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15 Structure of the Middle Archaic settlement

Analyses of the settlement structure were conducted to reveal information if and how the settlement was internally structured. As an internal settlement structure—in contrast to an agglutinated or disorganized one with a more or less randomly developed settlement plan consisting of irregular dispersed dwellings—requires planning and organization, it can be understood as the remains of a group that needed to organize longer stays. Therefore an internal settlement structure is an indicator for a rather sedentary group. Furthermore, the diachronic internal development of the settlement will be analyzed. This diachronic development is needed to verify the presence of a real internal settlement structure, as even a randomly constructed structure can appear as the result of a planned approach of the inhabitants. Only if a settlement plan was followed by the settlers through time, can it be assumed that there actually was a plan that was followed beyond the distribution of the settlement parts, namely the dwellings and the other areas of settlement activities. Therefore, a settlement structure that can be verified as internally diachronic can be taken as a real indicator for a permanent use of a settlement. On the other hand, it is assumed that if a structure is visible but cannot be explained with a development that followed a plan, the settlement structure is the result of rather random and unorganized decisions and would therefore be an indicator for the remains of a mobile group that repeatedly returned to a known site, where it left remains that appear at first view to represent an internal structured settlement.

Another task is to locate the activities conducted on the site to analyze if there were functionally specialized areas on the site and how they were interconnected. An important question is which activities were indoor activities, conducted within the dwellings, and which activities were conducted in the open spaces between the dwellings. This can give information about the discrepancy between activities related to a private or individual sector versus the public or communal sector. The analysis and the information obtained from the activity analysis corresponds and completes the results of Chapters 13 and 14, where the activities of the dwellings were analyzed. Here, however, the settlement as a whole is the aim of the chapter.

Both aspects—settlement plan and activity areas—are interrelated, as the distribution of activities is determined by the structure of the settlement. Therefore, first

the activity areas will be looked at, and then the settlement plan will be analyzed. Settlement plan and activity distribution together form the settlement structure that can be interpreted as one of a repeatedly visited camp with a random distribution of activities and dwellings, or of a structured hamlet or centered village as the result of a settlement plan.

15.1 Activity areas in the settlement

The recovered artifacts from the settlement features were used to identify the local distribution of activities in the settlement. They were assigned to the feature locality and taken as indicators for the activity distribution. The burials were not included, as they do not form settlement remains representing activities that happened on their actual location. The artifact assemblages found in them were concentrated intentionally and would distort the identification of activity areas. Even the actual distribution of artifacts related to other contexts and the resulting activity zones or areas should be interpreted with some caution. Not all artifacts found at the site—or any site—represent a distinct and clear locality for a given activity. They could have been easily (re)moved after their use by the inhabitants. Thus, clustering of artifacts does not necessarily help to identify clear, circumscribed activity areas, especially not in a site that was permanently in use and where re-deposition of tools is probable. Thus, the aim here is to distinguish mainly between indoor and outdoor activities or, in other words, between private or family-related activities and public activities.

In contrast to the burials, the findings of the other features (layers, fire places, pits, etc.) can be considered as waste, loss, or remains of activities which were conducted at the corresponding locations. No refuse pits were found at Pernil Alto. Therefore, an artificial, subsequent concentration of artifacts distorting their local distribution was not indicated. The geographical center of the settlement features was calculated and the assigned artifacts were taken as indicators for the activities already identified in Chapter 14.4 using the same factorization. The factorized amount of indicated activ-

ities per feature was then used in the “Kernel density” tool of ArcGIS.²⁵ The program calculates and depicts the relative spatial density of the activities in the form of a contour diagram. The results were divided into five classes, with the lowest class—representing the calculated lowest spatial density—not visualized in the produced plans. The darker areas of the contour diagram represent the areas in which a relatively high amount of activities was calculated in comparison to the other spatial information. The decreasing color in the diagram indicates a declining local intensity of the conducted activity. If the geographical centers of features were calculated directly above dwelling remains but were stratigraphically not a part of the dwellings but just superimposed onto them, then the geographical center was artificially put outside the area of the dwelling in order to prevent a misleading depiction. This was, for example, the case in excavation unit 6, where later layers superimposed dwelling 16 but had their geographical center in the same XY-position as the remains of dwelling 16. Therefore, some activities appeared to have a higher density at the northeast of dwelling 16. A disadvantage of this approach was that large features (like layers) and very small features (like small post holes) were equally incorporated using the same search radius of 2.5 m around their centers. Thus the result does not represent a realistic distribution of activity intensity but only a relative one to identify, (1) if activities were conducted preferably inside dwellings or open-air and (2) if some distinct functional differences of the settlement area could be made visible.

