

1 How is current knowledge shaped by its historical development?



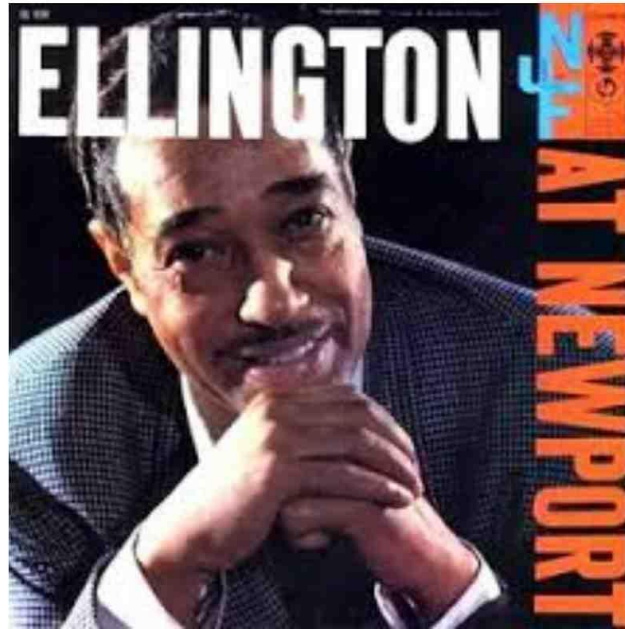
Broad Street Pump in Soho, London. *Photograph credits: Alicia Canter/Observer*

My first object is the Broad Street Pump in Soho, London. This object represents how the accumulating historical development of scientific knowledge has shaped our current knowledge of public health. The handle of this pump was removed by British physician John Snow (*Lusignan, Carlyon and Lalvani, 2020*), considered the founder of epidemiology, during a severe cholera outbreak which killed over 23,000 (*web.archive.org, 2008*) in Britain during the 1853-54 epidemic. Snow methodically mapped cholera deaths and traced the source of the disease to this Pump which had been contaminated by a leaking cess pit upstream (*Past Medical History, 2018*). Consequently, this object represents the scientific memory that means that London fared much better during the next cholera breakout (with under 4,000 deaths (*Luckin, 1977*)) due to its improved sewage systems and clean water (*Museum of London, 2019*).

The pump shaped more than just scientific knowledge, it showed that direct action, often simple, can be immediately effective. This crucial scientific knowledge has “forever changed the way society confronts public health problems” (*Ball, 2008*) by developing our understanding of the importance of clean water and sewage treatment, leading to political will to take action. Consequently, legislation across Europe in the 19th century had cesspits “transformed into septic tanks, which were much safer” (*We Are Water, 2017*).

The removal of the handle of this pump was thus a major breakthrough for scientific method and laid the groundwork for later epidemiological experiments (*Paneth, 2004*) including Louis Pasteur's discoveries in the study of vaccinations concerning chicken cholera (*Ullmann, 2018*). Arguably, without this historical development we wouldn't be able to effectively fight bacteria and illness as it's very likely that the 19th century would have seen a persistent belief in the theory of miasma which would have undermined efforts to contain cholera or similar diseases. This pathway of development would have rendered us poorly equipped to fight many modern-day diseases as we would place emphasis on cleansing the air rather than killing bacteria.

2 How is current knowledge shaped by its historical development?



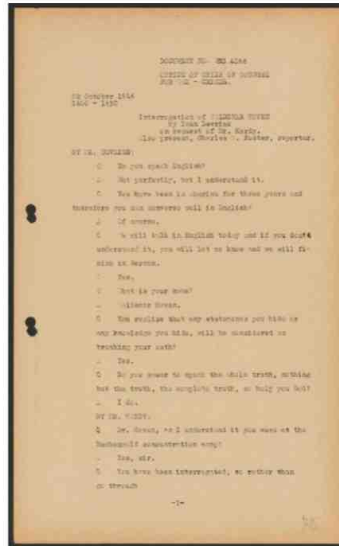
Record cover of Duke Ellington live. *Photograph credits: Duke Ellington and Phil Schaap*

