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The Influence of Forensic Science and Law Enforcement on the Sherlock Holmes Stories

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Abstract

Sherlock Holmes is one of the most famous protagonists in the literary genre of crime, but how he came to be is not often discussed. The stories about Holmes were written in the late 19th and early 20th centuries by Arthur Conan Doyle during a period when British society was developing in matters of human rights, law, and science. When Doyle wrote about Holmes, he employed methods of forensic science that were new to society at that time. This essay aims to show a correlation between those methods and the stories about Holmes and argue that Doyle's narratives were influenced by contemporary scientific and social developments. To identify any forensic science being applied by Doyle, four novels and a few select short stories have been read for this research. The forensic methods have then been traced in literature regarding forensic science or law enforcement in order to show the correlation between those methods and the Holmes narrative.

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Introduction

Crime stories are today a common part of our society for people who read books or watch television. Following a fictional story about detectives who solve a crime is a relatively new art in the world of literature, as they only came to be in the early 19th century. If we are to trace the origin of the crime novel, then we will see that urbanisation played a vital part in influencing the rise of this genre, as a result of social and geographical changes in 19th-century Britain. These changes in society occurred due to the new social structure that the industrialisation helped shape. The outcome of industrialisation would be both positive and negative for British society. Urbanisation would soon lead to big challenges for inhabitants of the large cities, as matters of safety and sanitation became rampant. However, the advancements in scientific fields that were made during the industrial revolution would bring positive aspects as well. People's daily lives were made easier with technological advancements, new jobs were created, and science flourished. This allowed for new ways of thinking, and modernisation would also enable some people to express their thoughts and ideas in ways that were unheard of before.

One such person was Sir Arthur Conan Doyle. Doyle was a man of science as he was a qualified medical doctor, and Doyle is the renowned writer who, amongst many things, wrote the stories about the highly intelligent detective Sherlock Holmes. Doyle depicted this new society that was taking shape, and he was able to incorporate the changes that had happened during the 19th century into his stories, and one can argue that Doyle did not depict the positive side of society, as his stories dealt with crime. The use of an organised law enforcement in his books, and different scientific aspects in some methods written about, depicted this new society where detectives gather clues based on scientific knowledge to reach a conclusion and catch the culprit. This way of writing had not been presented to the same extent before Doyle's work. Poe's Dupin is a logically thinking man, but Doyle's scientific knowledge was of aid to him when writing as Sherlock Holmes' high intelligence and understanding of science is what made the stories about him so interesting to read, and they are still interesting and immensely popular in the 21st century. The stories of Sherlock Holmes have been capturing audiences for over a century now, but how these stories were influenced is not often known to the average reader. This essay will review this subject and discuss the social changes and the scientific advancements made during the 19th century in Britain that influenced Doyle in writing his stories about Sherlock Holmes. This paper will

mainly focus on the scientific aspects of Doyle's life and career, and how these influenced him when writing about Sherlock Holmes. The methods used to gather clues in some stories by Doyle, can be traced directly to new scientific advancements made in different fields during the industrial revolution, but in particular within the forensic field. Some tools used in the stories about Sherlock Holmes can also be traced to new scientific inventions during the late 19th and early 20th centuries. These can be tools that the culprit is also using, and not just tools that the detectives use as means to gather evidence. The presence of law enforcement in the books by Doyle is evidently the result of the organised law enforcement that was founded not long before. Even if Holmes is much more capable of solving crimes than the police in the stories, one cannot ignore the pivotal role that organised police have in the Sherlock Holmes stories.

A brief background will be presented so as to give the reader an understanding of some of the changes the industrialisation brought to society in Britain. These changes in society gave way for new machinery in the cities, which were engineered by modern science, and an organised law enforcement was founded since crime had become an issue that could no longer be avoided in urban areas. These major transformations of British society that occurred during the 19th century can be correlated to the rise of crime stories, and the works about Sherlock Holmes by Doyle. Previous research done, on the subject of science and Holmes, has presented information regarding the science that is employed in Sherlock Holmes stories. However, the study that is made for this paper intends to show the importance of the advancements made at the time, both scientific and social, that inspired Doyle to write about Sherlock Holmes. A conclusion with a thesis statement will also be presented at the end of the essay to summarise the research and give credibility to the argument that Doyle helped shape the classic crime genre by incorporating the developments of that time into his stories.

The canon of Sherlock Holmes consists of four novels and fifty-six short stories that were mostly published in magazines at first, and later published as a book in a collection of short stories. This paper will focus on the novels about Sherlock Holmes; *A Study in Scarlet*, *The Sign of the Four*, *The Hound of the Baskervilles*, and *The Valley of Fear*, with two short stories mentioned as they relate to the forensic methods being discussed in two of the novels. The primary source used for this book will be *The Penguin Complete Sherlock Holmes* published by Penguin Books which contains the complete works about Sherlock Holmes. That includes the four novels, and the fifty-six short stories.

