

The Poisonous Lethal Assassination of Alexander the Great

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Introduction

Alexander the Great (356 - 323 BCE)

Alexander III of Macedon, or Alexander the Great (356 - 323 BC), came to power as the king of the ancient Greek Macedon kingdom following his father's assassination, who had captured Athens two years earlier. At the time, the court was familiar with both execution and subtle assassinations of enemies!

Alexander's psychology

Alexander's father, Philip, was always away on wars and his beautiful mother, Olympias, was passionate, jealous, arrogant, headstrong, meddlesome and narcissistic in nature. --- At seventeen years old princess Olympias married Phillip as a result of a political union, becoming his third wife. Love was a luxury they could not afford. Once Philip found a serpent lying by Olympias and interpreted it as the deity father of Alexander. Eventually Phillip broke up with Olympias and married Cleopatra (not the famous Cleopatra of Egypt), after which Olympias and Alexander plotted frequently against Philip. Phillip's assassination has been controversially attributed to them as they had a motive and opportunities.

Olympias was committed to achieve a glorious future for her son, and forged stories surrounding Alexander's birth as a hero; he also had the best tutors, including the magnificent philosopher Aristotle. She committed five documented murders and ordered over 100 executions, including those of Alexander's step mothers and half brothers and sisters following Phillip's assassination to guarantee Alexander's succession. Olympias turned out to be a vicious monster that had control of her loyal son. Alexander did not have the chance to separate himself from his unconscious desires for his mother. There would have been a love-hate relationship between the two.

Although it is risky to analyze Alexander's personality after 2200 years, Freudian concepts such as the Oedipus complex [referring to a child's unconscious desire for the opposite-sex parent, according to Sigmund Freud] and related "castration anxiety" [referring to an overwhelming fear of damage to or loss of the penis according to Freud theories] and fear of loss of love can be applied to his personality and childhood. Alexander's childhood seemed to follow a perfect scenario for developing an Oedipus complex.

Alexander's father, Philip, was a genius military strategist and a pragmatic ruler who transformed the Macedonian kingdom out of the imaginable in his reign. He was celebrated at every step of his life because of his frequent and significant victories.



Figure 1. Alexander the Great (356 - 323 BC); Chin up position and face turn to the right

--- Alexander's loyalty to his mother perhaps led to a surreal never-ending competition with his father from his childhood onward. He would have won his mother over at any cost! Alexander's desire to expand the kingdom beyond imagination until he died was probably rooted there.

Once Alexander complained to Philip of having so many children, he responded: "if you have many competitors then prove yourself worthy of your kingdom because of yourself, not me". Apparently, he took his father's advice to heart, going on a mission to become a hero. Olympias was inspiring him, too.¹

--- Have you ever competed with your father? Is he a hero or a dominant figure in your mind? --- Freudian followers are convinced that the Oedipus complex is an essential stage of psychosexual development that should be resolved as we grow up and take control. Failure to tackle the problem may lead to neurosis. Let's put ourselves in Alexander's shoes, it would have been very difficult for him to grow up to be worthy of Phillip, to win his mother and remain loyal. I am not sure whether he was able to fulfill his unconscious desire; however, it is clear from Alexander who was tutored effectively by Aristotle, he was violent in temper, impulsive in nature and megalomaniac, but entirely calculative. He grew up surrounded by prophecies of his success, his parents' dreams, and believed that he was on a deity mission to conquer the world. On the night that he was born, the temple of Diana at Ephesus burned down to ashes. He was enthusiastic and in love with pursuing glory. He was striving for excellence to fulfill the prophecy of being a hero.

There is evidence suggestive of his boasted self-esteem. His pose was exclusively based on descriptions and his sculptures (Figure 1); his chin positioned upwards and face turned to the right to expresses his pride of youth and the adamant will of a hero, if his chin position was not due to cervical deformity.²

Alexander's death

Alexander was a mastermind strategist of a war that captured Asia by crashing the Achaemenid (Persian) Empire and invading India in a series of battles. His kingdom was extended from Europe to Asia and Africa. Alexander unexpectedly died at the age of 32 in Babylon - Persia in 323 BC, where he was going to lay his capital.

