LENSES

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SCAN ME

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SHOULD YOU SEPARATE ART FROM THE ARTIST?

Jenica Rodrigues

Described as the "greatest artist-craftsman of the twentieth century" by the Oxford Dictionary of National Biography, Eric Gill (1882-1940) was a prolific artist of his time. Known for his sculptures such as The Sleeping Christ and Mankind, Gill's works continue to be revered even today, with the sculpture of Ariel and Prospero being put on display outside the BBC's Broadcasting House. However, towards the end of the 1980s, major revelations had come to light on Gill's sexual abuse towards his daughters (amongst other offences) as a result of the publication of Fiona MacCarthy's biography of the artist, [1] leaving many in shock over his actions. This had created a dilemma in the minds of many – to support Gill due to his contributions to the art community, or to shun his work, as it seemed abhorrent to praise the art of a man so cruel. It is a dilemma that continues to perplex many today and therefore begs the question: is it right to separate art from the artist?

Many argue that separating artwork from its artist is unethical, due to the fact that much of a person's work often reflects their innermost beliefs and ideologies. An example of this can be seen from the infamous Pablo Picasso, famous for pioneering Cubism and for playing a major role in the Surrealism movement. In addition to this, however, Picasso was also a firm misogynist, with art historian Jane Eckett even claiming that "no-one can actually talk about his work without acknowledging the misogynistic intent." [2] This disregard for women can be clearly seen in his portraits of his first muse – Fernande Olivier, who was reportedly left locked in Picasso's studio whenever he left out of jealousy and his fear of her unfaithfulness. [3] Whilst this had resulted in

objectively beautiful portraits, the ugly history behind their creation has made it extremely hard for many to view Picasso's work in the same way and hence, leaving many unable to separate him from his works.

In spite of these issues, many do continue to separate artwork from their artists. A prime example of this can be seen from the actions of the Jewish conductor, Daniel Barenboim, during a concert in Jerusalem in 2001. He had made the personal decision to play a piece from the opera, Tristan and Isolde, written by the notorious anti-Semite, Richard Wagner (who was even a favourite of Hitler himself). Barenboim's performance had caused significant outrage, with many even walking out of the room and banging on the doors as the music played on – although, surprisingly, most people had decided to stay. [3] On both sides of this debate, had been many Holocaust survivors, with one man even saying, "I'm against [Wagner's] views, but not his music." This has raised yet another question, as to whether or not the decision of separating art from an artist can have an overall positive effect, since Barenboim's performance of Wagner may be interpreted as a reclamation of music which had previously been associated with anti-Semitism and racism. By attempting to remove the old, negative connotations of these pieces, Barenboim had in turn given back power to those groups affected by Wagner's bigoted beliefs, therefore proving that at times, it is not completely immoral to separate art from its artist.

Whilst there are sometimes positives associated with separating art from their respective artists, they do not negate any of its flaws and there are still other issues that come about due to it. For example, in the case of musical artists who are still alive today, it is still possible for them to earn millions if their music is consistently streamed or bought. One very topical person that automatically comes to mind when discussing this would be Kanye West– or Ye, as he is now known. In the past few months or so, West has received extensive media coverage for his association with the Neo-Nazi group, White Lives Matter, in tandem with a wide range of anti-Semitic comments he has made in the past year. [5] Despite all of these actions, many have continued to support West, as can be seen from the $1.3 million in sales during the first 24 hours after the album announcement, [6] in addition to his growing number of daily streams. This shows that it is perhaps immoral to separate art from its artist, as it could perhaps, inevitably end up in said artist's great success – which some would argue is undeserved, as this success would be at the expense of many people's suffering.

In conclusion, I believe that the answer to the question of whether or not you should separate art from its artist is not as black and white as it may initially seem. There are a multitude of variables that come into play when discussing this topic, such as who is doing the separation, or whether or not the artist has the ability to profit off of their work. Personally, I believe that it is up to an individual to decide if they will continue to support an artist's work – on the condition that they do acknowledge and do not attempt to condone any of the artist's actions. However, when it comes to larger institutions such as museums, galleries, or perhaps other public spaces such as applications such as Spotify, I do think they have a right to condemn these artists, so as not to create the widespread outlook that these people's actions are acceptable.

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HOW COMPUTERS WORK IN MINECRAFT

By Albert Smlsal

In Minecraft, there are items that replicate the mechanics of electricity in the real world. These items all are related to redstone and a community of players use these items to create different contraptions, one of which is a functioning computer in Minecraft. Computers in Minecraft mimic the functions of a real world computer and the components can be replicated within Minecraft.