A large part of the previously defined detailed activities took place in the open air. These included collecting/harvesting, fishing, production of clothing, construction, digging, fire making, food processing, jewelry production, and textile production. Even though collecting/harvesting and fishing did not take place directly on the site itself, the detection of remains outside the dwellings indicate that they were conducted communally rather than individually. Another group of activities, including plant processing, dwelling construction, domestic activities, lithic production, production, and storage, were predominantly detected in the open air, but also within the dwelling remains. However, the predominant distribution of the activity remains in the open air demonstrates that most everyday activities were conducted publically outside the dwellings.

Another group of activities including field work, adornment, hunting, river fishing/bird catching, wood processing and cutting were more or less represented

in equal amounts within dwellings and in the open air. Their distribution indicates that the actual work or activities were conducted in the open air, but that the necessary tools were stored or kept inside the dwellings.

Only the activities of color processing and fur processing were predominantly represented within the dwellings. This indicates that the processed materials—pigments and animal skins—had a rather high value on the site and had to be kept out the public area and treated with special care. The only activity related exclusively to the dwellings was basket making, but this activity was represented by only two artifacts within the spatial analyses therefore making the diagnostic value of its distribution doubtful.

In total, activities which were subsumed before as handcraft and village activities were open-air activities in Pernil Alto. Plant use activities and personal items were found equally within and outside dwellings. Only foraging and ritual activities seem to have been more “internal” activities. However, the large majority of activities were conducted in the open air, which coincides with the results of the analyses of the dwelling functions (compare Chapter 13). The distribution of the activities in the settlement therefore indicates that most activities were conducted in a communal way, at least no distinct indicators were found for activities centered exclusively within the dwellings. Just color processing and fur processing were spatially internal activities, but this seems to indicate the value of the processed materials.

15.2 Settlement structure

In addition to the distribution within or outside of the dwellings, the concrete spatial distribution of the activity areas is interesting. The activity areas were situated in spaces that were surrounded by the dwellings or structures. An exception is the area in the northeast of dwelling 16, but this is the result of the artificial displacement of the geographic center of the features—mainly of occupation layers—situated above dwelling 16 and shifted to the northeast. The distribution of the activity areas clearly indicates a settlement structure with the remains of everyday activities mainly distributed in free spaces. The dwellings were less used, probably for sleeping purposes or very special activities, like color processing.

25 The “Kernel density” was conducted using the following settings: “population field”: calculated amount of activities based on

the factorised artifacts; “output cell size”: 0.015; “search radius”: 2.5 m.

Thus, structures 7, 8, 9, 12, 13 and 16 form a more or less circular compound around a free space with a diameter of about 5 m where everyday activities were conducted. This pattern is less pronounced but still recognizable in a circular compound formed by structures 1, 2, 3 and 5 in the north of the excavation area, and a further compound formed by structures 4, 6, 10 and 11 in the northeast of the excavation area. On the other hand, the pattern is not recognizable in the southern part of the excavation, at the location of the structures 14, 17, 18 and 19. However, it is probable that the worse preservation conditions and the stronger erosion in this part of the excavation led to a lower occurrence of artifacts and contexts there. An exception is the preservation of structure 19.

Therefore, the circular arrangement of the structures and the activity areas lying in between indicate circular compounds. The spatial distribution of the intensity of the activities within those compounds (see Figure 117) indicate that there were functional differences between them. Thus, nearly all activities were conducted in the free area of the compound formed by structures 7, 8, 9, 12, 13 and 16. This is also the area of the excavation where the highest concentration of outdoor contexts—fire places, pits, and post holes—as well as the most massive occupation layers were located. This concentration of activities, outdoor contexts, and occupation layers together with the large size of the free space and—in relation to the other compounds—high number of six structures arranged around the free space illustrate the central importance of this compound. It formed the center of the settlement, which is supported by its location on the site as well, even though probably not all parts of the Archaic settlement were excavated.

