diseases, mainly infectious ones. The casualties accounted for over one million cases. Epidemics of cholera and petechial typhus were recorded as well as an increase in morbidity due to tuberculosis and malaria, which had shown some minor epidemiological reduction in several regions of Italy during the years preceding the Great War. A large number of soldiers acquired respiratory tract and brain infections. Severe limb infections were due to war wounds, but also to a novel disorder called "trench foot", In a context of general hygienic decay, death and stress linked to massive bombing, severe psychiatric disorders were observed. They were called "shell shock" in English (and known in Italy as "the wind of the howitzer"). The patients suffering from the above psychiatric disorders were considered simulators by the great majority of psychiatrists, who largely believed such soldiers wanted to avoid active combat. They were subjected to electric shocks and later sent back to the war front or to a mental hospital in the most severe cases. In some dramatic occurrences, like at the time of the Caporetto defeat, a substantial number of soldiers were dealt rough justice in front of firing squads under the suspicion of desertion.
Yet World War I, with its dramatic load of suffering, forced the medical environment to develop extremely innovative techniques and research applied to clinical practice. During the decades to follow, such efforts yielded major results in the field of pharmacology: studies which led to the discovery of the first antibiotics were set in motion.

Keywords: world war I, health, Italian army.

We are as in autumn on branches the leaves
Giuseppe Ungaretti[1]

During the World War I, that lasted 4 years, Italian Army paid a tribute of around 600,000 deaths[2], whose 500,000 were estimated as due to grenade explosion[3], bullets fired by snipers, or lesions caused by gas, while around 100,000 deaths were probably due to diseases. But an extremely elevated number of deaths were related to the inhuman life constrains in the trenches. The soldiers spent their life concurrently with tremendous hygienic conditions of pathways and refuges, by using precarious hygienic services, all locations infested by rats (Figure 1).
Moreover, the promiscuity of campfires was extremely high. Many attempts were tried to keep rats away from defence lines or to eliminate them, by means of the classic use of poison and traps, until a sort of rat hunting, competing among who was more able to trap the greater number of rats. The risk of plague was immanent, and the problem was also faced with the help of dogs.

[1] Giuseppe Ungaretti (1888-1970). In the year 1914, at the start of the World War I, Ungaretti participated in the interventional campaign, and later he was enrolled as a voluntary in the nineteenth Regimen of Infantry of the Brescia Brigade, when Italy entered the war. When fighting in the Carso region, he wrote a book of poems which were printed in 80 copies at a typography located in Udine in 1916, with the title "The buried port". The quoted poem is enclosed in a collection called "Cheerfulness of shipwreck" (1919).

[2] Other estimates record the number of deaths in 650,000

[3] Before the introduction of metal helmets in the first months of 1916, 60% of overall deaths during the World War I were caused by the explosion of grenades called "shrapnel"

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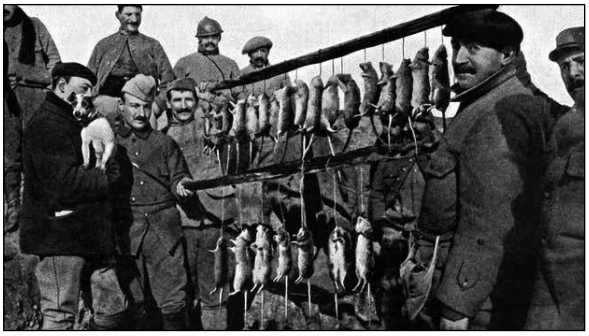

Figure 1 - An exhibition of mice, after a "hunting trip" in a trench.

Figure 2 - Italians prisoners in Milovice, during the Great War (from Mauthausen 1918 by Gian Paolo Bertelli).

Not infrequently, soldiers acquired infectious diseases, including bacterial (meningococcal) epidemic brain-spinal meningitis, epidemic encephalitis, pneumonia, tuberculosis, rheumatic disease, malaria, and syphilis as the most common sexually-transmitted disease. Furthermore, true epidemics of cholera and petechial typhus occurred, and, at the end of war, in the winter between 1918 and 1919, before that troops were moved away, the great influenza pandemic (the so-called Spanish influenza)[4], appeared.