A computer is a tool that essentially takes an input, processes the data and creates an output on the simplest level. In order to input a signal, there is a User Interface (UI) where there are buttons and levers that are able to send a signal through the redstone. These buttons are usually labelled with what they do, but all depends on how you programme the machine.

The signal travels through the first section of the bus, not an actual bus, but the bus in computing is the network that communicates between the different components, like a bus that travels from station to station. The signal in minecraft decreases with distance and so there are repeaters, which act as amplifiers to keep the signal strong. The signal eventually reaches the encoder. What the encoder does is turn your base 10 numbers (1-10 on the UI) into binary numbers which are then carried on through the machine. Binary numbers in a simple computer go as 1,2,4,8 and 16. Any number can be expressed as a signal of them, for example, the number 3 would be displayed as an' on' signal in 1 and 2, but 'off' in 4,8 and 16 as 1+2=3. The number 10 would be expressed as an on signal in only 2 and 8 and

off in the others as 8+2=10. I hope you get the idea.

The binary signal first goes into an inverter which is used for subtraction. A simple computer, like I'm discussing, needs to be able to add and subtract as a basic function. The ALU (Arithmetic Logic Unit), essentially the brain of the computer, can do addition and logic functions but is unable to do subtractions by itself and so uses the inverter to invert the lower number. For example, doing 4-8, the inverter inverts the 4 and so creates a new equation of 4+(-8) which the ALU can add as its an addition equation. So the binary signal goes through the inverter and passes through into the ALU, which has AND gates that take two inputs and create an output depending on what you want to do and the values you input. Once the calculations are completed, the signal is then transmitted through binary numbers as an output. This output goes into an inverter again, which isn't like the previous inverter as this time the signal goes through logic gates again to do the final calculations. The final fully calculated signals are outputted.

The calculated signal then goes into the decoder which does the opposite of the encoder. It takes the binary numbers and changes them into base 10 numbers (1-10). The raw output is then' bussed' again through to the UI display where you can see the outcome. The main function of the computer has been completed! An input has been taken, processed and output was then shown.

However computers have Random Access Memory (RAM) which can store numbers. It takes its signal from the output right after the input has been processed and before it was decoded. The raw binary output is bussed to a memory cell and can be displayed on the UI interface. The RAM works by saving the input which is stored into a cell by locking the redstone in place using pistons, which are able to move redstone blocks which are a power source. The input powers these pistons and locks them in place, meaning when the input eventually goes away, the memory cell remembers the combination. The memory can be read by opening the output which allows the signal to go out again which then can be read. The memory can be erased by fully opening the cell, and wiping the signal.

Now you have a fully functional computer in minecraft which is able to do addition and subtraction and store numbers!

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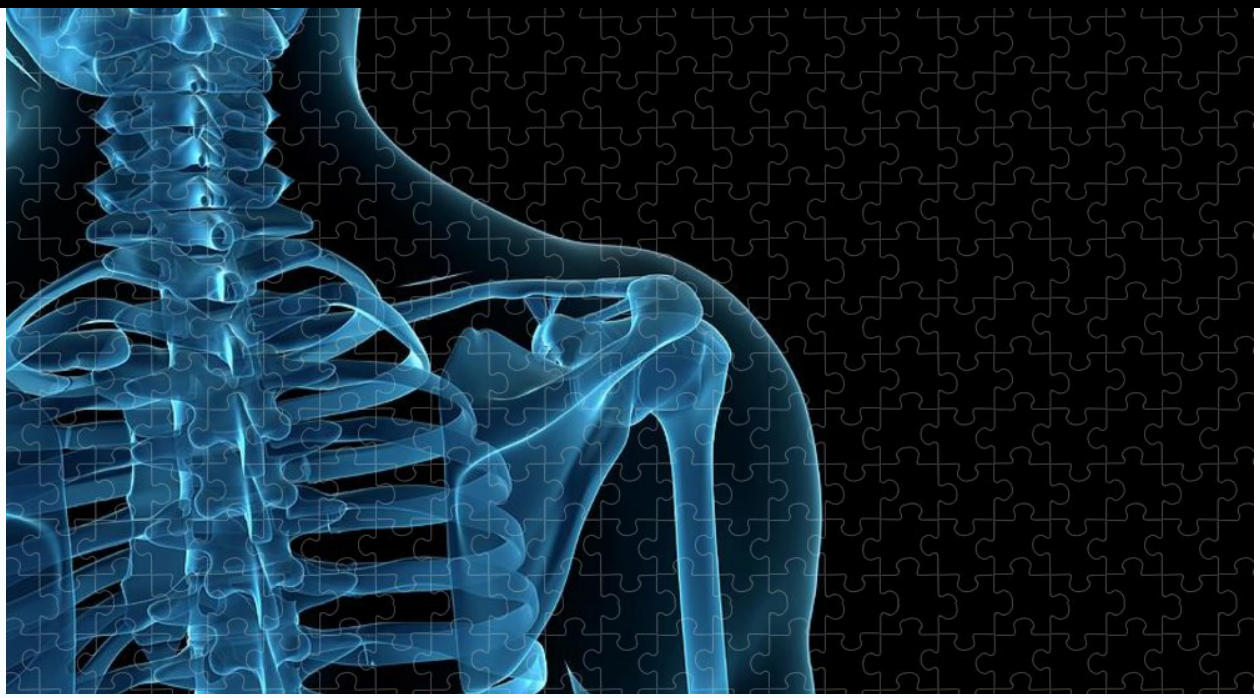
THE JIGSAW WE CALL OUR BODIES

