

## Life and death of the Austro-Hungarian prisoners of war on Asinara Island, 1915-1916: a humanitarian crisis

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*Abstract:* During the First World War (IWW) a large number of Austro-Hungarian prisoners deported from Serbia were secured on the 15<sup>th</sup> of December 1915 by the Italian army in Valona (Albania). The general strategy was to quarantine the soldiers before transferring them to different camps in Italy. The surviving prisoners were malnourished, inadequately dressed, injured and debilitated by several infectious diseases. They arrived in Albania after a long walk, called the “death march”, together with a huge number of Serbian refugees who were escaping from the enemy invasion of their country.

The Italian army organized an evacuation of these prisoners using several ships to carry them to the uninhabited island of Asinara in the northwest coast of Sardinia, the Italian island located approximately in the middle of the Mediterranean Sea. The island already hosted a Quarantine Station set up to take care of about 500-1000 persons. An outbreak of cholera among the prisoners was reported from the end of December 1915 until the middle of March 1916. The peak of mortality was on 10 January with 208 deaths. Based on routine laboratory analysis, the cholera cases were officially reported from 9 January until the first of March. The Red Cross organized support for the prisoners. The episode involving the Austro-Hungarian prisoners was a real humanitarian crisis and can be considered one of the most dramatic pages illustrating the deadly consequences of the poor health conditions for prisoners in the history of the war.

*Keywords:* Austro-Hungarian prisoners, WW1, Asinara, cholera epidemics

*Running head:* Austro-Hungarian prisoners of IWW at Asinara

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### *The trip from Albania to Asinara*

During the First World War (WW1) a large number of Austro-Hungarian prisoners of war (POWs) deported from Serbia were secured by the Italian navy (Marina Militare) in Valona (Albania) on 15 December 1915 after a long walk, called the “death march”, which lasted almost nine weeks<sup>1</sup>. Nearly 60,000 prisoners began the march when they left the city of Nich in Serbia; however, only around 23,000 survived when they finally reached the coast as many died during the march from exhaustion. Furthermore, 3,500 were affected by Typhus<sup>2</sup> and other infectious diseases. Many died after their arrival before being delivered to the Italian Army. The Serbian troops had crossed the snowy mountains of Albania to escape from the invasion of their country by the German, Bulgarian, Austro-Hungarian Alliance<sup>3</sup>.

The POWs had to spend a period of at least 19 days in quarantine in the port before they could be transferred and interned in different concentration camps in Italy. The surviving prisoners were malnourished, inadequately dressed, injured, and debilitated by several diseases, mainly infectious diseases that were spreading in Central Europe. It was a completely inhumane situation.

The Italian navy quickly organized an evacuation of the prisoners, since the Austro-Hungarian army was invading the country and cholera was diffusing in the camps where the prisoners were quartered waiting to embark. The climate conditions at the time were also exacerbating the situation: it had rained continuously in Albania with intermittent periods of snow<sup>4</sup>. Although it was winter with very low temperatures, the rain helped the spread of enteric diseases<sup>5</sup>.

Utilizing several ships, the prisoners were transported to the almost uninhabited island of Asinara, located approximately in the middle of the

<sup>1</sup> Giuseppe Carmine Ferrari, *Relazione del campo di prigionieri colerosi all'isola dell'Asinara nel 1915-16 (Guerra italo-austriaca)*, Provveditorato Generale dello Stato, Roma 1929; Luca Gorgiolini, *I dannati dell'Asinara. L'odissea dei prigionieri austro-ungarici nella prima guerra mondiale*, UTET, Torino 2011. Serbian refugees embarked from Valona on the steamer Cordova; the list is reported in Ferrari's book, pp. 10-11 and 205.

<sup>2</sup> Isidor Đuković, *Tifus u Srbiji: 1914-1915*, Beograd 2006, pp. 32-33.

<sup>3</sup> Manfred Rauchensteiner, *The First World War: And the End of the Habsburg Monarchy, 1914-1918*, Böhlau Verlag Ges.m.b.H & Co, Wien Köln Weimar 2014.

<sup>4</sup> Guido Corni, *Riflessi e visioni della Grande Guerra in Albania. Diario di un ufficiale*, Alpes, Milano 1928.

<sup>5</sup> Voislav Soubbotitch, *A pandemic of Typhus in Serbia in 1914 and 1915*, “Journal of the Royal Society of Medicine” (Section of Epidemiology and State Medicine), 11, April 1918, pp. 31-39 (p. 32).

Mediterranean Sea off the northwest coast of Sardinia<sup>6</sup>. The island of Asinara hosted an International Quarantine Station, which was established in 1885 and located at *Cala Reale*. A low-security agricultural penal colony was also present at this location. The health station was completed in 1897 with a series of buildings that were organized to care for, at the most, 1,500 patients<sup>7</sup>. The quarantine station was therefore qualified to handle the situation at the beginning of August 1915, when the steamer *Tolemaide* with 1,259 Austrian prisoners was kept in quarantine<sup>8</sup>.

The transfer of the prisoners was part of a large plan to save almost 155,000 Serbs (both soldiers and civil population), who reached the coast of the Adriatic Sea, and were embarked on ships to reach Italy and Greece<sup>9</sup>.

The military health authority in Sardinia learned about the arrival of prisoners just a few days before they arrived, and immediately started to organize a containment system to take care of the emergency<sup>10</sup>.

The first ship, the *Dante Alighieri*, started the trip on December 15<sup>th</sup>, with 1,995 persons on board, both officers and troops; shortly afterward, the steamer *America* with 1,721 persons, departed, arriving at the desolate island on the 18<sup>th</sup>. The total number of prisoners transported with several trips from Albania to Asinara was 23,855, of whom 1,389 died on board before they arrived. These numbers, however, may not be accurate and could be higher. General Giuseppe Carmine Ferrari, who wrote in 1929 the most important report on these tragic events, was not convinced that these data were correct. Particularly, the account of deaths during the navigation is uncertain since bodies were thrown into the sea, and the exact number of prisoners on board was not known<sup>11</sup>.

<sup>6</sup> G.C. Ferrari, *Relazione*, cit.; Alessandro Tortato, *La prigionia di guerra in Italia, 1915-1919*, Mursia, Milano 2004; L. Gorgolini, *I dannati*, cit.