This object is a record cover released in 1956 of a live performance of the musician Duke Ellington who was a prominent, black, jazz player during the Harlem Renaissance in New Orleans spanning the 1920s and 1930s. The record represents how our current musical knowledge has been shaped by its historical development as it was during this 'Renaissance' that the jazz music and dance styles, that are typical of what we hear today, developed and gained nationwide popularity in the United States. The wider historical development is also influential: The leading cause of the Harlem Renaissance was the 'Great Migration' in 1910-30 where 1.6 million African Americans migrated away from institutionalized racism in the deep south to the more progressive northern economy (*Editors, 2009*). This sudden influx of black culture led to an explosion of jazz music. Jazz became such a popular style of music at this time largely because, as you can hear on Ellington's album, the use of improvisation and its free-style nature meant that it was undeniably original and therefore could be claimed as the music of black people. Furthermore, the process of desegregation during the 1950s and 1960s meant that jazz shows became popular amongst both black and white audiences (Malcolm, 2015). Jazz itself was shaped by its historical development; it can be traced back to the work songs and field hollers of African Slaves and it is argued that modern jazz is simply a more instrumental version of these songs (*Smith, 1996*). This articulates the

importance of the Harlem Renaissance in uniting the cultures of northern and southern African Americans to produce authentic jazz music.

The trademark swung rhythms, blues notes, polyrhythms, and improvisations (*Williams, 2016*) that make jazz so unique are still extremely relevant in modern popular British music- demonstrating the wide-reaching impact of the Harlem Renaissance. For example, famous rock stars Led Zeppelin and Pink Floyd (*Seguin, n.d.*) were known for their unmatched improvisations, with the latter borrowing some vocalisation directly from Ellington (*Granger, 2021*). Therefore, this object shows that a line can be drawn from much current musical knowledge directly through this album, and on further back.

3 How is current knowledge shaped by its historical development?



Transcript from the interrogation of Waldemar Hoven.

Photograph credits: Harvard Law School Library

My final object shows a transcript from the interrogation of Waldemar Hoven during the Doctors' Trial- a subset of the Nuremberg Trials that took place between 1945-46- during which Nazi scientists and doctors were tried for war crimes and crimes against humanity (*History.com Editors, 2018*). This object represents the way in which our current understanding of ethics is shaped by challenging events in its historical development. Hoven was the head SS doctor at Buchenwald (*Morgen, 2020*) concentration camp where he conducted inhumane, and often deadly, scientific experiments on unwilling prisoners to research methods for increasing fertility to increase the Aryan race. It was crimes such as these that brought about the military tribunals (such as the Doctors' Trial) partly to punish Nazi War criminals and, relevant to this prompt, prevent such crimes from ever happening again. As a result, the Nuremberg Code of Ethics was published in 1947 which states most importantly that the 'voluntary consent of the human subject is absolutely essential' (*Cirp.org, 1996*) in all human experiments. Therefore, we can see how this ethical knowledge regarding human experiment has developed into general medical practice as it is now obligatory in all countries with functioning healthcare systems for doctors to receive informed consent from their patient (if they have the capacity to do so (*Patton, n.d.*)) before performing any kind of treatment. This code of ethics stands even if the treatment in question is lifesaving as the development of ethical knowledge shows the importance of

safeguarding against further possible abuses of the kind committed by Hoven. By working through the atrocities of Hoven, the boundaries of ethics were challenged, and new thinking had to be applied. This developed humanity's knowledge. For evidence of current knowledge being shaped by this, consider Jehovah's Witnesses who will not accept blood transfusion based on biblical readings (*Target Information Systems Ltd, 2014*). Although not delivering a life-saving blood transfusion essentially contradicts a doctor's Hippocratic oath (*The Editors of Encyclopaedia Britannica, 2017*), it is fundamental that doctors respect the wishes of the patient to avoid a repetition of Hoven's encroachment on human dignity and individual sovereignty. Therefore, we can see how the development of ethical knowledge during the Second World War and the Nuremburg Trials is highly contributory to our current ethical knowledge which is exemplified by the universal respect for human consent.

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