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Sacred Space and Ritual Behaviour in Ancient Mesopotamia: A View from Tello/Girsu

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Abstract: Girsu, the modern site of Tello (southern Iraq), represents one of the earliest known urban centres of the ancient world, along with Uruk, Eridu, and Ur. During the 3rd millennium BCE (3000–2000 BCE), Girsu was revered as the sanctuary of the Sumerian heroic deity Ningirsu, who fought with supernatural beasts and made possible the introduction of irrigation and agriculture in Sumer. While much is known about the gods, their roles, and rituals inside the temples, there is little textual or archaeological evidence concerning the rituals that took place in the large open-air plazas adjacent to the temples. These areas within the sacred precinct were where the general population would gather to participate in festivals and ceremonies to honour the gods. To better understand the ancient cultic realm in southern Mesopotamia, an in-depth investigation of a favissa (ritual pit) discovered within the sacred precinct at Girsu was undertaken. The excavations recovered a large quantity of ceramics and animal remains that had been used for ritual purposes. Through the study of archaeological remains of cultic spaces at Girsu, information on ritual behaviour such as sacrificial animal slaughtering and consumption for the purpose of feasting, the types of libations provided to quench the thirst of the gods, and the distance travelled to take part in the annual festivals to pay homage to the patron god of their sacred city were explored. Analysis of the associated ceramics, cuneiform texts, and zooarchaeological remains (including stable isotope data), allowed a multi-faceted and integrative approach to better understand ceremonial behaviour and ritual feasting in this sacred city. New insights into communal and performative participation in ceremonies, especially by non-elite individuals, are generated. These data increase our knowledge not only of how Girsu's citizens organised their sacred spaces and religious festivals, but also of how they behaved in order to satisfy the ever-demanding needs of their gods.

Keywords: ritual; Tello/Girsu; Mesopotamia; Early Dynastic; feasting; sacrifice; animals; pottery

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1. Introduction

The focus of this study is to determine patterns of ritual behaviour in the 3rd millennium (mill.). city of ancient Girsu (modern-day Tello) via the analyses of both ceramics and zooarchaeological remains recently excavated in the sacred precinct of the Ningirsu temple (Figure 1). The 3rd mill. of Southern Mesopotamia saw the appearance of mature city-states during the Early Dynastic Period (2950-2350 BCE). This was followed by the Akkadian Period (2350-2200 BCE) and the culmination of Nation States through the Ur III Period (2112-2004 BCE) at the end of the millennium (see Supplementary Materials Table S1). The region's ancient textual archives are rich in economic documents that record information on administrative transactions, mercantile activities, the diets of the privileged, and animal exploitation strategies to support the elites and public institutions (temples, palaces). The Early Dynastic Period, in particular, can be summarised as a time of complex irrigation-dominated agro–pastoral economics. It was the zenith of political, social,

and economic developments that began at least 3000 years earlier. The economy during this period was temple-based and the associated ceremonies, rituals, and worship were extensively established and documented in cuneiform (textual) archives.

Explorations at Tello (ancient Girsu) between 1877 and 1933 allowed the discovery of the Sumerian world and its many innovations (such as the walled city, an associated hinterland of villages, new technologies such as bronze manufacturing, textile craftsmanship, monumental art and architecture, and, lastly, the emergence of writing). The decipherment of Sumerian cuneiform tablets in the 19th and 20th centuries allowed for the first time a fuller picture of the Sumerian world of literacy, art, economics, and religion [1,2].

Due to the resumption of excavations at Tello beginning in 2015, it became possible to apply a suite of new scientific techniques to the archaeological record at the site—analyses of animal remains (zooarchaeology), isotope analyses of animal dental remains, refined radiocarbon dating, and ceramic analyses provide new insights into the development of complex societies and the urban revolution of the 3rd mill. New data from excavations at Tello provide the opportunity to investigate larger themes inherent in Sumerian society (such as sacred activities, consumption patterns, and ritual behaviour in the context of festivals and feasting celebrations dedicated to the gods of the Sumerian world).

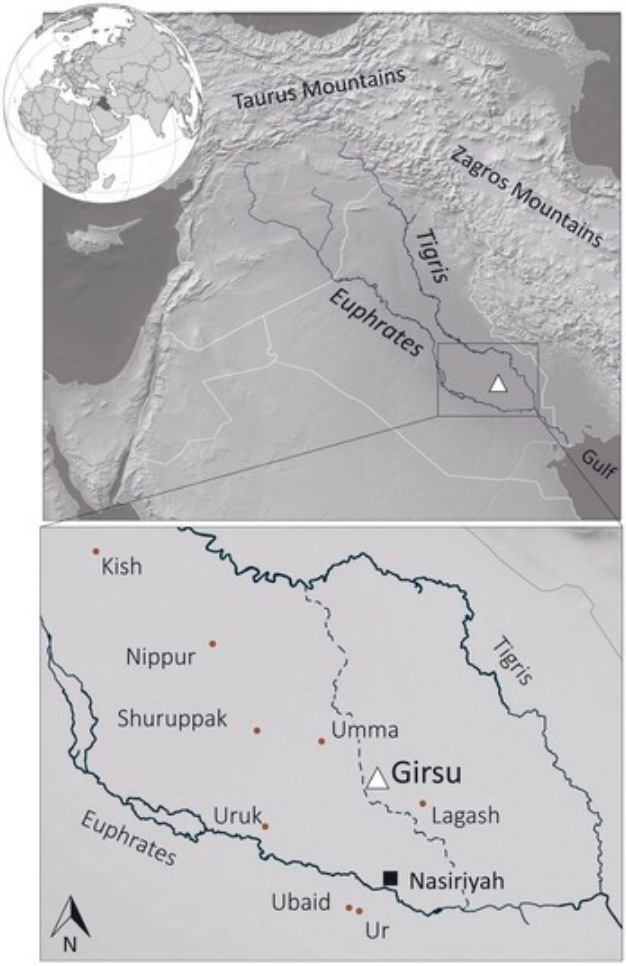

Figure 1. Map of Ancient Mesopotamia with location of Tello/Girsu [3] (© The Girsu Project).

1.1. Ritual Behaviour at Tello/Girsu?

While the region's ancient textual archives are rich in economic documents that record elite diets and animal exploitation and strategies [4], this was also a time of organised religion whereby both the elite and lower stratum of society participated in elaborate festivals dedicated to the patron gods of their cities [5,6]. Textual sources primarily focus on

the elite members of society and their ritual behaviour (i.e., animal feasting and sacrifice) while largely ignoring the larger population in the lower stratum.

Excavations at Girsu (modern Tello) have provided data on the religious activities performed at the ancient site. The city was an urban religious centre where annual religious festivals occurred that saw individuals from across the hinterland travel to the city to participate and pay tribute to the patron gods. At the heart of the ancient sacred precinct, in what the Sumerians called Irikug, meaning Holy City, a large favissa (ritual pit) was found along the Sacred Way to the temple and partially excavated. It was discovered at the location where these ceremonial and ritual activities took place. A third of the favissa was excavated in 2015 and yielded an extraordinarily large number of ceremonial artefacts and animal remains that provide a window into ritual behaviour.

1.2. Tello/Girsu

The ancient city of Girsu is located in modern southern Iraq in the heart of ancient Sumer. It represents one of the earliest known cities in the world, along with other famous early urban centres (such as Uruk, Eridu, and Ur) [7–9]. Once the sacred heart of the Lagash city-state, Girsu was the seat of the god Ningirsu—(a hero of the Sumerians)—who was venerated because he brought the spring rains that supported the irrigation-based agriculture of the land of Sumer. During the height of occupation, this walled city covered an area of approximately 250 hectares. It was a sacred metropolis as it housed the sanctuary of Ningirsu where it is said he fought supernatural beasts to ensure the economy and livelihood of all Sumerians [7,9].

