

A Snippet of Undulant Fever in Gozo One Hundred Years Ago

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Introduction

Undulant fever, also known as Remittent fever, Malta fever, Mediterranean fever, Brucellosis and up to 40 other names, is a type of infectious disease producing fever which goes up and down for a protracted time, leading to physical weakness. It is caused by the bacteria *Brucella* of which *Brucella melitensis* is the most common type in humans (The Centre for Food Security and Public Health, 2018). It is called Brucellosis because the bacterium causing it, *Micrococcus melitensis*, was discovered by David Bruce in 1887.¹ It was a disease which caused complications in bone and other organs and lead to debilitating consequences rather than a high mortality rate. It should be noted that as early as 1904, Sir Themis Zammit had already discovered that goats were the reservoir for *B. melitensis* and so they were the vectors of the disease so that when humans consumed raw goats' milk they got infected with the disease (Rizzo Naudi, 2019).

On 7th October 1919 the Medical Officer of Health (MOH) for Gozo, Dr Adriano Cremona wrote to the Superintendent of the Victoria Hospital informing him that from the returns of deaths from 24th to 30th September 1919 there was a case of death from Acute Bronchitis of a male patient aged 70 from Nadur, whereas annexed certificate of death states that the patient died from undulant fever. The Superintendent was asked by the MOH to clarify which of the two causes of death was correct. If it was from undulant fever he was asked to report the case immediately and to state for how long the patient had been an inmate of the Gozo Ospizio. This shows the importance assigned by the health authorities of tracing all cases of undulant fever. This was important to see if the patient had contracted the disease while he was an inpatient at the Victoria Hospital.

The attention of medical practitioners was called for the early notifications of infectious diseases by the MOH. According to the MOH several cases had been reported after recovery or death. Other cases were reported during convalescence. The MOH stressed the point that the report must bear the date on which it was sent to his office. He gave notice that he was instructed to report at once to Head Office in Malta any medical practitioners who delayed in sending in the usual notifications. Reminders of the obligation by law for medical practitioners to issue a certificate and to send it to the Superintendent whenever they became aware that a patient was suffering from an infectious disease, were issued on a regular basis to all medical practitioners.

Sanitary Measures

A circular issued on 1st July 1921 by the Chief Government Medical Officer (CGMO) to Sanitary Inspectors stated that when cases of undulant fever occurred in premises where goats for sale of milk were kept, every endeavor should be made to induce the patient to go to the hospital and the matter should be referred to the MOH for his instructions.

Disinfection of premises was performed regularly. In fact a certain worker who used to carry out these disinfections asked to be given remuneration for his extra work. The MOH for Gozo, at that time Dr Adriano Cremona, wrote to the CGMO on behalf of that worker and he was allowed £4 for the disinfections performed the year before, which worked out at about -/6 (six pence) per disinfection.

Reported Cases

There were 31 cases of undulant fever reported from June 1919 to June 1920. Three of the patients died. From June 1920 till June 1921 there were 26 cases reported and only one of the patients died.

1 Bruce worked in collaboration with Dr J. Caruana Scicluna, the microbiologist at the Public Health Laboratory in Valletta but very little credit was given to Caruana Scicluna who presumably carried out all the work in his laboratory to isolate the *Micrococcus melitensis*.



The general belief was that having the goats milked at the door meant that contamination of the milk was not possible.
[Source: <https://vassallohistory.wordpress.com/street-vendors/a-malta-dairy-history/>]

According to the Annual Report, from June 1921 till June 1922, 61 cases of undulant fever were reported, of which three patients died. In this report it was stated that two years before, 31 cases had been reported and the year before only 26 cases had been registered. So in the 1921/22 report, three times as many cases as the previous year were reported.

Apart from the common reason that milk was not boiled by the people at large, the principal reason of such an increase in the number of cases was due to the number of infected goats found in connection with undulant fever cases, which in that year (1921/22) amounted to 49 infected goats.

Goat-breeding and Trading in Gozo

There were a good number of animal dealers who were in the habit of carrying on a trade in Malta and conveying well-bred goats and sheep from Gozo to obtain a good price for them. On their return to Gozo these dealers always brought back a good number

of goats obtained in Malta at a lower price, which they distributed among the village people who were attracted by the low price of the animals. On many occasions the sanitary inspectors examined the herds newly arrived from Malta; but they never examined the whole lot as some of the goats were sold during their transit from Mgarr to Victoria and other places and very frequently during night-time.

According to Dr Cremona, MOH for Gozo, the possibility of infection of the herds of goats in Gozo was consequently evident and hence the number of infected goats were expected to continually increase if special steps were not taken to check the spread of undulant fever.

