

Anecdote and hearsay in science: the need to validate source material

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The use of anecdotal evidence has been growing as academics promote the concept of using the most recent scholarship on a topic and downplay the use of the original primary sources in continuing analyses. In this paper, the problems of unconfirmed anecdotal evidence will be investigated against a 19th-century paper that is touted to provide evidence of traditional holistic treatments in central Africa and how these can be used in the provision of surgery for complex medicine such as cesarean sections. In particular, many authors have noted how works by individuals such as Felkin provide evidence that central African tribes were incredibly advanced and had medical skills before the introduction of medical science. Throughout this paper, several issues will be investigated that demonstrate how mythology can undermine the structure of truth and devalue scientific research and evidence creating false mythologies that build upon one another through the peer review process and create an alternative to truth based on hearsay rather than evidence.

The importance of checking the source

In a recent response to a post I made concerning indigenous knowledge and the difference between science and belief, I was pointed to read a blog post concerning how the author stated that C-sections were invented in Africa long before they were standardised and adopted before the entire world.¹ In this post, the author would have you understand that African tribal knowledge had already solved this problem. The author references a blog post referencing another set of material detailing the supposed source of this from a Scottish anthropologist in 1879 who had witnessed the surgery.²

The source of this mythology, and that is what it really is, starts with a paper by Davies published in 2012.³ Davies (2012, p. 50-52) provides a commentary including some of the images from Felkin (1884). In the review by Davies, the author notes that Felkin stated that Uganda was the only country that the anthropologist had found the Caesarean section to be performed in the hope of saving the child and noted that this implies that the mother was sacrificed to save the child in other areas. Davies further notes that no examination of the woman was conducted.

However, the blog posts notes, or at least argues, that a C-section was uncommon in Europe and rarely done.⁴ Furthermore, the African tribal groups were stated to be doing the surgery long before the arrival of European missionary doctors. Finally, the article makes out that the Caesarean section save the mother and children in prehospital days. The referenced

¹ <https://www.africanexponent.com/post/9780-c-sections-were-invented-in-africa-long-before-they-were-standardized-across-the-world>

² <https://face2faceafrica.com/article/how-this-african-kingdom-performed-its-first-cesarean-section-in-1879>

³ <https://www.cambridge.org/core/journals/medical-history/article/development-of-scientific-medicine-in-the-african-kingdom-of-bunyorokitara/AB8D758D3B7DDB35D318E4F4E7855214>

⁴ <https://www.africanexponent.com/post/9780-c-sections-were-invented-in-africa-long-before-they-were-standardized-across-the-world>

source is the paper by Davies.⁵ When the author is stating what “Felkin reported”, they are not going back to the source document but rather the 2012 report by Davies.⁶

You would believe that it’s difficult to find the source or analyse that document. So why not go directly to the original document and not an interpretation over 100 years later? The document from Felkin (1884) is published and freely available in the Edinburgh medical journal.⁷ In addition, the complete article can be downloaded in PDF form.⁸ The first aspect of this sort of investigation that is a problem is related to the current practice of academics and universities to use scholarship that is less than five years old. In this, the newer scholarship is said to trump the older investigation. There is a problem with this way of thinking.

Where a new scientific experiment has been completed, and the investigation finds new information, the academic approach of using new scientific discoveries and newer papers is valid. However, the critical approach or the approach is used in many humanities subjects concerning new work is really about producing roles for an access number of academic researchers. I say this because quoting an author who quotes another author who quotes a source document or sometimes even through longer discussion chains is not the same as new scholarship. New scholarship involves creating original ideas, not developing a critical review of a string of authors who have conducted a critical review.

To bring this argument back to the original point being discussed, authors are seeking to demonstrate how indigenous African knowledge has value because individuals were doing Caesarean sections in a manner that they claim was superior to 19th-century Western

⁵ <http://www.bunyorokitara.org/resources/Book%2C+The+development+of+Scientific+Medicine+in+Bunyorokitara.pdf>

⁶ <https://www.africanexponent.com/post/9780-c-sections-were-invented-in-africa-long-before-they-were-standardized-across-the-world>

⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5271081/>

⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5271081/pdf/edinbmedj75084-0044.pdf>

medicine. In part, these arguments are used when people argue for the inclusion of Chinese medicine or other forms of indigenous medicine. The real problem with this form of discussion is that there is no such thing as Chinese medicine, Western medicine, indigenous medicine, or any other form of medicine other than medicine. The field of medicine is an epistemologically scientific realm.