With regard to cholera, the first episodes occurred in the Isonzo river front, where around 6,000 deaths were recorded. As a consequence, a vaccine campaign was directed to military troops, and this decision caused a decrease of disease cases among troops as well as hindered the diffusion hindered the diffusion of the epidemic in the general population throughout the country. The anti-cholera vaccination gave a protection of short time around six months. This measure anyway was useful to suppress potentially devastating epidemics, like those which involved the belligerent troops, during the World War I.

Beyond the already mentioned deaths, the Italian army had around 100,000 soldiers who died as prisoners, out of about 600,000 Italian soldiers, who were taken as prisoners during the war. The majority of deaths was due to malnutrition and infectious diseases acquired during the detention itself. It's important to consider that the attitude of Italian military headquarters, concerning the soldiers, was that of suspicion: according to general opinion of the Italian military commanders, the presumed cowardice of the soldiers could have been the cause of their surrender as well as the lack of will to fight. Only the family of prisoners were reported to send some food help, while the Italian establishment tried to stop these initiatives [2]. Because of the maritime blockade, the German and Austrian-Hungarian empires faced an extremely severe alimentary crisis, and at the end of the war the same populations suffered a real starving. This nutritional crisis was considered one of the main causes of the collapse of German Empire. In this context the Italian prisoners - considered as traitors after the abandonment of the Triple Alliance[5] carried out by Italy in the year 1914, at the start of World War I - were those who paid the greatest punishment, since they were suspected of betrayal in Italy and were considered betrayers also by the enemies, since they were Italian soldiers. Even the Red Cross organization was prohibited to collect aids for the prisoners. Also because of this shameful attitude of the authorities and the concurrent, negative propaganda, the deaths of Italian prisoners became more and more numerous: in fact, the mortality rate of Italian prisoners was 9 times greater compared with that of Austrian-Hungarian prisoners in Italy. The prison camp of Milovice in Bohemia (now located in the Czech Republic) was built to host up to 20,000 persons, but it accommodated a double number of prisoners, mainly Italians. In this place many prisoners lost their life due to typhoid fever, famine, malnutrition, and frostbite [Figure 2].

[4] his influenza epidemic took its name from the early location of the first cases in Europe, which occurred in the Iberian Peninsula.

[5] The treaties of the Triple Alliance were concluded between 1882 and 1912 among German, Austrian-Humgarian Empires (Central Empires) and the Italian Kingdom. They gave a series of military defence rules, which were updated four times in the subsequent years 1887, 1891, 1902, and 1912.

In the local cemetery 5,170 Italian soldiers were buried, in comparison with 521 Russians, and 51 Serbians [2]. Among the Italians dead in Milovice the most frequent diagnoses were the following: pneumonia, meningitis, heart failure, pulmonary oedema, tuberculosis, Spanish influenza, and cholera. Several necropsy studies were performed, which allowed to find a complete disappearance of fat from the thoracic and abdominal districts, and from limbs, too. The problems generated by the health management of enemy prisoners, and in particular those of the Austrian-Hungarian armies, was nagging for the Italian Kingdom too. After the defeat of the Serbian army[6], Italy took care of recovering the Serbian army remains, from the coast of Albania. After the abandonment of Serbian territories, the Austrian-Hungarian prisoners, around 50,000 people, were considered as a "bargaining ship" in an eventual negotiation for prisoner exchange. The Italian Marine Army took care of the Austrian-Hungarian prisoners as well as of the defeated Serbian allied soldiers. After a prolonged march through the Balkan Mountains, during the Winter season, they were taked in charge in Vlora, embarked and transferred to the Asinara island, at north of the Sardinia island. Cholera even more frequently than typhoid fever and other contagious diseases were diagnosed among prisoners, and in particular petechial typhus re-appeared. The choice of the Asinara island was justified by the fact that this place had been provided with a quarantine health care area since 1884, in order to isolate the prisoners suffering from cholera. These individuals came from Naples, where another epidemic was present. In Winter 1916, in the urgency to evacuate the port of Vlora, and in order to prevent further risks for the health of Italian troops located in Albania but being unaware of the health care procedures to limit the epidemic, in around 8 weeks around 23,000 prisoners were transferred to the Asinara island, including sick and healthy persons, taken in a close promiscuity. This dangerous case mix led to thousands of deaths [3-7]. At the end of the war, the Vittorio Veneto day was followed by a forced immigration of Austrian-Hungarian prisoners, which led to a novel epidemic of petechial typhus, characterized by the greatest number of victims [8]. In addition, during the years of World War 1, in Italy a significant recrudescence of endemic malaria was observed; in the previous years, thanks to environmental reclamation politics, a modest reduction of its clinical impact has been achieved. The causes of the re-appearance of elevated malaria transmission depend on the destruction of the hydraulic reclamation works in the Veneto region, the reduced availability of quinine during the conflict, and the massive movement of a great number of citizens and soldiers, which followed the Caporetto defeat.