The Sacred Landscape of Girsu

New excavations within the sacred temenos at Girsu have provided important insights into both the spatial organisation of the sacred precinct of Girsu and the rituals related to the great cult of the city-state during the Early Dynastic Period [7–9]. The general layout of the Irikug included the principal temple as well as peripheral temples dedicated to the chief gods of the Girsu pantheon (Figure 2). Each temple stood on high platforms within a large ceremonial square and featured other installations and associated structures necessary for the state's prime religious ceremonies. The religious feasts in honour of Ningirsu were held twice a year and lasted for three or four days. These festivals brought pilgrims from across the city-state to pay homage and participate in the ceremonies and rituals associated with this particular god. The Irkug played an integral role in the festivals and is well attested in cuneiform tablets [5–7,10]. A prescribed itinerary included a procession from the holy precinct of Girsu towards the frontier (Gu'edena), followed by a return to the city-state's religious centre on the last day of the festival. As part of the ceremonial and ritual activities, feasting on stewed animal remains and drinking or pouring libations within the sacred precinct occurred.

The presence of a considerable quantity of animal remains, ceramic cups, bowls, cultic spouted jars, a libation vase, and votive artefacts, was found within the favissa that was located next to burnt floors in the plaza. These remains strongly connect the partially excavated square to the plaza. This is the area where, according to the cuneiform texts, religious festivals took place and where the population of Girsu gathered to feast and honour their gods (see [4–6] for detailed discussions of related texts).

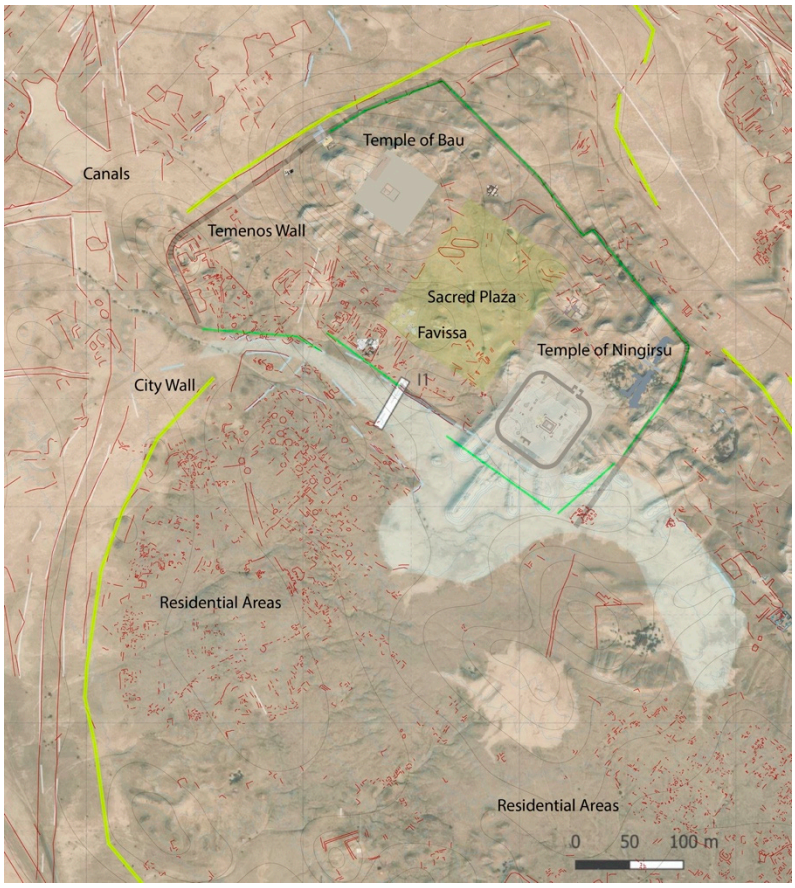

Figure 2. Spatial organisation of the sacred precinct of Girsu with ritual areas for feasting, banqueting, processing, and offering of foods surrounded by residential areas and city wall (source © The Girsu Project).

1.3. Sacred Spaces: The Sacred Precinct and the Favissa

Excavation of Area A (Central Sacred Precinct of Girsu)

In 2015, new archaeological excavations began at Tello after an 82-year break. As part of the new investigations, the extent of the sacred square/plaza was identified through combining the old archaeological evidence from earlier excavations, textual sources, and remote sensing techniques. An overall site map was developed that resulted in the recognition that modern ravines were the principal streets, located near the locations of the temples to Bau and Ningirsu. It appears that the entire holy quarter of the city was organized with streets radiating out from the two temples. It was at the ends of these streets that the gates of the Irikug (Holy City) were located. During the Early Dynastic Period, the Irikug included the Eninnu (temple of Ningirsu), other cultic edifices, and storage facilities, and was enclosed by a temenos wall [9]. The so-called Porte du Diable [1,7] was also situated within the Irikug. Due to the Irikug's central position, and the fact that it had not been previously excavated, new archaeological investigations were undertaken in this area to understand the structural organisation of the sacred precinct of Girsu and its main temples (Figure 2). The new excavations provided a wealth of material that increases our knowledge of the function and nature of activities in this ceremonial location.

The new excavations revealed well-preserved archaeological features directly below the surface, dating to the Early Dynastic Period on the basis of the ceramic typo-chronology for the region (see below). As the later phases corresponding to Lagash II and Ur III periods had been completely eroded, a few fragments of Gudea of Lagash's inscribed bricks survived and were recovered from tertiary contexts (topsoil).

Excavation of the plaza (Area A) exposed a large surface dated to the Early Dynastic (presargonic) level. This area, exposed over 500 square metres, included a large open space composed of an earthen floor. The deposit included hundreds of identifiable Early Dynastic III ceremonial feasting pottery vessels (Figure 3). The entire surface of Area A was part of a sophisticated drainage system for the area that included at least two circular terracotta drains (about 30 m apart composed of multiple interlocked ceramic cylinders that were 60 cm in diameter) for the evacuation of rainwater and other detritus. Additionally, the plaza possessed eight quadrangular and oval-shaped structures filled with ash composed of fired bricks or terracotta that were set on their edges. In all likelihood, these structures were used as ancient lanterns or floor lamps to light the area during ceremonies and other events [9].

Figure 3. Photograph showing a general view of the sacred plaza facing northwest, with a group of ritual ceramics in foreground and the sacred precinct in background. Note: the yellow flags in the background denote the locations of unexcavated favissae (source [11] © The Girsu Project. Photo by Sébastien Rey).

Across the plaza's adobe floor, isolated areas featuring relatively thick ashy layers were found in isolated areas. It is suggested that these are the locations of large remnant ritual fires. This explanation is supported by the presence of a favissa (ritual pit), that was partially excavated to establish the stratigraphy of the ceremonial square. The trench revealed a long sequence of superimposed earthen floors and burnt layers cut through the 2.50 m-deep favissa (Figure 4). The favissa was densely packed with almost 300 ceremonial (but broken) ceramic vessels, including beakers, bowls, and jugs, probably used in religious feasts during festivals and thereafter ritually discarded [9]. In addition, a large quantity of animal bones was present in the favissa, also assumed to be the remnants of a banquet or feast.

Due to the nature of the pit, with several layers of continuous debris followed directly by burnt layers, it appears that the favissa was used at one event (festival or feast) and was filled to the surface layer. Only then was the pit sealed in a final burning episode and another location was used. It is not yet clear whether all of the multiple favissae found within the plaza were used contemporaneously or consecutively. To better understand the behaviour behind the activities related to this favissa and the larger picture of ritual customs, an in-depth investigation of both the pottery types and zooarchaeological remains was conducted.

Figure 4. Detailed image of the top of the favissa with in situ bones and beer mugs (source © The Girsu Project. Photo by Sébastien Rey).

2. The Data: Materials and Methods

In order to better understand the behaviour behind the sacred rituals at Girsu, pottery and animal bones recovered from within the favissa were investigated to determine function and consumption patterns. It is important to note at the outset that this study examined remains excavated in 2015 from roughly one third of the favissa and should serve as an excellent example of the entirety of the remains from within the 3-m diameter pit. Similar to the high fragmentation of the animal remains, only pottery sherds were recovered from the favissa, and whole specimens were not uncovered in either case. However, the wealth of information gained from these artefacts allowed a robust preliminary analysis.

2.1. The Pottery Remains at Tello/Girsu

The Early Dynastic III Period is divided, based on historical sources, between an earlier phase A and a later phase B (see Supplementary Materials Table S1). This subdivision into two phases is supported by and reflected in the pottery assemblage. New data to support this interpretation have been provided by the ceramic corpus of al-Hiba [12], and are particularly clear for area A. The pottery typology of al-Hiba, strictly anchored with the stratigraphic sequence, seems to support the interpretation of an Early Dynastic III Period that developed the pottery repertoire of the previous Early Dynastic I phase. However, the complete definition of the features of the Early Dynastic IIIA and IIIB pottery repertoires is still far from being definitively clarified (see Di Michele [4]). What we can detect, based on the data published from the Al-Hiba site, is a presence of a progressive standardisation of ceramic production that reached its peak in the Early Dynastic IIIB Period.