Consequently, they can only be science and not different forms of science. Science and knowledge are based on what Popper (Boland, 1984; Olszewski & Sandroni, 2012) called falsifiability. The realm of scientific epistemology and the philosophy of science is not a settled area. As Grünbaum (1976) argues, differences remain in the approaches with individuals taking inductive methodologies as an alternative to Popperian falsifiability (see also Maxwell, 1972). For all these differences, the importance of understanding science does not go away. More importantly, agreed scientific principles and methodologies could be applied no matter how many disagreements there are at the extreme edges of the philosophy around scientific work (Bartley, 1968).

Even subjects contained within what is known as the humanities can be analysed using falsifiable methods (Teske, 2012; Colen & Nelson, 2019). The ability to use falsifiability is something that applies to economics and politics (Borland, 2020). As Schield (2004, p. 15) demonstrates, only those theories that are falsifiable may be called scientific. And from this, we know that all other theories are not scientific. Whilst this does not mean that there is no value to theories that are not scientific, we need to put a demarcation between different realms of knowledge and belief. For instance, whilst belief and metaphysics are important aspects of rational thought and investigation, these need to be subjected to truth and knowledge. Where a belief is held to be false, it should be rejected or at least modified.

A prime example can be found in the studies and works of Galileo and others of his time (Redondi & Rosenthal, 1987). Prior to Galileo, the Christian church saw alternative views of cosmology as heresy (Finocchiaro, 2012). In investigating the early church, Lindberg (1983) provides an example of cosmology based on the heavenly and earthly spheres. It was this that was represented in the dome of heaven (Lehmann, 1945). Yet, with the discovery of new knowledge and proof that falsified the earlier beliefs, slow changes happened in what was taught and what was understood. As a result, a more detailed understanding and knowledge of cosmology evolved (Langford, 1992).

Galileo was, of course, incorrect. His perspective and understanding of how the world worked were based on his idea of perfection, and this coloured his understanding leading to try and fit the orbit of the planets into a spherical and not elliptical motion (Maran & Marschall, 2009). This should remind us of an important aspect of science. We never achieve truth. We only get closer to the truth over time as we continue to work towards refining our models. And all of science is only a model. It is a tool that we use to understand better reality and how the universe functions. So although science does not deliver truth, it gives us a view of truth and an understanding that is closer than anything else.

But science has its limits. Many aspects of life remain subjective. For instance, aesthetics may be studied and detailed in order to understand the subjective tastes of many individuals and to create works of art and literature that not only sell to the masses but build upon the concept of beauty and develop humanity further. In investigating areas of belief and aesthetics, many purportedly scientific studies exist. However, in investigating such a work, it would be necessary not to report how many people believe artwork is beautiful or the statistics around aesthetics but rather to note how many people have attested that this is how they feel.

In any study of this form, whether it's psychological, reporting on spiritual beliefs and religion or even gaining political insights, the truth is that we have no scientific methodology that will allow us to understand the true beliefs are many other individuals. The best we can do is report on what people said. Unfortunately, what people say isn't always true. A person who professes their faith in a religion may not believe that religion in their heart. That individual may seek to be part of a community and be incentivised to profess their belief without truly believing. There is no way to tell what a person truly feels even through their actions.

It is important to remember that while we can report on how people say they feel, it is important to note that while we can report on how people respond to aesthetic objects, we can never know how they truly feel. At least, no method currently exists to evaluate the statements scientifically. This is also why it is so important to go back to the source documents and material whenever we are investigating a report by an individual. When others write and interpret the writings of another, the meaning is lost and changed in interpretation. So, to rely on the work of Davis (2012) in investigating Felkin (1884), we are doing ourselves a disservice when it is simple to find the original work and report on what was reported on and how.⁹

The author of the original document, Robert W. Felkin, F.R.S.E., F.R.G.S., was highly qualified in his field. Dr Felkin was a Fellow of the Royal Geographical Society and a Fellow of the Royal Society of Edinburgh. He was known as a medical missionary and anthropologist as well as an explorer.¹⁰ He was also an occultist, a magician and a member of the Hermetic Order of the Golden Dawn.¹¹ However, it is not scientifically valid to discredit

⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5271081/pdf/edinbmedj75084-0044.pdf>

¹⁰ <https://www.wikitree.com/wiki/Felkin-19>

¹¹ https://www.newworldencyclopedia.org/entry/Hermetic_Order_of_the_Golden_Dawn

individuals based on their beliefs but rather to use their methodologies. So, even though Dr Felkin believed in spiritualism and the occult, that does not mean he could not write a scientific account.

When critically analysing a report such as that by Felkin (1884, p. 922), it is important to note the facts that are being said, such as where the author states that he did not go to Africa as a qualified medical man, and additionally, that he did not keep his notes from either journey. Felkin travelled to central Africa in 1878-80, and then later in 1880-81 was a more general journey around Africa, including the East Coast. The author notes that he only took notes of the later journey.