The compounds in the north and northwest, formed by structures 1, 2, 3, and 5 and 4, 6, 10, and 11 were formed by less structures—each consisting of four—arranged around a smaller free space with a diameter of about 3 m. Within this free space fewer contexts and undisturbed occupation layers of the Archaic settlement were detected. Furthermore, the activities detected within them are fewer in number and intensity than those of the determined settlement center. The compound in the north showed indications of color and plant processing, whereas the compound in the northeast showed remains indicating field work, plant processing, collecting/harvesting and fishing. A less clearly defined compound in the south of the excavation formed by structures 17, 18, and 19 showed the remains of adornment, hunting, river fishing/bird catching, wood processing, color processing, fur processing and dwelling construction. The small size of the last three mentioned compounds, their spatial distribution

around the center and more specialized functions indicate that these formed smaller related units within the settlement structures. They can be interpreted as subsidiary households or farmsteads within the settlement with a more specialized function. The northern two subsidiary units thereby appear more related to plant use, maybe with some additional specialized ritual function of the northwestern and a more specialized or extra function of fishing in the northeastern compound. They nevertheless appear as smaller versions of the center. The compound in the south of the excavation had a function more distinctly related to hunting or foraging of smaller animals. It was thus very different from the compounds in the north where the functions of all three units included plant processing and plant use in general, indicating an economy more concentrated on plant resources. Therefore, the southern unit appears to have been specialized in hunting, and the northern units in plants. Rituals were important everywhere, except the unit in the northeast. These units probably reflect economic units, with the largest one indicating the settlement center that was used by the entire settlement group, and the three smaller units used by a part of the members, possibly nuclear families, which separated themselves through the arrangement of the units.

Within the area of the central compound, some irregularly distributed post holes were detected which could represent the remains of a roof construction, for example providing shade from the sun. However, walls or deepened ground were not detected and the arrangement was not as regular as in structure 17. Therefore, a real dwelling cannot be assumed. In total, the settlement had a structured settlement plan and was not the result of an agglutinating settlement pattern. This settlement structure—composed of a settlement center, where all activities were conducted (probably in a communal way), and the adjacent subsidiary and more specialized units in the sense of courtyards—can therefore be interpreted as a strong indicator for a permanent settlement with a centralized internal settlement plan in the sense of a village. A less structured settlement structuring could be expected for more mobile groups, as the activity indicators for returning groups who were always rebuilding or reusing the site would probably have been much more scattered and would have led to less structured evidence. Pernil Alto was a structured village and followed a, albeit rudimentary, settlement plan. A camp of mobile hunter-gatherers would appear less structured. Figure 118 depicts the plan of the settlement with the different compounds marked, the activities associated with them, reflecting the functional differentiation as listed.