Dr Cremona also remarked that the late CGMO, Dr J. Caruana Scicluna,² had on many instances taken note of the facts stated above and he was inclined to check as far as possible the spreading of undulant fever by supervising the goat trade between Malta and Gozo. He used to call Gozo the “hospital for

2 Dr Joseph Caruana Scicluna was Chief Government Medical Officer from 1905 till 1917. He was one of the first doctors to study and train under Louis Pasteur in Paris. Previously he was the analyst in the Public Health Laboratory and carried out most, if not all the bacteriological work. It should be recorded that Caruana Scicluna had drawn the attention of Themis Zammit to the fact that there had been several cases of Mediterranean fever amongst goat breeders in the Sliema area. Then Zammit made the important discovery that Mediterranean fever was primarily a disease of goats.

goats” and he used to call one of the old goat dealers from Xagħra the “Goat Doctor”.

Government Notice 178 of 1921 as amended by another Government Notice of the 25th November of the same year, though intended for “Foot and Mouth Disease” could have been availed of in order to check the transit of goats from Malta to Gozo or viceversa, by having all goats examined and tested before the permit was issued. The duration of the examination did not cause any hindrance to the goat trade between Malta and Gozo, as it took only a couple of days to have the goats examined.

Dr Cremona stated that if the above mentioned Government Notice could not be availed of, he was of the opinion that special legislation be brought forward to supervise the goat trade between Malta and Gozo in order to check the future spreading of undulant fever.

In a circular dated 5th July 1923 it was noted that there were certain expenses incurred by the Health Office in Gozo in connection with infected goats.

A curious application was received at the office of the MOH Gozo where a goat keeper applied for a goat pen on the same premises. The doctor hadn't encountered a similar situation before but he was advised from Malta that it was not going to affect the regulations as far as each owner kept his goats in a separate room and was responsible for them even though they were on the same premises.

Another curious application dated 1st September 1923 consisted of a request by a person from Ghajnsielem, who kept goats in his house for the selling of milk, to be exempted from Government Notice No 111 of 1909. His argument was that he was keeping only two goats and he was asking for the exemption in order to save expenses. The reply was that due to the fact that he was in possession of goats for the supply of milk to the public, no matter the number of goats being small or large, the Department could not exempt him from fulfilling the regulations laid down in the mentioned legal notice.

By the year 1924, according to the annual report of that year, the incidence of undulant fever had gone down by two-thirds (34 cases and 1 death) of the number reported the year before (120 cases and 5 deaths). It was a fact that the strong measures adopted by the Department to check the spreading of the disease were beneficial and this trend continued when the several provisions to combat the disease, proposed by the Mediterranean Fever Committee³ came into effect.

In this connection the MOH had raised several complaints regarding the frequent conveyance of goats clandestinely brought from Malta to Gozo in spite of Government Notice 151 of 1922. The practice was that in order to elude provisions of the aforesaid Government Notice, goats were first conveyed from Marfa to Comino and then, when convenient, the same goats were transported to Gozo sometimes escaping the Police notice or that of the Custom House Officer at Mgarr. The fact that there was only one policeman stationed at Marfa, who occasionally would not be around in order to rest, and the absence of a policeman at Comino except in some instances for a few hours once a week or once a fortnight, showed quite clearly that Government Notice 151 of 1922 could have been very well eluded. The authorities therefore had to take the necessary steps in order to ensure that the provisions mentioned in the Government Notice would be efficiently carried out.

The improvement laid down in Government Notice 111 of 1909 were implemented by some goat keepers, while some required more time before works recommended were completed as they had to construct new buildings to have goat pens properly remodelled and rendered up-to-date. All the goat keepers in Gozo had been duly informed. Goat pens duly remodelled were constructed in Victoria, three at Nadur, one at Sannat and two at Kerċem. The number of goat pens was then rather limited owing to the fact that a good number of goat keepers availed themselves of provisions laid down in article 0 of the 3rd Law as amended by Ordinance VI of 1906 and consequently reduced the number of goats to be kept for the supply of milk within the limits of the aforesaid law.

3 In 1904 the Secretary of State for the Colonies proposed to the Admiralty and the War Department the appointment of a Joint Commission to investigate cases of Mediterranean fever. Under the chairman Colonel David Bruce, a number of members were appointed to the sub-committee: Major William Heaton Harrocks, Staff-Surgeon E.A. Shaw; and Dr Themistocles Zammit, Government Analyst Malta. Sir Themis Zammit was the only Maltese member of the Mediterranean Fever Commission.



All goats are tagged to show that they are disease free.