In his writings, Felkin (1884, p. 922) notes that he was in the proximity of a native village in the Bari district. The Bari is in the Horn of Africa in Somalia. Felkin notes that he only has the records of his travels and his notes along the east coast of Africa in the 1880-81 period of his travels, and he did not take notes during his travels in central Africa. So, this record was constructed from the notes that were kept, unlike the later section concerning Uganda where Felkin (p. 928-930) was attempting to recollect from memory. Consequently, the analysis by Davies (2012, p. 47), who uses the work of Felkin to justify his example of the cesarean section in Bayoro in 1879, is based on the verbal recollection of an individual who attempted to recreate a story many years later. Felkin did not take notes but several years later made a recollection as he did a presentation in Edinburgh that confounds many facts and makes the analysis he presents more complicated. Felkin (1884, p. 923) notes that he requested permission to examine the pregnant woman in this first example and provided aid by helping to deliver the baby. At this point, the author is attempting to discuss his prowess, and no witnesses are available. So, this is not a valid scientific analysis at this point.

Davis (2012, p. 50-52) bases his analysis on the report by Felkin (p. 928) of a recollection five years after the event. The original literature (Felkin, 1884, p. 928-9) describes how the woman was cut with a large knife resembling a sword used to open her abdominal region, which was then pinned in place after the baby was removed. Whereas Felkin noted that he did not take notes during his time in Uganda, he reports the woman's pulse during the operation and how her temperature was 99.6 Fahrenheit. In addition, he reports that the wound was entirely healed by the eleventh day with no infection. Thus, the success of the operation and the healing occurred despite no antibiotics.

Further, the author claims that the woman could suckle milk within two hours of the operation. Finally, he claimed that the procedure allowed for the removal of the pins starting on the third day, with very little pus being formed. However, the report was received with scepticism in Scotland when it was delivered. Unfortunately, this is not how some authors read the report now. When reviewed with a critical race theory perspective and concepts that ancient cultures must have secret knowledge, some authors report how Ugandan rulers discovered she was the sleeping sickness and stopped syphilis.¹²

Unfortunately, this is little more than the claims made by corrupt African leaders today when they tell their followers that they can cure aids by having sex with babies.¹³ Felkin was interested in the Ugandan holistic practices not because they were medical but because of the occult spiritual nature of what was being done. What people call traditional medicine (Tabuti et al., 2003) is not medicine but rather a holistic methodology. Whilst this is a form of healing where no other healing existed, it is not scientific in nature and differs little from the practices of Galen (Jacques Jouanna & Van der Eijk, 2012). As Ballester et al.

¹² <https://face2faceafrica.com/article/how-this-african-kingdom-performed-its-first-cesarean-section-in-1879>: "During his region, Bunyoro discovered a cure for sleeping sickness and his people used to be immunized against endemic syphilis."

¹³ <https://pubmed.ncbi.nlm.nih.gov/25871812/>

(2002) note, this holistic and surgical intervention was common practice from Antiquity to the European Renaissance. Moreover, the practice did not change until after the enlightenment when modern medicine finally started to be developed only in the late nineteenth century (Bynum, 1994)

As Claridge and Fabian (2005) discuss, the development of evidence-based medicine is relatively new in history. The experimental method and the investigation of medical procedures only started to develop in what we would recognise today in the eighteenth century. Even then, it was rudimentary at best (Coleman & Holmes, 1988).

Other authors have written about Felkin's report on cesarean delivery in Uganda (Dunn, 1999). Felkin (1886) made multiple reports of his time travelling through Africa. He had co-authored a book on Uganda and the Egyptian Soudan at an earlier time (Wilson & Felkin, 1882). In this earlier co-authored work, Wilson and Felkin (1882, p. 270) discussed how "white man's medicine" improved the health of those being treated. The authors also note (p. 190, 278) how the various African tribes interacted with Islamic traders and that Europeans had been there since the seventeenth century. Additionally, in this earlier work (p. 272), the author had noted how the French romanticism and the envoys of the Archbishop of the Algiers had been serving as missionaries and that the Ugandan king had been using an English printing press to distribute European works that had been circulated earlier.

The later story by Felkin that claims the people of Uganda have no interaction with the West is falsified by his own earlier testimony. In the book that Felkin copublished in 1882, the author provided evidence that impeaches his later claims. Further, in the 1882 book, the authors discuss how they took detailed notes that I later claimed to have never been taken. But, importantly, Felkin himself noted that he was in Africa as a representative of the Church Missionary Society (1882, p. 13, 135, 186, 285, 289). The involvement of the Church

Missionary Society aspect is important because Wilson and Felkin (1882, p.135) note that the operations had been there for some time and that this was a prosperous station. Consequently, the claims that no Western interaction would be involved in the development of traditional medical practices must be taken into account against the other claims that church medical missionaries had been in the region for many years. Thus, Felkin's later claims contradict those that he wrote in a book earlier.