Background

Crime stories fascinate many people. If one was to look for crime stories, then the choices are vast and diverse. Film and television adaptations of classical crime stories are still made to this day and are received well. New crime stories are being written, as are continuations of old classical stories and pastiches. There are channels on television which focus solely on retelling real crimes in the form of dramatizations. The origin of crime stories can be traced to the major changes that took place in Western society during the 18th and 19th centuries. Industrialisation resulted in the invention of new machinery for different purposes. Some of these machines were meant to improve farming in the sense that they could work the fields better than workers could, which would result in many people in the countryside not having work anymore. Many villagers would seek a new life in towns as there were jobs to be found there in the newly installed factories powered by the machinery of industrialisation. William E. Burns gives a detailed account of this revolution in his book about the history of Britain, and the changes that took place as a result of it:

> The Industrial Revolution led to powerful social changes, especially in the growth of urbanization and new forms of labor. English urban areas, particularly London and the cities of the industrial north, grew at an astounding rate, and by the mid-19th century Britain was the first large nation to have a majority of its population living in cities. (Burns 145)

The socio-economic changes that occurred shifted a large number of the population from working the fields in the countryside to the cities and working in factories. A heavy influx of people to the urban areas who were looking for work would soon turn these towns and cities into densely populated areas.

Having a large number of people living in an area with harsh conditions can lead to many problems in the form of housing, hygiene, occupation, and other social challenges. This would prove to be a difficulty for the cities as crime and disease is often a result of overpopulation. It was now much easier for a criminal to go undetected in an area that was inhabited by many people and filled with the noises of heavy machinery. These social challenges did not go unnoticed by the people and their leaders, and solutions were to come to fight the rise of crime. The founding of an organised London police force in 1829 was an

action that the then Prime Minister of Britain, Sir Robert Peel, saw as crucial to discourage criminals from committing a crime (Emsley 39-40)**.** This newly founded police organisation would now work to try to catch the culprit when a crime had been committed by investigating the crime scene in search for clues, and to patrol the streets to prevent crime, and by doing this "Peel was able to show that certainty of punishment was far more effective than cruelty of punishment" (McDowall 136). This newly founded law enforcement proved to be a success as other cities in Britain followed suit.

The tools that were available to this new policing organisation were scarce in its early days, but as the 19th century progressed and the industrial revolution spread to new areas, many new breakthroughs were made in fields such as engineering, medicine, and forensic science. It was forensic science that would in time give the tools to law enforcement to gather clues. There would be methods detecting, amongst several things, fingerprints, blood samples, toxicology, and other traces of substances that could be a vital part of an investigation. As time progressed, so did the efficiency of these tools, and by the end of the 19th century, developments within the forensic field had reached a level of accuracy which meant that some of these detecting tools were unquestionable and could be presented as valid evidence at a court of law. The responsibility for catching a culprit now relied heavily on the detectives working a case. One of the first newspapers to be printed in England dates back to the 17th century (Burns 113). By the 19th century, newspapers had become an established outlet for news for the citizens of England. The new social changes and their effects would be written about in the newspapers. Crimes committed of various degrees were printed in the newspapers and they would also report if the culprit had been caught and punished. To this day, these types of articles in newspapers draw readers as some people find crime interesting to read about, as was also the case during the 19th century. So, it is not surprising that someone would soon start writing fictional crime stories as they seemed appealing to many citizens.

One of the first detective stories was the short story by the renowned American author Edgar Allan Poe from 1841 named "The Murders in the Rue Morgue", in which we follow the protagonist Auguste Dupin detecting a crime, and many other crime stories by other authors would follow. The first British detective stories is considered to be the epistolary novel called *The Moonstone* by Wilkie Collins from 1868. This story tells the tale of the theft of a priceless Indian diamond from a young woman, and the chase to find the thief who stole it. These stories were amongst the first of their kind where the reader gets to follow the process from start to finish: a crime being committed, the crime being detected, and the

culprit being caught. This would give the reader a sense of satisfaction and security as justice is seen to be served.

Sir Arthur Conan Doyle published his first Sherlock Holmes story in 1887, and this new protagonist would become a favourite among readers of crime stories. The characteristics of Sherlock Holmes are what made the stories about him so enjoyable to read. His superior intelligence and understanding of the scientific field are what helps Holmes detect crimes with a higher success rate compared to official law enforcement. Dr. Watson plays a big part in the stories, and Holmes and Watson work together to try and solve crimes by gathering clues when a crime has come to their attention, or by aiding law enforcement when the police seek their help. The understanding of science by Holmes and Watson can be traced to Sir Arthur Conan Doyle who himself had a scientific background as he studied medicine in Scotland at the University of Edinburgh and graduated in 1881 (Stashower 52). Doyle had written short stories during his university years that were published in magazines. The first one was "The Mystery of Sasassa Valley" which was published in 1879 in *Chamber's Edinburgh Journal*. He also published the same year in *British Medical Journal* an article about the plant gelseminum and its effects on people. Having received some refusals, Doyle got his first novel published in 1887.