Circumstances justify he was assassinated

Alexander was not short of enemies. There were two distinct groups with motive and opportunity to kill him; the Greek-Macedonians and the Persians. --- Alexander and Olympias ruthlessly executed many members of the Royal family and his army was tired of constant warfare away from home pursuing Alexander's ambitions.

He was short-tempered and egotistical which kept his family and military close circle annoyed. In the last years of his life, he adopted some elements of an adversary nation, Persia, adopting its culture, dress and even used a Persian style of tent as a central element of his court³ costing him the sympathies of his Greek-Macedonians elites. While his soldiers killed in fierce fights, he created a superior guard, spear-bearers, from distinguished adversary subjects headed by Oxyathres, Darius' brother.³ He also brutally punished the accused subjects following a few failed attempts against his life. He defeated Darius III, but married his daughter, princess Stateira II.

He was not fond of sex but enjoyed the company of middle aged women such as his mother and Darius' mother Sisygambis, who was allegedly in a theosophical love relationship with him. Reportedly, Sisygambis died upon hearing of Alexander's death! He ignored his beloved wife, the astonishingly beautiful Roxana and got romantically involved in a homosexual relationship with his bodyguard Hephaestion. Alexander was devastated when he died!

From a second angle he was antagonised too. As much as Alexander is celebrated in Greek-Roman literature, history is written by the victorious. He has been portrayed as a negative

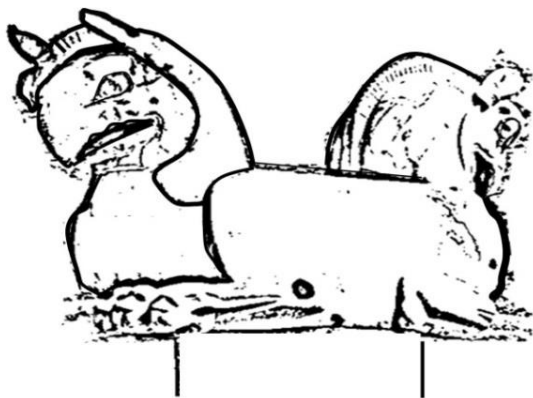


Figure 2. Persepolis.

figure in ancient Persian (Zoroastrian) literature, in which Alexander is titled Gujastak or cursed wizard, who burned the fire temples, sacred texts and the capital Persepolis (Figure 2). He was not short of enemies in his palace!

Was he murdered?

Let's look at the facts. You may make your mind up in whatever way you wish, but the indications for a plotted murder are abundant.

Eventually, the power structure of his court became increasingly ambiguous and secretive; friends and enemies were constantly replacing each other. He gradually developed a grandiose paranoid personality turning everyone into potential enemies.

Facts

- Alexander was young and strong and died at the age of 35
- Recorded symptoms support a rather acute disease that includes poisoning
- His enemies resided in his court from both the Greek-Macedonian and the Persian side of his empire
- The assassination of rulers was common among Greek-Macedonian kings, including his father
- Rumors suggested he was poisoned by his closest allies. His cupbearer, Iollas was accused of poisoning his wine

There is circumstantial evidence, and as a toxicologist I tend to genuinely believe that his death was not due to a natural cause.

Clinical findings of his terminal illness

Although the real cause of his death is a mystery, the last twelve days of his life tell a peculiar story under a medical lens. His clinical findings started with a sudden sharp pain in his stomach during a feast and followed by eleven days of weakness, progressive inability to walk, speak or move, followed by his death. Presence of fever in this period was reported but disputed. He was conscious during the whole twelve days.⁴

It is hard to imagine the agonising psychologic process that he had gone through in his last days; at some stage he should have thought of poisoning or got convinced of an assassination plot. But who was the perpetrator? In previous attempts, he killed all accused instantly. He was not strong enough; however, to slaughter suspects this time. He should have been suspected of the crime by someone from his inner circle, and perhaps so close that he could not bring it up! Perpetrators could have been from different nations, all of whom had plenty of legitimate as well as illegitimate reasons.

The symptoms were intensifying and physical and emotional pain was on the rise. I cannot presume at what point he realised that he would die, when he could do nothing.