2.1.1. Early Dynastic and beyond: Pottery Types at Tello/Girsu

For clarification of dates, it is important to note at the outset that the favissa ceramics date to the same chronological period as the plaza (see also a detailed discussion of the phases of the Early Dynastic Period in the reassessment of the legacy data [4]). Furthermore, in addition to the pottery sherds found in the favissa, extending the analysis to the contexts related to it, we can see how the same mass-produced shapes are equally widely documented, such as conical beakers (Figure 5 (1–2)), conical bowls (Figure 5 (4–5)), and funnels (Figure 5 (3)).

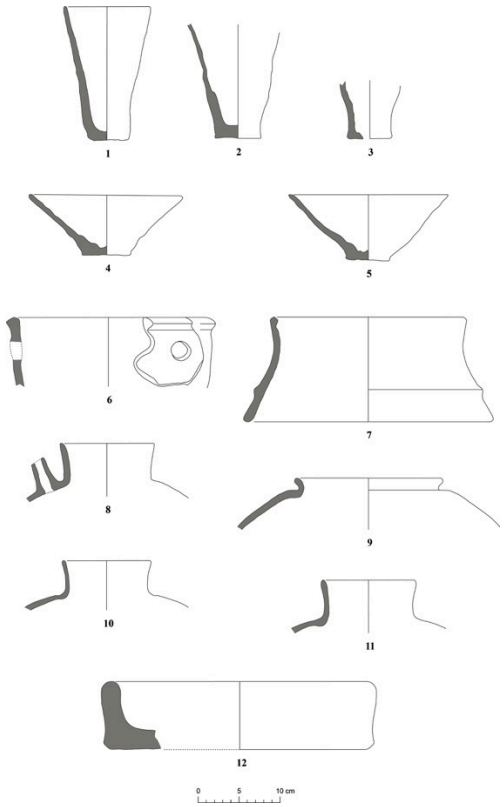

Figure 5. General typology of diagnostic pottery found at Tello/Girsu.

Among the other shapes found in the ceremonial area there are short plain-rim jars (Figure 5 (9)) and a few pottery shapes not attested in the favissa. These include a large cylindrical strainer (Figure 5 (6)) with a triangular rim and straight walls with large circular holes. This type of strainer is well documented during Early Dynastic III, it has been found in a funerary context too, where it was part of an assemblage composed of four vessels, the so-called beer set [13]. Other shapes documented sporadically include a hollow stand with a rib on the outer side (Figure 5 (7)) and a coarse tray with straight walls, a flat base, and a rounded thick rim (Figure 5 (12)). This type of coarse tray is attested in the pottery repertoires of central–southern Iraqi sites, and it has been found in contexts dated to the Early Dynastic III and to the Akkadian Periods, such as Abu Salabikh [14], Nippur [13], and Abu Tbeirah [15]. Be that as it may, the most common type of vase amongst the ceramics found in the ceremonial area, after the mass-produced vessels, conical beakers, and conical bowls, is the plain-rim jar (Figure 5 (8, 10–11)) with or without spouts. This type of jar is widespread throughout the Early Dynastic I-III Periods and also continues to be attested in the subsequent periods, although in smaller proportions [13].

Although most of the pottery types described, primarily the mass-produced shapes, have chronological ranges covering the entire Early Dynastic I-III period and in some cases, a few shapes also continue into the Akkadian Period, on the basis of the data presented, we can suggest an Early Dynastic III date. A more precise date range, based on a close comparison of the pottery shapes found in Tello with the ceramic repertoires of the transitional Early Dynastic III/Early Akkadian phase of Nippur [13], Al-Hiba pottery assemblage [12], and building B33 of Tell as-Senkereh [16], appears to suggest the dating of the favissa and the ceremonial area to the Early Dynastic IIIB.

2.1.2. The Favissa Pottery Remains

The total pottery assemblage (n = c 300) of Area A, an open-air ceremonial area, consists of sherds from a favissa and all other related contexts (Table 1). A brief description of the general types follows:

Table 1. Relative percentage frequencies of pottery types found within the excavated area of the A U.S. 22/21 favissa (n = 299). All sums are of pottery sherds inclusive of all identifiable parts: there were no complete vessels.

1	Sum of NISP	% of Total
Conical beaker	250	84%
Conical bowl	28	9%
Large bowl	2	1%
Jar (rimmed)	3	1%
Spouted jar	12	4%
Funnel	4	1%
Grand total	299	100%

Conical beakers: the pottery repertoire from the favissa is mainly composed of conical beakers (n = 250; 84%) (Figure 6 (1–3)). They are all of the same type, with a string-cut flat base and plain rim. The walls are slightly flared, although with slight variations such as rare cases of specimens with almost straight walls. The manufacturing techniques were mixed and included the coiling method and quick finishing with a wheel. These items were rapidly and poorly manufactured with an asymmetrical appearance and irregular walls; the lower parts are much thicker than the upper section near the rim. The specimens collected in the favissa show more or less the same proportions with a capacity between 0.45 and 0.6l. This type of mass-produced beaker has been documented in many sites in southern Iraq, such as Al Hiba [12] (Type HA-1a), Tell Abu Salabikh [14], Tell as-Senkereh [16], and Abu Tbeirah [15]. This type was produced and developed throughout the period from Early Dynastic I to Early Dynastic IIIA-B.

Conical bowls: the second most frequently recurring (n = 28; 9%) pottery shape in the favissa is another type of mass-produced pottery, the conical bowl (Figure 6 (4–5)). This type of bowl featured similar manufacturing techniques to those described above for conical beakers. Conical bowls were widespread, and have been found in numerous Iraqi sites, with their use spanning the entire III millennium [13,17].

Funnels: among the other pottery shapes, there is one that shares the same manufacturing technique with the conical beakers and conical bowls, i.e., funnels (Figure 6 (6)). The funnels found in the favissa (n = 4; 1%) were all of the same type, with a flat holed base and slightly flared walls, and for none of the items has the rim been preserved.

Deep bowls: among the rare deep bowls collected in the favissa, the most common have an outside thickened rim and curved walls (Figure 6 (7)). This type of large bowl is very common on sites in central and southern Iraq such as Al-Hiba [12] (Type HF-9), Abu Salabikh [14], Tell as-Senkereh [16], Nippur [13], and Abu Tbeirah [15]. A single specimen features a hammer rim and a notched rib on the outer walls (Figure 6 (8)) and is similar to an item from the site at al-Hiba [12] (Type HF-8c).

Spouted jars and closed shapes: finally, closed shapes constitute a small group of vessels, among which the presence of spouted jars stands out (representing 12 sherds out of the 17 diagnostic fragments found in total; 4% frequency). A complete profile with rim and spout has been preserved for none of the spouted jars. Among the other closed shapes are a short plain-rim jar with a high ridge decoration of fingernail impressions (Figure 6 (9)), and an upright handled jar (Figure 6 (10)) without a rim. This features a decoration consisting of two parallel rows of fingernail impressions at the base of the neck, and two incised parallel lines with an oblique trend forming a sort of zig-zag, starting from the fingernail decoration and descending to a point close to the protruding applied ridge that marks the junction between the shoulder and the lower body of the vessel. The undecorated upright handle has an approximately rectangular profile and has been inserted into the shoulder of the vase by means of a tang for which a hole was made on the shoulder of the jar.

