Russell Edwards is a 48 year old businessman, originally from Birkenhead, who has, after years of dedicated research, produced the definitive evidence to prove the identity of the world’s most famous murderer: Jack the Ripper. Russell, who is married with two children and now lives in the south east of England, explains here how a combination of chance, hard work and cutting edge science has finally resolved the 126 year old case:

It is more than seven years now since I went to an auction that changed my life. I bought a shawl: a large, very old, silk shawl, damaged, with pieces missing. I have, over the years, bought houses, cars, antiques, paintings and other valuable items. But the most precious thing I have ever acquired is this ancient piece of fabric. It has not only changed my life, it has changed history: from this shawl we can now, with the help of the very latest scientific techniques, prove, indisputably, the identity of Jack the Ripper, probably the most famous murderer in the annals of crime.

It was in 1888 that the Ripper’s reign of terror gripped the East End of London. In just a few brief months, he savagely murdered five prostitutes (possibly more) and, despite massive efforts by the police and public, evaded capture, escaping through the dingy streets, spawning the mystery that has fuelled a whole slew of books, films and television programmes. His victims were all unfortunate women, struggling to survive in dire poverty, most of them selling their bodies to earn enough money to pay for a bed for a night in a doss house.

Today, the crimes exert almost as powerful a grip on the public imagination as they did then. Go to the East End of London on any evening of the year, regardless of weather, and you will encounter small bands of tourists and enthusiasts being guided around the sights of the Ripper’s crimes. There are Ripper tours in many different languages, and there never seems to be a shortage of visitors wanting to hear the stories of the vicious crimes, and marvel at the way they have remained unsolved.

There have been countless theories, many of them outlandish, and none of them verifiable. A member of the Royal family, a Royal physician, a famous artist, and many more names have been thrown into the hat, alongside the list of suspects that the police who were involved with the case at the time compiled. Over the years, many criminologists have puzzled over the facts. There is a whole community of ‘ripperologists’, people who share information on the net and devote their spare time to studying in minute detail the known facts of the case.

Nowadays, much of the East End has been gentrified. There are wine bars and smart pavement cafes, art galleries, expensive shops. During the day there is a constant background noise of building work as old houses are renovated and skyscrapers rise on derelict land. In the evenings smartly dressed men and pretty girls overflow from the pubs and bars, their mobile phones plugged to their ears. But much of the old East End remains, if you look for it.

My interest in the case was triggered when I went, with my wife Sally, to our local cinema to see From Hell, the Johnny Depp film about the Jack the Ripper killings. It was pure chance: if there had been something else on the bill that evening, I might never have solved the Ripper case.

I started reading everything I could find, and visiting the National Archives in Kew to view as much of the original paperwork as still exists. I was convinced that there had to be something, somewhere, that had been missed, and which would provide the key to unlocking the case.
Researching the Ripper became my hobby, an escape from the stresses of a busy career and family life. But after six years I felt I had exhausted all new avenues, and had just about reached the conclusion that the case was, indeed, unsolvable.

It was at this point, in 2007, that a friend sent me a text alerting me to a newspaper article about a shawl connected to the Ripper case coming up for sale. According to the owner of the shawl, it had been in his family's possession since the murder of Catherine Eddowes, one of the victims. His ancestor had been a policeman on duty in the East End, and when the body was being escorted by police to the mortuary, he asked a senior officer if he could have the large silk shawl for his wife, who was a dressmaker. In those days, long before DNA testing, the victims' belongings were simply burned, so he was given permission to take it.

His wife reacted in horror to the blood stains, and, amazingly, it was stowed away without being washed. It was handed down the family, more recently spending a few years in the care of the Black Museum at Scotland Yard. It was never on show: there was no proof, other than the family history. So when it came up for auction most experts dismissed it. But in researching it, I had hit upon something which was another massive moment on my quest to identify the Ripper. According to the descriptions of Catherine Eddowes' possessions, one item of her clothing was described as being patterned with Michaelmas daisies, the same pattern that covers the ends and borders of the shawl. I am a keen gardener, and I knew what Michaelmas daisies are as soon as I saw a picture of them, but I had never known their name. I had to look up Michaelmas: it is today an archaic term, but in Victorian times it was very familiar, as a quarter day when rents and debts fell due.