<sup>7</sup> Legge 28 giugno 1885, n. 3183; see Silvia De Franceschi, Vittorio Romerio, *Il lazaretto dell'Asinara nelle carte dell'Archivio comunale di Sassari*, in Michele Gutierrez, Antonello Mattone, Franca Valsecchi (a cura di), *L'Isola dell'Asinara. L'ambiente, la storia, il parco*, Poliedro, Nuoro 1998, pp. 103-108; Carla Ferrante, *La stazione sanitaria (secc. XIX-XX)*, in M. Gutierrez, A. Mattone, F. Valsecchi (a cura di), *L'Isola dell'Asinara*, cit., pp. 109-116; Giuseppe Doderò, *I lazzaretti. Epidemie e quarantene in Sardegna*, Aipsa Edizioni, Cagliari 2001, pp. 143-160.

<sup>8</sup> C. Ferrante, "La stazione", cit., p. 110.

<sup>9</sup> Mila Mihajlović (a cura di), *Per l'esercito Serbo. Una storia dimenticata*, Periodico dello Stato Maggiore della Difesa, Roma 2014 (Reissued by Paolo Giordani, *Pour l'Armée Serbe. La Marine Italienne dans la Guerre Européenne*, Editeurs Alfieri&Lacroix, Milano 1917); 1915: *i Serbi salvati dagli Italiani*, "Corriere della Sera", 27 luglio 1995.

<sup>10</sup> L. Gorgolini, *I dannati*, cit., pp. 60-69.

<sup>11</sup> G.C. Ferrari, *Relazione*, cit.

### *The cholera epidemic*

A clinical diagnosis of cholera was made based on the symptoms among the sick prisoners on the vessel *Duca di Genova*, where 556 deaths were recorded. The ship arrived at Asinara on December 27<sup>th</sup>, with 3,141 prisoners and waited at anchor in the bay for a few days before the prisoners could be quartered in the area known as *Fornelli*. On the same day, the vessel *Re Vittorio* arrived with 3,085 soldiers and 53 dead, with several cases of suspected enteric infections. All the prisoners were forced to stay on board in cramped conditions for a few days, which facilitated the spread of enteric diseases among them and increased the number of deaths. The corpses were thrown into the sea at Asinara until the Health Authority prohibited it, since several bodies reached the coast of Sardinia and caused general alarm and fear of a cholera epidemic in the population<sup>12</sup>.

The laboratory analysis was performed on 28 December on the stools of the prisoners and on intestine samples from cadavers at *Cala Reale* by a bacteriologist, Professor Luigi Piras, who identified *Vibrio cholerae* as the agent of the enteric infections<sup>13</sup>.

At the same time in Valona, the disease was spreading among the prisoners waiting to embark. Additionally, the first cases of cholera emerged among the management team of the Italian soldiers in charge of the dead bodies and burial procedures<sup>14</sup>.

Accurate statistical reporting on the total number of deaths in the island commenced on the first of January, lasting until 30 April 1916<sup>15</sup>. Although *Vibrio cholerae* was isolated at the end of December, the death cases identified by positive laboratory cultured cholera were officially reported from the 19<sup>th</sup> of January 1916<sup>16</sup>. The number of people infected and killed was inevitably going to grow further. The peak of mortality occurred within the first ten days of January. From the 7<sup>th</sup> to the 14<sup>th</sup> of January the health inspector noted the deaths of 1,352 prisoners, with a daily average of 169 deaths; peaks occurred on the 8<sup>th</sup> and the 9<sup>th</sup> of January,

<sup>12</sup> G.C. Ferrari, *Relazione*, cit., p. 16.

<sup>13</sup> Ivi, p. 18.

<sup>14</sup> G. Corni, *Riflessi*, cit., pp. 105-106.

<sup>15</sup> Health Report of Dr. Giuseppe Atzeni, see G.C. Ferrari, *Relazione*, cit., Allegato 2: diagram.

<sup>16</sup> *Album I prigionieri di guerra austriaci all'Asinara. 18 dicembre 1915-24 luglio 1916*, preserved in the Archivio centrale dello Stato, see Assunta Trova, Giuseppe Zichi, *Asinara, isola piccola Grande Storia. Prigionieri e Profughi della Prima Guerra Mondiale dicembre 1915-luglio 1916*, Edes, Sassari 2014.



Figure 1. Up: Asinara, Area of Campo Perdu. Camp of the 1<sup>th</sup> Company (From Album *I prigionieri di guerra austriaci all'Asinara. 18 dicembre 1915-24 luglio 1916*, preserved in the Archivio centrale dello Stato, see Assunta Trova, Giuseppe Zichi, *Asinara, isola piccola Grande Storia. Prigionieri e Profughi della Prima Guerra Mondiale dicembre 1915 - luglio 1916*, Edes, Sassari 2014. With the permission of Publisher). Down: Asinara, Area of Tumarino. Infirmary (From Album *I prigionieri di guerra austriaci all'Asinara. 18 dicembre 1915-24 luglio 1916*, preserved in the Archivio centrale dello Stato, see *ibidem*. With the permission of Publisher).

with 198 and 208 deaths respectively<sup>17</sup> (figure 1). A campaign of vaccination against cholera started on 11 February in *Campo Perdu*<sup>18</sup>.

<sup>17</sup> ACS, Ministero dell'Interno, Direzione generale sanità pubblica, Atti amministrativi 1910-1920, b. 166.

<sup>18</sup> G.C. Ferrari, *Relazione*, cit., pp. 85, 284 (Health Report by Dr. Giuseppe Atzeni).

The outbreak of cholera ended in February<sup>19</sup>. In the end, Asinara became the sepulchre of at least 7,000 people.

It is difficult to calculate the mortality rate for cholera at Asinara<sup>20</sup>. No data are available on the fatality case rate during the First World War. If one analyses the cases of death by cholera on the island and considers the poor conditions of the prisoners, it is reasonable to think that the number reported should be higher. The medical officers thought that the *Vibrio* strain was not too virulent<sup>21</sup>. In favour of this hypothesis, we should point out that the prisoners received two injections of vaccine in Serbia by the Franco-English mission<sup>22</sup>, which could attenuate the virulence of the bacteria but not stop the spread of the disease, since the killed vaccine showed a modest efficacy and short duration of protection (around six months)<sup>23</sup>. In contrast, studies on the efficacy of cholera inoculation during the conflict in the Balkans and among First World War armies found that vaccinations were not statistically significant either in preventing cholera or in shortening the carrier state<sup>24</sup>.

