# The Endurance of Colonial Power: A Chemical and Statistical analysis of Egyptian and Nubian ceramics in Nubia

Reese Gover | University of California Santa Barbara | reesegover.bsky.social | reesegover@ucsb.edu

This study seeks to understand the impact of Egyptian colonial power on Nubian ceramic traditions by looking at ceramics across three Middle Nile sites: Askut (occupied 2050-332BCE), Tombos (1550-332BCE), and Hannek (2050-1550BCE). These three sites were chosen as they each experienced different levels of colonial control. Askut experienced two shifts to colonial control (2050-1650BCE and 1550-1050BCE) and Tombos one (1550-1050BCE). Hannek's settlement is not known to have coincided with Egyptian imperial occupation, therefore providing a valuable control group. Using the Instrumental Neutron Activation Analysis (INAA) and count data from Carrano, Ferguson, Girty, and Smith (2008), a comparison shows a shift in ceramic traditions across sites and time periods related to colonial influence.



Figure 1: Map of sites of interest
Courtesy of Dr. Stuart Tyson Smith

To look at how colonial periods impacted the amount of Nubian and Egyptian style ceramics, a histogram of the proportion of each style across 4 time periods (2050-1650BCE, 1650-1550BCE, 1550-1050BCE, and 750-332BCE) for Askut and Tombos was employed. The spikes and drops during colonial periods in the histogram shows that Nubian ceramic traditions, decoration style and manufacturing techniques, never disappeared, they just changed in frequency. The proportion of Egyptian ceramics persists across periods; drops in the histogram suggest that there is a lasting impact on Nubian ceramic traditions as a result of regional Egyptian colonial occupation.
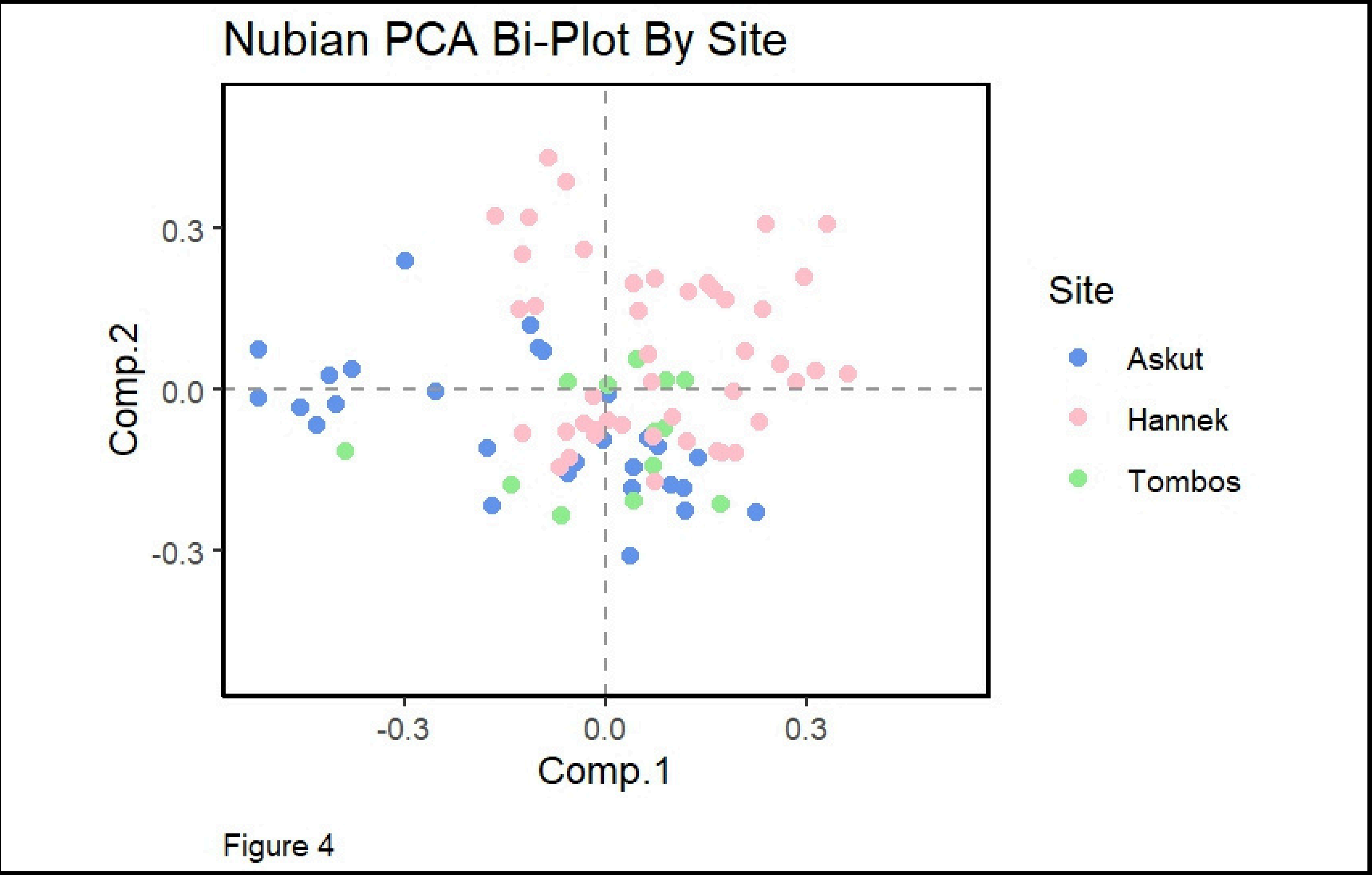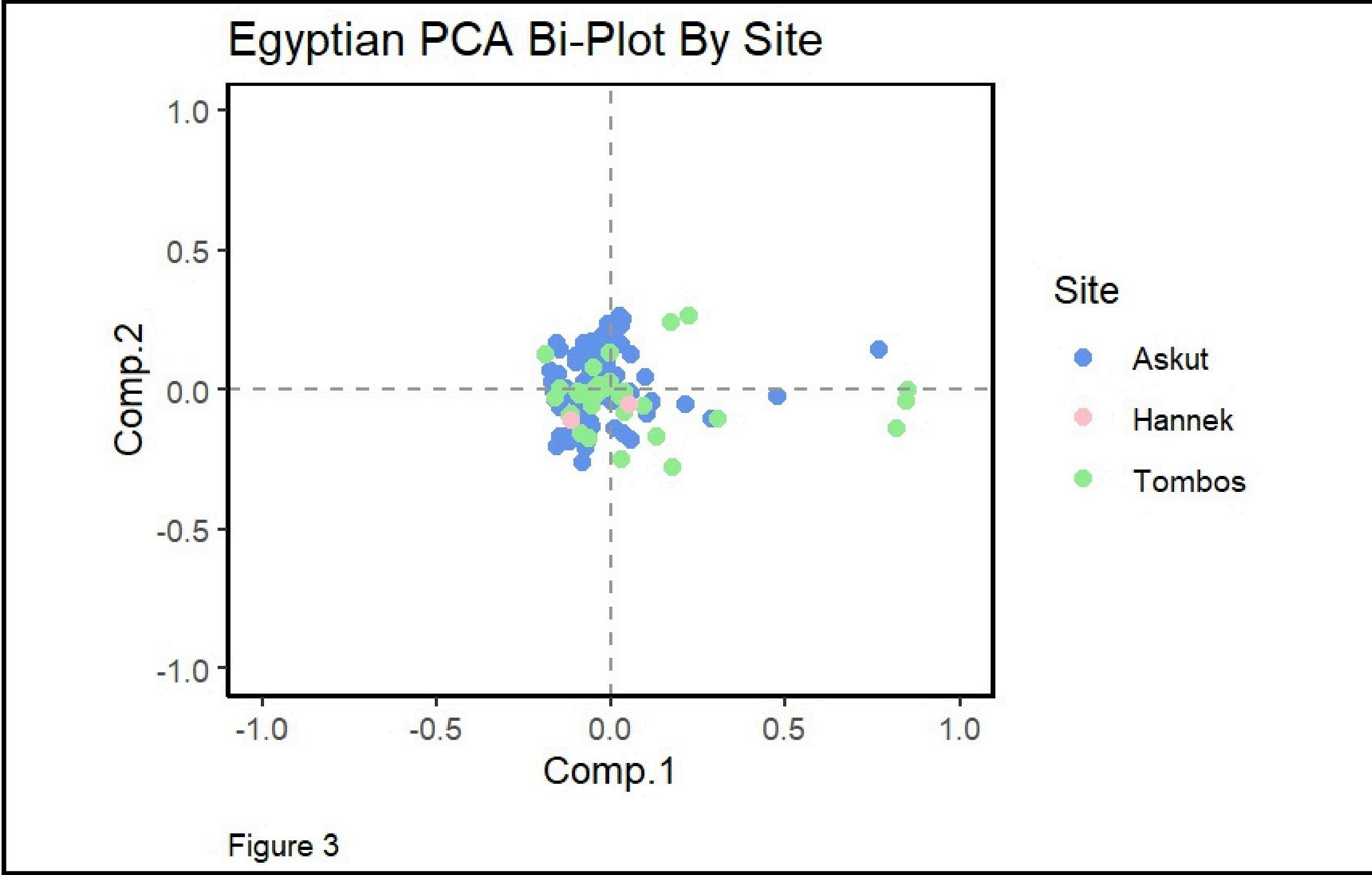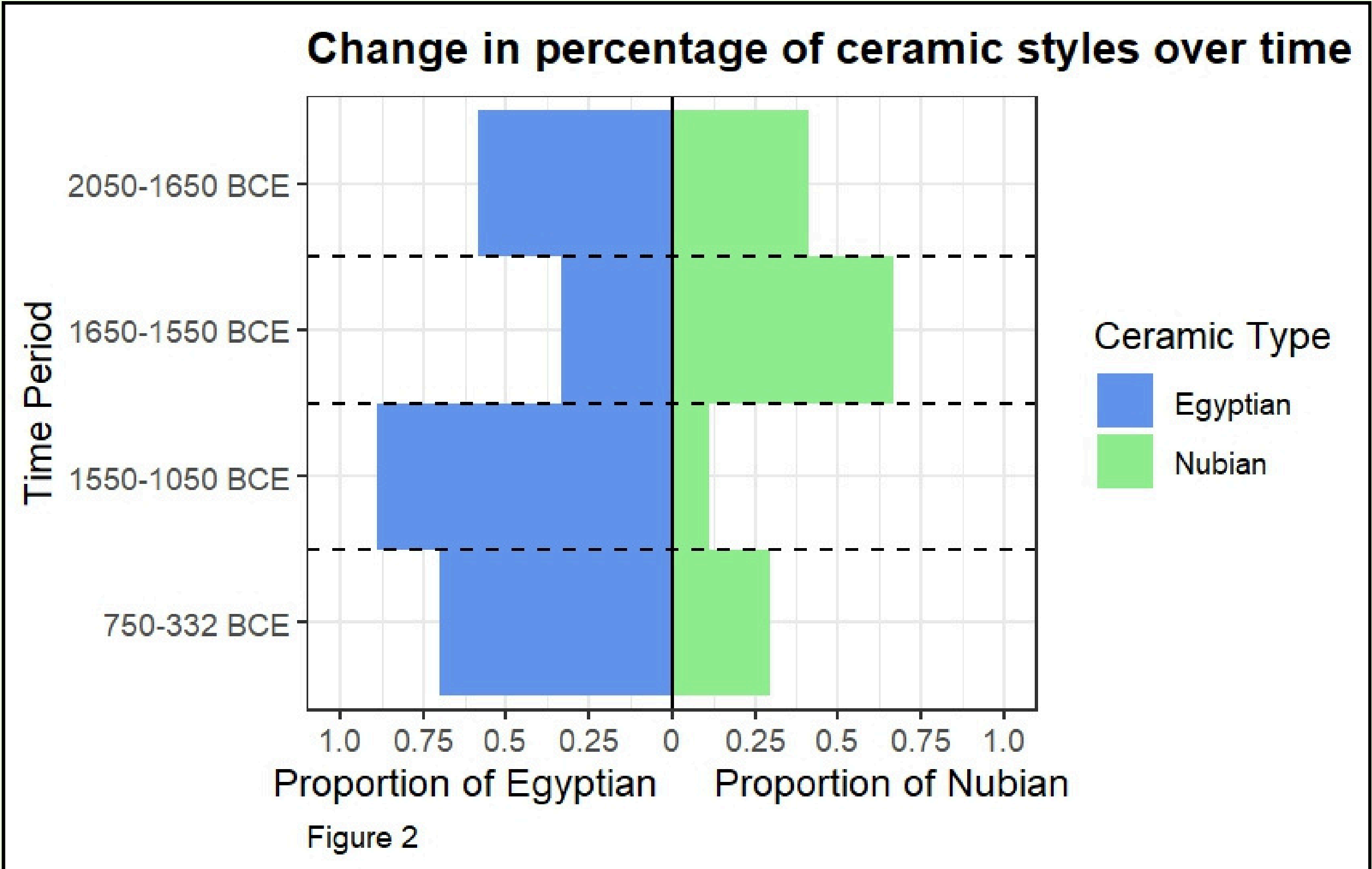


