

Riddles in time and space

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Simone Mühl is leading excavations at the settlement mound Gird-i Shamlu, which is located in the Sharizor Plain in Iraqi Kurdistan. Credit: Simone Mühl

When archaeologist Simone Mühl returned to the site of her excavations in last summer, she could hardly believe her eyes. The whole area was under water. When she had last seen it, the low mound at the center of the site was surrounded by fields of grain. Now fishing boats were anchored around it. "It was a fascinating sight, for I had never seen the mound like that before," she says. Gird-i Shamlu lies in the plain of

Shahrizor in Iraqi Kurdistan, in the foothills of the Zagros Mountains close to the border with Iran. In the center of the plain is an artificial lake created by the damming of rivers in the valley. By August, when the digging season starts, much of the water that is released from the reservoir beginning in early summer, has usually been absorbed, and the irrigated surface can again be used for agriculture by the local inhabitants.

One of the questions that Simone Mühl hopes to answer is whether or not agriculture was already being practiced in this area 5000 years ago. References to the region in cuneiform texts break off abruptly at around this time. Prior to that, the region formed part of the network of trade routes that connected the Iranian highlands with Mesopotamia to the southwest. The first urban civilizations had emerged in Mesopotamia in the 4th millennium BCE, and the survival of the cities was dependent on the maintenance of functional trading relationships. "Mesopotamia itself largely lacked raw materials, especially metals. But via the Shahrizor plain it had access to regions in which metals were available. The plain itself was known for stock-raising, and herds of cattle, sheep and goats were brought by drovers to the temples in the south," Mühl says, adding that these contacts are attested in contemporary cuneiform texts. The region is first mentioned in these texts on clay tablets dating from the 3rd millennium BCE, at a time when the Shahrizor plain was part of the kingdom of Simurrum.

However, in the middle of the 2nd millennium BCE, the area disappears from the historical record, and is first mentioned again only in the 12th century BCE. What can explain this "dark age" which lasted for several centuries? To answer this question, Simone Mühl is utilizing a variety of methods. Archaeological excavations are one tool, and here they were preceded by a program of satellite-based remote sensing to elucidate the history of settlement in the valley. "We study the landscape with all available tools because it can tell us much about the interactions between

human communities and their environment. For instance, agriculture leaves an imprint on the landscape that is quite distinct from that left behind by stock-raising cultures. And this allows us to draw conclusions about the structure of the economy in ancient times," Simone Mühl explains. "I really enjoy working with colleagues in other disciplines and I benefit greatly from such collaborations, because it broadens one's own knowledge so much." Her readiness to collaborate has also enabled her to acquire a wide range of methodological skills that can be usefully integrated into her work. Her markedly interdisciplinary approach is one of reasons why she has been honored by the Princess Therese of Bavaria Foundation. The Foundation was set up with the aim of promoting the advancement of women in the sciences by drawing attention to their contributions to research, and explicitly recognizing their roles as exemplars for junior female researchers. Mühl is one of seven awardees for the year 2017, who will be formally presented with their prizes on 9 February 2018.

Simone Mühl, who decided she wanted to be an archaeologist when she was still a child, began her studies in the plain of Shahrizor when she was a Master's student. Having obtained her primary degree at Heidelberg University, she conducted research at the University of Chicago, before returning to Heidelberg, where she obtained her doctoral degree in 2011. She moved to the Institute for Near Eastern Archaeology at LMU in 2012, and since then her research has been supported by a number of competitive fellowships and grants. Since 2016, she has headed an independent Junior Research Group – funded by the DFG's Emmy Noether Program for exceptionally qualified early-career researchers.

Simone Mühl hopes that her selection as one of this year's winners of the Therese von Bayern-Preis will show other young female graduates who are thinking of pursuing postgraduate research and wondering about starting a family that it is possible to combine the two. She has a daughter who is now a year old, and accompanies her parents (Mühl's

partner is also an archaeologist) on field trips, including their fieldwork in the Shahrizor plain. "I have benefited a great deal from the example of other women in the field. It helps to know that there are also ways of reconciling child-rearing and family life with a successful career in archaeology."