Cholera is a typical waterborne disease. A high infecting dose of microorganisms is required to cause the disease. Cholera today, as in the past, is still primarily linked to insufficient access to safe water and proper sanitation and its impact is more dramatic in areas where basic environmental infrastructures are absent or have been destroyed by other natural events, such as in the case of Haiti, where a severe cholera epidemic started immediately after the 2010 earthquake and lasted until August 2013, killing at least 8,231 Haitians and spreading to neighbouring countries, the Dominican Republic and Cuba<sup>25</sup>. The transmission of the disease is strictly

<sup>19</sup> Health Report by Dr. Giuseppe Atzeni, see G.C. Ferrari, *Relazione*, cit., p. 278.

<sup>20</sup> For instance according to WHO in 2013, the overall case fatality rate was 1.63%, see [http://www.who.int/gho/epidemic\\_diseases/cholera/case\\_fatality\\_rate/en/](http://www.who.int/gho/epidemic_diseases/cholera/case_fatality_rate/en/).

<sup>21</sup> Health Report by Dr. Giuseppe Atzeni, see G.C. Ferrari, *Relazione*, cit., p. 278.

<sup>22</sup> Health Report by Dr. Giuseppe Atzeni, see G.C. Ferrari, *Relazione*, cit., p. 284.

<sup>23</sup> John D. Grabenstein, Phillip R. Pittman, John T. Greenwood, Renata J.M. Engler, *Immunization to Protect the U.S. Armed Forces: Heritage, Current Practice, Prospects*, "Epidemiological Review", 28, 2006, pp. 3-26 (see [www.vaccines.mil/documents/library/MilitaryImztn-2005fulc.pdf](http://www.vaccines.mil/documents/library/MilitaryImztn-2005fulc.pdf)).

<sup>24</sup> Myron Echenberg, *Africa in the time of Cholera: a history of pandemics from 1815 to the present*, Cambridge University Press, Cambridge 2011, p. 43.

<sup>25</sup> Mark Eppinger, Talima Pearson, Sara S. K. Koenig, Ofori Pearson, Nathan Hicks, Sonia Agrawal, Fatemeh Sanjar, Kevin Galens, Sean Daugherty, Jonathan Crabtree, Rene S. Hendriksen, Lance B. Price, Bishnu P. Upadhyay, Geeta Shakya, Claire M. Fraser, Jacques Ravel, Paul S. Keim, *Genomic epidemiology of the Haitian Cholera outbreak: a single introduction followed by rapid, extensive, and continued spread characterized the onset of the epidemic*, "MBio", 5(6), Nov-Dec, 2014, pp. 17-21 (see <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4222100/>).

linked to inadequate environmental management. Typically at risk areas are the peri-urban slums, where basic infrastructure is not available, as well as camps for internally displaced people or refugees, where the minimum requirements of clean water and sanitation are not met. The short incubation period, from two hours to five days, increases the potentially explosive pattern of outbreaks. Larger outbreaks have often been related to refugee camps, flooding, migration of people, and war<sup>26</sup>. The social microcosms in Asinara embodied almost all these conditions.

The epidemic during the First World War was within the last wave of the sixth cholera pandemic (1899 to 1923) that extensively involved populations in the near and middle East and the Balkan peninsula<sup>27</sup>.

During the first Balkan war in 1912-1913, the Bulgarian Army brought cholera, which immediately spread to the other allied forces, causing the outbreak to be diffused in several regions of Serbia<sup>28</sup>.

*Vibrio cholerae* of the classical biotype, considered one of the most virulent strains, caused the sixth pandemic<sup>29</sup>. According to the report of the head doctor, Colonel Doctor Giuseppe Atzeni, the treatment of cholera was inadequate, particularly with respect to the rehydration of the patients<sup>30</sup>.

Success in the cure of cholera depends on immediate access to treatment. If it is delayed or inadequate, death from dehydration and circulatory collapse may follow very quickly.

Today, as reported by World Health Organization (WHO), effective and timely case management contributes to reducing mortality to less than 1%. Rehydration is crucial for management of patients and mild and moderate cases can be successfully treated with oral rehydration salts (ORS) only<sup>31</sup>.

The first utilization of oral rehydration failed because the necessity of adding sodium and glucose to the solution was unknown. Only in the

<sup>26</sup> Gaudart Jean, Moore Sandra, Rebaudet Stanislas, Piarroux Martine, Barrais Robert, Boncy Jacques, Piarroux Renaud, *Environmental factors influencing epidemic cholera*, "American Journal of Tropical Medicine and Hygiene", 89, 2013, pp. 1228-1230.

<sup>27</sup> Robert Pollitzer, *Cholera studies I. History of the disease*, "Bulletin World Health Organization", 10, 1954, pp. 421-461.

<sup>28</sup> V. Soubbotitch, *A pandemic*, cit., pp. 31-39; Henry Barby, *L'épopée serbe: l'agonie d'un peuple*, Librairie militaire, Berger-Levrault, Paris-Nancy 1916.

<sup>29</sup> Shah M. Faruque, M. John Albert, John J. Mekalanos, *Epidemiology, genetics, and ecology of toxigenic Vibrio Cholerae*, "Microbiology and Molecular Biology Reviews", 62, 1998, pp. 1301-1314.

<sup>30</sup> Health Report by Dr. Giuseppe Atzeni, see G.C. Ferrari, *Relazione*, cit., p. 271.

<sup>31</sup> [http://www.who.int/maternal\\_child\\_adolescent/documents/fch\\_cah\\_06\\_1/en/](http://www.who.int/maternal_child_adolescent/documents/fch_cah_06_1/en/).

1960s was an equal molar concentrations of sodium-glucose added to ORS to maximize sodium uptake in the intestine to replace fluid losses<sup>32</sup>.

At the beginning of 1900, the first successful hypertonic saline injections were introduced, effectively disabling the collapse stage of cholera. Permanganate pills have also been alternatively used in cholera epidemics in India for their astringent properties<sup>33</sup>.

The cure of cholera in Asinara was based on the use of acidic beverages such as lemonade, cardiac tonics, injections of camphor oil and caffeine, and the use of alcoholic beverages (rum, cognac, *acquavite*, *vernaccia* and *marsala*) as medicinal products against the *Vibrio*. Opioids, in the form of liquid laudanum, were also used.