Since the composition of nile silt is relatively uniform, any visible differences in composition are likely due to ceramic traditions. Looking at the INAA data of these ceramics, we can see changes in traditions across sites. The Egyptian style ceramics have a very uniform composition with a few significant outliers. The principle component analysis (PCA) conducted has already filtered out marl making these outliers Nile Silt. With how drastic of outliers they are, this suggests either the importation of nile silt into Nubia or that these ceramics were manufactured drastically differently from the others. The Nubian style ceramics are not as uniform. There is a very clear divide between Hannek and Askut ceramics with one area of overlap, which includes nearly all of the Tombos samples. This suggests that there was one persisting Nubian ceramic tradition across all sites, but more colonial influence created different ceramic traditions.

### Table 1

| Site | Expected Frequency: Nubian style | Expected frequency: Egyptian style | Chi-Square values |
|---|---|---|---|
| 2050-1650 BCE | 10.367150 | 18.632850 | Chi-Square: 44.632 |
| 1650-1550 BCE | 21.449275 | 38.550725 | df = 4 |
| 1550-1050 BCE | 21.806763 | 39.193237 | P-value: < 4.741e-9 |
| 1295-1050 BCE | 3.574879 | 6.425121 | |
| 750-332 BCE | 16.801932 | 30.198068 | |

### Table 2

| Site | Expected Frequency: Nubian style | Expected frequency: Egyptian style | Chi-Square values |
|---|---|---|---|
| Askut | 47.69378 | 64.30622 | Chi-Square: 72.264 |
| Hannek | 20.44019 | 27.55981 | df = 2 |
| Tombos | 20.86603 | 28.13397 | P-value: < 2.2e-16 |

### Table 3

| Colonial or Independent | Expected Frequency: Nubian style | Expected frequency: Egyptian style | Chi-Square values |
|---|---|---|---|
| Colonial | 35.74879 | 64.25121 | Chi-Square: 19.585 |
| Independent | 38.25121 | 68.74879 | df = 1 |
| | | | P-value: < 9.624e-6 |

Chi-Square analysis supports these conclusions as it shows a higher correlation with site, in other words the number of times colonized, than time period and whether or not it was a colonial period. These results indicate that as more colonial interactions occur, there is a greater impact on the indigenous community. Colonialism has a lasting impact on communities and entanglement that occurs during these times is retained even after the fall of the empire. A preliminary interpretation of these results is that, due to the fact Egyptian soldiers intermarried with Nubian women, the children resulting from these unions were raised in mixed households (Smith 2003). These children retained that culture and passed it on even after independence. As more colonial periods occurred, more mixed individuals were born therefore increasing the proportion of Egyptian style ceramics.

Future directions for this research include: breaking down the Nubian site data into time periods to see compositional shifts across time and comparing the Egyptian outliers to different sources in order to see if they are due to manufacturing techniques or provenance.

References:
Smith, S.T. 2003. *Wretched Kush: Ethnic Identities and Boundaries in Egypt's Nubian Empire.* Routledge
Carrano, J., Ferguson, J., Girty, G., Smith, S.T., Carrano, C. 2008 "A Chemical and Mineralogical Comparison of Nubian and Egyptian Style Ceramics and the Implications for Culture Contact: Preliminary Report."
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