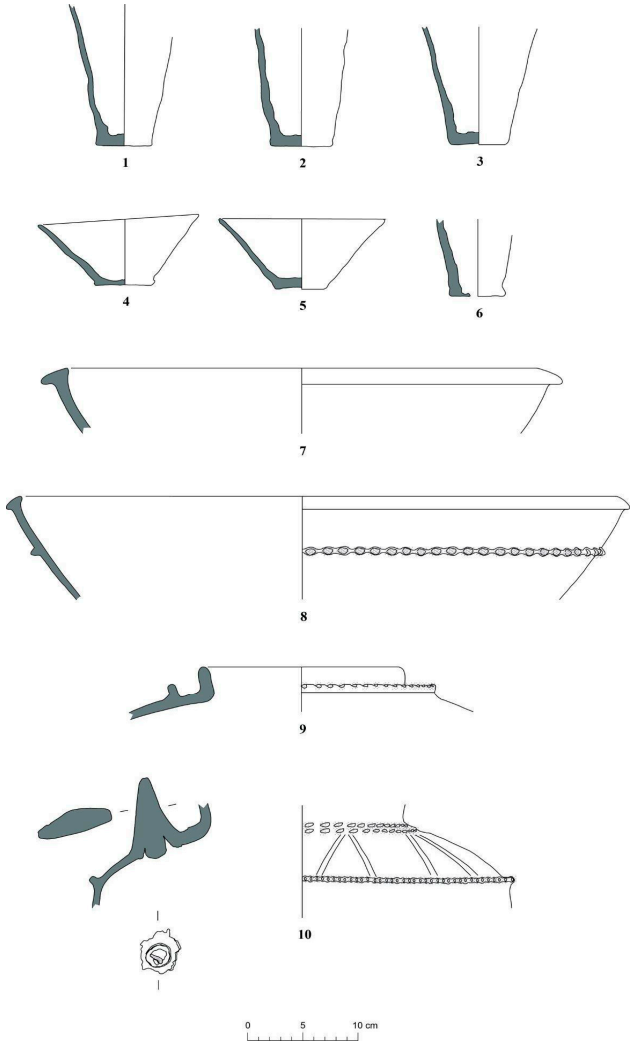

Figure 6. Specific types of diagnostic pottery sherds found within the favissa at Tello/Girsu.

Rim jars: short plain-rim jars are attested over a very long-time span and have been found in contexts dated between Early Dynastic I and the Akkad period [12,13] (Type HK-1). Upright handled jars have been found in many sites in central and south Mesopotamia [12,18] (Type HL-13). Notwithstanding, the closest comparisons are with similar jars found in graves at Abu Salabikh [19] (Graves 52 and 73). The latter specimen shows shoulder decoration very similar to that present on the sherds (n = 3; 1%) found in the favissa at Tello/Girsu (see below).

Just as the pottery contains a wealth of information on the types of vessels found within Area A and can highlight preferences in the use of types, so too can the identification of animals that have been uncovered from the same area. Understanding consumption patterns and preferences for specific species can highlight and discern particular behaviours related both to sacred and mundane activities (see below for discussion on ritual behaviour and pottery fragmentation).

2.2. Animal Remains at Tello/Girsu

Specimens were preliminarily identified and analysed during the 2017 spring campaign to determine diet, species preference, disposal, consumption, and distribution practices of animals and their by-products across the site. A total of 524 specimens from different deposits were identified from several areas (A1, B1-5) that were excavated from 2015 till the end of the campaign. Contexts included suprafloors, fill, pits, courtyards, and rooms within the sacred building complex, as well as a pit used for sacrificial and ritual purposes

(favissa). In general, the species population appears to have been composed of mainly herded animals (cattle, sheep and goat) followed by domestic pig, domestic dog, deer (both large and small), fish, birds, and amphibians in varying degrees of frequency. A preliminary identification and analysis of the specimens from the favissa follows.

The Favissa Animal Remains

A small portion of A1 U.S. 22/21 (the favissa) was excavated in 2015 and yielded a large amount of pottery used for ritual purposes in association with a significant amount of fragmented faunal remains (n = +1000). The animal bones were quite well preserved and showed evidence of butchery due to the slaughtering process involved in preparing animals either for feasting or for sacrifice to the gods.

Dietary preference: while the number of samples identifiable to size, taxon and element assemblage was quantitatively quite small (n = 156) (Figure 7), it was possible to tentatively observe some patterns of species diversity. The standard domestic mammals were present and included domestic herded species sheep (*Ovis aries*), goat (*Capra hircus*), and cattle (*Bos taurus*). The presence of these taxa is not surprising given the pastoral society present in the southern Iraqi landscape for millennia. Additionally, domestic pig (*Sus scrofa* dom.) and dog (*Canis familiaris*) were present in the favissa. Furthermore, there was evidence of cervids (deer), both large (*Dama dama*) and small (*Gazella gazella*) (Figure 7: Table 2). The diversity of taxa is impressive for such a small sample and indicative of the importance of this feature.

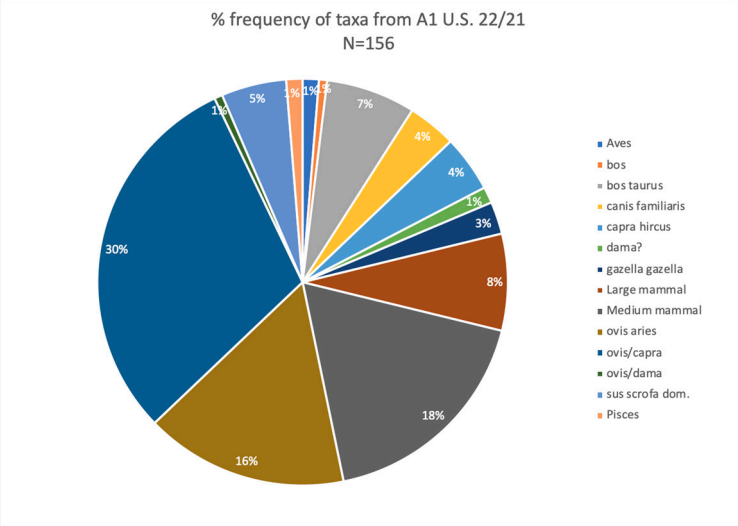

Figure 7. Relative percentage frequencies by size and/or taxon from A1 U.S. 22/21 at Girsu for both wild and domestic species. Miscellaneous unidentifiable fragments were not included in this particular analysis.

Basic identifications of the pottery and animal bones notwithstanding, it is necessary to place these data sets into the larger archaeological context from where they were excavated to fully understand the activities and motives behind the data. Aside from the assumption from the outset that this deposit was ritual in its nature, what do we already know about Early Dynastic ritual behaviour that can support our ideas of ritual activities? The significant lack of comparative artefactual material (less so for pottery) for this type of context within Mesopotamia (and specifically in the south) does somewhat limit a broader understanding of ritual behaviour. Perhaps, then, the following discussion is even more necessary to better understand Early Dynastic Period ceremonial activities.

Table 2. Relative percentage frequencies by identifiable size and/or taxon from A1 U.S. 22/21 at Girsu, for both wild and domestic specimens. Miscellaneous unidentifiable fragments were not included in this particular analysis.

Taxon	Sum of NISP	% of Total
Aves sp.	2	1.28%
Bos sp.	1	0.64%
Bos taurus	11	7.05%
Canis familiaris	6	3.85%
Capra hircus	7	4.49%
Dama dama?	2	1.28%
Gazella gazella	4	2.56%
Large mammal	12	7.69%
Medium mammal	28	17.95%
Ovis aries	25	16.03%
Ovis/Capra	47	30.13%
Ovis/dama	1	0.64%
Sus scrofa dom.	8	5.13%
Pisces sp.	2	1.28%
Grand Total	156	100.00%

3. Ritual Behaviour Results

Can we see evidence for feasting and ritual behaviour? Yes, if we initially investigate the deposit and its associated remains and context. We can assume a ritual context of some sort [20–27] based on the archaeological location and comparative data from other sites [28–30]. However, what does the material coming from the deposit tell us about ritual behaviour and, more specifically, can we distinguish ritual feasting from sacrifice? A closer examination of the materials found within the favissa and other ritual material remains from the site can perhaps help understand the sacred space at Girsu.

3.1. The Rituals at Girsu/Tello: A1 U.S. 22/21 (the Favissa)

Across the plaza's adobe floor, isolated areas featuring relatively thick ashy layers were found. It is suggested that these are the locations of large remnant ritual fires. This explanation is supported by the presence of a favissa (ritual pit), that was partially excavated to establish the stratigraphy of the ceremonial square. The trench revealed a long sequence of superimposed earthen floors and burnt layers cutting through the 2.50 m-deep favissa (Figure 4). The favissa was densely packed with almost 300 ceremonial (but broken) ceramic vessels, including beakers, bowls, and jugs, probably used in religious feasts during festivals and thereafter ritually discarded [9]. In addition, a large quantity of animal bones was present in the favissa, also assumed to be the remnants of a banquet or feast.