In the year 1916 malaria was diagnosed in 15% of Italian soldiers, and the disease rate increased up to 25% during the subsequent year. At the end of the war, the return of soldiers Suffering from malaria in their regions of origin caused epidemic flare-ups in the cities of Crema, Livorno, and Brescia. During the period of a decade, in a high number of Italian regions an increase of malaria transmission was observed, so that in the year 1920 the census of former soldiers recorded 250.000 individual who needed a specific treatment [8,10]. In the Figure 3 the trend of mortality due to malaria fever from 1887 to 1950 may be observed: the

Figure 3 - Malaria mortality figures from 1887 to 1950. The peak recorded in the years 1917 and 1918 is remarkable. Figure from the Volume "La malaria tra passato presente" by G. Corbellini L. Merzagora. 1998. Original graph from Alberto Coluzzi, 1961.

[6] In October 1915, the attack of the Central Empires found a country exhausted by one year of war, with the population decimated by the thyphoid fever which carried out a massacre among war prisoners. In order to avoid the capitulation, the Serbian army and Government decided to cross Albania, to join the allied forces, stationing on the coasts of the Adriatic Sea, in Durres and Vlora. The latter Albanian city was under the control of some Italian military units. The tragic exodus of 400,000 people had begun, including King Peter I, the royal family, the cohort, the Serbian army and an entire population of women, children and old individuals.

peak of deaths recorded between 1917 and 1918 is remarkable [10]. At the beginning of World War I, in the year 1914 the tuberculosis still represented a great problem of public health in Italy, since the deaths were over 50,000 per year, and structures devoted to the care of sick individuals and to the prevention of this disease. In the year 1913, during the Giolitti's premiership, for the first time a funding of 200,000 lire was allocated, to hinder the diffusion of tuberculosis.

During the war, a recrudescence of tubercular contagion was observed. This event was related to the general worsening of the tenor of life following the crisis of agriculture. This situation was due to the reduction of male work and to the general food shortage. The age classes at increased risk were between 18 and 45 years, while the enhanced recruitment of women, teens, and older citizens in the factories, exposed the entire society to a higher possibility to acquire tubercular infection. The inclusion of numerous physicians in the military forces and the need of requisition of many hospitals to give assistance to injured persons led to a comprehensive worsening of both cure and surveillance of tuberculosis. Due to the enforced need to enrol the maximum number of soldiers to cover the army ranks, medical assessment at recruitment became very superficial; compared with the year 1913, when health care dispositions indicated to every physician that the exemptions could not overcome the number of 100 persons per day, during 1914 a dramatic drop of exemptions caused by tuberculosis was observed (from 41% to 28%). The impact of tuberculosis on the overall mortality was devastating: an estimate underlines that the soldiers who died because of isolated pulmonary tuberculosis, represented over 20% of overall deaths due to diseases, *i.e.* almost 10% of all soldiers died for any cause. In addition, cases of soldiers with open pulmonary tuberculosis, who were recruited and sent to the war front, have been also reported [11, 12].
In the year 1916, the increased number of soldiers suffering from tuberculosis, induced the establishment of hospital departments for the diagnosis of the disease, in every army corps. The soldiers who could not receive any treatment were considered unfit, on the other hand those who could be treated were hospitalized in appropriate sanatoriums for at least four months; after this period, based on

Figure 4 - Institute for the climate therapy of Merello, Bergeggi (Savona).

their clinical situation these soldiers were judged either unfit or were sent to sedentary offices. For the treatable soldiers, the Italian army had only a single Red Cross institution in Bergegginei, close to the Savona city, where climate therapy was available (Figure 4). It could rely on 140 beds [13].