Often dysentery patients were misdiagnosed, especially with cholera, and it was not possible to determine if the agent responsible was a bacteria or another parasite. Cholera symptoms were cured using ipecac root (a remedy for nausea and vomiting), emetine by hypodermic injection, and fermenting milk, in particular the *miggiuratu* or *Gioddu*, typical Sardinian milk products, which seem to have had a beneficial effect on patients and carriers of cholera<sup>34</sup>.

### *Others infectious diseases*

Besides cholera, other intestinal infections, such as typhoid fever and dysentery (bacillary and amoebic), were very common in Asinara, and sudden and intense outbreaks of these pathogens among the prisoners had followed one another.

Josef Sramek, a Czech soldier, reported in his diary that in October 1914 dysentery was spreading among the troops that were quartered in Serbia, as well as in December in Albania<sup>35</sup>.

Furthermore, other infectious diseases, including tuberculosis, malaria, a grave form of influenza, and Typhus caused by *Rickettsia*, affected the

<sup>32</sup> Davis R. Nalin, Richard A. Cash, Rafiqul Islam, Majid Molla, Robert A. Phillips, *Oral maintenance therapy for cholera in adults*, "Lancet", 292, 1968, pp. 370-372; Richard L. Guerrant, Benedito A. Carneiro-Filho, Rebecca A. Dillingham, *Cholera, diarrhea, and oral rehydration therapy: triumph and indictment*, "Clinical Infectious Diseases", 37, 2003, pp. 398-405.

<sup>33</sup> Leonard Rogers, *The results of the hypertonic and permanganate treatment in 1000 cases of Cholera: with remarks on the value of alkalis in the prevention of uraemia and the rule of atropine*, "Lancet", 219, 1915, p. ii.

<sup>34</sup> Health Report by Dr. Giuseppe Atzeni, see G.C. Ferrari *Relazione*, cit., pp. 278-279.

<sup>35</sup> Josef Sramek, *Diary of a prisoner in World War I (2nd revised edition)*, Amazon Distribution, Leipzig 2013, p. 13.



prisoners. In fact, Sramek reported that the prisoners were suffering from lice (*Pediculus capitis*) that were spread in huge numbers everywhere in the prisoners' clothes and hair<sup>36</sup>. A terrible outbreak of relapsing Typhus was reported in Serbia at that time, and this epidemic is considered the most severe the world has known in modern times<sup>37</sup>.

From the month of January 1915, the whole of the Serbian country was flooded with Typhus and relapsing fever. This epidemic raged from January to March in full force. In April it began to die down, and it ceased in June. In the army and among the prisoners about 150.000 individuals were sick, of whom 20% died. However, the Typhus epidemics were present at the same time in several European countries and lasted throughout the duration of the First World War<sup>38</sup>. The British Red Cross, together with volunteers, many of them woman, played a crucial role in the development of a coordinated strategy to attack the epidemic and bring it under control<sup>39</sup>. Concurrently with Typhus, relapsing fever pursued its course. In some cases, in which both fevers seemed to run their course at the same time, the morbidity was very high and the death rate increased in the case of Typhus from 20 to 80%. The epidemic broke out in prison camps in Germany, Austria-Hungary, and particularly in Russia in 1915, and cost the lives of thousands of prisoners since these camps were often unsanitary<sup>40</sup>.

Fortunately, in Asinara, sanitary and surveillance measures were undertaken, once the prisoners arrived on the island, to help eliminate the lice and decrease the morbidity of the disease. These measures included giving the prisoners haircuts, baths, and a change of clothes, and spraying formol, benzene or kerosene, or vinegar added with acetic acid<sup>41</sup>. Consequently, although Typhus affected the prisoners, as reported by Sramek,

<sup>36</sup> J. Sramek, *Diary*, cit., p. 13 and *passim*.

<sup>37</sup> See the contribution of Angela Potter, 'Administering Angels'. *Women, the Red Cross and the International Humanitarian Response to the Serbian Typhus Epidemic 1914-1915*, in <http://www.philanthropy.iupui.edu/events/event/angela-potter>; V. Soubbotitch, *A pandemic*, cit., p. 32; Edward Stuart, *Sanitation in Serbia*, "The American Journal of Public Health", 10, 1920, pp. 124-131.

<sup>38</sup> Stefan Litvinjenko, *How the epidemics of typhus and relapsing fever were stopped in Serbia in 1915 year* [Article in Serbian], "Srpski arhiv za celokupno lekarstvo", 123(11-12), Nov-Dec 1995, pp. 328-330.

<sup>39</sup> A. Potter, 'Administering Angels', cit.

<sup>40</sup> Alan Kramer, *Prisoners in the First World War*, in Sibylle Scheipers (ed.), *Prisoners in war: norms, military cultures and reciprocity in armed conflict*, Oxford University Press, Oxford 2010, pp. 75-87.

<sup>41</sup> Health Report by Dr. Giuseppe Atzeni, see G.C. Ferrari, *Relazione*, cit., p. 274; J. Sramek, *Diary*, cit., pp. 62-63; L. Gorgiolini, *I dannati*, cit., p. 82, specifies that the operations of disinfection were made also on board.

officially only 42 sporadic cases with 7 deaths were reported from February until the beginning of May 1916<sup>42</sup>.

All the prisoners were malnourished and malnutrition is particularly lethal when combined with infectious diseases, since it can induce immunodeficiency, increasing susceptibility to diarrhoea and other infections, particularly in humanitarian emergencies, which can be the catalysts of epidemics<sup>43</sup>.

### *Life of the POWs at Asinara*

In Asinara, the living conditions of the prisoners – specifically, malnutrition, lack of water, and shortage of supplies – supported the spread of cholera. At the beginning of the outbreak in December, the prisoners did not receive fresh meat and were given only one meal a day. After the 8<sup>th</sup> of January, during the full cholera outbreak, two hot meals a day were distributed<sup>44</sup>.

The case of Asinara is peculiar since on the island water was scarce. The water supply arrived by tanker ship from the mainland and, as cited above, the food was inadequate. This fact was well documented in the diary of Sramek on the 6<sup>th</sup> and 7<sup>th</sup> of January during the peak of the outbreak on the island:

The worst thing is there is not water. We walk very far to get it from somewhere in the rocks; we have to dig a hole and wait till the water appears and then take it out with a spoon. It is bad and muddy, but what can you do when you are thirsty? Diseases are spreading among us. The water is to blame. Canned meats are salty, so people drink muddy water, even seawater. Then the stomach starts to ache, diarrhea comes, and as the people are weak, sometimes they are dead on the second day<sup>45</sup>.

