

# SHERLOCK HOLMES AND SCIENCE 2019

*Carlina de al Cova\**

The year of 2019 proved that Sherlock Holmes is still important to science. His mention in publications across the sciences in disciplines such as medicine, chemistry, genetics, and forensics demonstrates the influence that the Great Detective still has on scholarship, as well as the public. 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. For example, in the 2019 book *Chemistry and Crime: Investigating Chemistry from a Forensic Science Perspective*, edited by Amanda S. Harper-Leatherman and Ling Huang, the second chapter (pages 12-34), written by Dr. Lawrence J. Kaplan and titled “Teaching Chemistry with Forensic Science”, illustrates how to teach chemistry through the lens of forensic science, using the Sherlock Holmes stories as an aid to introduce students to basic forensic chemistry concepts (such as reagents). However, the Great Detective also appears in several research articles across the sciences. Below are some of the more interesting works from the year 2019 that Sherlock Holmes is referenced in.

**Kampmann, Jan D**, “Medical references and curiosities in the Sherlock Holmes stories,” *The Medical Journal of Australia* 211.11 (December 2019): 525-527 — As this work indicates, Sherlock Holmes’ relationship to medicine is strong, with “references to 68 diseases, 32 medical terms, 38 doctors, 22 drugs, 12 medical specialties, six hospitals, three medical journals, and two medical schools” (p. 525). This is not surprising given that Sir Arthur Conan Doyle’s medical background and his partial basis of Sherlock Holmes on his University of Edinburgh medical school mentor, Sir Joseph Bell. However, this work pays particular attention to Holmes’ beliefs about cocaine and tobacco use, age rejuvenation and the Langur serum associated with “The Creeping Man”, the curious case of Tapanuli fever and what it really may have been, the cases of fainting and brain fever in the canon, the effects of the Devil’s Foot root, death by jellyfish, and faux leprosy/skin disorders. Each of these addictions, poisonings, or illnesses is discussed in detail and

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\* Carlina de la Cova, Ph.D., is “The *Anthropological Journal*” in the Baker Street Irregulars.

assessed for present day clinical correlates. Perhaps most interesting is a discussion about the Devil's Foot root and what it really may have been. The author reveals that Sir Arthur Conan Doyle, whilst a medical student, performed an experimental study on himself that involved the ingestion of *Gelsemium* for the treatment of neuralgia (nerve pain). Apparently, the side effects had some similarities to those described in "The Devil's Foot". Conan Doyle's results were published in 1879 in the *British Medical Journal*.

**Ambagtsheer, Frederike and Linde Van Balen**, "I'm not Sherlock Holmes': Suspicions, secrecy and silence of transplant professionals in the human organ trade," *European Journal of Criminology* (January 2019): 1-20 (<https://doi.org/10.1177%2F1477370818825331>) — Sherlock Holmes is found in the title of this article, which focuses on the secrecy and silence 41 transplant professionals in the Netherlands maintained when working with patients who were suspected to have purchased kidneys in the illicit organ trade. Apart from the title, the only mention of Holmes comes from an interview with a transplant professional (p. 10), who indicates: "I'm not Sherlock Holmes. I'm not going to try to find out whether they purchased the kidney. I'm just not going to do that. I don't care. Why should I care?" This physician is indicating that it is not their business to know where their patients' soon to be transplanted kidneys came from. The reference to the Great Detective also alludes to the fact that the transplant specialist places their duty as a doctor above that of the local constabulary and justice system. Ultimately this creates a wall of secrecy about the illicit organ trade and places patients at risk for disease transmission from illegally obtained kidneys. It also leads to harm, something physicians take an oath not to do, by silently supporting the organ trade.

**Kellner, Max J., Jeremy G. Koob, Jonathan S. Gootenberg, and Omar O. Abudayeh**, "SHERLOCK: nucleic acid detection with CRISPR nucleases," *Nature Protocols* 14.10 (September 2019): 2986-3012 — Genetics continues to rapidly evolve as a discipline especially with the improvement of technology, which allows for more accurate, cost-effective DNA testing. Rapid detection of specific nucleic acids (the NA in DNA) and other strands of DNA are central to accurate clinical diagnosis. This article describes a new method created by the authors to target specific DNA or RNA (ribonucleic acids) sequences. This new method, named after the Great Detective, is called *SHERLOCK: specific high-sensitivity enzymatic reporter unlocking*. The authors indicate it allows for complex, portable, and "ultra-sensitive detection of RNA or DNA from clinically relevant samples" (p. 2986). Thus, Sherlock Holmes has officially entered the DNA-detection arena. True to his word, it is his business to know what other people don't know . . . right down to one's DNA.

**Jones, Benjamin J.**, “Microscopy in Forensic Sciences,” *Springer Handbook of Microscopy*, eds. Peter W. Hawkes and John C. H. Spence (Cham, Switzerland: Springer, 2019), 1507-1524 — Microscopy and forensics go hand-in-hand. It is an important skill used in forensic investigation to visualize aspects of the human skeleton and teeth, assess ballistics, identify trace evidence, examine fingerprints, and through the use of entomology and biology, estimate postmortem interval (the estimate of time since death). Sherlock Holmes utilized both a magnifying glass and a microscope, so it is fitting that he is mentioned in a handbook on forensic microscopy. In this instance he is used as a teaching tool (one wonders how he would have felt about this) to force the reader to think about how “stereotypical investigators” are often portrayed using a magnifying glass to find clues and whether or not, in a true criminalistic setting, this is accurate and acceptable.

**Merkelbach, Harald and Marko Jelacic, M.**, “Feigning Hand Preference? A Case Report Preliminary Data,” *Journal of Forensic Sciences* 64.3 (May 2019): 938-940 — Understanding hand preference plays a crucial role in forensic science, especially in regard to instances where a victim is stabbed, beaten, or shot. Handedness becomes important in ascertaining whether a suspect is right- or left-handed and thus capable of committing the crime they have been accused of. Witness accounts as well as standardized tests may be employed to determine handedness of an unspecified perpetrator and/or a suspect. However, as this case study illustrates, suspects can cunningly fake handedness and con the standardized methods used in the discipline to ascertain hand preference. Sherlock Holmes makes an appearance in the conclusion of the work. The authors note that in fiction, handedness is easily determined. They cite “The Boscombe Valley Mystery”, where Holmes realized, based on injury to the left side of the back of the victim’s skull, that the attacker was left-handed. However, as the authors indicate on page 940, “in the universe of Holmes, things are fixed: Holmes knew for sure that the attacker was standing behind his victim and also, once arrested, the defendant did not try to hide his real hand preference.” Reality is far murkier, as investigators do not always know the location of an attacker in relation to the victim and a suspect may successfully feign handedness on a standardized test, complicating the picture. Better methods are needed in the discipline to accurately assess hand preference.

**Trainum, James L.**, “The CSI effect on cold case investigations,” *Forensic Science International* 301 (August 2019): 455-460 — This work discusses the impact popular television shows and movies have had the public’s perception of forensic science versus what real forensic science is. A number of popular

shows across a variety of networks and subscription services are discussed. Unfortunately, Sherlock Holmes is mentioned in passing, which is surprising given that there are recent adaptations of the canon that bring the detective into the modern era and illustrate good examples of forensic science and crime scene investigation. However, the way in which Holmes is briefly described in this article is worthy of ending this segment on. The author notes on page 455 that: "I'm sure that even prosecutors in the Victorian era lamented the impact the fictional Sherlock Holmes had on their juries." I will leave it our readers to argue this point as we know Sir Arthur Conan Doyle did consult in the forensic capacity during his lifetime.