It was with this story, *A Study in Scarlet,* that Doyle started to rise to fame. Doyle's understanding of science is what most likely made these stories such a success. He had a good grasp of haematology, toxicology, and forensic science in general. His knowledge gave more plausibility to the story when we read about Holmes gathering prints, or Holmes finding a new method to detect blood. It was not only Doyle's background that gave him the tools to be able to write such a memorable character. His background inspired him to incorporate these methods from real life into a fictional story, but his encounters with other people inspired him to give Sherlock Holmes the personality that he has. Why he was written in this manner is what this paper will also discuss. The stories of Sherlock Holmes draw inspiration from Doyle's background, inspiration from some people that Doyle met, and inspiration from the advancements made in the fields of science during the industrialisation.

The methods of Sherlock Holmes are not the only reason why the books about Sherlock Holmes became so popular at the time. To read about a person who is not part of law enforcement but who solves crimes was appealing to readers. The inspiration for writing Sherlock Holmes in such a manner could perhaps be derived from Poe's stories about Auguste Dupin. Dupin was not part of law enforcement. He was a man with a high intellect who deduced from clues to reach a conclusion. Holmes is a private detective who aids law

enforcement, but he is not part of law enforcement. The reader could in a sense relate to these characters as Holmes and Watson are regular persons who detect crime, and not part of a police force that detects crime. The works by Poe and Doyle would give influence the genre of crime. These types of novels with a protagonist with traits similar to Holmes' are protagonists who are considered to be gentlemen, and these types of protagonists are often referred to as gentlemen detectives. Many stories that were written after Doyle's stories incorporate similar tropes to their novels. Agatha Christie's Hercule Poirot and Dorothy L. Sayers' Lord Peter Wimsey are some of the characters one could argue were inspired by Sherlock Holmes. Both these protagonists are not part of law enforcement, but they do aid law enforcement in the detection of crimes, and they are considered to be gentlemen.

According to Stephen Knight, the traces of the first gentleman detective can be found in a story that precedes both Poe's Dupin and Doyle's Holmes. Knight mentions in his book *Crime Fiction, 1800-2000* that one of the first published works that employs some of the tropes of a story involving a gentleman detecting a crime is called *Pelham* from 1828 by Edward Bulwer-Lytton. The influence of *Pelham* on stories involving a gentleman detective is discussed by Knight:

> *Pelham* was not a particularly influential novel – the model of the gentleman detective takes much longer to develop, but *Pelham* is the first who can be called a disciplinary detective at the rational level, and that model is going to be, especially through Poe, Gaboriau and Doyle, immensely influential. (15)

Although *Pelham* can be regarded as one of the earliest works in the genre which employs traits of a gentleman in a detective, its impact at the time was not as powerful as Doyle's work was when he published his stories involving a gentleman detective, nor as influential as Doyle's work would turn out to be for future writers.

The Forensic Methods of Sherlock Holmes

The importance of science in the stories about Sherlock Holmes is presented to the reader very early on in the first book by Sir Arthur Conan Doyle. In the first chapter of *A Study in Scarlet*, as Dr. Watson is having his very first encounter with Sherlock Holmes before agreeing to become his partner, Dr. Watson is greeted by an excited Sherlock Holmes who exclaims in joy "I've found it! I've found it! [...] I have found a reagent which is

precipitated by haemoglobin, and by nothing else" (Doyle 17). This was a breakthrough for Sherlock Holmes as now it was possible for him to detect traces of blood without a doubt. Preceding this technique, Holmes claims that it is impossible to discern if a stain on a suspect was in fact human blood. A good defence lawyer could cast doubt upon such evidence by claiming that one cannot conclude that the stain is human blood beyond a reasonable doubt. Many suspects at the time would not be arrested for some time after the crime has been committed. By the time suspects were arrested, the blood stains would have dried and impossible to distinguish as blood. This new technique discovered by Holmes would surely detect blood stains, no matter how dry, beyond a reasonable doubt (Doyle 18).

