

Amar Annus Builds a Case Based on an Assumption

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Introduction

Mr. Annus's (2025) article, *The Fraternal Birth Order Effect in the Royal House of Nineveh*, proposes that the fraternal birth order effect (FBOE) shaped the gender identity or sexual orientation of Assurbanipal (669–631 BC), the last great king of the Neo-Assyrian Empire. This is argued to be due to his position as the fourth son of Ešarra-hammat. Annus combines this with classical Greek accounts depicting Assurbanipal as Sardanapalus, an effeminate and bisexual ruler, and suggests a hereditary autoimmune condition (systemic lupus erythematosus, SLE) from his father, Esarhaddon, further influenced his identity. While Annus's interdisciplinary approach is ambitious, it relies on statistically contested FBOE datasets, inadequately engages with biased Greek sources, and overlooks primary Assyrian historiography, such as royal inscriptions and court records, which contradict his claims. This paper refutes Annus's hypothesis by examining the flaws in FBOE data, critiquing his use of Greek sources that stereotyped non-Greeks as inferior, and prioritizing Assyrian cuneiform evidence—particularly Assurbanipal's self-presentation, lifestyle, and relationships—to argue for a historically grounded interpretation of his reign.

The Fraternal Birth Order Effect: Statistical and Methodological Flaws

Annus (2025) writes, "Assurbanipal had three older brothers with the same mother, Ešarra-hammat (Novotny & Singletary 2021). Therefore, his brain development may have been influenced by the fraternal birth order effect (FBOE)."

This hypothesis was originally explored in the 1950s; it was only popularized in the 1990s. However, it is important to understand that most of the studies have been observational in nature. In fact, it is only a theory that has not been proven to date (Blanchard 2019). Annus's FBOE hypothesis and the assumption that Assurbanipal's brain development "may" have been influenced is not proven.

Annus invokes the Fraternal Birth Order Effect (FBOE), claiming that each older brother increases the odds of homosexuality in later-born males by approximately 33 percent, based on maternal immune responses to Y-linked antigens such as NLGN4Y. He cites Blanchard and Bogaert (1996) and Bogaert et al. (2018) to support this theory. However, the historical application of this hypothesis to Assurbanipal is without foundation.

First, the data underpinning the FBOE are unreliable. The Frisch and Hviid (2006) sample, which has been widely used in the literature, is statistically defective and produces implausible sibling

sex ratios for heterosexual males. Removal of this dataset undermines the statistical coherence of the hypothesis itself.

Second, methodological errors plague many of the studies that Annus references. Vilsmeier et al. (2021a) have shown that effect sizes vary significantly across datasets and that common measures such as the older brother odds ratio misadjust for family size, producing inflated results. These distortions are not corrected by Blanchard and Skorska (2022), who rely on similar flawed adjustments.

Third, the female version of the FBOE is unproven. Annus extends the effect to suggest a possible application to women, yet Blanchard and Skorska (2022) and Vilsmeier et al. both report no consistent evidence for such an effect. Ablaza et al. (2022) reported one instance in Dutch population data, but this is an isolated result and has not been replicated. Even Blanchard acknowledges that further female data is required, which invalidates any confident extension of the theory.

The observational studies that the author used for his assumptions in all likelihood suffer from what is known as the **File Drawer Problem** (Balthazart 2017). This is a major source of bias in publications. Many authors focus on the five percent of the studies that have positive findings supporting their views (type I error) and ignore the ninety-five percent that do not. Researchers are less likely to publish studies that do not support their hypotheses, leading to an overly positive outcome that supports their views. In a study published recently by Johannes K. Vilsmeier et al., the authors analyzed the specific association between the number of older brothers and homosexual orientation; it turned out to be small, heterogeneous in magnitude, and not specific to men. They also concluded that existing research evidence seems to be exaggerated by small-study effects, debunking the entire concept (Vilsmeier J., et al. 2023).