Jadine Moncrieffe-Johnson



What is the most vital organ in our bodies? Though there is no simple answer to that question, I am going to delve into the philosophy of what makes us human and what makes us so incredibly unique. Is it our beating hearts that work tirelessly day and night, so core and vital that if stopped for 4 minutes we cease to live? Or is it the brain, made out of grey and white matter; more specifically the frontal lobe and the infamous 100 billion neurons that inhabit it that control our personality and intellect, the very essence of our being.

If our bodies are like an infinitely complex jigsaw created by God, our mothers and fathers, what pieces of it can we live without and most importantly what part makes us quintessentially human?

The major organs in the body include the brain, lungs, liver, bladder, kidneys, stomach, heart, intestines, muscles and skin[1]; each playing a vital part in the seamless functioning of our bodies. Contrary to pedestrian belief, from each of the 11 organ systems found in the body, the urinary system is arguably one of the most overlooked systems as it is tasked with extracting waste from the body[2] which if not done would slowly poison the body with deadly toxins from the inside out. However, overall each organ system is equally important as they collaborate in functions and depend on each other to keep the body alive.

The human body has evolved in incredulous ways; leading to the common argument of who could have created us and who was our designer? Evolution took place in humans by

changes in our DNA; from our apelike predecessors, the human race transgressed into a beautifully smart collection of diverse people. 4 million years ago the first homosapiens harnessed the art of bipedalism, the capacity to communicate using modern language and acquired the ability to use tools for survival and a better quality of life.[3] Modern day humans, however, spend their time much less worried about survival and instead brimming their world with creature comforts and buying more products than they could ever use let alone need.

Transplant surgery is a core practice in medicine which gives life to millions, however leaves a bitter after taste. Generally organs for donation are harvested from donors who have passed away, respectively after brain stem death, circulatory death or from a living donor. Most organs in the body can be donated, even the eyes, skin and bones and as strange as it sounds from one donation potentially 25 other lives can be saved[4]. However there are some organs which have never been donated in humans and with new technology there may be a day in the future where it becomes viable. There are many issues with brain transplants that leave them to be ideas conjured from a sci-fi fantasy. Firstly, as the brain is too delicate for transplant the whole head would have to be transferred. Furthermore the spine would have to be cut, consequently leaving the person paralysed from the neck down and an unthinkable number of vital blood vessels would have to be reattached. This doesn't even begin to scratch the surface of the physical issues that need to be faced but also the vast number of ethical issues raised.

A similar transplant has been attempted before in dogs and though it had little success, groundbreaking work was done.[5] In 1959 Vladimir Dermikov, a pioneer in transplantology, carried out his 24th repeat of an experiment in which he grafted the head and neck of a small dog to the body of a large german shepherd. This surgery was carried out over 20 times, however the most publicised of these experiments took place in using a small dog named Shavka and a large stray German shepherd named Brodyaga. The smaller dogs lower body was amputated below the forelegs, while keeping her own heart and lungs connected until the last minute before the transplant and a corresponding incision in the German shepherds neck was made to attach the small dogs upper body. The dogs survived for 4 days and were able to move independently, including both dogs lapping up water. In 1970, inspired by discoveries made by his scientifical predecessors, including