The clinical criteria for exemption of young recruits were adapted to an ever-growing number of soldiers to be sent at war front, to replace the lost soldiers, either during the fights or because of diseases. In this perspective, the ambiguous diagnoses of Italian military physicians have to be considered: *i.e.*, malnutrition or anaemia, aimed

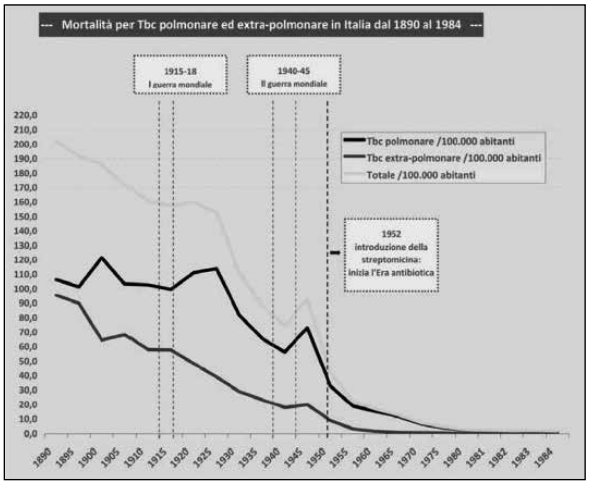

Figure 5 - Trend of mortality due to pulmonary and extra-pulmonary tuberculosis from 1890 to 1981. The increase of deaths caused by pulmonary tuberculosis in the third decade of twentieth century is evident.

to justify the precarious health state of the conscripted people.
In 1917, the National Health Care Council approved the need of an insurance, and through a public insurance company, granted provinces, cities and other public institutions, of mortgages without interest, to favour the hospitalization of people affected by tuberculosis. Two years later the government approved a law which extended the advantages to patients with extra-pulmonary tuberculosis, and to individuals whose disease worsened during the military services. The most important consequences of the increased tubercular contagion were seen during the war time, but unfortunately a more significant number of deaths was documented during the subsequent decade, with a peak recognized from 1927 up to 1930 [14] (Figure 5). Soon, the military health care authorities realized that an elevated number of hurt soldiers could reduce their infectious complications caused by war wounds and their risk of death due to loss of blood, should the soldier be rapidly instructed on the rules to be respected, whether they had been wounded. Based on this preventive approach, the soldiers were stocked with a small kit for self-medication, when it was needed. This individual package for medication included sterile gauzes and a small bottle of tincture of iodine, with the aim to assure an early treatment of wounds. Other disinfectants and drugs like aspirin were prescribed at infirmatories and were never included in the backpack of soldiers. During the war, when toxic gases were used, a mask (Figure 6) and some anti-gas glasses were introduced in the military equipment.

Figure 6 - Soldiers and a mule, all equipped with anti-gas masks.

To increase both culture and awareness among soldiers, also a Decalogue, written by Professor Lusena from Genoa was distributed: according to the intentions of the military commands, it should be a guidance for soldiers' behaviour when they were wounded [15]. We herewith report the ten recommendations:

1. Never touch the wound with fingers, handkerchief, or other objects not contained in the dressing package.
2. Cover as soon as possible the wound with a gauze from your package, but pay attention to avoid touching the piece of gauze which will be placed over the wound.
3. Never wash the wound with water and solutions, you imagine may act as disinfectants.
4. If you have got some tincture of iodine, apply it into the wound.
5. If you have an abdominal wound, do not drink, and especially do not eat.
6. If you have a head wound, even slight, after binding it with the dressing package material, go immediately to a first aid station to receive an appropriate dressing.
7. Should the wound be bleeding, after applying a gauze from the dressing package, grab strictly the bandage, in order to compress the wound.
8. When a wound of arms or limbs occurred, and you realized that your hand and foot are swelling after the bandage, you have to loosen the bandage, since it is too tight.
9. If notwithstanding a tight bandage the bleeding persists, try to vigorously compress the bandage over the wound with your hand, and whether a limb is involved, ask a companion that he ties your limb with a piece of tissue or a belt at a level higher than that of the wound, in order to block the haemorrhage.
10. Remember that, after receiving such a bandage at an upper level of the wounded limb, you have to go as soon as possible to a dressing station, since after maintaining your arm or your leg tied in a so tight way, your hand or foot are at risk of a gangrenous evolution [15].

Unfortunately, many soldiers were illiterate, therefore the majority of Italian soldiers engaged

in the first line trenches were not sufficiently aware of the above-mentioned Decalogue. In our previous paper, we underlined that military surgeons developed a remarkable practical experience during the war period and theoretical progress was notable also in our country [16]. The medical historian Cosmacini underlined that the conflict imposed to medical surgeons - in the absence of any antibiotic therapy - the need to develop a very careful approach to the problem of secondary infection, caused by war wounds [17]. In addition, the elevated frequency of wound which disfigured not only the face (Figure 7), but also other body districts, imposed the need to develop plastic surgery.

The military surgeons were able to acquire remarkable versatility, demonstrating their ability in complex specialties, also different from each another. The surgeon had to pass concurrently from neurosurgery to chest or abdominal surgery; a great role was played by orthopaedic surgery, with the implant of limb prostheses too. In this perspective, in the event of limb amputation, the surgeons had to maintain a stump able to sustain a prosthetic device, and in the same time their interventions were expected to be radical, especially when a risk of progression towards a gangrenous process was possible. As a consequence, multiple surgical specialties started their history just during the years of World War I.

In the event of wounds due bullets coming from guns, machine guns, or pistols, causing "a complete channel", *i.e.* wound characterized by an entry and an exit hole without associated bone lesions, an invasive surgical intervention was avoided, and dressings every 2-3 days were carried out. In a communication read at the Royal Academy of Medicine of Turin on December 17, 1915, the lieutenant Dr. Mario Ponzio, who was in charge of radiological services, stated that: "… based on the surgical experience of this war, in the firearm wounds the bullet itself in the majority of cases has a proportionally smaller importance, in comparison with the produced lesions and those could be produced later; never mind to know whether a bullet is located 3-4 centimetres far from the body surface, but we are more interested to know if in this route it could have caused relevant anatomic lesions, or may represent a danger for the injured subject. At last, we try to know if the extraction is convenient or not; a not easy task, which requires a broad clinical knowledge of a wide spectrum of surgical and radiological techniques" [18].

Figure 7 - A severe wound disfiguring the face of a veteran coming back from the war front.

Concerning surgical procedures, carried out under narcosis (anesthesia), masks (Echimmebusch - Esmarch), enriched with drops of ether or chloroform, were used. More infrequently a spine anesthesia with novocaine (1%), or local anesthesia, were used.

When a cranial trauma occurred, the most frequent complications observed by neurosurgeons, were: encephalitis, brain abscess, ventriculitis, and herniation of cerebral matter, on the cranial wound, induced by an intense brain oedema. In the year 1917, the medical captain Dr. Guido Lerda - professor of Surgical Clinic and Operations - wrote a clinical contribution based on his experience. Its title was: "On the value of lumbar puncture in the treatment of the brain traumatic lesions" [19]. In the absence of pharmacological weapons (antibiotics and drugs against brain edema like corticosteroids), the Author proposed a less invasive approach based on "abundant drainage of cerebro-spinal fluid (30-40 mL), through a lumbar puncture, instead of the positioning of drainages or invasive neurosurgical interventions. After these procedures, the wound breach, earlier closed by the swelling of prolapsed tissues, became clearly open so that the wound was drained spontaneously per se. Therefore, I abolished every endo-cerebral drainage, limiting

my intervention to a simple medication, then I repeated the lumbar puncture every time it was suggested by the increased swelling of the herniation. This procedure was needed less frequently over time, and the sick subject went to a cure" [19]. Captain Lerda concluded his article as follows: "Who is writing had in his practice at least 2,500 lumbar punctures and rachi-anesthesias, without one single case of severe inconvenience, due to the puncture itself" [19].

