



<https://publications.dainst.org>

iDAI.publications

DIGITALE PUBLIKATIONEN DES
DEUTSCHEN ARCHÄOLOGISCHEN INSTITUTS

Das ist eine digitale Ausgabe von / This is a digital edition of

Gorbahn, Hermann

Pernil Alto: an agricultural village of the Middle Archaic Period in Southern Peru

der Reihe / of the series

Forschungen zur Archäologie Außereuropäischer Kulturen; Bd. 17

DOI: <https://doi.org/10.34780/faak.v17i0.1000>

Herausgebende Institution / Publisher:
Deutsches Archäologisches Institut

Copyright (Digital Edition) © 2022 Deutsches Archäologisches Institut
Deutsches Archäologisches Institut, Zentrale, Podbielskiallee 69–71, 14195 Berlin, Tel: +49 30 187711-0
Email: info@dainst.de | Web: <https://www.dainst.org>

Nutzungsbedingungen: Mit dem Herunterladen erkennen Sie die Nutzungsbedingungen (<https://publications.dainst.org/terms-of-use>) von iDAI.publications an. Sofern in dem Dokument nichts anderes ausdrücklich vermerkt ist, gelten folgende Nutzungsbedingungen: Die Nutzung der Inhalte ist ausschließlich privaten Nutzerinnen / Nutzern für den eigenen wissenschaftlichen und sonstigen privaten Gebrauch gestattet. Sämtliche Texte, Bilder und sonstige Inhalte in diesem Dokument unterliegen dem Schutz des Urheberrechts gemäß dem Urheberrechtsgesetz der Bundesrepublik Deutschland. Die Inhalte können von Ihnen nur dann genutzt und vervielfältigt werden, wenn Ihnen dies im Einzelfall durch den Rechteinhaber oder die Schrankenregelungen des Urheberrechts gestattet ist. Jede Art der Nutzung zu gewerblichen Zwecken ist untersagt. Zu den Möglichkeiten einer Lizenzierung von Nutzungsrechten wenden Sie sich bitte direkt an die verantwortlichen Herausgeberinnen/Herausgeber der entsprechenden Publikationsorgane oder an die Online-Redaktion des Deutschen Archäologischen Instituts (info@dainst.de). Etwaige davon abweichende Lizenzbedingungen sind im Abbildungsnachweis vermerkt.

Terms of use: By downloading you accept the terms of use (<https://publications.dainst.org/terms-of-use>) of iDAI.publications. Unless otherwise stated in the document, the following terms of use are applicable: All materials including texts, articles, images and other content contained in this document are subject to the German copyright. The contents are for personal use only and may only be reproduced or made accessible to third parties if you have gained permission from the copyright owner. Any form of commercial use is expressly prohibited. When seeking the granting of licenses of use or permission to reproduce any kind of material please contact the responsible editors of the publications or contact the Deutsches Archäologisches Institut (info@dainst.de). Any deviating terms of use are indicated in the credits.

List of Figures

Figure 1:	The location of Pernil Alto in the Central Andes. The location of Lima is given for reference.	4
Figure 2:	Periodizations of the Archaic Period of Peru.	16
Figure 3:	Sites and areas of the Middle Archaic Period (8000–5000 BP) mentioned in the text. Economy and state of mobility are marked.	17
Figure 4:	Sites and areas of the Late Archaic Period (5000–3500/3800 BP) mentioned in text. Economy and state of mobility are marked. Some were already occupied during the Middle Archaic Period and were mentioned earlier.	24
Figure 5:	Sites of the Archaic Period in the Río Grande basin.	26
Figure 6:	Topographic map of the working area (based on SRTM).	30
Figure 7:	Landscapes in the working area.	33
Figure 8:	Climate graph of Palpa (based on ONERN 1971b).	35
Figure 9:	Water transport in the Río Grande, the Río Santa Cruz and the Río Palpa (data from ONERN 1971a).	37
Figure 10:	<i>top</i> : The current ecological zones described in the text. <i>bottom</i> : Transect indicating the current ecological zones in the working area (intersection points are indicated in Figure 6).	39
Figure 11:	Landscapes of the river oasis.	45
Figure 12:	<i>top</i> : The reconstructed mid-Holocene paleo-environmental zones in the working area (the data for this figure is given and discussed in Chapter 4.3). <i>bottom</i> : Transect of the reconstructed paleo-environmental zones in the working area in the time of the Archaic occupation of Pernil Alto (5800–5000 cal BP). (The intersection points are indicated in Figure 6).	51
Figure 13:	Location of the site of Pernil Alto in the modern setting (map base: Landsat picture).	56
Figure 14:	Topographic plan of Pernil Alto. The remains of the occupations were excavated within the excavation units shown in black lines in the center.	57
Figure 15:	a: View to the southwest upon Pernil Alto. b: Aerial picture of the location of Pernil Alto on the river meander. Pernil Alto is marked with the box. The lighter line above Pernil Alto surrounding the meander is not a road but a goat path. c: Panoramic view from the hilltop north of Pernil Alto into the river valley. Pernil Alto is located on the right of the picture. The view in the center is to the East.	58
Figure 16:	View-shed from the hill top northeast of Pernil Alto.	59
Figure 17:	Excavation units of Pernil Alto: The location of the excavation units and test trenches.	61
Figure 18:	Excavation campaigns at Pernil Alto. The dotted line marks the units that yielded information on the Middle Archaic occupation and test trenches.	62