--- *Oh Misery; A forgotten captive, A trapped pray whose hunter moved on!*

Hazin Lahiji (1692 -1766)

A bitter truth for him as well as whoever was loyal to him. Some were scared of the fact that he might survive and massacre everyone, some scared of his death and the anger and revenge of the next king. It was eleven long days of uncertainties, prayers, mediations and anxiety. The place should have smelled of death, dark and cold. Let's not go there even in our nightmares!

Non-toxicological reasons

Various attempts have been made to speculate Alexander's death, and these vague symptoms are open to interpretation for all of us. Apparently this ambiguity is not just for us; scientists have also speculated a wide range of diseases that are totally different in nature, including malaria, typhoid fever, parasitic or viral West Nile illness.^{5 4 6}

Toxicological reasons

A poisoning or overdose leading to a stomach ulcer or rupture would eventually cause death in a few days! The course of Alexander's clinical finding supports this theory the most. In his last days he was administered mediations by Greek, Persian and Egyptian physicians, presenting further opportunity to poison him.

In my view as a toxicologist, a perfect plot to his assassination would have been to start with lower doses and continue with higher doses to avoid suspicious.

Alcohol (Ethanol)

Alexander was a heavy drinker. Sbarounis has hypothesised that he died as a result of acute pancreatitis secondary to heavy alcohol consumption.^{2 7} It could also have been the result of a perforated stomach, an esophageal ulcer, or complication of acute alcoholic excess.^{8 9 10}

Alcohol (Methanol)

Nowadays, ethanol production is regulated and toxicologically safe to consume. During Alexander's time, wine could have been produced unsafely that leading to methanol production in addition to ethanol. Methanol is a highly lethal poison; one tea spoon of methanol can kill a child. Secondary fermentation that happens during storage is an important factor increasing the concentration of methanol.

Methanol poisoning leads to gastrointestinal and central nervous system complications that can cause drowsiness and paralysis; this would perfectly explain the course of his death. Methanol poisoning is not a rapid killer, and slays the victim in the duration of a few days!

Toxicologically unsafe produced alcohol that contains ethanol adulterated with methanol is still a major cause of accidental lethal overdose across the globe but is much more common in the Middle East, where industrial alcohol production and use are religiously and legally banned. A few of my colleagues and I described the symptoms of methanol poisoning comparing outbreaks in Christian majority countries of Estonia and Norway with Muslim majority countries of Iran and Tunisia (see Risk factors related to poor outcome after methanol poisoning. *Clin Toxicol (Phila)*. 2012 Nov;50(9):823-31).^{11 12}

Poisonous plant *Veratrum album*

Schep et al., proposed an alternative theory according to which a poisonous plant, *Veratrum album* (Figure 3), which was recognised at the time, was to blame.⁴ There are merits to this theory. However, I am not convinced.



Figure 3. Poisonous plant *Veratrum album*

Natural hair removal (depilatory) agents

For millennia, naturally occurring depilatory agents were in use in the near- and Middle East. They were also known to be highly lethal. Even today, suicidal attempts with Nooreh, a combination of calcium oxide (CaO) and orpiment (Arsenic sulphide; As₂S₃) happen in that part of the world, and poets have even written about it. It used to be the element of choice for suicide in deprived populations and prisoners. Based on my own experience, severely exposed patients usually die within 4 to 6 days.

Consuming these corrosive agents harm the throat, esophagus and stomach, causing severe pain similar to what happened to Alexander. If these patients eat food or drink water, a burning pain in their throat occurs. They are recommended not to eat or eventually they stop eating due to pain. If a rupture happens, fever will follow due to infection. At that stage, during Alexander's time, the fate of the patient would have been sealed.

The patient remains conscious until the last minute of life. It seems to me deliberate poisoning of Alexander with a combination of calcium oxide and orpiment explains his death the best.

Symptoms of this poisoning that presumably should have consumed mixed into Alexander's alcohol or food start soon after consumption. Hair removal chemical mixture contains arsenic as well, which can explain the rest of the symptoms.

Arsenic poisoning

Attributing Alexander's death to arsenic poisoning has been discussed before.⁴ Death due to poisoning, with whatever agent that is considered, straggles behind twelve day late occurrence of his death. The long process lies not only in the nature of the poison but also in how it was ingested. Madam Tufana's death recipe with Arsenic in the 17th century recommended three increasing doses to avoid suspicion; a fact that Alexander's calculative court residents would have been familiar with!