When I checked it out I discovered there are two dates for it: one in the western Christian church and the other in the Eastern Orthodox church. As I looked at the dates something hit me. I checked it again and again. The two dates coincided precisely with the nights of the last two murder dates: one the date of the murder, on the same night, of two women, Elizabeth Stride and Catherine Eddowes (where the shawl, if it was genuine, was found), and the other the date of the final and most horrifying of the Ripper murders, of Mary Jane Kelly. It seemed, at last, that I had hit on something that nobody else had noticed.

Before deciding to buy it, I rang the police officer in charge of the Black Museum to discuss its authenticity. He told me that the police had always known the identity of the killer. He named a Polish Jew, Aaron Kosminski, who had fled to London with his family, escaping the Russian pogroms, a few years before the murders (and who would have been aware of the two different Michaelmas dates). The police at the time did not have enough evidence to convict Kosminski, despite a good identification by a witness, but had kept him under round the clock surveillance until eventually he was confined to a mental asylum for the rest of his life.

This information was not new: Kosminski was always one of the list of credible suspects, and had been named, either obliquely or directly, by senior policemen involved in the investigation. I was now convinced the shawl was genuine and I was jubilant when I succeeded in buying it, complete with a letter of provenance about its history.

The shawl was still heavily stained with what, I presumed, was the victim's blood. I felt sure that modern science would be able to produce real, tangible evidence from these stains. After a couple of false starts, I found a scientist at Liverpool John Moores University, Dr. Jari Louhelainen, Senior Lecturer in Molecular Biology, with two major lines of research: forensic genetics and medical/mammalian genetics. Jari soon became my great ally in the quest to identify and definitively name the Ripper.

The first tests he carried out, using special photographic analysis under different lighting conditions, were to establish what the stains on the shawl were. I left the shawl with him for the day, the first of many trips to Liverpool with my precious possession. The first breakthrough was when he told me that the dark stains on the shawl were not just blood, but were 'consistent with arterial blood spatter caused by slashing.' I was excited: the attack on Catherine Eddowes would certainly have caused this kind of blood distribution.

To my surprise and further excitement, Jari had found another stain which fluoresced under his lighting like seminal fluid. Although this first look was not conclusive, it seemed we had found semen on the shawl which could lead us to one person: the Ripper himself. This was far more than I had hoped for when I first bought the shawl, when all I wanted was to establish that it was genuine and had been at the scene of the crime.

There was another great bonus when Jari found evidence of split body parts. One of Catherine Eddowes' kidneys was removed by her murderer (and later in his research Jari was able to isolate a cell which looks very like a kidney cell, although we have not carried out the final analysis on it yet.) Work then began on the DNA of the blood stains. Because of the age of the sample it was not possible to identify genomic DNA, but mitochondrial DNA (which is passed from mother to daughter downwards) survives much better, and is unchanged through the generations. To make a comparison, I had to trace a direct descendant, down the female line, of Catherine Eddowes.

At first my research stalled, but eventually I traced a charming young woman, Karen Miller, whose family tree led right back to Catherine, and she agreed to give me a sample of her DNA.

The next months involved a lot of very complicated and nail biting scientific research, following the different strands of the quest. There were incredible highs: I will never forget the moment when Jari told me that an expert colleague of his had isolated DNA from epithelial cells within the semen stains. As a layman, I was enthusiastic about every new step we took, but Jari the scientist remained impartial, testing and retesting to satisfy himself, and never allowing his imagination to run ahead of the results (as mine tended to do at times.)

While we waited for other results we set out to establish the age of the shawl. If it had proved to be made after 1888 (with, for example, synthetic dyes), the whole thing would obviously have been a false trail. A combination of work done by Jari and a colleague of his, using nuclear magnetic resonance, and research by me into the traditions of silk shawls, led me from my first assumption that the silk was made by the Huguenot silk weavers who lived in the East End, to a Russian shawl factory, Pavlovsky Posad.

I also realised it must have been left at the scene of the crime by the Ripper himself: it was an expensive silk shawl, and Catherine Eddowes was grindingly poor, pawning shoes to survive. She would never have owned a garment like it, especially as some of the dye in it was water soluble, and would have washed out in the rain (two days before her death Catherine had walked back in the rain from the hop fields of Kent to London.)

The next eureka moment was when I heard the results of the DNA comparison of Catherine Eddowes and her descendant, Karen Miller. Jari told me that there was a perfect match on one of the tests. Even more significantly he reported that Karen's DNA has a rare variation known as global private mutation, which only occurs in one in every 290,000 people in the worldwide population. Measured against London's population in 1888, this variation would only be there if the killer had it.