LIST OF FIGURES

Figure 19: Plan of the walls of the Initial Period occupation at Pernil Alto.	63
Figure 20: Prospection methods applied in Pernil Alto. The magnetograms in the Northwest and Southeast are depicted. The darker zones within them show the areas of higher magnetic deviation, the lighter zones show the areas of lower magnetic deviation. The plan of the walls was overlaid to show the results of magnetometric prospection and the later excavation together. The excavation units are shown as well to give an orientation. Furthermore, the location of the geoelectric profiles one and two are marked with dotted lines. Finally, the locations of the test trenches 4–6 are shown.	65
Figure 21: Prospection results. a: Geoelectric profile 1. b: Geoelectric profile 2. The resistivity is given in ($\Omega \times m$). Zones with lower resistivity are shown in blue and green, zones with higher resistivity are shown in yellow, orange, red and violet (the figure was graciously provided by Bertil Mächtle). c: North and east profile of test trench 4. Features 4503b and 4503c are the remains of a burned down and removed tree.	67
Figure 22: Plan of Pernil Alto with the location of profiles a–e. The areal distribution of continuous layers is depicted in red.	74
Figure 23: Profiles a (left) and b (right). Profile a is a west profile from unit 5. Profile b is a south profile from unit 5. See Figure 22 for exact location.	75
Figure 24: Profiles c (left) and d (right). Profile c is a west profile from unit 6 (view to the east). Profile d is a southwest profile from unit AQ 46. See Figure 22 for exact location.	76
Figure 25: Profile e. Profile e is a south profile of unit 18. See Figure 22 for exact location.	77
Figure 26: North profile of Unit AQ 46.	78
Figure 27: The plotted model of the radiocarbon dates.	85
Figure 28: Plan of Pernil Alto depicting the location of the structures.	90
Figure 29: Aerial pictures of the excavation areas after the excavation.	91
Figure 30: Plans of structures.	92
Figure 31: Photo of structures 1, 2, 4–7.	93
Figure 32: Plans of structure 4 following the stratigraphic sequence from top (a) to bottom (d). The shaded areas are intrusive looter pits.	95
Figure 33: Plans of structures 6 and 8 following the stratigraphic sequence.	97
Figure 34: Plans of structure 7 following the stratigraphic sequence from top (a) to bottom (g).	99
Figure 35: Photos of structures 8–10.	101
Figure 36: Plans of structures 9 and 10.	103
Figure 37: Plans of structures. a–c: Plans of structure 11 in stratigraphic sequence. d: Plan of structure 13. e: Plan of structure 14.	105
Figure 38: Photos of structures 11–14.	106
Figure 39: Plans of structure 12 in stratigraphic sequence.	108
Figure 40: Plans of structures 12 and 16.	109
Figure 41: Plans of structure 16 in stratigraphic sequence from top (a) to bottom (f).	113
Figure 42: Photos of structures 17–19.	114
Figure 43: Plans of structures 17 and 19 in stratigraphic sequence.	117

