The Irano-Italian team (Iranian Cultural Heritage and Tourism Organization and University of Bologna, Italy, with the collaboration of the Italian Institute for Africa and the East) was invited to join the Sivand Dam Archaeological Rescue Project for the study of the Post-Achaemenid period. This period, of which so little is known in Fars, is nevertheless extremely important, as phenomena of great cultural significance developed: the impact of the Achaemenid heritage and of the incoming Hellenistic culture in the Seleucid period, with interaction between the two civilizations; the cultural tradition of the local kingly dynasties of
Fars, who claimed in their ideology their descent from the Iranian kings, preparing the way for the Sasanian dynasty; and the social and cultural environment of Fars, which made the ascent of the Sasanians possible.

So far, no clear distinction exists between the pottery of the Achaemenid and Post-Achaemenid periods. Thus the sites assigned to the Irano-Italian team presented surface ceramic assemblages which could be hypothetically attributed to both periods. Among these, the two adjoining sites TB 76 and TB 77 appeared to be the most interesting given their topographical position, and were selected for investigation.

Sites TB 76 and TB 77 lie on the left bank of the river Polvar, at a distance of about 1.3 km from the area where the valley narrows and where the dam is being built (Fig. 1). Site TB 76 is located along the w slope of a hill that borders a side
valley to the south of the river Polvar, at the outlet of a small glen, and occupies the lower part of the slope, forming a slightly crescent shape. Site TB 77 lies 200 m south of Site 76, in the flat area at the centre of the middle part of the side valley, near a modern house of Kordshuli nomads.

The main feature of Site TB 77 is a small, low mound, enclosed within a single wall built with large stones, but with very few surface sherds.

In contrast, site TB 76 provides evidence of a much larger settlement, extending over an area of about 1 hectare, with abundant sherds and several rough structural features mainly constructed with large rock boulders.

Three study and excavation campaigns were carried out, from February 1384/2005 to May 1385/2006, directed by Alireza Askari Chaverdi (ICHTO, Research Centre, Shiraz) and Pierfrancesco Callieri (Università di Bologna & Italian Institute for Africa and the East).

1 Site TB 76

Before excavation began, the entire area of TB 76 was surveyed, in order to make a general plan, record all visible remains, establish a topographical grid and collect sherds on the surface. The material was listed in a chart listing the following categories for each grid square: weight, total number of sherds, number of sherds divided by dimensions (1-4.9, 5-9.9, 10-14.9, > 15 cm), number of diagnostic sherds
(rims, bases, handles, spouts, lids, other features, decorated sherds: low ridge, sharp ridge, incised ridge, grooves, painted, glazed, other), total number of diagnostic sherds, worn sherds, fired clay fragments (pottery or bricks).
The information collected from the surface survey, apart from preliminary examination, has been the object of a detailed study (see ‘Ceramics from the Surface Survey of Site TB 76’ in the Final Report [in press]). However, in the initial stage, it provided the basis for elaborating an excavation strategy for the site, given the short time at our disposal.

The strategy adopted for the excavations includes both topographic and the stratigraphic aspects, and all the excavations were stratigraphic. Three $5 \times 5$ m trenches were initially excavated, one in the N part of the settlement, two in the S part. Trench TB 76-3, where the main structural sequence was found in the first season, was enlarged in the second and third seasons, to reveal a large part of a rural house. At the same time, other trenches were dug, in order to explore other areas of the site (Fig. 2).

![Fig. 2: Bakun sherds from TB 76-1.](image)

The earliest anthropic evidence on TB 76 was brought to light in Trench TB 76-1 and Trench TB 76-7, excavated in the N part.
of the site, immediately above the natural soil. Two successive stratigraphic phases with Bakun A ware of the Chalcolithic period were revealed (Fig. 3), separated by an imposing natural accumulation of stones from the mountain. No structures associated with this material were recovered and the only other finds were chipped stone artifacts.