Next, it should also be considered that the earlier book by Wilson and Felkin does not document the delivery of the baby by Felkin before he was a medical professional, nor does it document any interaction with medical practice on the delivery of a baby. This aspect of the story only came at a later time when Felkin was delivering speeches for money which had more of an entertainment value than scientific rigour. Chipfakacha (1989) writes on how only Felkin was willing to discuss the use of cesarean sections in "African traditional medicine." This despite hell no other author seemed willing or able to document this procedure. Chipfakacha (1989, p. 336) further notes how "Felkin's report clearly demonstrates that Africans were experts in abdominal deliveries".

Although his earlier works contradict his later presentations, one reason that could explain this is that Felkin (1885) wrote a dissertation to get his M.D. documenting how African tribes utilised the same procedures as he was taught in the West. The series of lectures and the dissertation were written according to Felkin without notes years later when he studied medicine. Von Basiner (1905) documents Felkin's thesis, which translated means "About the situation and places of birth". This story can be continued if we look at a chapter by Tillet (2012) in a book on cargo cults and millenarian movements. This text provides a different view of Felkin's life.

Felkin (1884) provided a hypothesis to be explored further. Unfortunately, he does not provide scientific documentation of medical practices, and no subsequent or prior missionary managed ever to experience the same practices. Given how the various works created by Felkin and other authors together impeach the later argument that he's presenting, it becomes difficult to put any trust in the reports given by Felkin. Most importantly, Felkin was an occultist who sought to promote spiritual practices that were popular during the Victorian age (Huges, 2012).

The unauthenticated reports of an individual who is not a medical professional at the time made years later without notes cannot be used to justify any scientific analysis or even historical analysis of anything other than quackery. The scientific method cannot be based on unauthenticated reports, and importantly, the results of any investigation must be falsifiable. Modern surgical techniques are superior to those from the turn of the twentieth century. Yet, the time for basic healing following a C-section remains between four and six weeks (Chen et al., 2017) and even less retains risk factors associated with the incomplete healing of the uterine incision.

While Creedy and Noy (2001) have exhibited that cesarean operations involve early discharge, they also note the continuing risk factors. Importantly, the release of pus noted by Felkin (1884) is a sign of an infection that occurs within thirty days after the operative procedure that can lead to further complications (Creedy & Noy, 2001) that would be inoperable in the nineteenth century. As a consequence, even if Felkin were accurate in his portrayal of the operation, which is in itself debatable, the subsequent life expectancy of the woman after eleven days would remain in doubt. The author notes that he did not do any subsequent investigations (Felkin, 1885).

The peer-review process does not give a paper scientific rigour. Before an academic paper is reviewed, it is essential to investigate sceptically. Many papers are peer-reviewed and yet published that are factually incorrect. Others build upon spurious information and less trustworthy sources, such as De Costa. This author argues that the first “caesarean hysterectomy performed [was] by Edouardo Porro in Padua in 1876”. However, the argument itself is invalid as a cesarean hysterectomy differs from a cesarean delivery. The author discusses examples of cesarean births delivered earlier in the earlier part of the article.

The surgical procedures associated with a cesarean section date back beyond the time of Galen. Yet, some argue that such a practice is a demonstration of new medical techniques. The benefits of surgery and modern medicine were not derived from cutting through an individual or even stitch wounds. Modern medicine and techniques based on evidence have developed methods that reduce the risk of infection and complications. The procedure noted by Felkin (1884, 1885) demonstrated little interaction and a recollection presented after five years without notes. More importantly, Felkin (1884) noted that he had only seen the woman who had been purported to have had the cesarean section briefly during the operation, after three and eleven days. His dissertation noted that he did not see any recovery after eleven days and, as demonstrated above, many of the problems associated with septicaemia occur after this time.

Whilst numerous authors have used Felkin’s work as justification to demonstrate some form of advanced medical knowledge that existed in tribal African groups, no such conclusion can be made. Even if Felkin did experience the operation and witnessed it first-hand, there was no post-operative review or follow-up after eleven days. More importantly, Felkin admitted that he had not been trained in medicine at that point. Further, Felkin has impeached his claims by presenting different claims at different times. In producing an earlier book, Felkin provided evidence that contradicts his later presentation.

From all this, it can be easily seen that the failure to go back to the source material and investigate claims needs wild speculation and unscientific reports that can be used to build and fabricate stories without a foundation. The existing academic practice of teaching graduate students to focus on the most recent works and not to review the source material aids in promoting a nonscientific approach to research. As more researchers learn to focus on the critical analysis of other reviewers rather than going back to the primary source material, the snowballing effect of building errors upon errors becomes more significant.

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