The next months involved a lot of very complicated and nail biting scientific research, following the different strands of the quest. There were incredible highs: I will never forget the moment when Jari told me that an expert colleague of his had isolated DNA from epithelial cells within the semen stains. As a layman, I was enthusiastic about every new step we took, but Jari the scientist remained impartial, testing and retesting to satisfy himself, and never allowing his imagination to run ahead of the results (as mine tended to do at times.)

While we waited for other results we set out to establish the age of the shawl. If it had proved to be made after 1888 (with, for example, synthetic dyes), the whole thing would obviously have been a false trail. A combination of work done by Jari and a colleague of his, using nuclear magnetic resonance, and research by me into the traditions of silk shawls, led me from my first assumption that the silk was made by the Huguenot silk weavers who lived in the East End, to a Russian shawl factory, Pavlovsky Posad.

I also realised it must have been left at the scene of the crime by the Ripper himself: it was an expensive silk shawl, and Catherine Eddowes was grindingly poor, pawning shoes to survive. She would never have owned a garment like it, especially as some of the dye in it was water soluble, and would have washed out in the rain (two days before her death Catherine had walked back in the rain from the hop fields of Kent to London.)

The next eureka moment was when I heard the results of the DNA comparison of Catherine Eddowes and her descendant, Karen Miller. Jari told me that there was a perfect match on one of the tests. Even more significantly he reported that Karen's DNA has a rare variation known as global private mutation, which only occurs in one in every 290,000 people in the worldwide population. Measured against London's population in 1888, this variation would only have occurred in about fifteen people other than Catherine Eddowes. We now knew that the shawl was genuine, and it was at the scene of the crime back on 30th September 1888. On its own, this made it the single most important artefact in Ripper history: nothing else has ever been linked scientifically to the scene of any of the crimes.
Now we moved on to the most exciting part of the research, identifying the Ripper himself. Accepting the information I had been given by the curator of the Black Museum, and which was corroborated in other research, I decided to concentrate on Aaron Kosminski. I researched what information is available about his family and his internment in two different mental asylums after the killing spree. There was no guarantee that he was the Ripper, but my instincts, coupled with the police evidence, told me he was the prime suspect, and, certainly the man to be the focus of my investigation.

Kosminski had moved to the East End a few years before the murders and was 23 when Catherine Eddowes was killed and mutilated. The youngest of seven, he had two older brothers and a sister, all married with children, and was living with them in Greenfield Street, just two hundred yards from where the third victim, Elizabeth Stride, had been murdered less than an hour earlier. He himself had no descendants, but even if he had, he would not have passed on his mitochondrial DNA, as it goes down the female line. I knew where he was buried, but exhuming his body to access his DNA was not going to be easy, or even possible. But then Jari told me that one of his sisters would have passed on, through her female offspring, the same strand of mtDNA, and so the search was on for another descendant.

Again, there were false starts, and good leads that led to stonewalls. It was very tricky: it is one thing to approach someone to tell them they are descended from a Ripper victim, quite another to tell them they are more than likely descended from the Ripper himself.

Eventually I was, once again, lucky. The young woman I traced with the help of genealogists had heard family stories about the possible connection, and, after intelligently interrogating me about the evidence, she was willing to give a sample of her DNA for us to make the comparison.

What followed was an incredible scientific odyssey, using cutting edge technology including laser capture microdissection, polymerase chain reaction, and whole genome amplification (which we literally would not have been able to do five years earlier, the technique was so new.) For Jari there were long evenings in the lab, for me sleepless nights waiting for results. There were disasters including lost vials of cells and the seal of a package damaged in transit to Germany for DNA sequencing. That we completed the quest is down to generous help from other scientists, endless support from Jari, and, from me, a determination never to give in. Finally, the isolated and amplified DNA from the shawl was compared with the descendant’s, and, once again, we had a match, seven years after I had bought the shawl.

As an extra bonus, a different analysis has shown that the Ripper’s DNA has Jewish and Russian ethnicity - yet another confirmation that we have the right man.

At last, science has definitively answered the biggest mystery in criminal history. Jack the Ripper was Aaron Kosminski. And I, to my own great amazement, have nailed him.

Copyright © Russell Edwards 2014