Presumably dating to the protohistoric period, however, is a grave excavated in the NE part of the settlement, high on the slope of the hill, where some large stones were thought to represent the tops of graves. One of the two trenches excavated here, TB 76-4, has indeed produced an inhumation in a pit edged by a series of stones, among which a huge boulder (Fig. 4). The body was deposited in the oval grave pit in a foetal position slightly turned to the W, along a N-S axis, head to the S, with the forearm on the chest. The head had unfortunately been damaged by grave robbers. The grave was found empty. The only element for dating came from a C14 analysis carried out on one bone sample by the Centre for Dating and Diagnostics (CEDAD) of the University of Lecce, Italy, which gave an absolute date of 3428±65 BP, corresponding to a calibrated date (oxCal 3.5, Reimer et al. 2004) of between 1900-1600 BC (prob. 95.4 %).

Full evidence of a settlement with structures at Sites TB 76 comes from the Achaemenid and Post-Achaemenid periods, amply attested in almost all the excavated trenches.

The structures brought to light in TB 76 are a rural house (TB 76-3), part of a second house (TB 76-9) and three segments of fencing or terracing walls (TB 76-1, TB 76-2, TB 76-10) (Fig. 2).
Fig. 4: τι 76-4, grave.
In Trench TB 76-3, the work produced particularly rewarding results, since part of the courtyard of a house and a number of adjacent rooms were brought to light, in a sequence of six stratigraphic phases representing the various occupation surfaces and destruction episodes (Fig. 5).

The first structural period (Phase 5, Fig. 6, Fig. 7) is represented by a long wall in very regular stone masonry using carefully laid large stones; this wall remained in use for the entire sequence, with two later reconstructions, and represented the SE edge of the habitation. A second wall of this first structural period, at right angles with the perimeter wall, was brought to light in the courtyard, characterized by a row of large squared blocks of stone and a massive core of smaller stones and clay.
Figs. 6-7: in 76-3, plan and view of Phase 5 structures.
The original occupation surface above which both the walls were built was revealed, as well as the first deposits sealed by the subsequent stratigraphy and rich in sherds.

The stratigraphy of these layers produced evidence for the existence of a series of successive large rubbish pits excavated through each of the superimposed occupation surfaces, which also suggests that the area was an open courtyard. The pottery on the whole is physically and typologically quite distinct from that of the later Phases 3 and 2, and similarities with comparative evidence from Persepolis and Pasargadæ date the phase to the Achaemenid period, supported by other finds.

Particularly important are two inscriptions incised on jar fragments: one in Aramaic (Fig. 8), with palaeographical traits that fit the 4th-3rd cent. BC, is interpreted as a measure of quantity (‘double’). The second (Fig. 9) is broken; its characters are likely to be Greek rather than Aramaic.

Figs. 8-9: TB 76 Inv. 41 (above) and TB 76 Inv. 34 (below).
Figs. 10-1: 18
76-3, plan and view of Phase 4 structures.
An interesting result also emerged from exploration of the outer area to the NW of the house: here, starting with Phase 5 up to Phase 3, the area was filled by successive amounts of gravel, sand and clay. It is therefore clear that during these phases the house bordered the bed of a stream running down from the mountain, quite distant from the central part of the site. The report of the geologist suggests the possibility that some sort of dam did serve to control the flow of water.

During the second structural period (Phase 4, Fig. 10, Fig. 11), the area within the boundary of the perimeter wall was occupied by a series of structures in a rather poor masonry of clay and small stones, so poorly preserved in their collapsed form that it is impossible to reconstruct their original dimensions. However, a stone loom weight and a cylindrical base which was found inserted in one of the floors, used for some sort of craft activity, indicate that this was not a poor household. The pottery, although less abundant, has characteristics more similar to that of Phase 5 than to that of Phases 3 and 2.

The structures of this phase are partly destroyed and completely covered by the soil accumulation, above which the succeeding structural period begins (Phase 3). This phase is one of the best represented in the excavation, and the quality is again that of fairly well-built stone-walled structures, upon which the walls probably continued in mud brick. In the E corner, the perimeter wall climbs up the slope of the surface and incorporates a few large stone boulders of natural origin, which make up the corner between the S and the E sides.
Figs. 12-3: TB 76-3, plan and view of Phase 3
Fig. 14: TB 76-3, pillar base (?) SU113, Phase 3.