One must remember that the stories of Sherlock Holmes are stories of fiction. However, what is interesting is that sometimes fiction predates reality. The technique that Holmes invents to precipitate haemoglobin was not discovered until the turn of the 20th century, almost fifteen years after *A Study in Scarlet* was first published. A German scientist by the name of Paul Uhlenhuth had experimented and discovered this new method of detecting blood:

> The February 7, 1901, issue of the *Deutsche medizinische Wochenschrift (German Medical Weekly)* contained an announcement by Paul Uhlenhuth of the Institute of Hygiene at the University of Greifswald that he had devised a test that would distinguish human blood from any other, no matter how small the trace. (Kurland 199)

Uhlenhuth had developed experiments done before his own to discover this new method, and other scientists would continue his work after him. This new discovery was a breakthrough for law enforcement and forensics. The technique was still in its early stages, but it showed the possibilities of the tools that would soon detect proof that would be reliable enough to be regarded as valid evidence in a court of law. Doyle's written work came at a time when advancements in science were made constantly, and there might be a correlation between the advancements made at the time and the influence for Doyle to implement scientific methods in his stories about Holmes. An article by Stanton Berg quotes Pierre Nordon as he discusses the subject of the connection between Doyle's work and scientific advancements:

> The fact that the publication of Conan Doyle's first books coincided with progress in the science of criminology raised the question as to whether these could be cause and effect and if so to what degree. (Berg 446)

Berg argues that Doyle might have been influenced by the developments in forensic science at that time, which gives credibility to the argument that Doyle was influenced by some of the changes that occurred during his lifetime. The method for blood detection that Holmes discovers does predate Uhlenhuth's work, and one could argue, like Berg also argues, that science influenced Doyle to invent Sherlock Holmes, and Sherlock Holmes in his turn has inadvertently influenced science to a certain degree. Catharina de al Cova discusses in an article the influence that Sherlock Holmes still has to this day:

> If we were to examine all the major journals in the various disciplines that comprise the sciences from their initial publication dates to the present day, Sherlock Holmes would likely appear in at least one article per year. Textbooks in the field, in one way or another, reference Sherlock Holmes. This is especially true in the social sciences, medicine, and chemistry, where Sherlock Holmes is often employed to teach the basic concepts of these disciplines. (de al Cova 55)

This shows that the texts that Doyle wrote about Sherlock Holmes were not entirely fiction. The plot was fiction, and some of the scientific methods Doyle wrote about had not yet been invented, so they can be regarded as science fiction at the time of the writing, but they were inspired by real scientific methods that had not yet been fully developed.

Before such a technique was developed to detect blood, the courts relied heavily on testimonies from experts in the field of haematology, but as already mentioned, the experts could not conclude beyond a reasonable doubt if a dried stain was in fact a blood stain from a human. One such blood expert in Britain was Charles Aimsworth Mitchell who was sought after both by prosecutions and the defences. Mitchell was an independent consultant and could choose to whom he would make his services available. Most experts at the time were employed by the state to act as experts for the prosecution, which would mean that the defence had to rely on the prosecution's biased expertise in court. The stain in question could be from an animal and not a human. It was important to have experts from both sides to argue in court regarding the origins of a stain (Alison 32). With this new technique that would be implemented during the 20th century to detect blood, there would be no need for experts to give evidence at a court of law to determine the origin of a stain.

Scientists had been experimenting in the field of haematology for a long time. However, Doyle's medical training and experience is what inspired him to implement this

method of detection in his stories about Sherlock Holmes. One can argue that Doyle was a reader of medical journals as he himself had several articles published in such journals and was most likely inspired by other scientists' articles during his career. Another inspiration for the use of blood detection could possibly be traced to a faculty member during Doyle's years at the University of Edinburgh, Baron Joseph Lister, who was famous for his antiseptic knowledge, and who held a chair at the university when Doyle started his studies (Stashower 35). Lister was a prominent figure in the field of science, and an argument can be made that Doyle might have included elements of blood after becoming familiar with Lister's work at the University of Edinburgh.

Today, gathering prints left by fingers or feet is as common as detecting blood. This was not so easily done in the past. Detectives could find a print, but it would have been very difficult to find a match for such a print without a database to search for any possible matches. Computer programs in the 21st century calculate the probability of a match between two prints to try to determine if a suspect has been at a crime scene. When Doyle wrote his stories, this method of tracing prints on a computer left by hands, feet, or even tires, was a distant reality. What the detectives instead relied on was their own intellect to try to figure out who could possibly have left this print, and then try to trace it to the person in question. It was of the utmost importance to trace the print to whomever might have left it. Michael Kurland writes in his book about the history of forensic science and the significance of connecting the print left to a suspect:

> In order to make use of a footprint or tire track evidence, the examiner needs to be able to show exactly what shoe or tire made the mark. Then detectives need to be able to link a specific person with that mark. (150)

This shows that tracing a print to a culprit is not always an easy task. And what is of interest is that footprints are used more often by Doyle in his stories about Holmes, even if there are instances in at least one short story where fingerprint detection is employed as an imprint of a thumb is found and Holmes remarks "You are aware that no two thumb marks are alike?" (Doyle 506). Holmes is able to get an imprint made of wax from a suspect's thumb to tie him to the fingerprint found during the investigation. The short story "Adventure of the Norwood Builder" was published in 1903, and by this time, the methods for fingerprint detection had been employed by law enforcement in some other countries, but it was unheard of to most (Berg 451).