Dermikov's, after a long series of preliminary tests, Dr Robert White performed the first head transplant using monkeys. The experiment involved a transplant of one monkey's head onto the body of another monkey and since the surgery included severing the spinal cord, the subject was consequently paralysed from the neck down. However, the monkey could still hear, eat and follow objects with its eyes and breathed with assistance from ventilators[6]. The experiment was monumentally astounding and the monkey lived for 9 days before succumbing to immune rejection. The experiment was lauded as exciting and groundbreaking by those at the time, but received a fair share of criticism, being called "fairly barbaric" by Dr Jerry Silver, and further receiving a lot of questions concerning its ethicality. Dr Robert White previously stated in interviews that the experiment was hoped to be used to help people such as physicist 'Stephen Hawking' and actor 'Christopher Reeve' as it was designed for people suffering from body dysfunction and degenerative conditions where their brains were unaffected.

Though the body is composed of over 200 types of cells, there are a few that catch my eye as arguably the most important; for example, the zygote as it is totipotent or the red blood cell which delivers oxygen to other cells throughout the body. The undeniable fact of life is that we all will die and as morbid as it sounds we all have accepted that fact. However, what we as a human race can never make peace with is the time it happens and as a person who has recently lost a dear friend to suicide, I cannot accept this fate for someone as young as sixteen years old. Approximately, for the 150,000 people around the world who die every day a disproportionate number of 400,000 people are born[7]. The population is growing at a rapid and unsustainable rate which could be combated by letting people die when they are supposed to but as emotional beings we prevent ourselves from doing that. Instead, we use machines and other man made objects that often 'play God', for example life support machines; a medical chart review found that patients receive a median number of four life support therapies or interventions within their last five days of life, thus flagging up the issue of when is it time for a person to die[8]. At what time do we stop altering the body and let nature take its course?
Doctors and surgeons specifically play a crucial role in the debate on when life ends; mainly delegated by the famous phrase 'do no harm'. The hippocratic oath is an oath of ethics taken by physicians which highlights the principles of medical confidentiality and non-maleficence. Moreover, we pride ourselves in having the ability to prolong life as long as possible regardless of the nuisances and strain on resources and emotions it can cause; because all in all we agree that life is precious and should be enjoyed for as long as possible.

To conclude, our bodies are efficient and magnificently designed systems that allow us to thrive as a population. The way in which millions of cells dynamically work together to keep us alive and functioning well, serve like pieces of a perfect jigsaw. A jigsaw that the resounding scientists of tomorrow will discover and learn more about. As the brain and nervous system are perhaps the largest frontiers, it is likely that scientists will next delve into deciphering the anatomy of where nerves run and how the brain functions on a micro-level. When quizzed on the various collections of knowledge about the human body, Dr Daniel Schmitt, an evolutionary anthropologist said "The brain is where we're going to make astounding discoveries in the next 50 years, strongly and consistently"[9]. This gives me hope that we will soon understand all

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Used for power, warfare, political assassinations and revenge, the history of poison is intertwined with affairs of deceit, cruelty and ruthlessness, exhibited by various lethal concoctions and sly schemes throughout time. In my article I will be analysing the nature and usage of poisons present in Greek Mythology, Early Western Civilization, The Italian Renaissance and the Modern Era and will in turn be discussing the development of toxicology, which is the branch of science concerned with the nature, effects, and detection of poisons.

According to the National Library of Medicine, a poison is any substance that is harmful to your body, and it might be swallowed, inhaled, injected or absorbed through your skin. One of the first instances seen in which poison was utilised is in Greek Mythology by Hercules (Heracles) during the completion of his 12 labours. In order to atone for the murder of his wife and son, Hercules was sent to complete 12 unfeasible tasks, the 2nd of which was to slay the tenacious 9-headed Lernaean Hydra, one of which was immortal, and who furthermore possessed venom 'so powerful that even the scent of its breath could prove deadly' (Greenberg, 2020). Graves (2017, p. 883) narrates that by cauterising its mortal heads with the help of his nephew and burying the immortal one, Hercules was victorious and Mayor (2009, p.44) expresses that it was through his action of 'steeping his arrows in the monster's venom, [that] Hercules created the first biological weapon.'