Fig. 15: TB 76-3, jar TB 76 Inv. 18 in situ, Phase 3.
The plan of the house in this phase is quite clear (Fig. 12, Fig. 13), with a large courtyard having at least one room on the E side and a second smaller room on the W side; the S wing of the courtyard was probably occupied by a verandah, if the function of a circular base of stones at the centre between the two side walls, partly buried under one of the floors, is indeed that of a pillar base (Fig. 14); it is under this verandah, or in any case in this wing, that two large pottery storage jars (Fig. 15), found in the first season, were inserted into a pit cut into the floor level and the existing mud and stones structures; in order to fix the jars in place, two low walls were built to retain the earth and stones deposited around the jars, which were in use up to the end of the phase. One of the two jars (Fig. 16) was quite intact: the shape is comparable to the jars of the Achaemenid period from Persepolis. Cleaning and restoration revealed several incised motifs.
Another important chronological indicator is provided by a three-flanged bronze arrowhead of Achaemenid type (Fig. 17). A few grinding stones and the presence of many fragments of large well-built storage jars in the rubbish pits dug in the open courtyard also point to the use of the house for economic activity of some importance.

However, dating of this phase to the Post-Achaemenid period is suggested by an extremely interesting find, a lead rod with spatula-head (Fig. 18 – a second one, Fig. 19, was found in Ph. 1), which may be compared to those found at the Hellenistic town of Ai Khanum in Bactria: the function of these artefacts here has not been identified, but H.-P. Francfort points out their resemblance to the ‘kohl-sticks’ found in Egypt. The pottery is also distinct physically and typologically from that of Phases 5 and 4, and confirms the Post-Achaemenid dating of the phase.
A later occupation surface in this area, with a depression at the centre, revealed a limestone base of truncated-conical shape possibly used for craft activities (Fig. 20).

The last structural period (Phase 2, Fig. 21) revealed the perimeter of the final phase of the house with a nearly complete interior plan. A large courtyard occupies the W part; a series of at least three rooms stood in the E. Apart from the perimeter wall – rebuilt in a much simpler masonry of large, irregularly laid diorite stones from the hill behind the site, representing a lower course of chineh structures – and other structures built with two irregular parallel rows of large stones and boulders (Fig. 22), the walls are built in very simple masonry of small stones and clay and were found collapsed, in an extremely poor state of preservation (Fig. 23).
Figs. 21-2: Ta 76-3, plan of Phase 2 structures and view of Phase 2 boulder structures.
Fig. 23: 78 76-3, Phase 2, rooms on the E side.

Fig. 24: 78 76-3, general view from N, showing the position of the site at the end of a glen; in the background, site 77.
The area soon began to be covered by thick soil accumulations coming from the hill slope, bringing with them potsherds and other material. This phenomenon is confirmed by the presence of sherds of Chalcolithic Bakun A ware and a typically Achaemenid three-flanged copper arrowhead of the same type found in Ph. 3, despite the fact that the chronological horizon of the phase is likely to be Post-Achaemenid, as suggested among other evidence by the pottery.

As a general observation, the topographical position of the house at the foot of a hill, just where a small valley stream meets the plain (Fig. 24), has characterized much of the stratigraphy, particularly the later phases, with the transportation of potsherds. Therefore the presence of potsherds in a secondary position must be borne in mind when study of the pottery concludes with a final evaluation. However, the well-evidenced floor levels and clear structural sequence offer a good basis for the interpretation of the stratigraphy.

In order to check for the presence of any other possible houses in the N part of the settlement, a trench (Trench TB 76: 9: 5 × 10 plus 5 × 5 m) was excavated in the area further up the slope of the terracing or fencing wall discovered in Trench 1. The results of the excavation of this trench have been rewarding; two large structures built with the same irregular masonry technique using two parallel rows of large stones and boulders characterize the latest structural phase of the excavated area revealed in the trench (Fig. 25). Lack of time prevented their full excavation, but the evidence brought to light is enough to prove that the N part of the site was also settled, at least in the Post-Achaemenid period.
Fig. 25: TB 76-9, view from SE.