The "trench foot" was a very frequent disorder among soldiers who were engaged for months in their trenches, during the position war. The cold, the dampness, and the lack of hygiene were the leading causes of this disease. Similar to freezing lesion, the "trench foot" showed differences at its onset, due to the predominant tissue oedema. This disease was already known by military physicians: the first description is due to the French surgeon Dominique Jean Larrey, who observed it more than one century before, in 1812, during the tragic retreat in the Russian military campaign [20]. It is interesting to notice that in Russia this complication was not associated with an extreme cold, but it occurred when the temperature was around zero degrees with an elevated percentage of dampness.

Presently, the "trench foot" is classified among the immersion syndromes and is characterized by the initial appearance of a relevant tissue oedema. The long term standing in trenches, where soldiers' feet were covered by mud and water, led to skin swelling with development of erythema and blister lesions. During the Great War the progression of this pathologic condition led to a so severe damage to peripheral nervous system to prevent soldiers from standing [21]. This disease was so crippling, together with the general life into trenches, that the soldiers were psychologically exhausted, and tried to gain the exemption from the fighting, with some self-harm acts. In some cases, the adopted stratagem was to voluntarily keep the feet in the mud, without changing wet and dirty socks, in order to favour the disease onset and to obtain an hospital admission [22]. The early steps of this disorder included swelling, an erythematous skin and bleeding blisters. Later, the pain became more and more unbearable, and the nerves could not receive any stimulation. At this disease stage, the involved soldiers should be moved away from the front. When the disease

Figure 8 - A soldier suffering from "trench foot", complicated by gangrenous evolution.

was rapidly treated, the recovery was determined by different conditions. The less severe patients were cured within some weeks, after maintaining the limb in a draining position and exposed to warmth. Should the clinical features be observed later, when a gangrenous evolution already occurred (Figure 8), the limb amputation was unavoidable.

Whether a gangrenous process was not present, the time to healing was longer, and the most frequent complication was the loss of sensitive nerve function. During the progression of the conflict, especially during Fall and Winter seasons, a real epidemic occurred, and the military authorities finally gave some preventive measures. The soldiers received leather boots, they were recommended to cover them with fat with the aim to prevent the infiltration of water. Notwithstanding these precautions, which could not be applied to all situations, cases of "trench foot" were recorded over the entire duration of the war [23].

It's interesting to observe that among soldiers engaged in the Italian lines, notwithstanding the elevated number of infected wounds and regardless of the expectations, the diagnosis of tetanus was rather rare during the World War I; also among United States soldiers engaged in the last 16 months of the conflict, only 70 cases of tetanus were recorded, among around 500,000 hospitalizations due to wounds and lesions, with an overall disease incidence of 13.4 per 100,000 injured people [24][7].

[7] During the war an anti-tetanus vaccination was attempted using a toxin made non-toxic by iodine. In the year 1923, Ramon obtained the tetanus anatoxin or toxoid, which is still the anti-tetanus vaccine used in men until now.

From a political-military point of view, the Great War represented the first "total war". In 1916, Tausk defined it "a terrific devastation which submerged the world" [25], while in the following year Pope Benedictus XV, in his letter sent to the leaders of the belligerent countries, defined it as "a usefulness massacre" [26]. In Summer 1914, at the beginning of the conflict, everybody realized that the time of pitched battles of the Nineteenth century was finished. The introduction of devastating weapons, like machine guns, imposed to the armies a novel mode of conflict, which was based on the position war and conducted in the trenches. This mode of engagement was characterized by the attack to enemy trenches, that was preceded by extremely strong and prolonged shelling with large calibre grenades and, in some situations, bullets which exploded and spread toxic gas[8].