### *Organisation of the camps*

The Cala Reale health station was ready and welcomed the landings of the first ships, as there were no indications of the developing epidemic. Cala Reale assumed the leadership role of the health operations on the is-

<sup>42</sup> Health Report by Dr. Giuseppe Atzeni, see G.C. Ferrari, *Relazione*, cit., p. 280.

<sup>43</sup> Susan Scott, Christopher J. Duncan, *Human Demography and Disease*, Cambridge University Press, Cambridge 2005, p. 9.

<sup>44</sup> G.C. Ferrari, *Relazione*, cit., p. 345.

<sup>45</sup> J. Sramek, *Diary*, cit., pp. 64-65.

land and was considered the place to be safe from the risk of infection. As it turned out, however, Cala Reale was insufficient to handle the large number of prisoners and refugees from Valona and prevent the spread of infections.

The military headquarters organized several camps (figure 1) administered by Italian as well as Austro-Hungarian medical doctors in different areas of the Island. The first camp settled was *Fornelli*, the so-called “Death Camp”, which immediately became overcrowded, then *Stretti*, *Campu Perdu*, and *Tamburino* were established. All the camps were equipped with small tents, latrines, a kitchen, storage sites, and barrels for water supply. The building of the latrines was of concern<sup>46</sup>.

With the spreading of *Vibrio* in all ships present in the harbour of *Cala Reale*, *Fornelli* became the focus point to accommodate the greatest number of prisoners.

Camp *Fornelli* was organized in four sectors delineated by groups of tents, corresponding to the ships *Duca di Genova*, *Re Vittorio*, *Indiana* and *Dante Alighieri*. All the prisoners were infected. Kitchens and latrines were placed externally to the four sectors. An area close to the sea was designated for burials of the dead in mass graves and only later a well-organized and defined cemetery was built.

The situation at camp *Fornelli* soon became unsustainable with 8,000 prisoners, so a new emergency camp was set up in *Stretti*. At the beginning it was difficult to organize it because of the special conditions of the land and vegetation.

Six thousand prisoners were accommodated and about 700 Italian soldiers from Durazzo, affected by cholera and typhus, joined these at the end of March.

Several services were organized, including latrines, kitchens, laundries, warehouses, and hospitals. Cemeteries were separated from the camp by a wall. The element that continued to raise the most difficulties was, as usual, the water supply, which was initially provided in barrels and afterward stored in a tank in a cement cistern.

In the area called *Tumbarino*, the existing buildings were adapted and a new tent camp was prepared. There were separate hospitals for seriously ill and generic patients, a small cemetery, funeral monuments, and a chapel. There were also numerous facilities for the Italian militaries.

<sup>46</sup> See the distribution of the latrines in the different camps in the Album *I prigionieri di guerra austriaci all'Asinara. 18 dicembre 1915-24 luglio 1916*, preserved in the Archivio centrale dello Stato, see A. Trova, G. Zichi, *Asinara*, cit.

The last camp set up was *Campo Perdu*, composed of three units designated for patients defined as “sick”, “carriers” and “contacts”, respectively. It was the district where prisoners already hosted in other fields were transferred. Lastly, in April, the hospitals and several cemeteries were built using brick produced on the island.

The organization of the camps and the control of the spread of the diseases, particularly cholera, were quite difficult. Furthermore, in the Austro-Hungarian army there were several rival ethnic groups and a Babel of languages<sup>47</sup>. Therefore, communication was difficult not only among the prisoners and the Italian troops, but even among the soldiers themselves.

### *Humanitarian crisis: the role of international organisations*

The situation in Asinara was well known around Europe and the Queen of Spain wrote to the Italian king suggesting that he might be in the best position to determine the most appropriate treatment for those unfortunate prisoners<sup>48</sup>. The prisoners were under jurisdiction of the Italian Commission for prisoners of war linked with Red Cross. The Red Cross and another charity organized support for the prisoners, handling the exchange of currency and correspondence (figure 2). The Red Cross was not directly involved in handling the health crisis.

On 21 August 1914, a few weeks after the outbreak of the First World War, the International Prisoners-of-War Agency based in Geneva<sup>49</sup> was established, founded by the International Committee of the Red Cross (ICRC). At the request of the Convention of Aja of 1907<sup>50</sup> and the Convention of Washington of 1912<sup>51</sup>, the Agency approached the warring parties and National Red Cross Societies to obtain information on the individual prisoners or other victims covered by its remit. Moreover, infor-

<sup>47</sup> Serbs, Croats, Bosniaks, Boems, Hungarian, Austrians, Czechs, Rumens, Polish, Ruthenians or Ukrainin, Slovaks, Italian, Russian, Bulgarian, Slovens, Germans, Turkish, Greeks. See G.C. Ferrari, *Relazione*, cit., p. 111 and 278 (Health Report by Dr. Giuseppe Atzeni).

<sup>48</sup> Robert Schatz, *Az olasz királyság területén, Isola dell'Asinara* [Hungarian prisoners of War in the Island of Asinara], in *Hadifogoly magyarok története*, Budapest 1930, vol. 1, p. 182.

<sup>49</sup> The International Prisoners of War Agency: <https://www.icrc.org/en/document/international-committee-red-cross-first-world-war-0#.VGXfqMlnzDs>.

<sup>50</sup> Convention (X) for the Adaptation to Maritime Warfare of the Principles of the Geneva Convention. The Hague, 18 October 1907 and Regulation annexed; [www.icrc.org/applic/ihl/dih.nsf/INTRO/225](http://www.icrc.org/applic/ihl/dih.nsf/INTRO/225)

<sup>51</sup> IX International Conference of the Red Cross, Washington, 7<sup>th</sup> of May 1912.

