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A Fly for Justice

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After dusk on May 13$_{th}$ 1998 agricultural student Russell Crookes went out with his friends Neil Sayers and Graham Wallis to the north woods near Hadlow College in Kent as they often did. Sayers claims that they returned to the college around 4.00 a.m. He saw the light go out in Crookes' room. It was the last time that he saw Russell Crookes alive. Until the discovery of Mr. Crookes' body on May 26$_{th}$ Wallis told the same story.

After his arrest, Wallis gave Kent Police a confession – it was more of an accusation against Sayers than a confession. According to Wallis, all three went to different woods referred to as Scene 2. At about 12.30 a.m. on May 14$_{th}$ Crookes was stabbed at least 23 times. After wood was collected and the fire stoked up, the body of Russell Crookes was flipped onto the pyre and burned from 1.05 to approximately 4.15. Once it had cooled sufficiently it was hidden in stinging nettles in Scene 2. Depending on which version is relied upon, Crookes' partially burned body was transferred to a grave in a depression in a wood about 200 yards away either at 9.00 p.m. or a few hours later.

The body was placed in a water-logged grave. According to the Crown's case it had lain in that grave undiscovered from the early hours of May 15$_{th}$ until May 26$_{th}$. Apart from a missing pelvis, there was no scientific evidence of animal activity – at least none was reported by the Crown's pathologist, Dr. Michael Heath. There are many issues that arise in this case. However, for the purposes of this article I intend to concentrate on one of them – forensic entomology.

When discovered, the body of Russell Crookes was heavily maggot infested. This was the most important clue that Kent Police had at their disposal. Rigour mortis was long gone and the stomach area had sustained most fire damage. The entomological evidence was the best chance of timing the post-mortem event – in this case the partial burning of the body. It ought to have been the crux of the case for or against Neil Sayers – Wallis pleaded guilty and blamed Sayers for everything. In a

nutshell, Wallis' confession was that he was there, but Sayers did everything, including mutilating the body. Both arms, a leg and a portion of the face were severed through bone after the body had been burned.

If Wallis' confession is true, oviposition – the laying of eggs by flies – would have occurred in the morning of May 14_{th}. The maggots would therefore have been about 12.5 days old when the body was discovered.

Dr. Heath, failed to take any of the relevant temperatures at the scene as recommended by the renowned blow fly specialist, the late Dr. Zakaria Erzinçlioğlu in 1985. Forensic entomologists require data including relevant temperatures, barometric pressure, light intensity and relative humidity, among other data in order to extract all the evidence the maggots could give. Dr. Heath and Kent Police failed to obtain any of this evidence. The maggots were not collected in the manner recommended by forensic entomologists either. Half of the sample from the right rib-cage was fixed in formalin as was proper, although some entomologists prefer a solution of 80% ethanol; the remainder were for rearing.

The failure to collect the data suggested by entomologists meant that these maggots could not be reared in the same manner that they had been developing in the grave. This made it difficult to accurately time the post-mortem event. Far worse was to follow.

After placing this sample of maggots in a container with some liver they were handed to a Scene of Crime Officer (SOCO). They were transported to Tonbridge Police Station and put in the refrigerator, where they would die before reaching adulthood. The best chance to obtain the evidence that these maggots could have given had just been lost. Had Kent Police set out to kill these maggots deliberately they could not have done so more efficiently than this. These maggots were a precious evidential resource and should have been treated as such. Kent Police and their SOCOs were not trained forensic entomologists. Rearing maggots was a job best done by qualified experts. What made Kent Police think they were competent to do so?

Kent Police's failure to contact an experienced forensic entomologist is puzzling. Their treatment of the maggots establishes that their knowledge of forensic entomology fell far below the level required to obtain the evidence that these maggots could have given. Obtaining and interpreting the evidence that these maggots could have given was obviously a job that could only be done by someone with the requisite expertise to do so. Even in 1998 it was not difficult to obtain contact details for an experienced forensic entomologist. Kent Police could have requested such details from the National Crime and Operations Faculty (NCOF). In 1995 NCOF was established, partly to prevent investigative opportunities from being lost. Sadly Kent Police did not utilise this resource. Had they done so the entomological evidence would have been able to resolve many of the complex issues in this case.