After these "preventive" bombing, the forward troops assaulted the enemy front making their way through barbed wire grids, in a lunar landscape including bomb craters, and decomposing corpses. Moreover, flam-throwers were used, in order to drive out the enemies who waited for the attack in their trenches, and finally the last resistant soldiers were attacked with firearms, hand grenades, white blades (*i.e.*, bayonets), or bludgeons. In this brutal death context, for many months, the mind of fighters was submitted to a devastating psychological pressure. The soldiers spent their life in tunnels, they were scared to be buried alive and experienced stunning sounds for days and days, together with vibrations due to explosions. In addition, they were particularly afraid of the insidious gas which could kill them when sleeping, in an underhand manner. The prolonged life in trenches led the soldiers to lose the sense of day and night time, every visual reference disappeared. Later, they became psychologically confused, some of them identified themselves with the enemy and, at the end, a state of altered mind with reduction of consciousness, delusion or persecution, amnesia, and loss of expression ability could occur.

Soon after the beginning of World War I, psychiatry was expected to have to face conditions of mental disorders, which were completely new in the European war scenarios[9]. The term referring to a grenade or explosion shock (the so-called "shell shock") was used for the first time in a medical paper published by The Lancet in 1915, by the medical psychologist Charles Myers, who fought in the British Expeditionary Force in France during the World War I, in order to point out the psychological disturbances caused by the war stress, on the whole[10] [27]. These disturbances caused the repatriation of many soldiers since December 1914. Initially, grenade shock was thought to be secondary to an organic, neurological lesion, stemming from the action of potent external power (grenade explosion). However, a short time later, a series of symptoms of difficult interpretation were recognized also in an increasing number of soldiers, who witnessed some explosion without reporting any wound at their head. They suffered from amnesia, difficult concentration, headache, tinnitus, dizziness, tremor, insomnia, and an emerging cognitive impairment which were not sustained from a pathogenetic point of view by a direct brain trauma and they were not healed from hospital care. Therefore, it was hypothesized that these symptoms were psychological and not organic in origin, until they were considered a "traumatic neurosis", on the whole [28]. Later, the debate on these subjects became particularly interesting, and after the introduction of psychoanalysis, relevant points of contact with neurol-

[8] The phosgene was employed for the first time in 1915 by the German army against French troops, by throwing adequate bombs. During the subsequent year the Italians, on San Michele mountain, suffered from a chemical attack carried out by Austrian and Hungarian armies (on June 29, 1916). In this last circumstance the gas cylinders were not thrown, but only open, in order to create a toxic cloud, which was moved by the wind. In September 1917, the mustard gas was used by Germans on their Eastern front, during the Riga battle. One months later, in the location of Piezzo, high Isonzo river valley, the Austrian-German allied armies bombed the Italian lines with the same weapons, thus ensuring a significant advantage in the Twelfth Battle.

[9] Indeed, the first studies, concerning post-traumatic disturbances, go back to the American civil war (1861-1865), since a high number of soldiers had suffered from a sort of heart disturbance, and therefore the American physicians called it "Soldier's heart". These symptoms were not only cardiac in origin, but they were associated with anxiety or depression conditions, emerging also when battles and wars had came to their end.

[10] Myers was the first author to use the term "shell shock" in his paper published in The Lancet [27], although later it was not recognized as the inventor of this definition. Thanks to his studies, many soldiers escaped the firing squad. Myers told that the "shell shock" was a curable clinical condition, but the British military medical environment harshly disputed his position.

ogy were pointed out. The experiences acquired thanks to the study of the soldiers, who were victims of the so called post-traumatic stress disturbance[11], led to a Conference. It was held in Budapest in September 1919, when the Great War was still ongoing [28].

In our country, the syndrome was named "the wind of the howitzer". In order to observe these subjects, hospitals were located close to the war front. Official data from Italy are lacking, but some estimates account for at least 40,000 soldiers, who were victims of this condition. When symptoms appeared, these patients received a brief hospital treatment, then they were sent back to the war front again; but when the disease was particularly severe and persistent, the final destination was a mental hospital.