Figure 44: Plans of structure 18 in stratigraphic sequence (a–f). The location of the test trench from 2005 is indicated. Burial 9 was intrusive. The lowest level (Feature 4472) is not shown. It was located below Feature 4473.	118
Figure 45: Plan of the locations of burials.	125
Figure 46: Plans of burials. a: Burial 10 (Feature 3167b). b: Burial 12 (Feature 3227). c: Burial 15 (Feature 3229). d: Burial 24 (Feature 3979).	126
Figure 47: Photos of burials. a: Burial 10 (Feature 3167b). View to southeast. b: Burial 12 (Feature 3227). View to south. c: Burial 15 (Feature 3229). View to north. d: Burial 18 (Feature 3978). View to west. e: Burial 19 (Feature 3980). View to west. f: Burial 20 (Feature 3983). View to west.	128
Figure 48: Plans of burials. a: Burial 18 (Feature 3978). b: Burial 19 (Feature 3980). c: Burial 20 (Feature 3983). d: Burial 21 (Feature 3985). e: Burial 22 (Feature 3988). f: Burial 33 (Feature 4087). g: Burial 34 (Feature 4100).	130
Figure 49: Photos and plans of burial 29 (Feature 4042). a: Plan of the wrapping mat. b: Burial 29 during the excavation. View to north. c: Plan of the individual. d: Photo of the individual.	136
Figure 50: Photos of burials. a: Burial 21 (Feature 3985). View to west. b: Burial 22 (Feature 3988). View to south. c: Burial 24 (Feature 3979). View to north. d: Burial 34 (Feature 4100). View to west. e: Burial 35 (Feature 4058). View to northeast. f: Burial 36 (Feature 4060). View to north.	139
Figure 51: Plans of burials. a: Burial 35 (Feature 4058). b: Burial 36 (Feature 4060). c: Burial 37 (Feature 4062). d: Burial 39 (Feature 4064). e: Burial 41 (Feature 4266). f: Burial 43 (Feature 4308). g: Burial 45 (Feature 4277).	140
Figure 52: Photos of burials. a: Burial 37 (Feature 4062). View to east. b: Burial 38 (Feature 4063). View to east. c: Burial 39 (Feature 4064). View to east. d: Burial 41 (Feature 4266). View to southwest. e: Burial 43 (Feature 4308). View to west. f: Burial 45 (Feature 4277). View to west.	143
Figure 53: Plans of burials. a: Burial 46 (Feature 4312). b: Burial 47 (Feature 4280). c: Burial 48 (Feature 4283). d: Burial 50 (Feature 4313). e: Burial 52 (Feature 4435). f: Burial 54 (Feature 4436). g: Burial 56 (Feature 4476).	148
Figure 54: Photos of burials. a: Burial 46 (Feature 4312). View to east. b: Burial 47 (Feature 4280). View to east. c: Burial 48 (4283). View to east. d: Burial 50 (Feature 4313). View to south. e: Burial 52 (Feature 4435). View to west. f: Burial 54 (Feature 4436). View to east.	149
Figure 55: Plans of burials. a: Burial 57 (Feature 4482). b: Burial 59 (Feature 4484). c: Burial 58 (Feature 4483). The first individual is depicted in blue, the second in red.	154
Figure 56: Photos of burials. a: Burial 56 (Feature 4476). View to west. b: Burial 57 (Feature 4482). View to east. c: Burial 58 (Feature 4483). View to north. d: Burial 59 (Feature 4484). View to east.	155
Figure 57: Proportions of artifacts by category.	159
Figure 58: Proportions of lithic categories.	161
Figure 59: Proportions of the lithic raw material by pieces.	161
Figure 60: Proportions of the lithic raw material by weight.	161
Figure 61: Proportion of the subdivisions of the flakes and flake tools.	162

LIST OF FIGURES

Figure 62: Examples for tools on flakes.	163
Figure 63: Examples of obsidian artifacts.	164
Figure 64: Examples of cutting tools and digging tools.	165
Figure 65: Length and width ratios of the complete andesite cutting tools.	166
Figure 66: Examples of various lithic artifacts.	167
Figure 67: Examples for tools made of flakes.	168
Figure 68: Examples for tools made of flakes and cobbles.	169
Figure 69: Proportions of the subdivisions in the cobbles and cobble tools.	170
Figure 70: Weights of complete ground stones per class.	171
Figure 71: Examples of querns, mortars, and handstones.	172
Figure 72: Examples of lithic artifacts.	173
Figure 73: Examples of handstones.	174
Figure 74: Examples of handstones.	176
Figure 75: Examples of lithic and wooden artifacts.	177
Figure 76: Examples of cobble tools.	178
Figure 77: Examples of core and core tools.	180
Figure 78: Composition of the bone artifacts.	181
Figure 79: Species of the material of the bone artifacts. Next to Camelidae or Cervidae, material of Hippocamelus antisensis (4.5 %), a camelid (4.5 %), a marine mammal (4.5 %), and a Physter macrocephalus (4.5 %) was used for bone artefacts that are indicated but not labelled in the chart.	182
Figure 80: Bone parts used for bone artifacts.	182
Figure 81: Examples of bone artifacts.	183
Figure 82: Examples of bone artifacts.	184
Figure 83: Categories of the wooden artifacts.	186
Figure 84: Basic shapes of the wooden artifacts.	187
Figure 85: Examples of various wooden artifacts.	188
Figure 86: Proportions of subdivisions of pointed woods.	189
Figure 87: Examples of various wooden artifacts.	190
Figure 88: Proportions of subdivisions of split woods.	191
Figure 89: Proportions of the subdivisions of the jewelry.	192
Figure 90: Amounts of materials of jewelry.	192
Figure 91: Amounts of subdivisions of the beads.	193
Figure 92: Examples of jewelry.	195
Figure 93: Proportions of the subdivisions of the pendants.	195