Sherlock Holmes employs the method of detecting prints on several occasions throughout his career. In Doyle's second book about Sherlock Holmes, *The Sign of the Four,* Holmes is able to look at footprints and deduce to whom they might belong. A footprint left on a sill was difficult to discern, as only one footprint is visible: "It is the impression of a wooden stump. [...] on the sill is the boot-mark, a heavy boot with the broad metal heel, and beside it is the mark of the timber-toe" (Doyle 110). Holmes concludes that the prints found belong to someone with a wooden leg. This would also turn out to be true, and Holmes was able to link the footprint to the suspect when he was arrested. The same suspect had an associate who left a print resembling that of a child (Doyle 112). While everyone else involved in the case was certain that a child had committed the crime in question, Holmes was the only one who was certain that it was not a child at all. A poisonous thorn was found, and it was concluded that the victim had been killed by this thorn. Holmes, who is a well-read man, could immediately figure out that prints left by such a small person, in combination with the poisoned thorn, could only come from one place: "'The aborigines of the Andaman Islands may perhaps claim the distinction of being the smallest race upon this earth'" (Doyle 127). The same paragraph also mentions the weapons that these aborigines use, and among them are poisoned arrows. The importance of the footprints turned out to be crucial in solving the case, as Holmes was able to trace the main suspect to having been in the region of the Andaman Islands, and there the suspect had met his small-footed associate.

Doyle's inspiration for using footprints as a method of detecting crime can be traced to France. A policeman and researcher during the 19th century by the name of Alphonse Bertillon had done research in the field of anthropometrics, and in particular on the subject of detecting prints left at crime scenes. Bertillon made several contributions to the forensic field with his research on prints: "Bertillon also made lesser-known but nonetheless important advances - the 'galvano-plastic method of preserving footprints found at the scene of a crime, for instance" (Kurland 60). This method made it possible to get an imprint of a footprint at a crime scene, so one could use it during the investigation, and then also as evidence at a court of law. Tracking the suspect by a footprint is employed several times in Doyle's work about Sherlock Holmes, but in *The Sign of the Four,* the footprints were not ruined by others, and this gave Holmes the opportunity to carefully examine them and reach a conclusion regarding who might have left these footprints.

Doyle makes mention of Bertillon in one of his stories, and even puts him in higher regard than Holmes himself. In *the Hound of the Baskervilles,* Holmes is approached by a potential client who thinks Holmes to be the second-best expert in Europe. When Holmes

inquires who the client regards to be the first, he is met with the reply "To the man of precisely scientific mind the work of Monsieur Bertillon must always appeal strongly" (Doyle 672). This shows that Bertillon was regarded as one of the leading experts in the forensic field at the time. The contribution he made in the form of the galvano-plastic method for footprints was a breakthrough for forensic science. Bertillon was also the first one to be credited for a conviction using the method of fingerprints as evidence in France in 1903 (Berg 451). Bertillon made such an impact that Doyle himself seemed to consider him a better expert than the genius that he himself created for his stories.

As a man of medicine, Doyle was no stranger to toxicology. In some of Doyle's works, the culprit uses poison to kill the victim, as in *The Sign of the Four*. Poison, being very difficult to trace, depending on the origin of the poison, is sometimes a preferred method for some criminals to terminate their target. Robert Christison was a toxicologist and an expert witness at numerous trials, and Christison, like Doyle, graduated from the University of Edinburgh. Christison was known for his methods as he would, in the name of science, expose himself to different substances of poisonous nature to see the effects of them (Stashower 112-113). Doyle himself had done similar experimenting as a student by taking unknown substances to see their effects on humans as "for several days [...] Conan Doyle took increasing doses of gelseminum and offered a candid account of the 'extreme giddiness and weakness of the limbs' he experienced under its influence" (Stashower 113). The methods of Christison would inspire Doyle to do similar attempts in the name of science as a student, and in turn they would inspire Doyle to incorporate this method into his work. In the short story "The Adventure of the Devil's Foot", Holmes suspects that a poisonous substance was placed in the fireplace where the victims were present, in order to kill them without a trace. To confirm this theory, Holmes and Watson put the substance in question on a fire in a room to check for themselves if this substance was poisonous, and shortly after they both almost die. This dangerous experiment by Holmes to expose himself to something poisonous can be argued as being inspired by Christison's experiments, and by Doyle's own experiments as a student.