After the Caporetto defeat[12], a true epidemic of mental derangement occurred among the soldiers, similar to that registered on the French-English-German Western war front in 1916 after the Somme battle[13]. It is noteworthy that all military headquarters of belligerent nations were worried that the soldiers tried to simulate some diseases, in order to escape the battle. The psychiatrists, who were not culturally prepared to face this emerging problem, were inclined to consider soldiers suffering from these symptoms as simulators. Therefore, their attitude was usually sceptical on the real relevance of the syndrome. Psychiatrists were asked what they could do with men showing paralysis, insomnia, tremor and other symptoms, in absence of organic lesions. Starting from the firm belief that they were simulators, the management was based on an electric treatment, this approach was roughly similar in all armies and included the administration of electric shocks, screamed orders, isolation, food restrictions, and threats. The objective of these "cure" was to impose to the soldiers to get free from the sickness – sickness which guaranteed them to leave the war front-, inducing them a fear which was even greater, compared with that suffered in the trenches under the enemy fire, through the administration of electric shocks [28].

A small group of non-aligned psychiatrists, who were part of the early analytic basis, who were convinced that everything stemmed from an interior conflict. Consequently, they sorted to the field of hypnosis, following this fashionable attitude. According to their hypothesis, the hypno-therapy could help to induce the emerging of conflict elements, which were the basis of the disturbances. Unfortunately, also the hypnosis techniques did not obtain appreciable results.

Sigmund Freud in his memory entitled: "Memorandum on the electric treatment of patients with war neurosis", showed his interest for this subject. The great scientist concluded his research, stating that the electric shock was not effective, even when it apparently seemed to work [30]. The soldier treated with electricity, after coming back to the war front, under the assault of the enemy fire and the unbearable life of trenches, very often had a relapse. Freud wrote: "his fear of electric shock was reduced, like his fear of military duties did during the treatment itself". [31] .

The problem was still present after the end of the Great War. Eric J. Leed in the volume *Terra di nessuno* (Il Mulino, Bologna, 1985), dedicated to the personal identity of the soldiers, during the World War I, writes that many veterans had to receive a psychiatric treatment, during the years following the conflict [32].

In conclusion, during the World War I the Italian trenches represented a site of huge suffering, due to the devastating effects of the novel firearms (machine guns and novel guns with grenades) and to the chemical arms –which at the beginning of the conflict were not completely known in their potential - and the broad spectrum of infectious diseases which involved the soldiers.

The climate of global existential insecurity de-

[11] During the World War II, the Korean war, and the Vietnam war, the prevalence of soldiers who suffered from the typical symptoms increased enormously, and not only among troops, but also in the civilian population. At the end of 1970s, thanks to the engagement of the American Veteran Associations, which included soldiers coming back from Vietnam, the formal inclusion of the traumatic syndrome among officially recognized psychiatric disturbances list (DSM), was obtained. Coming back to the former definition of "Gross Stress Reaction" which was present in the first DSM edition [29], the definition of "Post-Traumatic Stress Disorder" was encoded.

[12] After the Caporetto defeat, many Italian soldiers were sent to firing squads, since they were considered as traitors. According to the imputation, they had left the fight and had surrendered. A high number of these soldiers were not recognized as suffering from serious psychiatric disorders.

[13] During the first day of the Somme battle, the British Expeditionary Force lose over 59,000 units, and had 20,000 deaths; the English army preceded their attack to German lines by means of a week of intense bombing as preparation.

termined a diffuse and massive presentation of severe psychiatric syndromes, which left evident effects and sequelae also after the war. The life of Italian prisoners in Austria, and that of Austrian-Hungarian ones in our country was particularly hard. An extremely high price was paid to infectious diseases (tuberculosis, typhoid fever, malaria), which found an easy way of dissemination, due to the extreme food restrictions, in terms of carbohydrates and proteins. From this point of view, the responsibility was attributable to the Italian Government, which suspected the Italian prisoners of the Austrian-Hungarian empire to have surrendered, because of cowardice, and therefore blocked the relatives'[14] and Red Cross' packages. On the other hand, the Austrian-Hungarian Government considered all Italians as traitors, since they in the year 1914 disregarded the Triple Alliance treaty, which linked Italy to Germany and Austria-Hungary. As a result, in a general context of very poor food resources, an extremely reduced nutrition was deserved to Italian war prisoners.

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