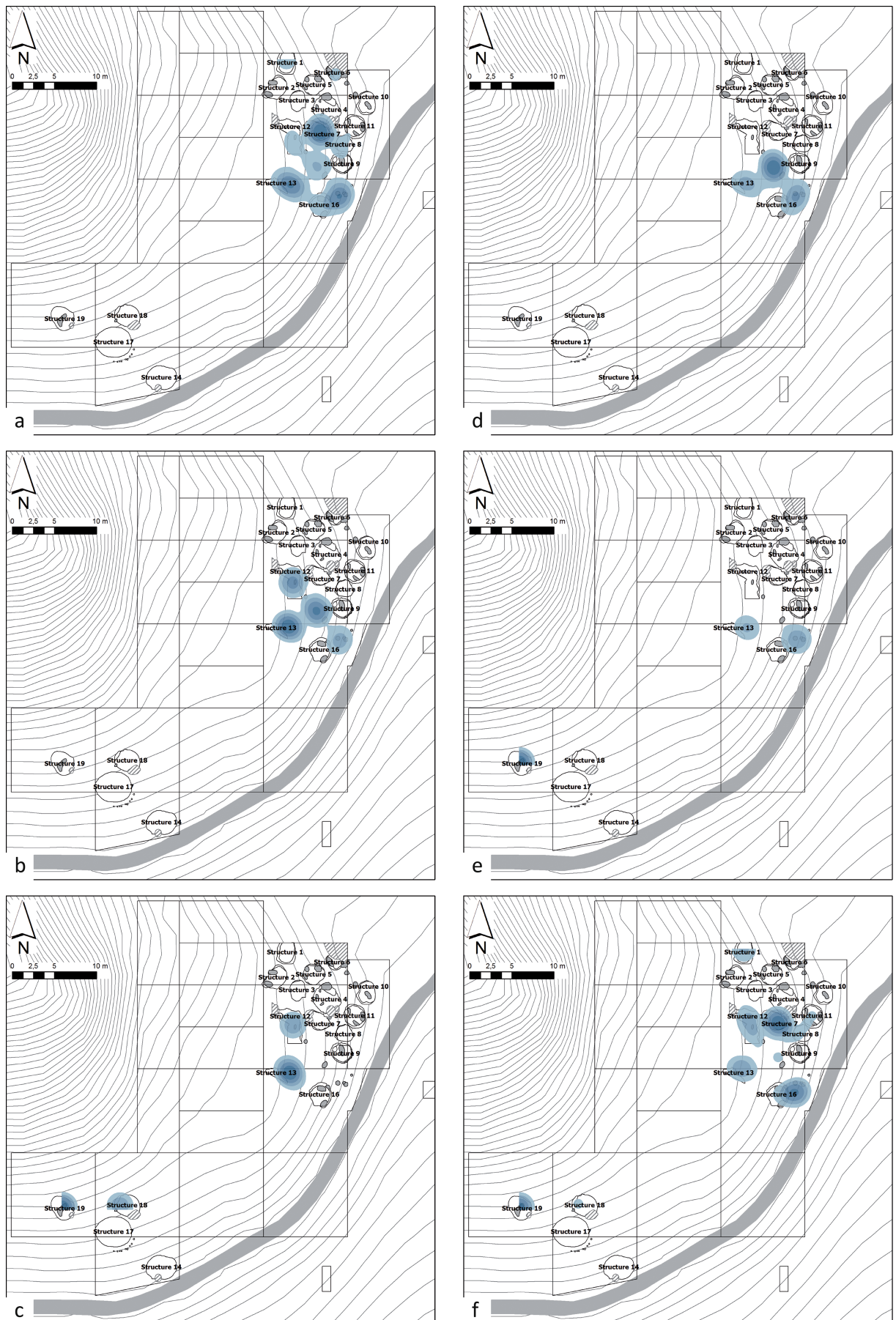


Figure 117: Spatial distribution of activities. The contours shown in blue indicate the density of the activity. The darker the area indicates the higher concentration of indicators for the activities. a: Plant use activities. b: Handcraft activities. c: Foraging activities. d: Village activities. e: Personal items. f: Ritual activities.