The impact of poisoning on Alexander's legacy

As much as he was adventurous in his life and death, his funeral and burial were even more surprising. His body was prepared and embalmed in Babylon and transferred toward Macedonia, when his corpse was hijacked, and eventually placed in a glass sarcophagus in Alexandria, Egypt. His body was on view for 550 years before it disappeared again. In his glass coffin, his body outlived all his rivals and enemies that were defeated, killed or died of natural causes one by one. Alexander's sculptures are on display in major museums in the 21st century, and even right now we are enjoying discussing his fate. I suppose that there is no similar Emperor whose body remained in glass for display for over five centuries into the modern era, despite the fact that that part of the world has gone through such major cultural changes. There are weakly supported rumors that an early Christian church was built over his last place of rest, where the Mosque of the Nebi Daniel is located in modern era in Alexandria. The truth, however, has remained a mystery even to this day! ⁵ In my view, he is alive no matter where his bones are. He changed the world, didn't he? He does not need a mausoleum, as he is alive in the minds of all of us. Alexander the Great is still a decisive figure and while an icon of power, pride and glory in the Western World, he remains a cursed wizard in the Persian collective memory.

If he earned being worthy of reigning as his father wished, and he achieved all these success in just 13 years, let's imagine what he would have been capable of doing if he had not been killed so young. He would have invaded perhaps Arabia, Central and South Africa, China and Siberia?! What if he had reached the sea shores everywhere? For an ambitious person like him, it would have been time to overcome the oceans, I suppose. In that case America would have been discovered by the West 1700 years earlier.

Let's visualise that Christianity reached North and South America much earlier, tobacco was introduced to us centuries in advance and the human population had found the space to grow two millennia ago. I dare to go further, our civilisation - our lives today would have been much more advanced. It's a pity that he died soon before he conquered the world! It is not certain whether we lost Alexander to a vicious poisoner in a cruel frame up of his allies, but it is certain that his poisoning, if there was one, and death changed the course of history very dramatically.

References

1. Thomas KR. A psychoanalytic study of Alexander the Great. *Psychoanal Rev* 1995;82(6):859-901.
2. Lascaratos J, Damanakis A. Ocular torticollis: a new explanation for the abnormal head-posture of Alexander the Great. *Lancet* 1996;347(9000):521-3.
3. Collins AW, Andrew WC. The Persian Royal Tent and Ceremonial of Alexander the Great. *Classical quarterly*;67(1):71-76.
4. Schep LJ, Slaughter RJ, Vale JA, et al. Was the death of Alexander the Great due to poisoning? Was it *Veratrum album*? *Clin Toxicol (Phila)* 2014;52(1):72-7.

5. Mouloupoulos SD. A mysterious death. *N Engl J Med* 1998;339(17):1248; author reply 49.
6. Cunha BA. The death of Alexander the Great: malaria or typhoid fever? *Infect Dis Clin North Am* 2004;18(1):53-63.
7. Breimer LH. Alexander the Great may have died of acute pancreatitis. *BMJ* 1998;316(7149):1983.
8. Cirocco WC. Alexander the Great may have died of postemetic esophageal perforation (Boerhaave's syndrome). *J Clin Gastroenterol* 1998;26(1):93-4.
9. Singh Ranger G. Alexander the Great may have died from a perforated peptic ulcer. *J Clin Gastroenterol* 1999;28(3):279-80.
10. Battersby C. What killed Alexander the Great? *ANZ J Surg* 2007;77(1-2):85-7.
11. Paasma R, Hovda KE, Hassanian-Moghaddam H, et al. Risk factors related to poor outcome after methanol poisoning and the relation between outcome and antidotes--a multicenter study. *Clin Toxicol (Phila)* 2012;50(9):823-31.
12. Paasma R, Hovda KE, Hassanian-Moghaddam H, et al. Response to the letter "Risk assessment of methanol poisoning in outbreaks not applicable to isolated cases". *Clin Toxicol (Phila)* 2013;51(2):120.