In an ironic twist of fate, Hercules succumbed to the very destiny he sent many others. Hoakley (2016) describes the story of the

Revenge of Nessus, who was a centaur that initially offered to help Hercules and Deianeria, his 2nd wife, cross river Evenus, however, infatuated with Deianira's beauty,

tried to kidnap and rape her. Before he could escape, Hercules managed to shoot him down with an arrow that was smeared with the blood of the Hydra. According to Weber (1957), in an act of vengeance, Nessus tricked Deianeira by claiming that 'Centaurs…are loyal loving fellows…and their blood carries these characteristics with it…[so] she need only to imbibe on of his garments with the blood in order to renew his proper matrimonial ardors'. Weber states that due to Hercules' promiscuous reputation, Deianeria collected the blood 'with disloyal foresight kept' and eventually attempted to use the 'supposed love charm', jealous and apprehensive when Hercules took up a mistress, unbeknownst that the blood was tainted with the poison of the Hydra. Subsequently, Mayor (2009, pp.47-48) details that during a special sacrifice, Hercules put on the shirt incorporating the blood and the heat of the fire activated the poison, corroding his skin like acid, to which Hercules suffered excruciating pain and burned himself alive in the flaming pyre unable to bear it.

The irony of Hercules dying from the very thing that gave him protection and ensured his victories may be due to the attitudes towards poison during this time. The Greeks were notorious for their combat sports such as boxing, wrestling and pankration as it 'demonstrated athletic prowess, bravery, power, determination' (Jennings, 2016), traits which were valued highly in Ancient Greece 'because they signified the greatness of Greece as warriors and athletes' (Jennings, 2016). Therefore, the use of poison would've been seen as 'vile tricks and treachery' (Mayor

2009, p.32) as it appeared to devalue the gallantry and intellect that champions skilfully displayed to strategize and defeat their opponents. Though Hercules was renowned for his heroism and legendary feats of prowess, still 'the use of poisons has always carried an element of 'taboo' (Campbell, 2021). It was 'fine…to butcher his rivals like a man, but to poison them, was to risk offending the heavens themselves.' (Campbell, 2021) Therefore, dying in this way could've possibly been perceived as a fitting punishment and an example to those in Ancient Greece, to fight with honour and nobility and to deter cowardice.

Poisoned arrows continue to make their way throughout history as a prominent biological weapon, extending from 'approximately 900 BC to 200 BC' (*Introducing the Scythians*, 2017) to people known as Scythians, who 'considered Hercules to be their cultural founder' (Mayor 2009, p.44). The Scythians were 'a group of ancient tribes of nomadic warriors who originally lived in what is now southern Siberia…[with] influence all over Central Asia – from China to the northern Black Sea' (*Introducing the Scythians*, 2017). They were skilled in mounted warfare and dreaded for their poisoned arrows, which derived from a vast selection of snake venoms including the 'steppe viper, Caucasus viper, European adder, and the long-nose/sand viper' (Rea, 2018). The infamous poison was called Scythicon and it incorporated a concoction of deadly ingredients, 'it was a mixture of rotten bodies of small snakes and their venom, human blood and excrement buried in the ground until complete decomposition' (*Scythicon – Scary Poison of Scythians*, 2019) The effects of Scythicon were lethal, *Scythicon – Scary Poison of Scythians* (2019) illustrates that 'in the place where the arrowhead hit, tissue necrosis appeared, swollen arms and legs; vomiting, convulsions, severe pain and finally death. Even if the body was strong enough to survive the first shock, after 1-2 days gangrene was caused by bacteria from faeces and rot.' The poison, similar to Hercules' application, was used to enhance the arrowhead consisting of protruding barbs or spearheads which was designed 'for maximum penetration of the opponent's armour' (Rea, 2018).

Poisoned arrows were used in both hunting and warfare, however their function contrasts quite distinctly. Minimal dosage was used for poisons in hunting with 'the ideal toxin…[being] fast-acting and lethal even if the wound was slight, and poisons that ruined meat…avoided.' (Mayor 2009, p.66) Following this, the wounded prey would turn sluggish/collapse, so it was easily captured and safe to consume. In contrast, the purpose of poison in warfare was to give the enemy a grim end, 'with the deliberate intention of inflicting a horrible death or an incapacitating, unhealing wound' (Mayor 2009, p.66). Poisoned arrows killed and in capitated much more successfully than normal arrows, as Koumoundouros (2020) indicates that 'arrows that don't use poison need to deeply pierce…whereas those laced with poison just need to stab'. Therefore, the use of poison had multiple advantages, it made it much easier to bring down enemy numbers and 'gave confidence to unskilled archers' (Mayor 2009, p.62) as well as being 'done at a safe distance' (Mayor 2009, p.62), which is why the Scythians would use 'large numbers of highly mobile archers who could shower hundreds of deadly arrows within a few minutes' (*Introducing the Scythians*, 2017). Another considerable advantage of the poison arrows was to provide psychological superiority. Mayor (2009, p.83) explains that many of the wooden arrows 'were painted solid red or black, while others had red and black wavy lines and zigzags.' These designs were thought to resemble snake patterns, and the visualisation of hundreds flying through the air delivered a frightening picture to strike fear into the hearts of the enemy, if they were not

already discouraged by the Scythian's reputation for using ghastly recipes for biological warfare. 'Just as today, deterrence was an important factor in creating biological weapons' (Mayor 2009, p.66).