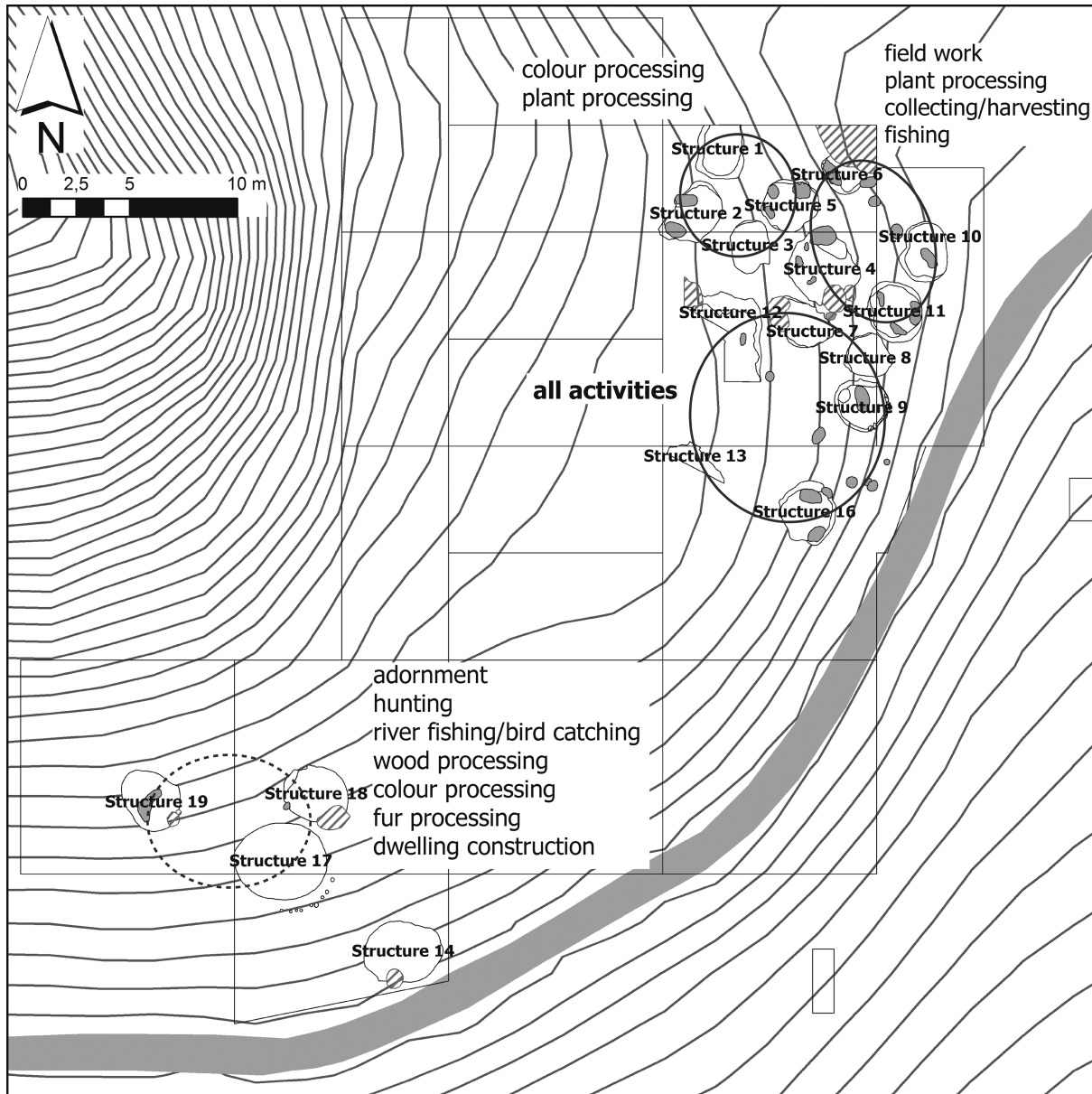


Figure 118: Plan of the settlement with the functional differences of the units. The circular lines mark the assumed settlement units with the largest one representing the settlement center. The dotted line in the south indicates the unit in the south that was less clear.

15.3 Settlement development

As shown in Chapter 6, the structures in Pernil Alto were not simultaneously in use. Furthermore, in many cases, the structures were first used as dwellings and then as burial areas after their abandonment. An exception was structure 19 in the southwest of the excavation, which represents a dwelling that was burned down above an individual deposited inside and probably represents a special burial rite. Figure 119 depicts the development of the settlement during the phases with the related dwellings, burial areas, burials and other contexts.

During Phase 0, which was the longest settlement phase (compare Chapter 6), structures 2, 13, 16, and 19 were erected and used as dwellings. During the same phase, burial 10 was deposited within structure 19. A comparable feature was detected in La Paloma on the Central Peruvian Coast and the individual buried within the dwelling was interpreted there as representing a principal male (Benfer 1999: 224, 2008: 375). It is possible that burial 10 in structure 19 in Pernil Alto represents a principal male as well. The individual would have been buried within a founding phase of the settlement, and could represent a ritually worshipped ancestor, representing a real founder individual on the site. Even