The approach that Holmes employs that makes him fascinating to the reader is a scientific method that is based on deduction. The very first words that Holmes expresses to Watson as they meet for the first time are "You have been in Afghanistan, I perceive" (Doyle 18). Holmes was absolutely correct about this. Watson had just returned to England from Afghanistan. This left Watson perplexed, but he would later understand how Holmes came to such a conclusion without having any background information. Holmes had observed details

on Watson that to most people would mean nothing. By noticing that Watson has a sunburn, has injuries, and seeing signs that Watson is a medic, Holmes deduced that he must be a military man and at that time there was an ongoing British military campaign in Afghanistan. Holmes took a guess, and Watson's reaction confirmed his theory. This method of deduction is used by Holmes throughout the stories about him. He is able to observe a pocket watch of Watson's in *The Sign of the Four* and deduces that it once belonged to his brother, and that he had a problem with alcohol and finances (Doyle 92-93). To the untrained eye, these details would go unnoticed, but Holmes does not miss these details, and this attribute aids him in his work. Holmes mentions how even ashes can come in various forms, which can prove to be vital to a case if left behind by a suspect: "To the trained eye there is a much difference between the black ash of a Trichinopoly and the white fluff of birds-eye as there is between a cabbage and potato" (Doyle 91). Where most people see only ashes, Holmes sees the origin of the ashes and who might have been smoking this particular tobacco.

The number of times that Holmes impresses others with his correct deducing are too numerous to count, but in *The Hound of the Baskervilles*, the methods which Holmes and Watson use to catch the culprit are entirely based on the science of deduction as there were no clues left that scientific tools could detect. No blood was left to trace, no footprints left to track as the only footprint was that of an unusually big hound, and the method of the murders could not be traced to any poisons or weapons. The locals speak of an old curse that brings a devil hound to haunt heirs of the Baskerville mansion, but Holmes is quick to disregard this theory as he is a man of science. By observing the case without being noticed, and making some inquiries, Holmes finds out the truth about one of the townspeople, who concealed a very important fact about themselves (Doyle 742-743). By finding out this fact, Holmes was able to follow leads about the suspect's background and deduce facts to reach a conclusion regarding the suspect in question. Holmes and Watson had entirely relied on the science of deduction to catch the culprit, and even compliment themselves for that accomplishment:

> From the point of view of the man who called himself Stapleton was simple and direct, although to us, who had no means in the beginning of knowing the motives of his actions and could only learn part of the facts, it all appeared exceedingly complex. (Doyle 761)

This would not be the first time that Holmes used the method of deduction as an aid during his investigation. However, this is one of the first times that it was the only method at hand for Holmes and Watson to solve a case.

The inspiration for Holmes' intelligent methods of deduction is in fact taken from Doyle's real life. While attending the University of Edinburgh, Doyle was chosen by a lecturer and surgeon by the name of Joseph Bell to work as his assistant in his ward, and this would give Doyle the chance to observe Bell's work (Stashower 35). Bell's methods were that of deduction. He was able to observe someone and tell a great deal about them. When a patient came in one day, Bell was able to deduce that this man was recently discharged from the army that was then stationed in Barbados. Surprising everyone in the room, Bell explained his methods:

> The man was a respectful man but did not remove his hat. They do not in the army, but he would have learned civilian ways had he been long discharged. He has an air of authority and he is obviously Scottish. As to Barbados, his complaint is elephantiasis, which is West Indian and not British, and the Scottish regiments are at present in that particular island. (Stashower 36)

When reading about the many instances when Doyle observed Bell during his work, one can clearly see the resemblance between the methods of Holmes and their inspiration. Doyle was impressed by Bell to such an extent that he created Sherlock Holmes who was partially based on Bell, and Holmes became one of the most famous fictional characters of literature thanks to the impression Bell left on Doyle, "[...] it was Joseph Bell, the hawk-nosed master of deduction, who made the deepest impression" (Stashower 35). The attentiveness to details and writing fiction deriving from methods in reality is what gives the stories of Sherlock Holmes credibility. John H. Watson discusses in his article the attributes of Holmes and the readers fascination with the stories as he says: "The captivating characteristic of Sherlock Holmes is his ability for logical deduction through observation, and his application of this ability to solve baffling crimes" (Watson 855). Writing the character of Holmes as a master of deduction who is partially based on Joseph Bell is what makes the stories about him a riveting read.

The term 'rational choice theory' has been coined in modern criminology to try to understand the reasoning of a criminal. As the name implies, this theory is based on the rational choices that criminals make when committing a crime. This theory derives from an earlier theory called deterrence theory that can be traced to the 18th century. Ronald Akers discusses in his article the preceding theories to rational choice theory:

> Deterrence theory applies utilitarian philosophy to crime. "Rational choice" is based on economic theory derived from the same utilitarian tradition. Both theories assume that human actions are based on "rational" decisions that is, they are informed by the probable consequences of that action. According to the deterrence theory, the rational calculus of the pain of legal punishment offsets the motivation for the crime (presumed to be constant across offenders but not across offenses), thereby deterring criminal activity. In comparison, the rational choice theory posits that one takes those actions, criminal or lawful, which maximize payoff and minimize costs. (Akers 654)

These theories about the reasoning of the acts committed by the criminals are incorporated in many crime stories. However, this part of my thesis will aim to focus on the Sherlock Holmes story *The Valley of Fear*, and give examples of how it can be argued that these rational choice theories have been applied by Doyle when it comes to the reasoning of the culprit. After Holmes investigates the crime scene, he decides that he needs to be alone in the room where the crime was committed. All he asks is for Watson's umbrella (Doyle 803). In the morning, Holmes had solved the case all by himself.