Fig. 26: TB 76-10, view from NE.
A final objective for an understanding of the site lay in addressing the problem of the ‘structural features’ found by the surface survey, characterized by a masonry technique using raw blocks of greyish stone obtained from the slope of the mountain bordering the site to the east and associated with the presence of sherds belonging to a cultural horizon different from and probably later (Islamic?) than the one discovered in the trenches. Thus a trench (TB 76-10, Fig. 26) was excavated in square C4, in the extreme NW part of the site, on the strip of flat land bordering the cultivated field at the foot of the hill, at the location of one of the surface ‘structural features’ found by the surface survey. The main goal was to understand the chronology of the ‘structural features,’ and in particular whether they belonged to this later cultural horizon or to the earlier occupation of the site. The results of excavation, carried out in the square which had shown the maximum surface sherd density, were fairly satisfactory, since they showed that the ‘structural feature’ surveyed actually belongs to two quite distinct structural phases.

The earlier phase consists of a massive wall built with two rather irregular parallel rows of large stones and boulders and a core of smaller stones and clay: it represents the base for a superstructure in clay (Fig. 27). Its masonry technique is quite similar to that used for some of the structures belonging to the latest structural period brought to light in other trenches, dated to the Post-Achaemenid period. It is a segment of a long wall also found in other squares, extending for about 50 m from NNW to SSE, and is probably a fencing wall of the Post-Achaemenid settlement.
At the same time, above a thick accumulation of clay layers of the same alluvial origin, a later structure made up of a single row of stones forming a square of about $5 \times 5$ m was built against the $w$ face of the emerging earlier wall (Fig. 28). The occupation area of this structure is separated from the
surface only by a thin topsoil. The simple technique used for building this structure is similar to that of other ‘structural features.’ The single row of stones may represent a fence for herds rather than a habitation. The different masonry technique associated with the higher occupation level suggests that this structure, as well as other similar ones, belongs to a later period, possibly associated with a nomadic occupation.

Trench TB 76-10 has thus produced two important results. On the one hand it indicates that the ancient occupation extended to this NW area of the site with a large, imposing fencing wall built the same way as other excavated structures belonging to the permanent settlement of the Post-Achaemenid period. On the other hand it provides evidence for the ‘temporary settlement’ suggested by the first survey, seen in the simpler structural features and by some of the surface sherds, possibly associated with a late nomadic occupation.

Trench TB 76-8 (5 × 15 m), was then excavated in the central part of the site in order to verify the existence of a dry stream bed, suggested by the position at the foot of the small valley emerging from the hill, as well as the evidence of the geomagnetic survey carried out by B. Aminpour. The work has confirmed that, apart from a short, superficial stretch of simple masonry, the area is completely devoid of structures. The stratigraphy is characterized by thick layers of gravel, sand and clay, with very few pottery sherds, indicating an origin due to floods. The width of the basin into which rain flows from the top of the mountain, explored in its entirety, fully justifies the thickness of these deposits.
An episode in the life of the site, dated by C14 analysis to the Late- or more probably Post-Achaemenid period, is represented by a grave excavated in the area of Trench TB 76-1. The grave is isolated in that there are no other graves within a radius of 5 m from it (in Trench TB 76-7). Unfortunately, the grave was disturbed by two later pits, which removed part of the deposit, particularly all the upper surface of the grave-pit and the adjacent stratigraphy, so that it is impossible to ascertain the floor level at which the grave was dug.

This partly preserved pit-grave has a wide oval shape, concave sides, and a rounded floor: no traces of its upper edges are preserved. Despite the extremely fragile state of preservation of the bones and the fact that some of them, particularly the skull, had been severely damaged by the later
pits, the accurate work of the team’s anthropologist provided ample data on the type of inhumation (Fig. 29): the buried body was deposited in the oval grave pit in a foetal position, along an E-W axis, head to W looking S, with the forearm between the two femurs. Before removal, and after selection of samples for analyses, the bones were cleaned and consolidated. The results of the C14 dating test on the bone samples carried out by CEDAD at the University of Lecce, have given an absolute date of 2152±50 BP, or a calibrated date (OxCal3.10, Reimer et al. 2004) of 370-50 BC (prob. 95.4%).