The remote-sensing campaign revealed that the site at Gird-i Shamlu was once densely settled, and detected previously unknown archaeological features. Surface finds of pottery recovered during field surveys have indicated that the oldest material dates from the 3rd millennium BCE. Mühl is now exploring the mound itself. The geomagnetic detection of manmade structures within the mound was a significant find. In the Ancient Near East, villages were constructed of baked clay bricks, and people built their dwellings on top of the ruins left behind by earlier generations. Gird-i Shamlu is 12 m high and occupies an area of several hectares, which indicates that it conceals the remains of structures that were erected over a period of thousands of years. Indeed, the material recovered from the lowest levels date to the 4th and 3rd millennia BCE, while the pottery near the top of the mound originates from the 1st millennium BCE.



Overall view of the Gird-i Shamlu. Credit: Ludwig Maximilian University of Munich

Typological studies of the pottery excavated at the site also reveal clear evidence for a change in the material culture of the settlement: "At one point in the sequence, there is a distinct change in how the pottery was actually made. The standard technology at the time involved the use of a potter's wheel. But all of a sudden we find ceramic wares that were made by hand and decorated with simple incisions. The patterns look as if they mean something, and are reminiscent of highly stylized representations of mountains and their fauna."

This sudden appearance of a distinctive type of ceramic falls within the period for which no written records are known. Moreover, the handmade pottery does not displace the wheel-thrown type. Both occur in the same stratigraphic levels. Strikingly, most of the handmade vessels take the form of pot-like containers, while the wheel-made ware is much more varied, and includes dishes, jugs and bowls. "That may mean that there was a change in culinary traditions," Mühl says, while emphasizing that the ceramic evidence alone is insufficient to permit any reliable conclusions on this point. In order to be sure that such changes reflect the presence of a social transformation, diverse types of evidence need to be integrated with one another. "Fitting different pieces of the puzzle together, this change in pottery style may indeed signal a dramatic break in the history of the settlement at Shamlu, perhaps involving the abandonment of the site and the incursion of migrants from elsewhere," says Mühl. Very often it is a combination of factors – political, economic and climatic – that lead to large-scale migrations, she adds. At all events, the original idea that the inhabitants of the Shahrizor plain at that time followed a nomadic lifestyle can now be rejected. They were farmers, who lived in sturdy houses built of mud-bricks and floored with reed mats.



On this site, succeeding generations have built their houses on top of the ruins of their predecessors' dwellings, so that the mound covers structures that were erected over a period of thousands of years. The finds from the earliest levels date from the 4th and 3rd millennia BCE. Credit: Ludwig Maximilian University of Munich

Digging in dangerous terrain

The results of Mühl's extensive surveys of the Shahrizor plain show that it was dotted with a large number of settlements, which could provide points of comparison with the finds made in Shamlu. This is not true of the outlying areas. "My guess is that one would have to explore the mountain valleys across the border in Iran." However, this zone of the Zagros Mountains has long been an archaeological terra incognita,

Simone Mühl says. "The political turmoil in the region has made it impossible for archaeologists to work there for many years." And even today, she needs to stay up to date with the latest information on the security situation in Kurdistan before deciding whether field work is possible at all – "also for the sake of my students' safety," she says.

Two years ago, when the militants of Islamic State attacked and took control of the city of Mosul, she had been informed early on of the ensuing destruction of the city's cultural heritage by her personal and professional contacts. This prompted her to set up an association dedicated to the protection of Iraq's cultural legacy. "I believe I have a personal responsibility to the people who live here, who support my research and who work with me." This feeling of solidarity with her hosts may in part be attributable to the hospitality she has always experienced in the region – "from which Germany could learn a lot," she adds. She knows that this goodwill is a prerequisite for the success of her efforts to collect further evidence that sheds light on the human history of the Shahrizor valley during and prior to its mysterious [dark age](#).



The excavations so far show that at least one change in the material culture of the settlement took place, as indicated by an abrupt switch in the mode of production of pottery. This change probably reflects a social transformation, perhaps precipitated by the arrival of people from elsewhere. Indeed the aim of Simone Mühl's project is to shed light on interactions between migrants and settled pop. Credit: Ludwig Maximilian University of Munich



This handmade vessel dates from around 3000 BCE. Vessels of this type are decorated in red, black and white, and the designs often feature the fauna of the nearby mountains, as well as plant-like motifs and geometrical patterns. It was found in a recently discovered multi-roomed house. A knife was also recovered, which is among the earliest metal artefacts so far found in the region. Credit: Ludwig Maximilian University of Munich

Provided by Ludwig Maximilian University of Munich

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