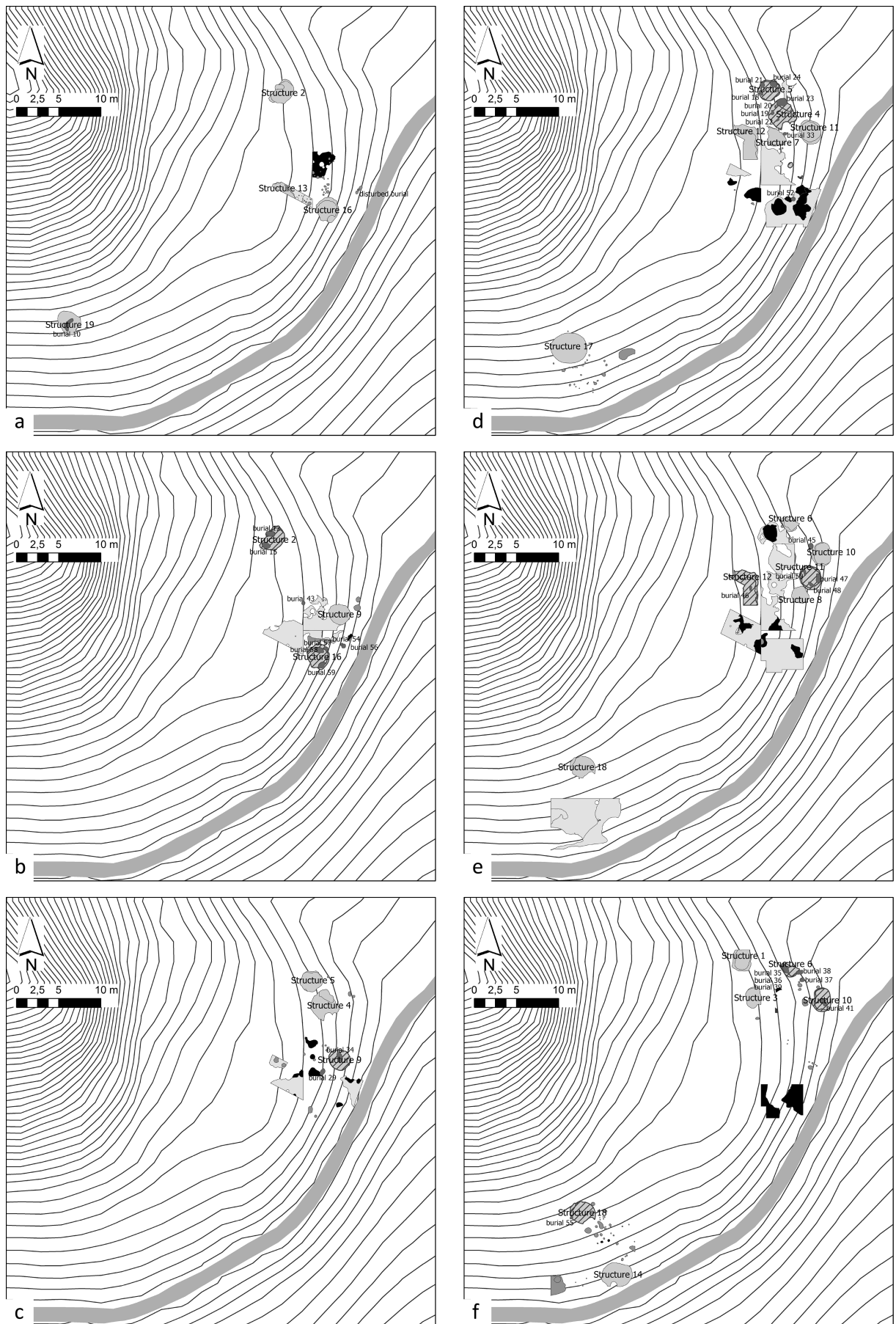


Figure 119: Plans of the settlement. Structures are marked in grey, and shading indicates a use as burial area. Black areas indicate fireplaces and burned zones, light grey areas indicate occupation layers, middle grey areas indicate pits and post holes. a: Phase 0. b: Phase 1. c: Phase 2. d: Phase 3. e: Phase 4. f: Phase 5.

though this interpretation is tempting, there is no further evidence for it. It is only mentioned as a possible interpretation, but a pattern like this—burning the “settlement founder” within a special burial—has to be proven through more detailed excavations of contemporaneous sites in the area. However, the settlement center was already used intensively during phase 0, with structures 13, and 16 arranged on its edges. Structure 2 in the north of the site, as well as structure 19 in the south, appears to have been rather isolated from the center.

During phase 1, structures 2 and 16—which were dwellings in the previous phase—were used as burial areas. Structure 9 was erected and used as dwelling. The settlement was small in this phase, which is contradicted by the widely distributed occupation layers and settlement contexts associated with the settlement center. It is possible that some other structures more to the west of the center, between the later locations of structures 12 and 13, were superimposed by the later settlement of the Initial Period. The assumption that more dwellings can be expected in this area is supported by the fact that eight burials were associated with phase 1. This high number of burials appears to be too much in relation to one single dwelling of reduced function. It is also during phase 1 when a trend towards greater concentration on plant use and more sedentariness began (compare Chapters 17 and 18). Therefore, it seems that the later dwellers oriented the erection of structure 9 towards the distribution of the previous dwellings, which were maybe still visible as depressions on the surface.

Dwellings 4 and 5 were erected in phase 2, whereas the abandoned dwelling 9 was used as a burial area. The activities in the center were less intensive, which is indicated by fewer settlement features there. An important remain of phase 2 was burial 29. It was extremely well preserved and the containing individual was (probably unintentionally) mummified. It was deposited in the assumed center of the settlement, even though this center appears to have been out of use during this phase. As phase 2 continued the trend towards more dependence on plant resources and permanent occupation of the village, burial 29 could represent a settlement sacrifice of the village, as an expression of a new way of life. This could indicate the transition to greater plant use and sedentariness in contrast to prior dependence on foraging and mobility, which was worshipped by burial 10. However, given that the available data are only from one single site, this interpretation is very speculative. However, the courtyards in the north of the village were in use, even though the activities mainly took place in the settlement center where it appears that no dwelling was in use.