Annus applies newly accepted concepts of mental ailments, such as **gender euphoria**, to a population that lived thousands of years ago. That is a flaw in and of itself, because we are not dealing with organic ailments that we can identify either physically or through documentation. Furthermore, in connection to Annus regarding Esarhaddon's autoimmune disease being a reason that affected Assurbanipal's mental health, this is a weak point. While the signs and symptoms that Esarhaddon suffered from may resemble Systemic Lupus Erythematosus (SLE), they are by no means confirmed. It is yet another assumption that no physician would agree with. Diagnosis of such a disease requires not only suggestive signs and symptoms but also confirmatory blood tests, tissue biopsies, imaging, etc.

It would be interesting to witness the reaction of the millions of families living in Asia and Africa who typically have five, six, and even more children, and suggest to them that every fourth, fifth, and subsequent child in their families is influenced by the FBOE or is homosexual.

Additionally, Annus failed to address important research results that show:

- a) Overwhelming majority, more than ninety percent, of 4th-born men are heterosexuals (Michael B. et al 2016).
- b) Absolute risk remains low even for later-born sons. The fraternal birth order effect (FBOE) is a statistical association where each additional older brother increases the *risk* of homosexuality in later-born males—but that risk remains relatively small in absolute terms.
- c) Overwhelming majority, or many to be more accurate, of gay-men are first born. The naturally occurring odds of a male child (with no older brothers) being homosexual are estimated to be 2%. The odds are increased to 4.6% with three older brothers. (Currin J. et al. 2015).

Annus's Use of Biased Greek Sources

Annus (2025) relies on Greek sources, particularly Ctesias (via Diodorus Siculus, *Library of History*, Book 2), to support his claim that Assurbanipal was effeminate and bisexual, suggesting these accounts align with FBOE (pp. 1719–1720). He cites Frahm (2003) on the “two Sardanapalli”—one heroic, one decadent—and connects a hedonistic inscription to Assurbanipal's Prism B (p. 1720). While acknowledging that such depictions were “exploited by his political opponents” (p. 1720), Annus fails to critically analyze the biases inherent in Greek historiography, which stereotyped non-Greeks as inferior to serve cultural agendas.

Greek authors, writing centuries after Assyria's fall (612 BC), crafted narratives to elevate Greek identity. Herodotus (*Histories*, Book 1) conflates Assyria with “Syria” and portrays Eastern rulers as despotic and lavish, reflecting Greek biases rather than historical accuracy (Kuhrt 1995). Ctesias, a 5th-century BC Greek physician, depicts Sardanapalus as an indulgent, effeminate ruler living a “woman's life,” to entertain Greek audiences and reinforce their cultural superiority (Rollinger 2017). Berossus, a 3rd-century BC Babylonian priest, biases his *Babyloniaka* by praising Assyrian kings who benefited Babylon while criticizing others, and includes dubious tales to align with Seleucid agendas (Burstein 1978). Annus's suggestion that Ctesias's account “may correctly represent some historical facts” (p. 1719) overlooks these biases, accepting Greek stereotypes as evidence without questioning their reliability. His citation of Prism B's hedonistic passage is misleading—it reflects divine encouragement from Ištar, a standard trope in Assyrian propaganda, not Assurbanipal's lifestyle (Frahm 2017; Novotny & Jeffers 2018). These Greek stereotypes stand in direct contrast to Assurbanipal's cuneiform records, which emphasize his martial prowess, singular marriage, and strategic diplomacy, as evidenced in prisms, reliefs, and court correspondence detailed below. Annus's failure to prioritize these primary sources over biased Greek accounts further weakens his argument.

This issue is not only relevant in ancient times but also persists today, as the gap between Near Eastern and Hellenic scholars remains wide. Those attempting to bridge this gap are often left unsupported, perhaps because some Hellenic scholars prefer to avoid acknowledging Near Eastern influences on Greek civilization (Raaflaub 2000).