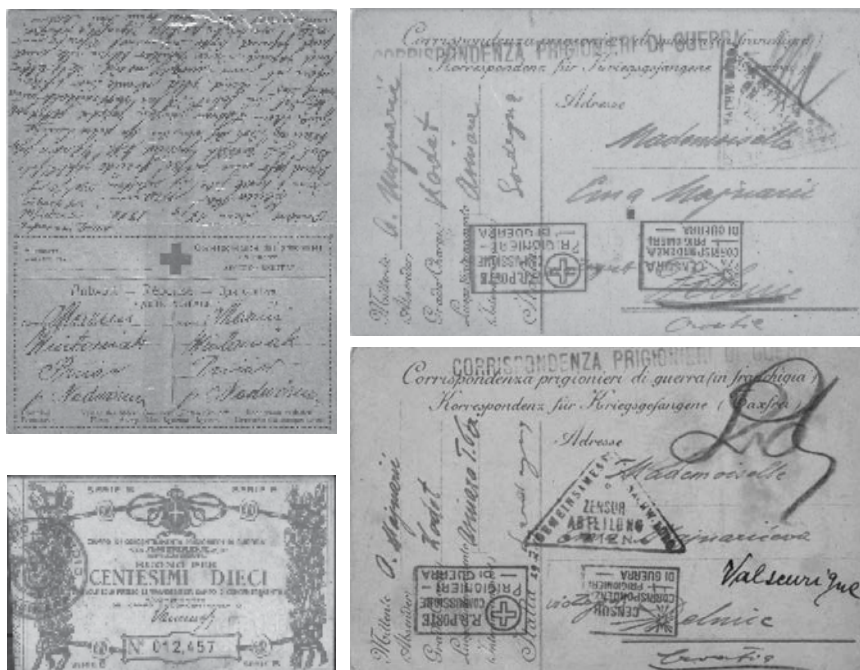


Figure 2. Upper left: Post card – Prisoners of war. Upper right: Post card – Prisoners of war. Lower left: Special currency for the concentration camp of Asinara, in values of 10 cents. Lower right: Post card – Prisoners of war.

mation offices and collection centres for relief intended for military prisoners were created. In addition to prisoners of war, the Agency was also concerned with civilian internees and civilians living in occupied areas. This was an important innovation, since the scope of the ICRC's activities had not previously included civilians.

It was organized in national sections as the different countries entered the First World War<sup>52</sup>.

<sup>52</sup> Franco-Belgian, British, Italian, Greek, American, Brazilian, Portuguese, Serbian, Romanian, Russian, German, Bulgarian, Turkish and Austro-Hungarian: Comité Internationale de la Croix-Rouge, *L'Agence Internationale des Prisonniers de Guerre*. Genève, 1914-1918, Genève 1919; Baccio Emanuele Maineri, *I prigionieri della grande guerra*, "Almanacco italiano. Piccola enciclopedia popolare della vita pratica", 22, 1917; see in particular for the action of the International Red Cross, Annette Becker, *Oubliés de la Grande guerre: humanitaire et culture de guerre, 1914-1918: populations occupées, déportés civils, prisonniers de guerre*, Noësis, Paris 1998, pp. 231-265.

In June 1915, Senator Joseph Frascara, former vice president of the Italian Red Cross (1913), chaired the Military Commission for Prisoners of War, which had been established within the Italian Red Cross<sup>53</sup>.

The Commission was tasked with caring for the captured enemy prisoners in Italian hands, and managing the flow of correspondence from internment camps to families and vice versa. A similar military institute for the management of the problem of Austro-Hungarians prisoners of war in Italian territory, chaired by General Paolo Spingardi, was established in conjunction with this commission<sup>54</sup>.

According to information reported by Ferrari, throughout the period when the island was a place of detention, the military institute commanded by General Spingardi was dealing mainly in logistics services and providing materials (tents, blankets, clothing, food, kitchens, etc.) during the spread of epidemics<sup>55</sup>.

Even after the arrival of the first contingent of prisoners, the military and health workers that operated on the island recognized the great difficulties in logistics management, especially during the epidemic emergency of cholera. Within a few weeks the situation became untenable given the continuous influx of prisoners, which did not in any way take into account the carrying capacity of the health station, and the raging cholera<sup>56</sup>.

On 19 January 1916, General Spingardi visited the concentration camp of Asinara, accompanied by General Marini<sup>57</sup> and Admiral Zavala. The next morning the three high officers proceeded to inspect the camp and the same evening they left for Rome<sup>58</sup>.

In a letter dated 26 January 1916, General Marini informed the Command of the Presidium of Asinara about the various organisational deficiencies. They were related to the accommodation of prisoners, services

<sup>53</sup> In 2<sup>nd</sup> of August, 1918 he became president of the Red Cross and, in that position, he was part of the Italian delegation to the peace talks, see Antenore Frezza, *Storia della Croce rossa italiana*, Istituto Pubblicazioni Culturali, Roma 1956; Alberto Malatesta, *Ministri, deputati, senatori dal 1848 al 1922*, in *Enciclopedia Biografica e Bibliografica Italiana*, vol. III, Milano, Tosi, 1940, *ad vocem*; *Dizionario biografico degli Italiani*, IX, Istituto dell'Enciclopedia Italiana, Roma 1967, pp. 70-76.

<sup>54</sup> Alessandro Tortato, *Prigionieri degli italiani*, in Mario Isnenghi, Daniele Ceschin (a cura di), *Gli italiani in guerra. Conflitti, identità, memorie, dal Risorgimento ai nostri giorni*, vol. III, 2, *La Grande Guerra: dall'intervento alla 'vittoria mutilata'*, UTET, Torino 2008, pp. 253-259.

<sup>55</sup> G.C. Ferrari, *Relazione*, cit., pp. 17, 27.

<sup>56</sup> L. Gorgiolini, *I dannati*, cit., pp. 70-87.

<sup>57</sup> Marini was already operating on the Island from December 29 to January 5 during the landings of POWs and the location of camps; after this date, at his same request, he was replaced by General Fadda, assisted by Major general Ferrari.

<sup>58</sup> G.C. Ferrari, *Relazione*, cit., pp. 59-70.

provision, transport (by sea and land), water, laundry, clothing, hygiene, and health, verified during his last visit. Marini made an extremely detailed list of actions that would have to be performed to resolve these deficiencies. The main recommendation was that the camps should be kept in an appropriate condition, defined as “workmanlike”, adopting and respecting security hygiene measures to eradicate cholera, in agreement with the Inspector General of the Department of Public Health that he should keep promptly informed<sup>59</sup>.

It should be emphasized that the situation in the camps was extremely degraded. The prisoners were gathered into thousands of tents, situated chaotically in different camps, and although each tent was intended to house only four beds, six or seven men were crowded into them, with healthy, sick, and dying mixed together<sup>60</sup>.