Although the police had made a serious error of judgment in their handling of the maggots this need not have been disastrous. They could still have instructed an entomologist who could have examined the maggot carcasses and established what species they were. Their size could have been established both from examination of those maggots and comparison to the fixed sample. This would have established what stage of development they had reached and enabled the relevant post-mortem event to be timed. Wallis' account could then have been tested against scientific evidence. A data-log of the grave-site would have enabled more accurate temperature data to have

been obtained that would have assisted the entomologist to calculate the time of the post-mortem event more accurately.

Sadly this did not happen. Kent Police never instructed a forensic entomologist. The prosecution lawyers never presented any entomological evidence. None of the prosecution lawyers asked the question of what had happened to the maggots. Nor did Sayers' defence. Despite instructing a pathologist, Sayers' defence never pursued the entomological evidence. Consequently, the jury which convicted Sayers did so in ignorance of the only scientific evidence that could determine when the body of Russell Crookes was partially burned.

Sayers was convicted in April 1999. I heard of his case in 2001. I noticed that maggots had been taken by Dr. Heath, but nothing seemed to have been done with them. One solicitor for Sayers would not even ask if the maggots still existed – apparently convinced that they would not, so there was no point even asking. He would be proved wrong.

In January 2003, the remaining maggots which were in a very poor condition were made available for examination by experts. Sayers' current solicitor, Jane Hickman instructed the esteemed forensic entomologists Dr. Martin Hall and Dr. Mark Benecke to examine them. Most of them were fragmented and resembled rust flakes. They were cleared up. The species was established as the bluebottle *Calliphora vomitoria.* It emerged that some time before this examination the sample of fixed maggots had been thrown away. The best opportunity to determine the precise size of the maggots upon discovery of the body had been thrown away – literally. Hall and Benecke examined several photographs. They had to work with extremely poor quality data. The most important factor in larval development is temperature. Hall and Benecke had to work with the assumption that the average of average temperatures from a nearby weather station accurately reflected the temperature within the grave with no evidence that it did. They had no choice but to rely on the data available to them. It was not their fault that this data was of such poor quality.

Hall and Benecke could not be sure that they had examined the largest maggot that was present in the body. The largest one that they examined was 12.1 mm. It was in third instar, the stage before turning into a pupa. This maggot was between young to middle third instar. Based on the poor quality data that they had available to them Hall and Benecke could not contradict Wallis' account. If better quality data had been obtained originally, their conclusions may have been different. That graphically illustrates the need to ensure that maggots are collected properly and that all the necessary data is gathered efficiently and accurately. It also demonstrates the need to fully utilise available resources such as the NCOF. In cases such as this it should be compulsory for police forces to obtain the services of relevant experts through NCOF if necessary.

Their examination of the maggots could have been the end of the matter. Had this occurred an appalling precedent would have been established. The certainty that the maggots could have offered if properly handled had been lost. This was due to entirely incomprehensible decisions by Kent Police. They failed to treat these maggots as the vital evidence that they were.

Imagine the following scenario. A brutal murder occurs. The major clue is a bloodstained handkerchief. The police split the sample in two. Instead of instructing a qualified expert they conduct their own DNA test. The results are inconclusive. Some time later they throw away the other sample. What is the difference between this scenario and what Kent Police did to the maggots in the case of Neil Sayers?

Police officers, civilian SOCOs and lawyers need to be far better informed of the possibilities of obtaining important evidence that forensic entomology offers. Had this case occurred in Brazil or the USA the treatment of those maggots by the police would have been sufficient to quash the conviction of Neil Sayers. In effect Kent Police destroyed important evidence through their incompetent handling of the maggots. But rearing maggots and interpreting entomological evidence was a job for a qualified and experienced forensic entomologist such as Dr. Hall or Dr. Benecke. There is no excuse for treating evidence in such a shoddy fashion, especially evidence that was potentially as vital as these maggots.

Dr. Heath collected the maggots without establishing all the evidence that was available from the scene. Heath took a second sample of maggots from the body at the mortuary. As things can be missed at the grave it is advisable to take a further sample in the mortuary. Dr. Heath did so. However, it is essential to know the temperatures that the body has experienced. In this case none of the temperatures that the body experienced from discovery of the body to examination in the mortuary were reported in Dr. Heath's statement. This is contrary to best practice.