Disinfections and Examinations

On the 4th February 1924, Dr A. Cremona, the Gozo MOH, met the veterinary surgeon Dr J. H. Bardon about the proposed disinfections and the planned general sheep and goats examinations. They agreed that two tin boxes specifically made for the purpose containing the milk and blood samples together with the mailbox could be given to the captain of the steamer to be taken by boat to Malta and then delivered to the Department of Health Laboratory by an employee from Malta without the need of an employee from Gozo Health Office to accompany the boxes. Two empty boxes were then sent from Malta to Gozo for new samples to be sent to Malta in a similar way on a daily basis. In this way, the personnel at the Gozo Health Office were better utilised for disinfections and for all emergencies and this also resulted in reduced expenses. Two hundred samples of milk and blood were sent daily in two boxes. Dr Cremona also asked the veterinary surgeon to inform him when he could examine the animals. The test used to check the milk of goats was a modification of Wright's Agglutination Test by Sir Themis Zammit. This was another important discovery credited to the Maltese scientist. Together with Eyre and Kennedy he carried out work on the infectivity of milk products containing *Brucella melitensis*, including the local cheese, the 'gbejna' (Rizzo Naudi, 2019).

Government Notice No. 93 dated 1st April 1924, stated that in the case of animals slaughtered under Article 86, because they were suffering from undulant fever infection or because of any reason specified in (a) and (b) of the said Article, the compensation payable shall be on the basis of the full value of such animal, regard being taken to whether it was pregnant, in milk or dry.

One hundred years ago undulant fever was endemic to the islands of Malta and Gozo. The occurrence of undulant fever among the civilian population, especially in Gozo was very high compared to the military and naval population. The main reasons for this was that Gozo did not take part in the First World War effort and the 1904 Mediterranean Fever Commission prohibited Navy and Military officers from consuming fresh goats' milk and instead they were supplied with condensed or tinned milk (Tripp & Sawchuk, 2015).

On the other hand, the Gozitans (and the Maltese) preferred goats' milk to sheep and cow's milk in its fresh form. The general belief was that boiling milk ruined its quality and flavour, that the local goats were free from tuberculosis and that having the goats milked at the door meant that contamination of the milk was not possible. They also erroneously believed that any problem associated with goat's milk occurred because the goat had eaten a

poisonous plant, the Spurge (*Euphorbia aleppia*). So the disease continued to spread both in Malta and in Gozo.⁴

Before existence of the Mediterranean Fever Commission, there were certain health regulations regarding the keeping and dairying of goats which were not intended to reduce undulant fever per se but rather to ensure healthy goats and good quality milk. Even these initial measures created unrest among goat herders, as they felt that they were being blamed for Undulant fever. They believed that the government wanted to ruin them and went on strike from May to June 1906 (Tripp & Sawchuk, 2015).

Despite this opposition, the authorities took all the measures deemed necessary to reduce Undulant fever. They distributed pamphlets on the dangers of drinking unboiled milk and increased the testing of the herds and the slaughtering of all the animals found to be ill. Dr Cremona's report extracted from the Health Office registers proves this. Eventually boiling goats' milk was made law in 1923 (Cassar, 246).

More Recent and Modern Times

Later on in 1933, the government thought that the best way to ensure that drinking of safe milk was only possible by introducing the process of pasteurisation on a national basis and in 1938 the first Milk Pasteurisation Plant in Ħamrun was opened (Tripp & Sawchuk, 215). In 1939 goats were prohibited from entering Valletta and also the sale of goats' milk was banned from streets (Cassar, 246). But it was not until 1957 that raw milk was completely prohibited to be sold (Cassar, 246).⁵

Nowadays all goats, sheep and cows are examined, tested and certified by the veterinary services and nobody drinks unpasteurised milk any more. In spite of this we cannot say that Brucellosis has been entirely eradicated from Malta and Gozo but we should always remain on the lookout for any local or

imported cases. Fortunately we have very effective antibiotics⁶ and if we catch the disease early it can be cured without any complications.

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4 The Malta Sanitary Ordinances No. III of 1904, Chapter II, Section V, Articles 79-100.

5 "The Pasteurised Milk Regulations, 1938," published by the Government Notice No. 504 of the 23rd December 1938, established that on and after the 1st February 1939, no milk other than pasteurised milk shall be sold or offered or kept for sale in any town or village specified by the Regulations and also prohibited the entry of goats in these areas."

6 Tetracycline is the antibiotic of choice for the treatment of Brucellosis. It was discovered in 1949 and Prof. J.E. Debono, who had a vast experience of the disease with a worldwide recognition, was given supplies of this antibiotic for trial.