Spingardi sent to the Ministry of War a report on the results of the inspection, in which he denounced the terrible state of disrepair and neglect of the encampment of *Fornelli*<sup>61</sup>.

However, the relationship between the Headquarters of the island and the General Directorate of Public Health was not good, probably due to the crisis related to the emerging infection. In fact, in February 1916, the Public Health Directorate exerted pressure on the Commission of Prisoners of War to begin the construction of wooden barracks to replace the tents. Strangely, on this occasion, General Spingardi showed all his opposition, arguing that the improvement of the weather would have soon mitigated the adversity suffered by the prisoners. Furthermore, he mentioned that in a short time most of the prisoners would be transferred to concentration camps already active on the peninsula<sup>62</sup>.

The situation of Asinara appeared exceptionally dramatic even to contemporaries and the terrible humanitarian crisis was reported for the first time after the end of the war in 1919. On 10 October, the newspaper “Avanti”, the official voice of the Italian Socialist Party, published a press report on the massacre of Austro-Hungarian prisoners on the island.

<sup>59</sup> G.C. Ferrari, *Relazione*, cit., pp. 65-70.

<sup>60</sup> R. Schatz, *Az olasz*, cit., pp. 169-209, for this quote pp. 177, 187; G.C. Ferrari, *Relazione*, cit., p. 137.

<sup>61</sup> ACS, Ministero dell'Interno, Direzione generale sanità pubblica. Atti amministrativi 1910-1920, b. 166, Relazione del generale Spingardi, senza data; L. Gorgiolini, *I dannati*, cit., pp. 90-91.

<sup>62</sup> ACS, Ministero dell'Interno, Direzione generale sanità pubblica. Atti amministrativi 1910-1920, b. 166, lettera datata 19 febbraio 1916, spedita dal Generale Spingardi al Ministero dell'Interno, Direzione Generale di Sanità Pubblica; L. Gorgiolini, *I dannati*, cit., pp. 100-101.

In response, on 27 October, the newspaper published a government statement declaring that the news that had been reported was tendentious. The Government pointed out that the treatment of prisoners of the Austro-Hungarian Empire had been respectful and humane, as confirmed by the gratitude expressed by the prisoners themselves in direct correspondence to their relatives and by the satisfaction expressed by the Austrian Red Cross, validated in different documents directed to the Italian government<sup>63</sup>.

However, the Red Cross, both Austrian and international, never operated on the island during the humanitarian crisis. On 21 December, Colonel Lipot Edelmann, the eldest among the officers who had arrived on 18 December on board the *Dante Alighieri*, telegraphed to the Austro-Hungarian Red Cross to communicate the arrival on the island of officers, cadets and part of the troop<sup>64</sup>.

Among the prisoner of war officers who arrived in Asinara, there were also 22 physicians, 4 military chaplains, 3 nurses and a veterinarian; despite the provisions of the Geneva Convention of July 6, 1906, they were held captive and not sent home<sup>65</sup>.

Throughout the period in which the health emergency lasted, no civilian could go to Asinara. In fact, on 9 January 1916, the mayor of Sassari issued an order to prevent the spread of the epidemic, stating that civilians could reach the island only on his special authorization<sup>66</sup>.

For this reason, probably only on 27 May 1916, a civilian was able to travel to the island. He was Darius Alton Davis, sent by the International Committee of the Young Men's Christian Association. He landed on the island to see the conditions of the prisoners and took note of their needs. The association intended to supply prisoners anywhere in the world with

<sup>63</sup> Giuseppe Agnelli, *L'ecatombe dell'isola dell'Asinara. L'episodio più atroce e pietoso della prima guerra europea. Quindicimila vittime del colera, il regime del bastone fra i prigionieri*, Arti Grafiche Biancardi, Lodi 1961, pp. 32-34.

<sup>64</sup> R. Schatz, *Az olasz*, cit., p. 178.

<sup>65</sup> Ivi, pp. 177-178; Article 9 of the Geneva Convention for the improvement of the conditions of the wounded on the battlefield possessed an obligation to respect and protect in all circumstances the staff dedicated exclusively to the collection, transport and treatment of the wounded and sick. These provisions were valid also for the chaplains in the wake of hosts. These categories of people should not be treated as prisoners of war in the event that they have fallen into enemy hands; see <https://www.icrc.org/ihl/INTRO/180?OpenDocument>; see also Carlo Focarelli, *Il diritto internazionale umanitario e la Croce Rossa dal 1859 al 1914*, in Costantino Cipolla, Paolo Vanni (a cura di), *Storia della Croce Rossa Italiana dalla nascita al 1914, I. Saggi*, Franco Angeli, Milano 2013, pp. 103-128: 124-126.

<sup>66</sup> R. Schatz, *Az olasz*, cit., p. 181.



books, hobbies, and tools for crafts. Davis spent three days on the island and after his return he sent books written in different languages, writing materials, oil paintings, domino games, facilities for football, and several musical instruments. The prisoners distributed the gifts among themselves and in return gave the tools they built to the Museum of the Prisoners, founded on 15 May as the Museum of the Works<sup>67</sup>.

At the end of July 1916, twenty-one boxes containing 300 books sent by the Austro-Hungarian Red Cross arrived on the island for distribution to the prisoners, as well as the sum of 3.910 Italian Lire that was delivered to the Austro-Hungarian doctors. A committee, appointed by them, provided for the delivery of that money to the neediest prisoners, who had not received anything from home<sup>68</sup>.

The Austro-Hungarian Red Cross took charge of sending regular sums of money to be divided among the prisoners listed on specially formatted and prepaid postcards<sup>69</sup>. A special currency for the concentration camp of Asinara, in values from 5, 10 and 25 cents and 1 lira, was printed in different colours; a drawing of the profile of island embellished the back of the currency (figure 2).

In the context of such harsh imprisonment, receiving news from home was one of the only things that prevented the inmates from being overwhelmed by the daily sense of abandonment and loneliness. In fact, much of the psychological discomfort, combined with terrible material conditions, arose from the fact of not receiving mail and news from home<sup>70</sup>.

The organization of service to provide the prisoners with correspondence initially met quite a few logistical difficulties, especially concerning ordinary correspondence such as letters and cards. On arrival, the distribution of mail was sometimes delayed because of the fact that the alphabetical lists of prisoners included in the individual units was largely incomplete.