The favissa provided data on the inherent ritual behaviour linked to ceremonies performed within the plaza area. Large quantities of fragmented animal bones (see above), the remnants of communal feasts, were found mixed within the deposits filled with broken pottery. These artefacts would have primarily been part of the festivities and ceremonies related to the annual pilgrimage festivals to the Mesopotamian gods, in particular towards the patron god of the city of Girsu, Ningirsu [5,9]. It was common to feast on animals (both wild and domestic) and pour libations just outside the sacred precinct and temple [31]. People would gather for days outside the precinct to pray, celebrate with food and drink, and provide offerings in the names of the gods. At the end of the festival, animal portions and goblets filled with liquid (libations—presumably beer) would be thrown into the sacred pits located in the plaza in front of the temple. Factors including the specific and unique

context of the favissa, coupled with the types of vessels used and discarded, the location at the entrance to the temple, and the animal bones used for consumption suggest that these vessels in fact held liquids for ceremonial activities that can be considered libations, although their use for drinking or just pouring cannot be determined at this point.

Predictably, the sacred open space predominately yielded three types of Early Dynastic III pottery in decreasing approximate percentages: goblets (60%), bowls (20%), spouted jars (10%), along with others (10%). Included in the other category was a large cultic vase 30 cm high used for offerings or libations representative of the late Early Dynastic III Period (or perhaps Early Dynastic IIIB/Early Akkad transitional phase). Hence, the dating of the ceremonial place can tentatively be assigned to the reign of the last Lagash I ruler, Urukagina, at the time of Lugulzagesi and Sargon of Akkad. Not surprisingly, the assemblage of cups, bowls, spouted jars, and terracotta offering recipients are analogous to the ones depicted on many artefacts of Sumerian art, such as the plaque of Ur-Nanshe (see Figure 8) or the relief representing a libation to a goddess.

Figure 8. Terracotta vessels from Area A, Girsu and Ur along with similar vessels found on libation plaques from Girsu (**above**) and Ur (**below**), Early Dynastic III [7].

3.2. Ritual Behaviour in Art

In order to gain a broader understanding of ritual behaviour at Girsu, it is necessary to look to supplementary data in visual art to study ritual consumption patterns [10,32,33]. Only then can the nature of communal feasting and ritual behaviour be appreciated as it was produced in antiquity. It is possible to notice in the banquet scenes the representation of conical beakers or goblets associated with the consumption of drinks [31,34,35]. On the other hand, bowls like conical bowls were sometimes depicted in visual scenes showing the preparatory phase of the banquet or as containers of food depicted on laid tables [34,35]. The spouted jar has a more complex function in visual art; its function as a container of liquids is not in question, but its presence within visual art lends itself to different interpretations [34,35]. The spouted jar may have had different functions, and therefore contain different liquids, as reflected in the archaeological record where it is attested in different sizes that seems to suggest different uses. In figurative art, it appears in banquet scenes [34,35], in particular in scenes representing the preparatory phase of the banquet. In these, the spouted jar is depicted together with the goods that will be consumed during the event. The assemblages of beakers, bowls, spouted jars, and the ceramic offering vase are analogous to those depicted on many Sumerian artefacts.

Among the other truly exceptional artefacts (not only visually, but also in significance) found on the plaza's earthen floor were the following: a votive bronze figurine or amulet of a palmiped (a duck or similar) featuring inlaid eyes of shell, perhaps dedicated to Nanshe,

the goddess associated with water, marshlands, and aquatic birds, and a fragment of an Early Dynastic inscribed calcite vase dedicated to Ningirsu.

3.3. Festivals at Girsu

The importance of the Irikug in the religious festivals of Girsu is well attested in tablets dealing with ritual processions (see Figure 9), providing a wealth of information as background to understanding the participation of citizens from within the surrounding areas of Girsu. For example, religious feasts in honour of Ningirsu, were probably carried out twice a year according to lists of offerings (i.e., in the months of iti ezem še gu7 dNin-girsu and iti ezem munu4 gu7 dNin-girsu, corresponding to the months 1/4 [?] and 9/10 of the Lagash religious calendar), would have brought individuals from the Lagash city-state and neighbouring regions laden with offerings to the sacred city of Girsu for these festivals. According to the administrative documents that recorded the expenses for these offerings of sacrifice, three or four days appears to have been the time frame for the procession and festival [5,36]. As mentioned, there was a prescribed itinerary, with a procession that began and concluded in the holy precinct (Irikug) of Girsu [36]. Daily sacrifices and ritual libations to the tutelary god may have accompanied the entire pilgrimage either in rural chapels throughout the hinterlands or open-field consecrated places, some located at the frontier. However, the main destination of the ritual procession was the border sanctuary of Antasura, the primary nonurban temple of Ningirsu [36].

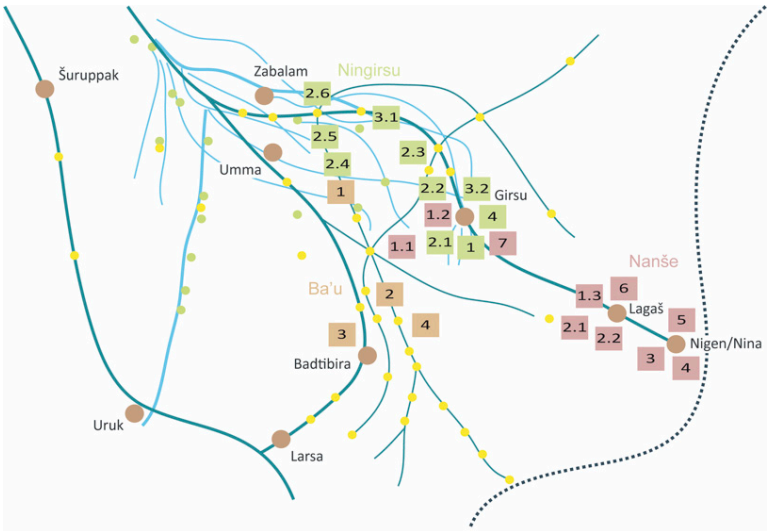

Figure 9. Map of reconstructed Early Dynastic ritual processional routes and lists of offerings for Girsu/Tello and Lagash city-state [7].

Comparable processions near to or within Girsu also included those honouring the goddess Bau. The particular festival and offerings to her lasted four days each in the time of Urukagina, with a non-urban procession led by queen Shasha. These processions moved along Girsu's western border and specifically stopped at smaller sanctuaries and chapels such as the oval of the steppe's canal (Ib-i7-eden-na) located in the neighbouring regions of Bad-Tibira. Other feasts included those honouring the goddess Nanshe, venerated at Nigin (within the Lagash city-state), in ceremonies referred to as 'months of the consumption of barley (or malt) festival of Nanshe' (iti ezem še gu7 dNanše and iti ezem munu4 dNanše).

These particular festivals coincided with months 1/2 and 8/9 of the local calendar and lasted 6 to 8 days. The procession started at Girsu and traversed the countryside towards Lagash where offerings were performed in the Shapada, Ibgal, and Bagara temples. From there, the procession headed to Nigin, the prime locus of the ritual. It is assumed that ceremonial banquets were held here to worship Nanshe, and once completed, the procession returned to Girsu on the last day after a stop at Lagash [36].

The open sacred space of Area A at Girsu with its hundreds of terracotta cups, bowls, and several cultic spouted jars, the large libation vessel, votive artefacts, and burnt floors, in association with the ritual deposits found within the favissa (Figures 10 and 11), serves as the best example of ceremonial behaviour linked to the festival processions honouring the gods at Girsu.

Figure 10. Close-up of pottery and animal bones within the favissa deposits (source © The Girsu Project. Photo by Sébastien Rey).

Figure 11. Image of the excavated portion of the favissa with pottery vessels and animal bones (Source © The Girsu Project. Photo by Sébastien Rey).

3.4. Pottery and Ritual Behaviour

The pottery assemblage from the favissa and the ceremonial area clearly show a connection with the use of liquids in the ritual performance. In fact, in addition to drinking vessels, numerous other forms (such as spouted jars, funnels, and strainers; see below) can be connected with practices related to storing, pouring, and processing liquids.

