

New Evidence on When Bible Was Written: Ancient Shopping Lists

By ISABEL KERSHNER APRIL 11, 2016 [The New York Times](#)

TEL AVIV — Eliashib, the quartermaster of the remote desert fortress, received his instructions in writing — notes inscribed in ink on pottery asking for provisions to be sent to forces in the ancient kingdom of Judah.

The requests for wine, flour and oil read like mundane, if ancient, shopping lists. But a new analysis of the handwriting suggests that literacy may have been far more widespread than previously known in the Holy Land around 600 B.C., toward the end of the First Temple period. The findings, according to the researchers from Tel Aviv University, could have some bearing on a century-old debate about when the main body of biblical texts was composed.

“To Eliashib: And now, give the Kittiyim 3 baths of wine, and write the name of the day,” read one of the texts, composed in ancient Hebrew using the Aramaic alphabet, and apparently referring to a Greek mercenary unit in the area.

Another said: “And a full homer of wine, bring tomorrow; don’t be late. And if there is vinegar, give it to them.”

The new study, [published on Monday](#) in the Proceedings of the National Academy of Sciences, combined archaeology, Jewish history and applied mathematics, and involved computerized image processing and the development of an algorithm to distinguish between the various authors issuing the commands.

Based on a statistical analysis of the results, and taking into account the content of the texts that were chosen for the sample, the researchers concluded that at least six different hands had written the 18 missives at around the same time. Even soldiers in the lower ranks of the Judahite army, it appears, could read and write.

“There is something psychological beyond the statistics,” said Prof. Israel Finkelstein of the Department of Archaeology and Ancient Near Eastern Civilizations at Tel Aviv University, one of the leaders of the project. “There is an understanding of the power of literacy. And they wrote well, with hardly any mistakes.”

The study was based on a trove of about 100 letters inscribed in ink on pieces of pottery, known as ostracons, that were unearthed near the Dead Sea in an excavation of the Arad fort decades ago and dated from about 600 B.C. That was shortly before Nebuchadnezzar’s destruction of Jerusalem and the kingdom of Judah, and the exile of its elite to Babylon — and before many scholars believe the major part of the biblical texts, including the five books of Moses, also known as the Pentateuch, were written down in any cohesive form.

The Arad citadel was small, far-flung and on an active front, close to the border with the rival kingdom of Edom. The fort itself was only about half an acre in size, and probably would have accommodated about 30 soldiers. The wealth of texts found there, recording troop movements, provisions and other

daily activities, were created within a short time, making them a valuable sample for looking at how many different hands wrote them.

“To Eliashib, and now: Issue from the wine 3 baths,” another ostrakon ordered, adding, “And Hananyahu has commanded you to Beersheba with 2 donkeys’ load and you shall wrap up the dough with them.”



Letters inscribed on pottery, known as ostraca, which were unearthed in an excavation of a fort in Arad, Israel, and dated to about 600 B.C., shortly before Nebuchadnezzar's destruction of Jerusalem. Credit Michael Cordonsky/Israel Antiquities Authority

One of the longstanding arguments for why the main body of biblical literature was not written down in anything like its present form until after the destruction and exile of 586 B.C. is that before then there was not enough literacy or enough scribes to support such a huge undertaking.

But if the literacy rates in the Arad fortress were repeated across the kingdom of Judah, which had about 100,000 people, there would have been hundreds of literate people, the Tel Aviv research team suggests.

That could have provided the infrastructure for the composition of biblical works that constitute the basis of Judahite history and theology including early versions of the books of Deuteronomy to II Kings, according to the researchers.

Since the 19th century, scholars have been debating “when was it written?” Professor Finkelstein said. “In real time or after,” he added, referring to the destruction and exile.

In the centuries after the destruction and exile, up until 200 B.C., Professor Finkelstein said, there is almost no archaeological evidence of inscriptions in Hebrew. He said he would have expected digs to reveal seal impressions and everyday writings on pottery, even if more important texts, like biblical ones, had been done on perishable materials such as parchment or papyrus.

Biblical texts written in the centuries after 586 B.C., he suggested, were likely to have been composed in Babylon.

Other scholars cautioned against drawing too many conclusions about when the first major part of the Bible was written based on extrapolations regarding ancient literacy rates.

“There is no such thing as consensus in biblical studies these days,” said Prof. Edward Greenstein of Bar-Ilan University near Tel Aviv. “The process of transmission was much more complicated than scholars used to think.”

The process of composing the Torah, according to Professor Greenstein, appears to have involved layers of rewrites, supplements and revisions. Pointing to recent scholarship on biblical literature, he said that scribes may have recorded texts primarily as a memory aid in a world where they were still being transmitted orally.

“Biblical texts did not have to have been written by many people, or read by many people, to have been written down,” he said, adding that the texts would not have been widely circulated.

To deduce literacy rates, the research team used a method that Barak Sober, from the Department of Applied Mathematics at Tel Aviv University, compared to forensic handwriting analysis adapted to ancient times.

The mathematicians took 16 of the ceramic shards from Arad that were richer in content (two had inscriptions on both sides). Two of the texts resembled a roll call, simply listing people present, and were clearly written in the desert outpost; others may have been composed elsewhere.

Many of the Aramaic letters were unclear, so they could not just be typed into a computer. Instead, the researchers devised a way to reconstruct them. Then the letters from pairs of texts were jumbled up and the algorithm separated them based on handwriting.

If the algorithm split the letters into two clear groups, the texts were counted as having been written by two authors. When the algorithm did not distinguish between the letters and left them together in one group, no position was taken; they may have been written by the same hand, or possibly by two people with similar styles.

A conservative calculation revealed at least four different authors, and six when content was taken into account, such as who was writing to whom.

Another ostrakon was addressed to a man called Nahum. He was instructed to “Go to the house of Eliashib son of Eshiyahu,” to collect a jar of oil, to send it to Ziph “quickly, and seal it with your seal.”