During phase 3 the activities in the village center continued and appear to have been more extensive

again. The location of a fireplace above the location of structure 16—which was not used in the previous phase as a dwelling nor as a burial area—indicates that the structure location was still visible on the surface in the form of a depression useful for fires. The extensions of the fireplaces in the settlement area indicate an intense use of their locations, most probably for campfires to produce light and heat for a bigger group of people. This is in contrast to the rather small, internal fireplaces of the dwellings which can be interpreted as simple internal small warming fires. In phase 3 the structures 7 and 12 on the northern edge of the village center were used as dwellings. Dwelling 11 was erected in the courtyard in the northeast. The abandoned dwellings 4 and 5 were then used as burial areas. Furthermore, structure 17 in the south of the village center was erected. It followed an architecture that was different from the other dwellings (compare Chapters 7 and 13). With structure 17, a courtyard in the south had started.

Structures 6 and 10 in the northeastern courtyard, structure 8 in the center, and structure 18 in the south were erected in phase 4 and used as dwellings. Dwellings 11 and 12 of the previous phase were abandoned and used to bury the dead. Even though the settlement center was flanked by only one dwelling, it was still intensively used, as indicated by the occupation layers and fireplaces. However, a shift of the center towards the north is indicated in the occupation layers. Even though the occupation layers were less massive there, it extended towards the positions of the previously used structures 3, 4, and 7. As in the case of structure 16, it seems that the abandoned dwellings or burial areas left depressions that were then filled with settlement refuse. Based on the information from the spatial distribution of the activities, the area surrounded by structures 6, 8, 10, 11, and 12 does not form a functional unit belonging together. The most intensive remains are still found in the assumed village center. In the south, structure 18 was erected and used as a dwelling. The occupation layer south of it did not contain much cultural material. Its function stays less clear. During phase 4, a trend towards more individuality was detected within the artifacts. This is reflected by the settlement plan of this phase, where the courtyards—representing smaller units—were more intensively used than before, and just one dwelling is associated with the center. However, the majority of everyday activities seem to have been conducted still in a communal way in the center.

In the final and fifth phase, the activities in the center were obviously interrupted. The use intensity is very much reduced, and no dwelling or burial area can be associated with it. The courtyard in the northeast seems to have been abandoned as well, and the remaining structures 6 and 10 were used as burial areas. Structures 1