Assyrian Historiography: A Stronger Framework

Assyrian historiography, rooted in cuneiform sources, provides a more reliable lens for understanding Assurbanipal's image. His royal inscriptions emphasize his role as a warrior-king, hunter, and devotee of Ashur, projecting hegemonic masculinity to legitimize his rule (Novotny & Jeffers 2018). Prism inscriptions detail his military campaigns (e.g., against Elam) and scholarly achievements, such as the Nineveh library, contradicting Greek stereotypes of effeminacy (Novotny 2014). Court records reveal succession practices where younger sons like Assurbanipal were groomed for kingship, explaining tensions with Šamaš-šumu-ukīn without invoking FBOE (Radner 2010). Greek misinterpretations of practices like eunuch roles, seen as "unmanly," further account for distorted perceptions (Rollinger 2017).

The historical fact remains that there is no primary Assyrian evidence linking birth order to gender identity, orientation, or personality traits. Cuneiform inscriptions, royal annals, and palace reliefs present Assurbanipal as a masculine, disciplined ruler and scholar, in keeping with the established ideals of Neo-Assyrian kingship. There is no mention of psychological or sexual characteristics tied to his sibling order.

Assurbanipal's Self-Presentation in Cuneiform Records

A closer examination of Assurbanipal's cuneiform inscriptions and court records further undermines Annus's claims, revealing a deliberate self-presentation as a masculine warrior-king and no evidence of gender dysphoria or bisexuality. Assurbanipal's Prism A describes him as "the king, the mighty, the heroic," detailing his conquest of Elam with divine support from Ashur and Ištar (Novotny & Jeffers 2018, Prism A, i 1–10; Fales 2001). Similarly, Prism F recounts his campaign against Teumman of Elam, portraying him as a relentless warrior who "crushed the enemy" (Novotny & Jeffers 2018, Prism F, iii 1–30). These inscriptions, inscribed on clay prisms from Nineveh, project a masculine ideal central to Assyrian kingship, directly contradicting Ctesias's depiction of an effeminate Sardanapalus (Annus 2025, p. 1719).

Assurbanipal's lion-hunting exploits, celebrated in both inscriptions and reliefs, further reinforce his masculine identity. The Large Hunting Text describes him slaying lions "with my own hand," a ritual act symbolizing royal power and physical prowess (Novotny 2014, Text 11; Weissert 1997). Lion-hunt reliefs from Nineveh (British Museum, BM 124874–124886) depict Assurbanipal spearing lions, with detailed iconography emphasizing his strength and dominance (Albenda 1976). In another article, Albenda interprets the libation ritual performed after the hunt as glorifying the divine power for the successful hunt and reaffirming the divine role in the act (Albenda 1972). These visual and textual records, designed for public display, leave no room for the effeminate or bisexual traits Annus infers from Greek sources.

His lifestyle, as documented in cuneiform, reflects discipline and scholarly dedication, not hedonism. Prism B highlights his creation of the Nineveh library, claiming he "learned the wisdom of Ea" and mastered scribal arts (Novotny & Jeffers 2018, Prism B, v 1–20). This intellectual rigor, paired with administrative duties, contrasts sharply with Annus's suggestion of a "luxurious lifestyle" (2025, p. 1719). The *Dialogue between Assurbanipal and*

Nabû (Livingstone 1989, no. 13), cited by Annus, refers to his upbringing under Ištar's care, a standard religious trope, not evidence of feminization (Annus 2025, p. 1719).

Cuneiform records confirm Assurbanipal's marriage to Libbāli-šarrat, documented in court texts and depicted in the banquet relief (British Museum, BM 124920; Ambos 2002). No evidence exists of other wives or concubines, undermining Annus's implication of sexual promiscuity or bisexuality (2025, p. 1719). The banquet relief, showing Assurbanipal dining with Libbāli-šarrat, reflects royal decorum, not decadence (Albenda 1976).

