G97 Dead Men in Wells: How Forensic Science Was Used to Solve a Crime in an Aquatic Environment

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The goal of this presentation is to provide information on how three allied sciences (pathology, anthropology, and entomology) working together can produce important information on a complex crime scene in an obscure location. Furthermore, some understanding of the technical difficulties of removing a corpse from an aquatic environment while still retaining corpse integrity.

This presentation will impact the forensic science community by underlining the importance of collaboration and dialogue between forensic specialists. Moreover, this case demonstrates how important protocols are in crime scene recovery so fundamental information is not lost.

A corpse in an advanced stage of decomposition was found in late February at the bottom of a well. The well was a small hole in the ground covered by a large and heavy stone and it was situated in an open roofed dwelling of an abandoned farmhouse not far from a lake in northern Piedmont (Turin, Italy).

The extraction of the corpse was very difficult because the very small opening of the well (about 50 cm of diameter). The size was just sufficient for the entry of one man with his equipment and the air tank. The well was deep, a little more than 6 m and the corpse was floating in about 3 m of water.

The corpse was clothed but no documents were found. Because of the high decay of both tissue and bone the identity of the corpse was performed by anthropological and anthropometrical examination. It was recorded that the man disappeared in May the year before.

Further pathological, histological, and SEM EDX examination of the bone marrow was performed to determine the presence of diatoms, causes of death were identified.

Forensic entomology was used in order to calculate time of death (colonization interval) and to investigate with a possible time frame in mind as to whether following his murder he was dumped in the lake. This led to the lake being scoured for months by many civil defense and firemen volunteers.

Entomological material was sampled both from the corpse and from the water in the well which was pumped into large plastic tanks. Numerous species of flies were identified including *Calliphora vicina*, *Fannia* sp., Muscidae, Trichoceridae, Sphaeroceridae and Psychodidae.

Data on seasonal presence of Calliphoridae in the Piedmont region of Italy and stage of corpse decomposition (saponification) helped to confirm that the time when the man first disappeared coincided with the beginning of insect colonization. Moreover, it was possible to demonstrate that the corpse was never in the lake environment, thanks to information gathered from the literature about the biology of the insects found on the corpse. This fact was supported by the absence of diatoms within the marrow of long bones, and by the presence in the internal organs of the same silicates found in the water.

This case underlines the importance of collaboration and communication at crime scenes. In particular, when there are several experts such as firemen, policemen, medical examiners and other different forensic scientists (entomologists, botanists, anthropologists) present team work is essential. When a crime scene is conducted properly, relevant evidence is conserved and subsequently a complete analysis of the association of the human remains and the place of recovery can be documented.

Moreover, this case highlighted the importance of evidence recovery from water bodies and the scant information available on this topic, in particular the lack of literature on protocols and equipment. **Aquatic Environment, Anthropology, Entomology**

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