What is impressive from the analysis of these data from the favissa is the wealth of information provided into the world of the ritual behaviour of the population at a particular

point in time. Gazing upon the orderly heaps of broken ceremonial beer mugs, it is possible to glimpse the repetitive ceremonial actions of the participants from near Girsu and further away, more than 4000 years ago. Based on the similar direction and similar position of the goblets found within the pit, it suggests that individuals might have queued up to throw their ceremonial mugs into the pit. While textual evidence does not attest to the activities of the larger population, mass ritual behaviour is evident within the layers of the favissa and this provides an extraordinary opportunity for us to understand the collective religious activities during this time period. The analysis of the remains also indicates the more mundane or non-ritual activities that took place in order to facilitate the ceremonies, celebrations, and feasting occurrences.

Observing the data related to the quantification of pottery shapes and the manufacturing technologies that distinguish them, it is possible to advance some interpretations of the data analysed. It is apparent that mass-produced pottery had an almost exclusive presence in this type of event. For a point of clarification, the favissa is not suggestive of a regular garbage pit, since a garbage pit would be filled with a greater variety of ceramics, objects, and tools relating to the daily activities of food processing and production and management of domestic resources. Since this is not the case for the contents of the favissa, in addition to its location in the precinct, it is clear that the intention of the favissa was linked to performative rituals related to consumption.

Furthermore, from the point of view of ceramic technology, mass-produced pottery played an exclusive role in the offering and consumption of food and liquids, while non-mass-produced shapes, such as jars, were connected to the conservation, transport, and pouring of consumed stuff during the ceremonial performance. Finally, if we rely on the quantification of the types of vases found in the favissa, the very clear predominance of conical beakers seems to suggest that in this ceremonial performance the consumption of liquids played a role that, if not central, at least involved the participatory audience to some extent.

Ritual Vessels and Their Use

Regarding the quantification of the pottery shapes described for the favissa (Figure 11), of which 299 diagnostic sherds were collected, there was a clear prevalence of conical beakers, representing 84%. Conical bowls, representing the second most attested pottery shape, comprised about 9%. Evaluating all the mass-produced shapes, including the funnels together with the conical beakers and conical bowls, they represent 94% of the recorded diagnostic sherds. Among the other shapes, large bowls contributed only 1% and jars represented 5% of the pottery repertoire (see types in Figure 12, Table 1). A typical action related to the discarding of pottery in a favissa was associated with the intentional breakage of the vessel in order that it could no longer be used. This pattern of pottery fragmentation can be seen clearly in the Girsu favissa, since there were no intact vessels within the entire analysed assemblage.

3.5. Animals and Ritual Behaviour

Indicators of ritual behaviour can be evident when examining animal bones [37–39]. Evidence of elements, side or species preference, or burning patterns on ends of elements taken on their own do not necessarily indicate ritual behaviour. However, when each of these analyses are observed as a package of information, they can point to patterns of either ceremonial or ritual behaviours and potentially inform about feasting and/or sacrificial activities [38,40,41].

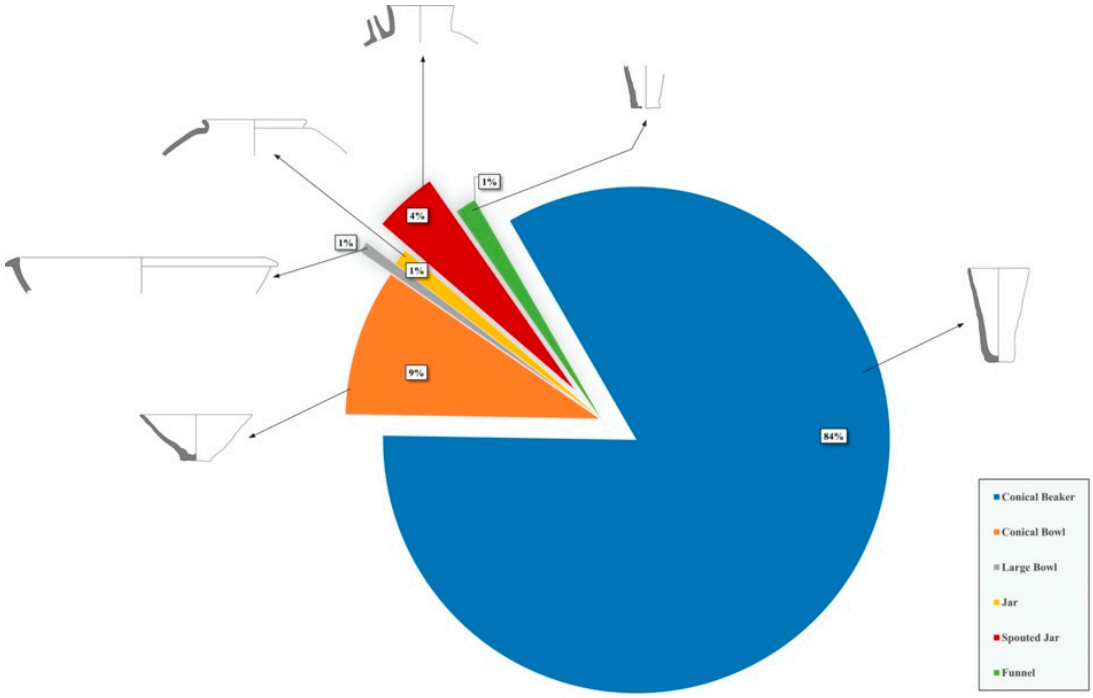

Figure 12. Relative percentage frequencies of pottery types and associated illustrations from within the excavated area of the A U.S. 22/21 favissa (n = 299), see Table 2 for NISP and percentage frequency of each type.

3.5.1. Ritual Preference

Based on these data, it is evident that the taxa preferred for sacrifice (and/or for feasting upon) for ritual and ceremonial purposes were caprines (sheep and goats), with over 50% frequency within the total assemblage. Of caprines identified to a specific species, sheep (*Ovis aries*) were preferred over goats by a ratio of 3:1. Based on cuneiform texts, caprines and fish species were probably used as food for mortals as well as offerings to the gods [8]. This profile fits nicely with the ancient Sumerian texts that state a preference for sacrificing sheep to the gods [42,43]. While there are currently no excavated domestic areas within Girsu for comparative purposes, it is possible to further understand dietary and social behaviour based on the remains deposited in the favissa based on body portion preferences.

An impressive diversity of species was surprisingly found within the favissa—everything from domestic herded animals such as sheep, goats, and cattle, to wild animals such as gazelle and large deer. Additionally, there were domestic dog and pig and also bird and fish remains (Table 2). This is a wide variety of species to find within a ritual deposit and is clearly representative of the status of the inhabitants present at the ceremonies or festivals. Just like in everyday life, people in antiquity feasted on whatever animals they could afford to consume. This deposit represents a full spectrum of consumer preferences from elite to non-elite people, as would be expected for communal feasting with a mixed group of participants. It is also interesting that there was a very high percentage of limb bones (hind and front) present in the deposit. These data indicate they were feasting primarily on the highly desired meat-heavy elements (humerus, femur) present in mammalian specimens. Eating choice elements, regardless of class, at a feast to the gods is the optimal scenario regardless whether you can afford a sheep limb or a canine limb. Not surprisingly, the thorax (ribs/vertebrae) of fish skeletons survived (Figure 13, Table 3) [44–46]. The presence of fish remains, albeit in small numbers, (potentially due to their fragile elements and taphonomic issues that lead to their disappearance in soils) is nonetheless significant. The presence of *Pisces* sp. in the favissa highlights the continued behaviour of feasting on (and sacrificing) fish in the 3rd mill. (and earlier) at ancient Girsu; see [47] for multiple case studies involving fish in feasts.