By applying the theories of rational thinking and the science of deduction to the case, Holmes was able to detect the truth. Having locked himself in the room, Holmes was able to put himself in the position of the culprit and thus try to understand the motives for the crime. By finding a bag outside the window using the umbrella, Holmes was able to conclude that this bag was used by someone thinking rationally to hide clothes that seem to belong to the man who is murdered. It makes no logical sense that they would belong to Douglas as he is the owner of the house, which makes Holmes deduce that the man who is dead is not Douglas. It turns out that Douglas is hiding in the house and had quickly and rationally come up with the plan after killing the man, just as Holmes suspected. Douglas explains it himself by saying that "it was at that instant that the idea came to me. I was fairly dazzled by the brilliance of it. The man's sleeve had slipped up and there was the branded mark of the lodge upon his forearm" (Doyle 814). Douglas himself has the same mark, and he could rationally come up with the plan to pass off the dead man's body as his own, as the body that is found is unrecognisable due to its having been shot in the face.

The actions of Douglas give credibility to the argument of rational choice theory as Douglas may have killed the attacker to defend himself, but all actions taken after that have been rationally analysed and employed in order to save himself. One could also argue that the attacker himself and his group, who were once wronged by Douglas, also act according to the

rational choice theory. Their motivation is revenge on Douglas and every action is carefully devised to locate and kill their target, and not an act of impulse. Some crimes are committed on the spur of the moment, when rational thinking is overtaken by animalistic urges, but rational choice theory aims to prove that most crimes are committed by choices that derive from rational thinking in regard to that particular crime. This theory of rational choices can be applied to the other stories about Sherlock Holmes, as it is most often revealed that the main culprit has been devising an elaborate plan that has been years in the making. In *The Valley of Fear*, however, it is after the crime has been committed that a plan is devised rationally and quickly.

Sherlock Holmes and Law Enforcement

The relationship between Holmes and law enforcement is a complicated one. Sherlock Holmes is after all a detective who is chasing criminals, but who does not have the authority of the police. He and officers of the law must work together at times, but he does see his abilities as far superior to those of official law enforcement. Holmes regards himself in *The Sign of the Four* as "the only unofficial consulting detective" (90). He goes on to explain why he does this line of work even if he is not part of official law enforcement:

> I am the last and highest court of appeal in detection. When [inspectors] Gregson or Lestrade or Athelney Jones are out of their depths—which, by the way, is their normal state—the matter is laid before me. I examine the data, as an expert, and pronounce a specialist's opinion. I claim no credit in such cases. My name figures in no newspaper. The work itself, the pleasure of finding a field for my peculiar powers, is my highest reward. (90)

Holmes sees the police as amateurs as they are not being careful and attentive at crime scenes. He feels that "detection is, or ought to be, an exact science, and should be treated in the same cold and unemotional manner" (Doyle 90). In *A Study in Scarlet*, footprints are ruined by the police who arrive at the crime scene, to which Holmes remarks that "if a herd of buffaloes had passed along there could not be a greater mess" (28). This ruined a potential lead for the case, something that Holmes would not let happen to a crime scene, as he knows that every little detail could be a potential clue for the investigation.

Members of law enforcement seem to have divided opinions of Sherlock Holmes and his methods. Inspector Athelney Jones ignores the fact that Holmes helps the police at times with solving cases when they meet in *The Sign of the Four:*

> It's Mr. Sherlock Holmes, the theorist. Remember you! I'll never forget how you lectured us all on causes and inferences and effects in the Bishopgate jewel case. It's true you set us on the right track; but you'll own now that it was more by good luck than good guidance. (113)

Athelney's choice of words indicates that some officers of law enforcement feel undermined by someone who is not an official detective, even if he does indeed aid them in catching criminals. We must remember that Holmes cannot arrest criminals in the same capacity as the police can. This is something that Holmes is aware of, and, therefore, he often collaborates with law enforcement to aid him in the arresting when the culprit is almost caught. Holmes collaborates with Inspector Athelney as he promises Athelney that he will get the credit for the arrest. Holmes also works on several occasions with an inspector from Scotland Yard by the name of Lestrade, whom Holmes respects. One could say that Lestrade is the only prominent police character in the Sherlock Holmes stories. Lestrade consults Sherlock during investigations and plays a vital part in two of the novels and more than ten short stories. This shows us that Holmes has respect for professional officers of law enforcement like Inspector Lestrade, but little regard for police who are not meticulous detectives and who would dismiss the potential of the smallest and most unlikely piece of evidence. That was the case in *The Valley of Fear*, where a dumbbell was missing, which everyone involved thought was unimportant to the case, except for Holmes, who knew that the dumbbell was crucial to solving the case. The dumbbell was used as weight to hide the bag of clothes in the water surrounding the house.