A single vessel was found as a grave offering, a handmade beaker of grey-buff ware with concave sides (Fig. 30), found near the left upper arm of the body, comparable in shape to a beaker decorated with black-painted bands found by Sir Aurel Stein in an ‘Early Historic’ context during a sounding at the Toll-e Zahak at Fasa, in eastern Fars. This evidence together with the radiocarbon dating indicates a date for the grave in the Late- or Post-Achaemenid period.
An important discovery in the adjacent Trench TB 76-7 is an iron tanged arrowhead of pyramidal shape (Fig. 31), which has a stratigraphic position similar to no. 1. The type-arrowhead is quite different from the three-flanged bronze arrowheads typical of the Achaemenid period and used also in the Hellenistic period, like the ones discovered in TB 76-3. Iron arrow-heads of pyramidal shape are typical of the Greek and Hellenistic world, from Macedonia to Central Asia. The Hellenistic origin of the arrowhead is of particular importance in the attribution of the site to the Post-Achaemenid period, and may be associated with the Central Asian ‘flavour’ of the only vessel found as a grave offering in grave no. 1.

Site TB 77

TB 77 lies about 200 m to the S of TB 76. Its surface is characterized by a very flat mound, probably due to the collapse of chineh structures, and a few emerging stone structures.

After the survey of the main surface structures carried out during the first study campaign, site TB 77 was explored and excavated during the second campaign.

The surface exploration included a survey of all relevant structural features visible on the surface, i.e. largely a number of isolated wall segments, and a collection of sherds.
The 'structural features' visible on the surface of the site appear to form a roughly square perimeter around the main architectural feature, which consists of two imposing stretches of walls joined to form the corner of an inner walled perimeter (Fig. 32). The two walls are exceptional in their peculiar and careful technique, in which two parallel rows of
large stones contain a core of clay and smaller stones, and present a series of projecting features along the outer side, probably representing buttresses (Fig. 33).

Given the interest of the surface materials collected, which suggested possible dating to the Achaemenid or Post-Achaemenid periods, and the peculiarity of the structures recorded, it was considered necessary to carry out a thorough graphic survey, as well as digging a series of trenches to investigate the stratigraphy, in order to understand both the nature of the main perimeter structure and its relative chronology.

The results of the stratigraphic investigation in these trenches enabled reliable interpretation of the main architectural features. The excellent stone structure of the perimeter wall represents the lower course for a superstructure
in mud brick which has left no trace but the clay characterizing the stratigraphy of the area. Construction of the wall was carried out without foundations, directly on the surface (Fig. 34), exploration of which produced no anthropic evidence. The absence of any stone substructures on the E and S sides of the possible perimeter is probably due to the fact that a heavy machine destroyed the existing evidence.

Above the surface used for the construction, a thin accumulation represents the main occupation phase, which is then overlaid by layers of clay representing the collapse of the mud brick structures. The same configuration was found in Trench TB 77-1 (distant from the perimeter wall), where the stone structure is absent but where the presence of a mud brick structure of appreciable height is indicated by the
thickness of clay collapse. The potsherds recovered from the main occupation phase and from the collapse of the mud brick structures consist mainly of fragments of large, well-made storage jars in orange/red ware, which are comparable to material from Persepolis and other Achaemenid sites; the excellent state of preservation indicates that they were found in a primary position and were not displaced by natural elements. This ceramic assemblage recalls that of Phase 5 of TB 76-3, which provides other chronological elements on the basis of which it is possible to advance dating of the entire structure to the Achaemenid period. If this dating is confirmed, the structure would be the first example of this type of architectural typology and masonry technique for the Achaemenid period; there are indeed certain similarities with some structures of Site TB 76-3 and now with the more imposing structure of Site TB 73.

It is particularly interesting to note that in the Elamite Fortification and Treasury texts from Persepolis, we find a category of buildings which the contexts suggest served as fortified grain depots associated with the Achaemenid system of agricultural exploitation; they are indicated by the Elamite term halmarriš, or with the form of Old Persian derivation: dida. Applying a comparative approach collating the archaeological evidence with the written sources, first suggested with great insight by W. Sumner, we observe that the fortified structure of TB 77, containing storage jars and not far from a small settlement linked to agricultural activities (TB 76), corresponds well to the function of these buildings, and could represent one of them. In this respect, the study of faunal
remains also proved significant, because the quantity of bones collected was indeed remarkably inferior to that of TB 76 as a whole, suggesting a function of a different nature.