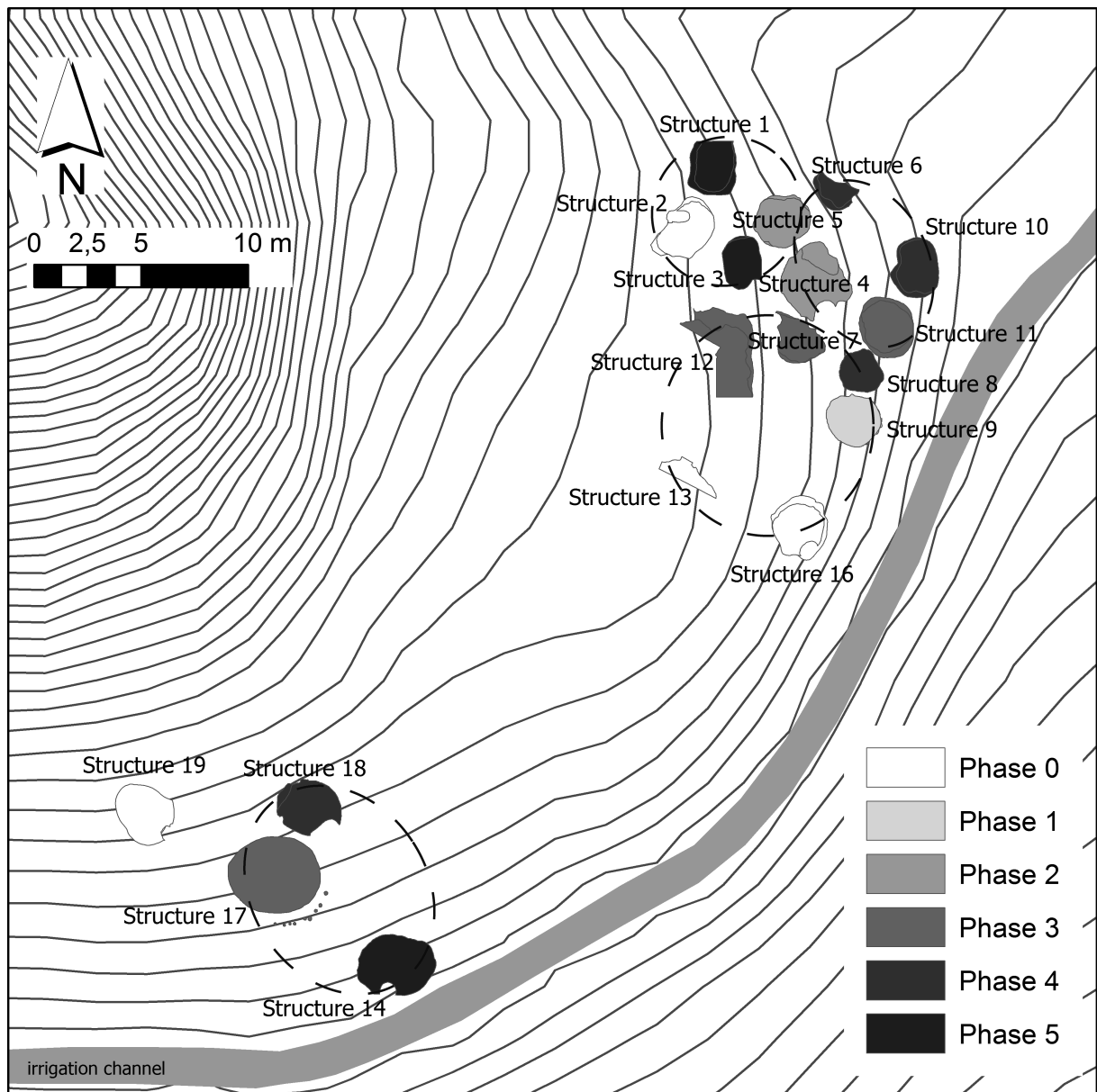


Figure 120: Plan of the development of the dwellings by phase. The circling courtyards are indicated by the dotted line.

and 3 in the northwestern courtyard were stratigraphically associated with this last phase, but the stratigraphic sequence could have been disturbed there by activities of the superimposed settlement of the Initial Period. In the southern courtyard, however, another dwelling was erected and the abandoned dwelling 18 was used as burial area. The distribution of the settlement contexts between those two structures indicates a courtyard use in the area between them. During this phase, no occupation layers could be detected. The association of structures 1 and 3 is doubtful, even though stratigraphically not assessable in another way. As indicated by the artifacts and the radiocarbon datings, phase 5 probably does not represent a complete settlement or village any more,

but has to be seen as an additional after-use phase, with the exception of the southern courtyard. It was probably used by settlers of other settlements close by to bury the dead, but does not represent a distinct village.

The settlement development shows that the dwellings were erected successively around central open spaces. After a dwelling was abandoned and then used as a burial area, a new dwelling was erected in connection to the same open space. This pattern is only poorly indicated and did not strictly follow a clockwise or counterclockwise revolving pattern. However, it is evident that the dwellings and burial areas were arranged around the spaces and the development was more or less circular. This circular spatial development sup-

ports the previous interpretation of courtyards and center. They could be subscribed as “circling courtyards”. Their reconstructed development is shown in Figure 120.

The circular arrangement and the adjoining courtyards were not necessarily indicated by the mere settlement plan. Based on the settlement plan even a linear organization or distribution of the dwellings could have been indicated. This would have followed more or less horizontally the shape of the spur. The lowest line would have been formed by structures 8–11 and 16, a higher line would have been formed by structures 4, 6, and 7, and so on. This linear distribution was not indicated in the southern part of the excavation. The linear distribution was, however, not the settlement structure of Pernil Alto, as was proven by the analysis of the chronological development and the spatial distribution of the activities and settlement features. It is only mentioned here because it could appear to be the case by looking at the settlement plan, but was not verified.

In total, Pernil Alto was a structured settlement consisting of developing, circling courtyards which probably formed the smallest economic, and even social, unit in the village. This is supported by the functional differences between the courtyards. Furthermore, a village center—larger and more intensively used—was located in the eastern part of the settlement and most probably formed a public “village square”, where the inhabitants met for communal work and rituals.

Some features of eroded material, alluvial sediments and the *quebrada* cutting through the remains of structure 6 in the north of the site indicate that the site was exceptionally hit by flooding or strong water run-off events. These were probably of low impact. Most of them took place after the site was abandoned and parts of the alluvial sediments associated with dwellings could have been brought there by the inhabitants. Real destruction of the site during its settlement was not detectable. However, occasionally some bad weather events could have hit the settlement.