Not only was poison used to enhance weapons in combat, but recorded battle tactics have also shown the application of poison as a direct element used to disorientate and impair enemy troops. A notable example of this was King Mithridates VI's strategy, employing a tactical retreat utilizing mad honey against Pompey the Great in 67 BC. Mad honey contains a substance called grayanotoxin, which is 'a natural neurotoxin that, even in small quantities, brings on light-headedness and sometimes, hallucinations.' (Bryce, 2014). 'In low doses, this causes dizziness, hypotension, and bradycardia, and in high doses, impaired consciousness, seizures, and atrioventricular block (AVB)' (Gunduz *et al.,* 2006). Yielding to these effects, Pompey the Great's army was soon massacred, their fatigue coupled with the enticement of the luxury trap making them victims of 'one of the first recorded uses of a biotoxin in warfare.' (Valle *et al*., 2009)

Another battle ploy was the poisoning of vital aqueducts, seen originally in the First Sacred War, where the plant poison Hellebore was used by the league (led by Athens and Sicyon) to weaken and overthrow the guarded inhabitants of the city Kirrha in 590 BC. 'The active ingredient, helleborine glycoside, caused such violent gastrointestinal reactions as to incapacitate the defenders.' (Del Giacco *et al.*, 2017). The account of Pausanias cited in Mayor (2009, p.101), specified that Solon of Athenes initially disrupted the supply of drinking water by diverting the course of the river Pleistos, however seeing the townspeople withstanding by collecting water from wells and the rain, returned it polluted with a large volume of hellebore roots, causing many to succumb to severe diarrhoea. Though the Ancient Greeks believed in noble actions and fair fights, even so the underhanded tactics 'appealed to ruthless war leaders from early antiquity' (Mayor 2009, p.107) and Del Giacco *et al*. (2017) reports that referring to the poisoning of aqueducts, 'for the Greeks it was a generally accepted military practice.' This tactic was viewed to be merciless as the 'hellebore would sicken not just the guards and soldiers of Kirrha, but all the people inside the city walls, young and old. Taken by surprise and already suffering from thirst, they would have had no time to try to prepare antidotes.' (Mayor 2009, p.103).

The poisons in both cases outlined are ingested, meaning it relied on inventive strategies to be absorbed in order to have its intended effect rather than the straightforward approach of the poisoned arrows, where at minimum, a cut executed a safe distance administered the toxin. Poison was rarely used for close combat but rather as a means to an end due to its slow acting nature, observed through the effects of mad honey and hellebore which disorientated and immobilised the enemies, allowing the final blow from the army themselves. It scarcely took immediate effect nor quickly disposed of an active opponent, so for this reason it had a greater advantage in strategies where the gradual effects were an asset, such as assassinations where it proved difficult to trace back to the poisoner, or used to weaken the opponent enough to make the decisive stroke.

Synonymous with corruption, lechery and nepotism, the Borgia family were one of the most influential figures in Renaissance Italy regarding poisons, prominent for their adept utilization of vast range of toxins, most notoriously- La Cantarella. They 'specialized in disposing of cardinals, bishops, and nobles by using several kinds of poisons including arsenic, strychnine, cantharidin, and aconite', (Karamanou *et al*., 2018) in order to further their political influence within the church and expand their family's fortune. Viewed as one of the worst Popes in history, Pope Alexander VI, originally called Rodrigo de Borja y Doms