Figure 94: Examples of jewelry and other artifacts.	196
Figure 95: Amount of species of the snail pendants.	197
Figure 96: Amounts of the subdivisions in the basketry artifacts.	198
Figure 97: Proportions of the cord techniques.	199
Figure 98: Feather decoration and remains of cords and textiles.	201
Figure 99: Amount of knot types.	201
Figure 100: Schematic depiction of some basketry techniques.	202
Figure 101: Examples of textiles and plant fiber artifacts.	206
Figure 102: Proportion of the looping techniques.	207
Figure 103: Examples of textiles in simple looping technique.	208
Figure 104: Examples of basketry and other artifacts.	209
Figure 105: Subdivisions of twined basketry.	210
Figure 106: Examples of other artifacts.	213
Figure 107: Photos of botanical remains.	221
Figure 108: Diachronic distribution of rodent MNI.	245
Figure 109: Context correlation of cavy remains.	246
Figure 110: Diachronic development of cavy remains.	247
Figure 111: Ratios of invertebrates from the river and the sea.	250
Figure 112: Boxplot diagrams of the Sr86/Sr87 ratios based on the measurements from Pernil Alto and the three major areas.	254
Figure 113: Construction details of dwellings.	256
Figure 114: Frequencies of evident activities in the structures at Pernil Alto.	260
Figure 115: Results of the correspondence analysis of the dwellings.	261
Figure 116: Bar diagram of the determined activity cycles in their diachronic distribution.	275
Figure 117: Spatial distribution of activities.	282
Figure 118: Plan of the settlement with the functional differences of the units.	283
Figure 119: Plans of the settlement.	284
Figure 120: Plan of the development of the dwellings by phase.	286
Figure 121: Burial frequencies by phase.	289
Figure 122: Paleodemography at Pernil Alto.	290
Figure 123: Distribution of sexes at Pernil Alto.	290
Figure 124: Distribution of the burials on the site by phase.	291
Figure 125: Location of buried individuals by sexes.	292
Figure 126: Orientation of the head of the buried individuals.	292

LIST OF FIGURES

Figure 127: Orientation of the head by phase.	293
Figure 128: Orientation of the head by age.	293
Figure 129: Orientation of the head by sex.	294
Figure 130: Orientation of the head by burials inside and outside of dwellings.	294
Figure 131: Direction of view of the buried individuals.	294
Figure 132: Direction of view by sex.	295
Figure 133: Direction of view by burials inside and outside of dwellings.	295
Figure 134: Body positions of the buried individuals.	295
Figure 135: Body position by age.	296
Figure 136: Body positions of individuals buried inside and outside dwellings.	296
Figure 137: Burial markers.	296
Figure 138: Burial marker by phase.	297
Figure 139: Burial markers by sex.	297
Figure 140: Burial markers by age class.	298
Figure 141: Burial markers of individuals buried inside and outside dwellings.	298
Figure 142: Results of the correspondence analysis on the 1st and 2nd principal axis. a: By age class. b: By phases.	303
Figure 143: Results of the correspondence analysis on the 1st and 2nd principal axis. a: By sex. b: by assumed class.	304
Figure 144: Results of the correspondence analysis on the 1st and 2nd principal axis by assumed classes without grave goods.	305
Figure 145: Diachronic distribution of MNI of big animals, birds, and cavies.	308
Figure 146: Proportion of the found species by MNI.	309
Figure 147: Proportion of the biomasses of the found species.	309
Figure 148: Total amounts of the remains of wild and cultivated plants.	310
Figure 149: Total amounts of the ratios of wild and cultivated plants after excluding artifact 1021.	310
Figure 150: Diachronic distribution of the ratios of cultivated and wild plants. Phase 5 is shaded because the remains are not representative.	312
Figure 151: Diachronic distribution of the ratios of cultivated and wild plants without artifact 1021. Phase 5 is shaded because the remains are not representative.	313
Figure 152: Diachronic development of the indicators for food production.	316
Figure 153: Diachronic development of the indicators for food procurement.	317
Figure 154: Relation between individual expression (personal items) and community expression (ritual). Phase 5 is shaded because the indicators are not representative.	319
Figure 155: Comparison of paleodemographies from Pernil Alto and La Paloma.	321

- Figure 156: Map showing the location of Pernil Alto in the reconstructed landscape during the occupation of the site. The other known sites of the Rio Grande basin and Quispisisa are mapped. The dotted lines indicate areas reachable within a certain time..... 334
- Figure 157: Map showing the survey area in the middle Río Grande section and the found locations. 336