Assurbanipal's relationship with his brother Šamaš-šumu-ukīn, central to Annus's narrative of political tension, is detailed in the *Annals of Assurbanipal*. Prism A describes Šamaš-šumu-ukīn's rebellion (652–648 BC) as driven by "disloyalty" and ambition to seize Assyria, not resentment over Assurbanipal's supposed effeminacy (Novotny & Jeffers 2018, Prism A, vi 70–vii 10). Letters from the State Archives show Assurbanipal's diplomatic efforts to maintain control over Babylon, framing his brother as a rebellious vassal (Parpola 1993, no. 280). Esarhaddon's Succession Treaty (Parpola & Watanabe 1988, no. 6) confirms Assurbanipal's designation as crown prince over his older brother, reflecting strategic succession practices, not gender-based conflicts (Radner 2010). Annus's claim that Šamaš-šumu-ukīn exploited Assurbanipal's "woman-like nature" (2025, p. 1720) lacks cuneiform support.

Assurbanipal's Interactions with Enemies and Allies

Assurbanipal's interactions with enemies and allies further contradict Annus's narrative. Prism F portrays enemies like Teumman as "rebellious foes" punished by divine will, with no indication that Assurbanipal's gender or orientation caused resentment (Novotny & Jeffers 2018, Prism F, iii 1–30). Letters to allies, such as those to Babylonian governors, demonstrate strategic diplomacy to maintain loyalty (Parpola 1993, no. 185). The promotion of eunuchs, cited by Annus as evidence of personal affinity (2025, p. 1721), is better explained as an administrative strategy to ensure loyalty, as documented in land grants (Whiting & Kataja 1995). These records show a politically astute king, not a figure weakened by perceived effeminacy.

Annus's Methodological Bias

Annus's (2025) preference for modern psychological models over Assyrian historiography reveals a methodological bias. By prioritizing FBOE and SLE, he imposes contemporary frameworks on ancient data without critical evaluation. His use of Greek sources lacks contextualisation of their propagandistic intent, while ignoring the richness of primary Assyrian cuneiform records. This selective evidence use undermines the reliability of his conclusions.

Annus's Argument is Completely Speculative

Annus (2025) builds his entire argument based on assumptions. As Annus is surely aware of that the term "May" is a modal verb. "May" means "is possible" and not "is necessary" or it is "mandated to happen". May is about "possible" and "not definite events". Annus paper is littered with the clause of possibility, which is not verified to be factual. He states:

- a) “Šamaš-šuma-ukīn, **may have** used this narrative about the woman-like nature of his brother in his search for allies.”
- b) “Therefore, his brain development **may have** been influenced by the fraternal birth order effect (FBOE).”
- c) “Assurbanipal **may have** been gender dysphoric, ...”
- d) “Assurbanipal **may have** had different sides to his personality.”
- e) “... all sources witnessing to his private life **may have** been purposely effaced.”
- f) “These tensions between Assurbanipal and people surrounding him **may have** been caused by his particular behaviors related to gender dysphoria.”
- g) “The heritable condition of androgen deficiency **may be** assumed as a symptom common to both Esarhaddon’s illness of SLE and Assurbanipal’s gender dysphoria.”
- h) “Because of his SLE, Esarhaddon **may have** been vulnerable to psychotic episodes as well, ...”
- i) “... research has begun to investigate how the effects of fraternal birth order **may influence** personality dimensions, ...”

Conclusion

In conclusion, Annus’s hypothesis about Assurbanipal’s gender identity and sexual orientation is based on contested FBOE data, unreliable Greek stereotypes, and neglect of robust Assyrian primary sources. Assyrian inscriptions, reliefs, and court records consistently present Assurbanipal as a masculine warrior-king and scholar, engaged in complex political and military activities, with no evidence supporting gender dysphoria or bisexuality linked to birth order.

The speculative nature of Annus’s argument, reliance on flawed statistics, and disregard for the primary Assyrian historical record weaken his thesis. Future scholarship should prioritize primary sources and remain cautious when applying modern psychological theories to ancient historical figures.

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On the File Drawer Problem (Publication Bias), see below:

<http://web.ma.utexas.edu/users/mks/statmistakes/filedrawer.html>