Maggots taken from different areas of the body should be treated as separate samples. This occurred, but the second sample was given to a SOCO and stored in the mortuary. It was never reared or examined. It was completely wasted. This was absurd and defeats the point of taking this sample. The treatment of the second sample of maggots was a catalogue of errors from start to finish. Evidence – let alone vital evidence such as this – must never be treated in this fashion again.

The first sample could not have been reared more incompetently. Despite not being qualified for the task, the police attempted to rear – if that is the right word – maggots in the fridge without even taking the temperature in the fridge. The maggots were left there to deteriorate for years until they were in a terrible condition. The police never sought the advice of a forensic entomologist. Not surprisingly all the original sample died. Compounding the error the sample of fixed maggots was thrown away, making it impossible to obtain the evidence that the maggots could have given.

The treatment of the maggots in this case by Kent Police should serve as a model – a blueprint of how entomological samples must never be treated again. Forensic entomology is an established discipline that has been utilised for a century. Arguably the first example occurred in the Middle Ages in China. There really is no excuse for treating maggots in the fashion that they were treated by Kent Police in Sayers' case. There is also no excuse for failing to obtain the services of a forensic entomologist as contact details could easily have been obtained from the NCOF.

Kent Police treated this evidence woefully. Their conduct prevented experts of the calibre of Martin Hall and Mark Benecke from establishing the evidence that the maggots could have given in this case. The police should face severe sanction for their conduct in this case, as the entire blame for this fiasco rests fairly and squarely with Dr. Heath and them. Their incompetence deprived Sayers of the best opportunity to prove his innocence. It has also deprived the public of the answer to the pressing question of who is the real Graham Wallis. Is he a courageous young man who sent a brutal murderer to jail at the cost of his own liberty? Or is he a manipulative and cowardly murderer who not only savagely killed a 'friend,' but also framed another 'friend' for that murder? The negligent treatment of the maggots by Kent Police has deprived us of the definitive answer to these questions, so far. We can only wonder how many other cases have been tainted by such methods. Forensic entomology must be treated with the respect it is due from every tier of the criminal justice system throughout the world. Nothing less will suffice.

Despite having no control over these unfortunate events Sayers alone pays the price. However, Kent Police are rewarded for shoddy practices not only by depriving Sayers of the best chance to obtain scientific evidence to challenge Wallis' version of events, but also by making it extremely difficult to use entomological evidence on appeal. This case sets a potentially appalling precedent: if entomological evidence may damage the case one wishes to bring, sabotage it before it can wreck that case. As with all other disciplines of forensic science entomology must be allowed to lead investigators to whatever conclusions are justified by the evidence – inconvenient though that may be. Properly constituted forensic entomology can convict the guilty and clear the innocent as can DNA or other techniques. It must be allowed to do so.

This could have been the end of the story for Neil Sayers and the maggots. Sayers is fortunate that his plight attracted the interest of the Spanish entomologist Dr. Alfredo Piera Pellicer, of the Centro de Entomología Forense y Radiología Experimental in Valencia, who has developed a very interesting technique that can retrieve the entomological evidence of this case from the mess caused by Kent Police.

Dr. Piera uses a reconstruction chamber to artificially recreate the conditions in actual cases. I discussed Sayers' case with him and he very kindly offered to conduct such an experiment. The precise parameters for this experiment are being considered as I write. The technique depends on the quality of data provided. In Sayers' case that data is of a woeful quality. However, further experiments and research can be conducted even now to obtain better quality data in order to enable Dr. Piera's technique to perform to the best of its ability. It will also provide data that will increase our understanding of forensic entomology.

Piera uses his technique to teach his students best practice. Sayers' case is ideal for that purpose. Hopefully it can also provide a definitive answer to the question of who is the real Graham Wallis. Dr. Piera believes that it can tell to a margin of error of 2-3% when oviposition occurred on the body of Russell Crookes, despite the negligent and incompetent treatment of the original maggots in this case. Piera's technique offers the chance of obtaining useful entomological evidence even in cases such as this. Forensic entomology has well and truly come of age.