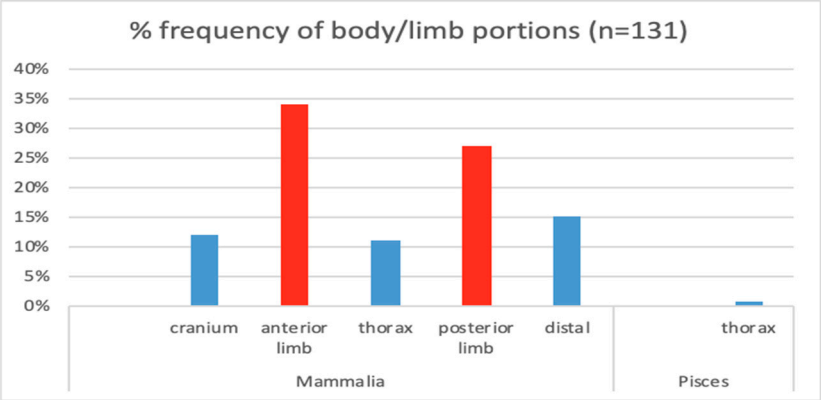

Figure 13. Relative percentage frequency of identifiable Pisces thorax and mammalian anterior vs. posterior limb bones (n = 131). When the mammalian body portions are categorized into the front and hind limbs there appears to be a slight preference for front versus hind limb. Note this pattern is evident as ritual behaviour especially when limbs (the best part of meat due to their high quantity of meat) are chosen for feasts or sacrifices to the gods.

Table 3. Relative percentage frequency of identifiable Pisces thorax and mammalian anterior vs. posterior limb bones (n = 131).

Family	Body Portion	% of NISP	Sum of NISP
Mammalia			
	cranium	12%	16
	anterior limb	34%	44
	thorax	11%	15
	posterior limb	27%	35
	distal	15%	20
Pisces			
	thorax	1%	1
Total		100%	131

3.5.2. Festivals, Feasting, and Animal Sacrifice

What do the texts say about ritual behaviour at Girsu? In relation to knowing where the sacred plaza was and the processional way towards the temple, we have texts describing the delivery and processing of animals for sacrifice and food for the temple. Ancient Girsu has yielded tens of thousands of texts that describe all aspects of life in the sacred city, from religious to economic. Within these can also be found state-sponsored descriptions of animals chosen for sacrifice to the pantheon of Sumerian gods. We have clear evidence from cuneiform texts from Girsu of the slaughter and sacrificing of animals (Figure 14) [48]. While it is important to distinguish between feasting on and sacrificing animals (see SI for this information), these behaviours still fall under the umbrella of ritual behaviour. As mentioned and illustrated above (Figure 7 and Table 1), over 50% of the animals identified from the favissa were from caprines (sheep and goat). Hence, it is clear that the population was feasting and depositing these animals as part of their ritual activities.

The Sumerians recognised the importance of the fisherman in supplying food for the urban population as well as for ritual purposes related to sacrifices to the gods. Evidence from early French excavations at Tello clearly shows fish as both a mainstay in the diet of the city dwellers and also as offerings to the gods [1]. Recent excavations have also revealed fish remains from the kitchens that prepared food for sacrifice at the temple [50]. Textual documentation (i.e., CDLI P220954) describes the fish earmarked for the temple and refers to the types of food that were used not only for annual festivals but also for

daily offerings within the temple walls (Figure 15) [48,49]. It also attests to each family having their own fish merchant to provide them both with food for the family and also their portion of temple offering [47,51]. So, we can again glimpse the behaviour relating to both the sacred and the mundane aspects of sacrifice and feasting at ancient Girsu.

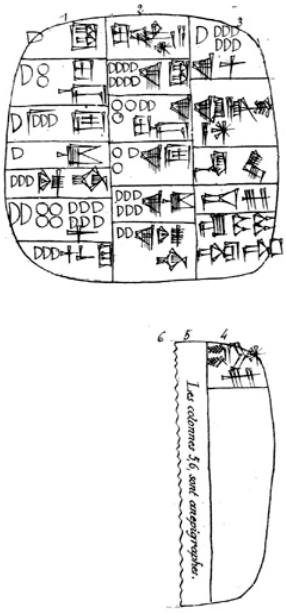

Figure 14. Line art of a cuneiform clay tablet from ancient Girsu, southern Iraq (ca. 2400 BCE) recording the inspection of goats and sheep as well as the hides of the animals that had been slaughtered [48,49]; DP, 248 CDIL P220898 image from CDLI contributors. 2024. Cuneiform Digital Library Initiative. https://cdli.mpiwg-berlin.mpg.de/cdli-tablet/569 (accessed on 27 June 2024).

In addition to the processing of fish (and meat, of course) there are details of what types of foods were used for offerings to the gods—texts from Girsu/Tello Early Dynastic III Period make specific mention of the more mundane aspects of food with only fish as the meat source. However, do we know whether perhaps they used these regular items for daily rituals and reserved the herded animals for the annual sacrifice? After all, sacrificing a whole animal would have been quite the sacrifice (no pun intended—or pun intended), in reality for many people of lower status. We know of the obligation to perform these acts, and that annual offerings were expected from everyone regardless of the hardship or how far one had to travel to reach the desired destination. Perhaps, however, if the state was providing not only the animals for feasting and sacrifice but also the vessels to hold ritual libations, there would be little or no financial hardship to participate in these festivals.

As a final yet important note on determining differences between feasting and sacrifice, the animal assemblages yielded further information on ritual behaviour and consumption patterns. There is no evidence of burning on any of the animal bones from the favissa, while a very high percentage (<80) of the remains present evidence of boiling. These data suggest that they were in fact boiling the remains in large stews (perhaps communal or nuclear families). These characteristics are generally not associated with sacrificial behaviour, in that the bones and meat would be placed directly on coals or a fire and evidence of post-mortem burning would be present on the bones. Additionally, sacrifices tend to favour one side and element of an animal—there is no particular preference pattern in the Girsu faunal assemblage. The favissa remains do present as traditional communal feasting on animals. The population appears to have feasted and drank in the ceremonial plaza on festival days; they were not roasting animal parts and offering them to the gods.

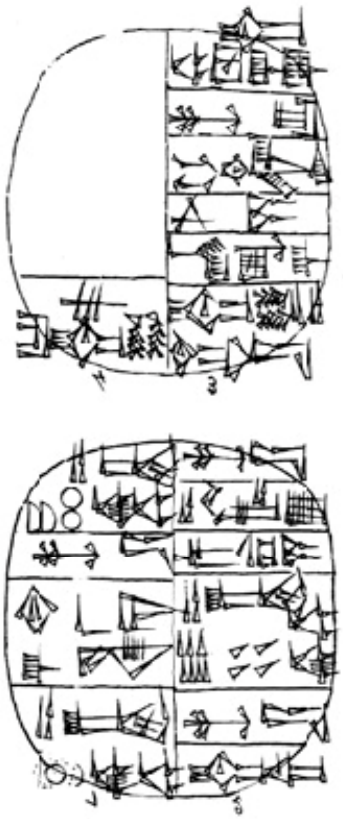

Figure 15. "'House of the cook" responsible for the delivery of fish to different organisations associated with the temple". Line art of a cuneiform tablet [49] from Tello/Girsu Early Dynastic III Period describing the role of each household in securing a man to provide them with fish to be sent to the temple as sacrifice [48]. DP 304 CDLI P220954 image from https://cdli.mpiwg-berlin.mpg.de/ (accessed on 27 June 2024).

3.5.3. Festivals and Mobility

It is known that pilgrims came to Girsu to celebrate festivals. It is also known that the local population within the city walls of Girsu and beyond with its associated hinterland settlements celebrated minor festivals throughout the year at the sacred precinct and specifically within the plaza. What is not known is how the animal sacrifices looked when these celebrations took place. Preliminary studies on some of the animals from the favissa have highlighted some behaviour patterns associated with sacrificial behaviour. These data also have raised further questions, such as did pilgrims from within the Lagash city-state bring their animals with them for sacrifice? Did the local resident population use the entire animal for sacrifice? What does the favissa represent: a local or regional celebration? Further studies into mobility can help to determine the mobility patterns of both humans and animals.

$^{87}Sr/^{86}Sr$

Four specimens of sheep/goat teeth were chosen to conduct radiogenic strontium studies to determine the mobility of animals from the favissa (Table 4). GT 2 and GT 6 were from the same individual, consisting of the lower M2 and M3. Samples for study were limited due to the fragmented nature of the samples.