This collaboration between Holmes and law enforcement is what gives Holmes the validity to work as a private detective. Had there been no organised police force which arrests criminals and prosecutes them at a court of law, then Sherlock Holmes would most likely not have been invented as he would have no purpose when there is no system that prosecutes criminals based on forensic science. One could argue that had an organised police force not been founded in the early 19th century, then crime stories would not have been created by writers, as the legal process as we know it today would not have been shaped into what it is. Prosecuting suspects for acts of crime has been around in civil societies for thousands of

years. However, these punishments would rely heavily on testimonies by witnesses, which can be biased. With the methods that were developed due to the scientific advancements made during industrialisation, it became possible to gather clues using unquestionable scientific tools in order to ascertain who could have committed a crime. These new methods shaped the justice system into what it is today and helped create the crime genre as we know it.

Conclusion

The influence of forensic science can be seen throughout when reading the stories about Sherlock Holmes. These scientific methods that Doyle describes were new when he was writing the Sherlock Holmes stories. Doyle was a qualified medical doctor, and he was no stranger to the forensic methods he wrote about. He seems to have drawn inspiration from other scientists working in the forensic field who had developed new methods, or even drawn inspiration from methods that had not yet been fully developed. Doyle then incorporated these methods into his stories about Sherlock Holmes to give the character more credibility. Influences from Doyle's own life are also noticed when one has read about his background. Encounters during his younger years inspired him to write Holmes in the painstaking manner for which he has become famous. Doyle drew inspiration from different aspects of his own life and also drew inspiration from society.

Law enforcement plays a big part in the detection of crime, and that is no exception in the stories that Doyle wrote. Holmes may be a far better detective, but he lacks the authority of official police officers. When Doyle started writing the stories about Holmes in the end of the 19th century, the organised police force, founded only a few decades before *A Study in Scarlet* was published, had not yet developed into what it is today. The role of an official police detective in today's world has become a job very similar to that of Holmes'. A police investigation today relies heavily on scientific forensic methods to find evidence in a criminal case. Tong and Bowling discuss in their article the role of the modern police detective, and how their role has become more similar to that of Holmes:

> The craft/art/science debate is reflected in the changing nature of detective work and the variety of methods available to the police. Although rapid development in science has provided an argument that the modem detective will have the attributes aligned with the 'scientific detective'. (326)

One could say that Sherlock Holmes was a bit before his time. It would take several years after the first publication of a Sherlock Holmes story until the organised police had fully implemented scientific methods that could gather proof that were regarded as valid evidence in a court of law. Doyle, however, he saw the potential for what soon became a common part of police investigations and the justice system. This perhaps inspired Doyle to write about Sherlock Holmes as an unofficial scientific detective, as the official police detectives lacked the tools and the understanding of science at that time.

The stories about Holmes inspired other authors to write their stories with a protagonist that has the manners of a gentleman and with great understanding of science. Utilizing scientific forensic methods in a fictional story had not very often been done in such a manner before Doyle. Doyle helped shape the crime genre in a sense by incorporating tools in his stories that were invented with the help of science during the industrialisation. As has already been established in this essay, crime stories were written before Doyle wrote his, but one cannot ignore the impact that Doyle had on the crime genre. His use of forensic science in fictional stories is much more developed than what we find in previous authors.

More than a century has passed since the first books about Sherlock Holmes were published, and to this day, they continue to inspire many in various ways. Continuation stories are still written, adaptations are produced for film and television, and many readers continue to discover these stories about Sherlock Holmes. The inspiration goes further as many scholars have done extensive research on Doyle's work in various fields. That would also include this essay which aimed to find some of the influences for Sir Arthur Conan Doyle to invent such an interesting character by the name of Sherlock Holmes. Future research on this topic can be done to see the developments of forensic science during the 20th century, and how some authors might have been influenced to incorporate more modern forensic methods in their stories. One could even continue to do research on the character Sherlock Holmes to see the inspiration of the forensic methods employed by the protagonist in continuation stories that have been written by other authors in more recent times. Technological advances were rapid after Doyle wrote his stories about Holmes. Doing research on more modern Sherlock Holmes stories might present some interesting results when compared to the original works by Sir Arthur Conan Doyle.

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