Between January and August 1916, about 298.000 letters and cards were sent from Asinara and about 293.000 arrived on the island; obviously shipments were subjected to strict censorship<sup>71</sup>.

<sup>67</sup> John R. Mott (ed.), *For the millions of men now under arms*, The International Committee of the Young Men's Christian Associations, New York 1916-1917, vol. 1, p. 30; R. Schatz, *Az olasz*, cit., p. 197; G.C. Ferrari, *Relazione*, cit., pp. 156, 437.

<sup>68</sup> R. Schatz, *Az olasz*, cit., p. 197; G.C. Ferrari, *Relazione*, cit., p. 157.

<sup>69</sup> G.C. Ferrari, *Relazione*, cit., pp. 430-434.

<sup>70</sup> A. Becker, *Oubliés*, cit., p. 131; L. Gorgiolini, *I dannati*, cit., pp. 112-113.

<sup>71</sup> R. Schatz, *Az olasz*, cit., p. 197; G.C. Ferrari, *Relazione*, cit., p. 431; Nicolò Carandini, *Il lungo ritorno. Lettere della grande guerra*, Gaspari, Udine 2005, pp. 109-110.

At the camp of *Campo Perdu* there was, among the captives, one woman called Anna Papp, who had followed her husband, a soldier of a regiment. We do not know how she came up to Asinara, but probably, being employed by the Austrian Red Cross, had managed somehow to justify her presence. She never suffered much inconvenience in the camp; indeed, Mrs. Papp always enjoyed the utmost respect from the inmates. The couple was assigned a separate tent in a corner of the field<sup>72</sup>. Probably she helped in the management of the patients in the hospital.

The episode of the Austro-Hungarian prisoners was a real humanitarian crisis, a forgotten and neglected page of history of the First World War. However, despite all the problems associated with the large number of prisoners, the lack of infrastructure, and cholera emergency, we can consider these events an important page in the history of the Italian military during the war. The final number of prisoners who died on the island is still debated, but probably numbers at least 8.000 of the approximately 24.000 persons who reached the island.

In 1936, with the proclamation of a law for the institution of the Military Memorial Ossuary (MMO), the remains of the bones of the soldiers who died in the camps were collected and placed in a new building located in front of the sea in the Asinara<sup>73</sup>.

### *Bioarcheology project*

In 2014, our research group conducted a project based on bioarcheology, a discipline that studies human remains from archaeological sites<sup>74</sup>. Particularly, we endeavoured to identify the etiological agents responsible for the diseases and deaths of the Austro-Hungarian prisoners by performing a genomic study using new biomolecular technologies, including metagenomics, a new technique employed to study the entire genetic material isolated from different types of environmental

<sup>72</sup> G.C. Ferrari, *Relazione*, cit., pp. 61-62.

<sup>73</sup> Legge 12 giugno 1931, n. 877. Sistemazione definitiva delle salme dei caduti in guerra (Final settlement of remains of the war dead). According to this law, in 1936 a great charnel wanted by the Austrian government was built. The building is in front of the *Stagno Lungo*, on the eastern slopes of *Monte Ruda*. Inside were placed the remains of the Austro-Hungarian soldiers exhumed from various cemeteries. The building has a large cross on the facade covered with granite. At the center of the two arms that make up the cross show "PAX - OSSARIO A.U."

<sup>74</sup> Larsen Clark Spencer, *Bioarcheology: the live and lifestyles of past people*, "Journal of Archaeological Research", 10, 2002, pp. 119-166.

samples, bypassing the need for isolation and lab cultivation of individual species<sup>75</sup>.

Preliminary data were obtained from the analysis of teeth collected from the MMO of Asinara. The presence of pathogens was investigated in the total DNA isolated from the dental pulp of six intact teeth, belonging to different individuals, randomly collected, thanks to the cooperation of The National Park of Asinara. In fact, in cases of bacteraemia, the dental pulp would have trapped genetic materials of pathogenic microorganisms. Furthermore, the dental pulp is protected from external contamination and degradation<sup>76</sup>.

The teeth were thoroughly washed, encased in transparent silicone, and cut to remove the pulp. Then, total DNA was extracted from the pulp and subjected to metagenomics analysis using next generation sequencing.

This method allowed us to identify the presence of pathogens in the teeth analysed, including *Staphylococcus*, *Streptococcus*, and *Micrococcus* (gram-positive bacteria), which could have caused septicaemia in the malnourished, injured, debilitated, and sick prisoners, and *Pseudomonas*, *Stenotrophomonas*, *Escherichia coli* and *Salmonella* (gram-negative bacteria), which could have caused gastroenteritis. These were among the main causes of death of the prisoners.

As expected, the presence of *Vibrio* DNA was not evidenced with this method, as the bacteria are expelled from the intestinal tract with the diarrhea and they do not persist in the host organism.

The objectives of future multidisciplinary studies will include an archaeological excavation directed by Doctor Gabriella Gasperetti, Soprintendenza Archeologica della Sardegna. In the camp areas of Asinara where the prisoners were hosted, identified on the basis of historical sources and maps obtained by the Archives of Italian Institute of Health<sup>77</sup>, the cemeteries, latrines, and hospital will be excavated to obtain biological materials.

The memory of this humanitarian crisis should be commemorated through the diffusion of this story through partnerships promoted by

<sup>75</sup> John C. Wooley, Adam Godzik, Iddo Friedberg, *A Primer on Metagenomics*, "PloS Computational Biology", 6, 2010.

<sup>76</sup> Michel Drancourt, Gerard Aboudharam, Michel Signoli, Olivier Dutour, Didier Raoult, *Detection of 400-year-old Yersinia pestis DNA in human dental pulp: an approach to the diagnosis of ancient septicemia*, "Proceeding of the National Academy of Sciences USA", 95, 1998, pp. 12637-12640.

<sup>77</sup> A. Trova, G. Zichi, *Asinara*, cit.

the Municipality of Stintino and Porto Torres, the National Park of Asinara, the University of Sassari and the University of Belgrade, and the Government of Serbia in the framework of the celebration of the centenary of the First World War.

The creation of a scientific and historical Park Museum will fuse the past and the future in the places where the events occurred in Asinara, providing an opportunity to design a place with the aim of preserving the memory of a tragic historical event that involved several countries.

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