or Rodrigo Borgia ‘alone elevated not fewer than ten of his relatives to the College of Cardinals, and endowed others with a host of fiefdoms in the Papal States’ (Lee, 2013). To achieve this, La Cantarella was proposed to be their preferred poison used mainly by Pope Alexander VI and his son Cesare, and though it’s still unidentified, most scholars generally believe La Cantarella to be a compound of Arsenic (Karamanou *et al.,* 2018; Inglis-Arkell, 2014; Harkup, 2016). Arsenic was favourable to use as ‘it has no flavor or odor and when mixed into food or drink, it is tasteless’ (Karamanou *et al.,* 2018) thus it would not arouse suspicion, moreover ‘the symptoms produced were similar to those caused by cholera or food poisoning’ (Harkup, 2016) such as ‘weakness, confusion, vomiting, diarrhea, and intestinal pain’ (Inglis-Arkell, 2014). To deliver the toxin, they would ‘mix cantarella into the wine of unfortunate dinner guests’ (Neal, 2020), who were normally cardinals and ‘following the inevitable and untimely death of the victim, ownership of his property – by church law – reverted to his executioners.’ (Smith, 2022). Another factor in its effectiveness was that predetermined by the murderer, according to the dosage ‘Cantarella could kill in a day, a month, or a year’ (Karamanou *et al*., 2018) which further disguised the treachery and made it challenging for the victims to figure out the assassin, and easier for the Borgias to place the blame on other circumstances. Renaissance Italy was perceived to be the peak of poisoning, ‘murder in political circles became so frequent that nobody believed in the natural death of popes, cardinals, and royalty.’ (Karamanou *et al*., 2018)

Progressing to the later years of the Italian Renaissance, poison was represented as a woman’s weapon, it was an opportunity for revenge against the tyrannical marriages and abuse forced onto young girls from a very young age. In 17th century Italy, ‘marriage was all about joining two families for successful political or monetary advantage’ (Betts, 2021) ergo vulnerable young brides were often helpless against the maltreatment of their husbands due to the power discrepancy between their ages with ‘girls as young as twelve or fourteen…often married to men in their thirties, or even older’ (Betts, 2021). With opportunities restricted, preferably a women’s ‘best chance at autonomy…was to be a widow’ (Betts, 2021), which was solved with the assistance of Giulia Tofana and her deceptive poison Aqua Tofana, where under torture ‘she confessed to killing over 600 men from 1633-1651 in Rome alone’ (Toomer, 2020). Most scholars believe Aqua Tofana to be ‘made of a mixture of lead, arsenic, and belladonna’ (Toomer, 2020; Carlton, 2018; Fraga, 2022), all deadly substances in their own right.

The inventive manner in which spouses at the time could access and administrate Aqua Tofana ensured its prosperity and concealment, as only wives that Giulia ‘knew, or women who had been vetted by past clients’ (Toomer, 2020) were able to purchase the poison, the transaction built on the trust, resolution and vengeance desired from her clients prevented Giulia’s identity and trade from being exposed and liberated women from their toxic marriages for ‘nearly 50 years’ (Carlton, 2018). Furthermore, it was ‘disguised…as a powdered makeup’ (Carlton, 2018) or in ‘small vials with the image of Saint Nicholas of Bari… a special healing ointment that looked like a devotional object’ (Carlton, 2018), which ‘helped it to blend in on a woman's nightstand or vanity’ (Toomer, 2020).

Cautiously, Aqua Tofana was administered in small doses, ‘their husbands would seem at first to have nothing more than a cold’ (Hardy, 2021) as ‘the first dose, normally diluted with some kind of liquid, would cause exhaustion and physical weakness’ (Toomer, 2020), then they would appear to progress to a more severe sickness, ‘the second dose would bring on stomach aches, vomiting, and dysentery’

(Toomer, 2020) till ultimately, they died with the third or fourth doses. Similar to La Cantarella, though the intentions differed, both toxins contained arsenic with properties advantageous for assassinating specific people without raising suspicion. The poison was mixed into a drink and ingested, slowly decaying the body over a period of time, mimicking a normal illness and because arsenic was undetectable, it was unlikely to be directly traced back to the poisoners without conclusive evidence. Tofana was caught due to one of her clients lacking the resolve, Fraga (2022) explains that a wife put a few drops into her husband's soup yet was unable to carry through and pleaded him to not eat it, and he pressured her to eventually expose Giulia's scheme and associates, implicating them to the police where they tortured Giulia and also executed 'her daughter and a few of her most reliable associates' (Fraga, 2022) along with her in Campo de' Fiori, Rome in 1659. Even in death, Giulia's legacy remains as one of the most honoured female poisoners in history.

Progressing to recent events, poison still retains its usage for cold-blooded assassinations, however with the development of toxicology and technology, to be successful both the poisons used and its application have evolved in order to elude charges if caught. According to *Alexander Litvinenko: Profile of murdered Russian spy* (2016) and Addley and Harding (2016), on the 1st November 2006, former FSB (Federal Security Service, the successor to the KGB) member Alexander Litvinenko had tea with Dmitry Kovtun and Andrei Lugovoi in the Millennium hotel in Mayfair, London, where he 'fell ill soon afterwards and spent the night vomiting.' (*Alexander Litvinenko: Profile of murdered Russian spy, 2016*) The following 3 weeks he was relocated to multiple hospitals due to his rapidly deteriorating condition and on the 23rd November 2006, Litvinenko perished, his death attributed to polonium-210 a day later.