A secondary occupation of limited duration is represented by a hearth in Trench TB 77-4 and by two graves (of a 4-year old child and an infant) dug above the collapse in Trench TB 77-1. The graves were intact, apart from the slight damage caused by rodents, and the bodies were laid stretched out on the right side, with head towards the NW, face towards the SW: a position suggesting a date in the Islamic period, which tallies with the lack of grave goods (Fig. 35).

Finally, there is a series of natural accumulations and clay collapses, which the recent intervention of heavy machines has transformed into compact wall-like units with parallel orientation.
Conclusions

The architectural evidence brought to light, although the excavated areas are small, is enough to demonstrate the existence of a rural settlement at site TB 76, beginning in the Achaemenid period and probably continuing into the Post-Achaemenid period. A second rural settlement belonging to a single phase, probably Achaemenid, was found at site TB 77.

The fact that TB 76 occupies the slope between the mountain and the plain, above the latter, indicates that the site must have been associated with the exploitation of the fertile plain in the valley; indeed, a segment of the network of canals, which the Irano-French team of the Tang-e Bolaghi project has shown to correspond with the structures traditionally interpreted as the ‘Imperial Road,’ departs from the main line of the valley to reach the area of our sites.

Particularly in Trench TB 76-3, there is a house of sizable dimensions, with the presence of large storage jars throughout its duration. The find of a loom weight, several stone implements such as grinding stones, and two cylindrical stone bases clearly worked on their upper surfaces, indicate a settlement in which some sort of craft activity was carried out. The evidence of writing on pottery jars is significant, suggesting the existence of some sort of ‘administrative’ control over the storage. This fact brings to mind the complex system described in the Elamite texts of Persepolis: it is indeed possible that the structure brought to light at nearby TB 77 can be identified with one of the didas (Old Persian) or halmariš (Elamite), the fortified grain depots mentioned in these texts.
On the other hand, the quality of the structures of the earliest period, built in good masonry with large-sized stones, excludes the possibility of a ‘temporary settlement’ which had been proposed during the preliminary surface survey. In this respect we must also bear in mind the observation of H. Thrane on the nature of the ‘boulder ruins’ and the necessary interpretation of the missing clay part of the structures.

The presence of some ornaments, together with bronze arrowheads and a broken alabaster vessel, are also evidence for the standard of living in the house.

However, comparison with the Achaemenid period structure brought to light by the Irano-German team at TB 73, similar in technique and plan to that of TB 77 but larger, and that found by the Irano-Polish team at site TB 64, confirms the ‘rural’ nature of sites TB 76 and TB 77, consistent with the position on the left bank of the river, of lesser importance because opposite to the bank where the main road passed.

There has been no clear evidence so far to exclude the possibility that the house of TB 76 was used for some form of seasonal occupation; but if the craft activity in evidence can be linked to agriculture, particularly to intensive agriculture as suggested by the irrigation system, then the possibility that this is a nomadic or semi-nomadic settlement would be much reduced, a permanent settlement being more likely.

The historical importance of the discovery of TB 76 and TB 77 lies in the evidence it provides of rural daily life for the Achaemenid and Post-Achaemenid periods in Fars. The study of the finds, particularly the pottery (see Final Report [in press]), is an important contribution to our knowledge of the
material culture of this area, providing new data for better
definition of the still elusive Post-Achaemenid period.

Of considerable historical importance is the fact that
occupation of the rural house in trench TB 76-3 continued
uninterrupted from the Achaemenid through the Post-
Achaemenid period, when it reached its maximum expansion.
In the debate over the fate of the economic system existing in
Fars during the Achaemenid period, after the Macedonian
conquest, this evidence reinforces the idea of continuity in
the practice of agriculture, and appears to refute the hypo-
thesis of a return to a nomadic type of subsistence after the
fall of the Achaemenid empire.

The excavation at Site 76 has also revealed the
existence of a prehistoric occupation in the area, even though
no structure or primary context associated with the Bakun
potsherds was found. It is likely that some sort of occupation
existed around the excavated trenches, possibly higher up on
the slope, and the Chalcolithic cultural horizon of the valley,
well elucidated by the discoveries of the Irano-German team,
is also present on the left shore of the Polvar river.

And it is clear that in late periods a ‘temporary settle-
ment’ did exist, indicated by the simple ‘structural features’
and at least part of the associated potsherds collected during
the surface survey.

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