Insights into the mobility of the animals from the favissa allowed the reconstruction of behaviour related to ritual activities. It was originally presumed that the animals specifically from the favissa would come from the neighbouring city-states as part of the journey to Girsu to celebrate the annual festivals to the god Ningirsu. In fact, this was not necessarily the case, based on $^{87}Sr/^{86}Sr$ values (Table 5; Figure 16). The radiogenic strontium baseline was provided by the avg of animals ± std deviation, using a combination of molluscs,

shells, and pig teeth data from archaeological deposits from the archaeological sites of Ur, Abu Salabikh, and Girsu [52–55]. When the isotope ratios were compared, these data provided information on the local or non-local footprint of the specific animal examined. The $^{87}Sr/^{86}Sr$ values from three animals (sheep and goat) suggested a local presence at Tello/Girsu. These data represent a preliminary result in a larger study investigating both the oxygen/carbon and strontium of domestic herded animals from Girsu in both ritual and non-ritual contexts. While the sample presented here is small, it nonetheless presents a local signature. The alluvial plain of southern Mesopotamia, while thought to be homogenous in its geological substrate, is varied [52], and other regions within this landscape (i.e., Ur and Abu Salabikh) present differences in the animals that lived in these cities and further afield [52,53,56,57].

Table 4. Individual *Ovis/Capra* specimens analysed for $^{87}Sr/^{86}Sr$ from A U.S. 22/1 (the favissa). * GT2 and GT6 are from the same individual.

Sample	Site	Bone #	Tooth #/Side	Context
GT-2	A U.S. 22/21	82	RLM3	A2 TG 15 M5 22
GT-6	A U.S. 22/21	83	LLM2	A2 TG 15 M5 22
GT-7 *	A U.S. 22/21	82	RLM2	A2 TG 15 M5 22
GT-8	A U.S. 22/21	77	RLM1	A2 TG 15 M5 22

Table 5. Girsu/Tello teeth samples with associated $^{87}Sr/^{86}Sr$ values based on shells, molluscs, and *Sus scrofa* dom. archaeological samples from Early Dynastic Period contexts.

Sample ID	Samples	REJ	Strontium
GT8	2	7	0.708030
	4	13	0.708050
	6	21	0.708069
GT7	2	10	0.708029
	4	18	0.708040
	6	26	0.708038
GT2	2	8	0.708045
	4	13	0.708058
	6	19	0.708030
GT6	2	7	0.708050
	4	13	0.708057
Baseline	Site		Strontium
	ABS		0.707979
	ABS		0.708013
	ABS		0.70803
	ABS		0.707892
	ABS		0.707928
	UR		0.708067
	UR		0.707999
	UR		0.707986
	UR		0.707978

Table 5. *Cont.*

Sample ID	Samples	REJ	Strontium
	UR		0.707963
	UR		0.707938
	UR		0.708186
AVG			0.70799658
STD DEV			8×10^3
Min			0.70784499
Max			0.70814818

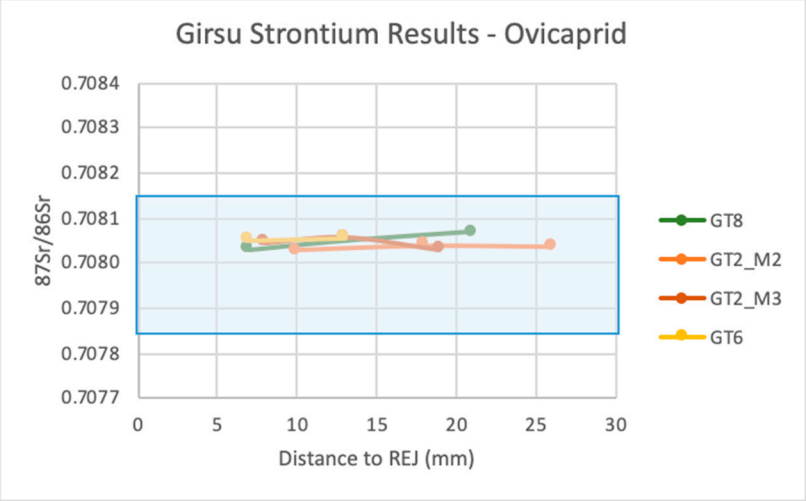

Figure 16. 87Sr/86Sr values for Girsu samples of *Ovis*/*Capra*. Note that the blue shading denotes a local signature. Baseline data from shell and mollusc specimens from Ur and Abu Salabikh [52].

While the standard narratives suggest that pilgrims from the capitals of the city-states Lagash (modern Al-Hiba) and Nina (Tell Zurghul), two cities located approximately 10 km away, brought their animals with them to participate and be sacrificed (see Figure 1), results from the above studies indicate that this scenario is not completely plausible. Data from GT-8 are borderline and might present as coming from slightly further afield within the alluvial plain; however, further studies are needed to confirm this observation. As such, results from a much larger sample size are necessary to suggest with more certainly the mobility patterns of the animals found with the favissa. It is, however, possible to suggest at least two possible scenarios of behaviour in regard to the activities related to the favissa:

1. The favissa represents the remains of a local festival where animals from Girsu were sacrificed by the local population living within the city, or nearby;
2. The favissa represents the remains of a regional/national festival celebration, where the animals were not brought with the pilgrims but rather purchased (or provided by the state) upon arrival at Girsu.

Supplementary data will certainly enhance our understanding of the activities that surrounded the ceremonies and might provide an additional scenario that includes the animals being brought from cities within and beyond the Lagash city-state.

4. Discussion and Conclusions

Sacred Space and Ritual Behaviour at Tello/Girsu: Discussion and Final Observations

In sum, the exploration of Area A has provided important insights into both the spatial organisation of the sacred precinct of Girsu and the rituals related to the central great cult of the city-state in the Early Dynastic Period. The general layout of the Irikug comprised

peripheral temples, probably standing on high terraces or platforms, dedicated to the chief gods of the Lagash pantheon. A similar layout can be observed at the oval complex of the tutelary deity Ningirsu, arranged around a large ceremonial square (or temenos) below and featuring all the installations and other structures necessary for the state's prime religious ceremonies.

The sacred space uncovered at Tello/Girsu is an exceptional deposit for the study of ritual behaviour. The performing of rituals (drinking, eating) and discarding of the remains of this behaviour is evident in the data from the favissa. The in-depth analysis of the pottery shapes found in the favissa and their recurrence in visual art suggests not only the function of the vessels, but also the behaviour behind their deposition in a sacred pit. The vessels were predominantly turned upside down when thrown into the pit, suggestive of a mass ceremonial or individual ritual activity. Additionally, the examination of animal body portions and the species diversity within the assemblage provide a complementary picture to the activities performed during the annual festivals of pilgrims and monthly ceremonies of perhaps nuclear families. While there was a clear preference for caprines for feasting, even with a high diversity of species, the lack of conspicuous or high-status/exotic animals is significant—in other words, this food represents the remains from the general population, and not only one stratum of society. Perhaps the elite feasted on sheep and the non-elite on smaller less expensive animals (or parts of these). From animal preference to food preparation (boiling) and consumption patterns to final discard of only selected animal portions, all data analysed together paint a picture of ritual behaviour, especially when understood in the archaeological context of the favissa. Preliminary isotopic results provided evidence of animal mobility suggesting perhaps more local investment of animals used for feasting within the sacred precinct. Results in relation to the commonality of ritual vessels and the standard taxa in conjunction with the strontium isotope data allow us to ponder the idea that the state was perhaps in charge of giving out standard animals and uniform vessels for the feasting activities that occurred in the plaza. While much more data are needed to support this theory, it is certainly food for thought! The contents of this favissa are the last remnants of a ritual feasting event associated with a ceremony or festival to the god/s. It is clear that the favissa in question is Early Dynastic IIIB and was once used for a dumping episode and then covered with ash when out of use. However, the final surface in the plaza was a scatter of vessels, ash, and lanterns (see Figure 3) dated to the latest phase of the Early Dynastic III—the transition into the Akkadian Period. The fact that these scatterings were not covered is suggestive of a last ritual episode prior to the appearance of Lugalzagesi who came to destroy the city. With this knowledge in hand, the favissa examined in this paper is therefore perhaps evidence of the last window of peace during which rituals and feasting were fully participated in by all with the sacred precinct of Girsu.

Supplementary Materials: The following supporting information can be downloaded at https://www.mdpi.com/article/10.3390/humans4030015/s1, Table S1: Chronological chart for S. Mesopotamia (DiMichele in Rey et al., 2024 [9]); Section S1: Definitions of terms and their uses for the Girsu data.

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