Polonium-210 is an isotope of the highly radioactive substance Polonium and unlike the poisons reviewed so far, 'polonium does not have toxic chemical properties. The danger comes when it emits radiation.' (MacGill, 2017). 'It emits pure alpha particles, which outside the body can be stopped by a sheet of tissue paper' (Sample and Harding, 2017) but inside, 'as radioactive material decays, or breaks down, the energy released…can directly kill cells, or it can cause mutations to DNA. If those mutations are not repaired, the cell may turn cancerous' (Rettner, 2011). Symptoms comprised of: 'nausea and vomiting, anorexia, hair loss, lowered white blood cell count, or lymphopenia, diarrhea and damage to bone marrow, (MacGill, 2017).

The administration into tea proved very similar to previous examples, however the rarity of the radioactive substance caused a predicament in its difficulty to be diagnosed and detected, 'scientists only identified it in Litvinenko hours before his death' (Sample and Harding, 2017) and it was thought to have come from the Soviet Scientific Research Institute of Experimental Physics in Sarov, Moscow, known in the West under the acronym VNIIEF (*The polonium trail: How did the poison used to kill Alexander Litvinenko get to the UK?,* n.d.), virtually inaccessible and unattainable. Sample and Harding (2017) state doctors say it was due to Litvinenko's great form that he survived long and 'if he had died sooner, the cause of death would probably never have been uncovered.' Intriguingly, evidence reports that Kovtun and Lugovoi 'knew they were carrying poison… but didn't know "what precisely the chemical they were handling was, or the nature of all of its properties" (Addley and Harding, 2016). 'The men left an extensive polonium trail – in hotel rooms, on plane seats, at restaurant tables, and even on a shisha pipe smoked by Lugovoi on a Soho terrace.' (Addley and Harding, 2016) where it was revealed that they previously made 2 prior failed attempts to poison Litvinenko with

polonium-210, high radioactivity readings found in the different hotels they resided in, with a maximum reading of 17,000,00 Bq/cm2 found on a white towel in the laundry chute. (Sample and Harding, 2017).

Their ignorance of handling the extremely radioactive substances meant that Police had to close off areas of central London that were deemed to have been contaminated, with 'hundreds of readings…taken from 64 locations in England and Germany' (Sample and Harding, 2017). They estimated that some 1,500 people were at risk of exposure to the polonium, which was at high levels in multiple places and in the end, 17 people were actually found to have been contaminated' (Sample and Harding, 2017). The genocide that was supposed to be unknown and unexplainable developed into an international scandal due to the lack of information concerning polonium-210 between the poisoners, where their disclosed radiation evidence could have been prevented with a better method cultivated by detailed understanding of what they were handling.

Due to the comprehensive understanding of poisons cultivated by numerous pioneers and experimentation throughout the years, the advancement of toxicology as well as technology ensures that most poisons are detectable and traceable, so the use of poison as a weapon has declined over the years. Nowadays, the most common types of poison exposures are from chemical substances like cleaning products, medications and alcohols.

In conclusion, poison has been present and practiced since antiquity, commencing with poison arrows used for hunting and warfare, primarily made of natural materials like plants with simple applications, to soon evolving into mineral based toxins with methods that proved more resourceful and imaginative for assassinations whether it was corruption or freedom desired. Nowadays, with the rise of technology, in order to elude, the poison itself is seldom recognised, akin to scarce radioactive substances and thus the use is associated with an element of intelligence, if you get away with it

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We would like to extend our sincerest gratitude to the authors of the articles featured in this edition of our academic journal. Your contributions have added depth, diversity, and intellectual rigour to the journal, and we are grateful for the time, effort, and expertise you have dedicated to your research. We would also like to thank Madame Gray for her continued support and guidance in helping us successfully publish the first issue of the academic journal.

At the heart of our journal is a commitment to fostering intellectual curiosity, critical thinking, and an open-minded and inclusive approach to research and scholarship. We believe that by bringing together a wide range of perspectives and ideas, we can contribute to a more vibrant and impactful academic community, and make a meaningful difference in the world.

We hope that you will find this edition of our journal informative, engaging, and thought-provoking, and would love to have some of your own contributions for future issues of this academic journal.

Thank you and happy reading,
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