Case Study 2.2: Seven-stone Antas, Portugal and Spain

Presentation and analysis of the sites

Geographical position: 177 separate locations in the central Alentejo region, Portugal, and the provinces of Badajoz and Cáceres, Extremadura region, Spain.

Location: Latitude 37.8º to 39.6° N, longitude 8.2° to 7.0° W. Elevation from c. 200m to 580m above mean sea level.

General description: The seven-stone antas are a distinctive form of megalithic tomb. The 177 examples whose principal orientation can be reliably determined all, without exception, face within the arc of sunrise (the part of the horizon where the sun rises at some time during the year).

*Brief inventory***:** Seven-stone antas are distributed over an area approximately 100km east to west, from about 50km from the coast near Lisbon to the Spanish border provinces, and a little over 200km from south to north, from Ourique to the River Tejo. The main concentrations of sites within the group are around the towns of Évora and Elvas (Portugal) and Valencia de Alcántara (Spain).

The seven-stone antas (dolmens) were mostly constructed using tall blocks of granite, typically 3m or more in height. In some areas the builders used smaller blocks of schist. Seven-stone antas are distinguished from other megalithic tombs found in the same region by the presence of a passage and by their distinctive method of construction. This involved erecting a backstone and then leaning three uprights in succession on each side so as to form a chamber typically some 4m to 5m in diameter with a clearly defined entrance to which a short passage of smaller orthostats was attached.

History of the sites: These tombs are thought to have been constructed from c. 4000 BC onwards, with longer corridors appearing around 3200 BC.

Cultural and symbolic dimension of the site: The range of orientations of the 177 monuments corresponds almost exactly to the range of possible rising positions of the sun. In other words, each tomb in the group without exception is oriented within the arc of sunrise, corresponding to about one sixth of the available horizon. In almost cases the orientations fall between azimuths of 61° (29° north of east) and 122° (32° south of east); there are two exceptions, which are oriented more towards the south (azimuth 128°–129°), but these are within a deep valley with a higher eastern horizon, and so still face sunrise. This remarkable statistic provides the strongest possible indication of an association between these tombs and the sun.

If the tombs were oriented to face sunrise on the day when construction began, then the distribution of azimuths would suggest that this took place predominantly in the spring or autumn, but the fact that orientations span the entire solar rising range implies that in some cases construction was commenced in the middle of summer or winter. The ‘exactness of fit’ between the range of tomb orientations and the arc of sunrise suggests that the tombs were aligned with a precision of about 1–2 degrees (2–4 solar diameters).

Fig. 2.2.1. The seven-stone anta at Mellizo, near Valencia de Alcántara, Spain. Photograph © Clive Ruggles.

Authenticity and integrity: A number of the examples near Valencia de Alcántara (e.g. Cajirón I, and Zafra I and II) have been reconstructed. In some cases these reconstructions raise serious authenticity issues regarding the orientation.

Present site management

Present use: Most of the sites are on privately owned farmland and only accessible to the public with the landowner's permission.

Protection: In Portugal, archaeological sites are protected by the Ministério da Cultura under Heritage Law no. 107/2001. In Spain, they are protected under Articles 14–25 of Law 16/1985 on Spanish Historical Heritage.

State of conservation: The sites are in various states of repair. Some of the Spanish examples, such as Cajirón I, have been reconstructed since their orientations were determined in the 1990s.

Main threats or potential threats to the sites: A set of small, isolated monuments in a variety of land-use situations face various potential threats, but are generally safe from the damage that might be caused by large numbers of visitors. An additional danger specific to the astronomical significance of these sites is reconstructions such as those mentioned above. If these disturb the orientation, then they could lead to misunderstandings about the individual and collective significance of these monuments.

Archaeological/historical/heritage research: Some of the tombs in both countries have been excavated. The orientations of the seven-stone antas were first systematically measured by Michael Hoskin between 1994 and 1998, as part of a 12-year fieldwork campaign measuring the orientations of many hundreds of tombs and temples in the western Mediterranean.

Management, interpretation and outreach: Most of the tombs are on privately owned farmland. Some local authorities, such as those at Évora, Castelo de Vide, Valencia de Alcántara and Cedillo, have produced booklets or pamphlets for tourists with information about the nature and whereabouts of some of the sites in their area.

Additional bibliography

Bueno Ramírez, P. (1988). *Los Dólmenes de Valencia de Alcántara*. Madrid: Subdirección General de Bellas Artes y Arqueología.

Hoskin, Michael (2001). *Tombs, Temples and their Orientations.* Bognor Regis: Ocarina Books. See Chapter 6.

Case Study 2.3: The Stone Circles at Odry, Poland

Stanisław Iwaniszewski

Presentation and analysis of the site

Geographical position: About 2.5 km from the kashebe village of Odry (kashebe Òdrë, german Odri), commune (gmina) of Czersk, county (powiat) of Chojnice, in the southern part of the Pomorskie (Pomerania) province (voivodeship), Poland.

Location: Latitude 53º 53´ 54˝ N, longitude 17º 59´ 35˝ E. Elevation 140m above mean sea level.

General description: The "Stone Circles at Odry" Archaeological and Natural Reserve is located on the right bank of the Wda River and extends over an area of 16 ha. It contains the greatest concentration of stone circles in Poland, and was the focus of one of the pioneering archaeoastronomical investigations of the early 20th century. It later became notorious when the archaeoastronomical interpretation became used to justify nationalist claims in Germany and Poland in the years preceding World War II.

*Brief inventory***:** The reserve contains 10 completely preserved and 2 partially damaged stone circles, ranging from 15m to 33m in diameter. Each of them comprises between 16 and 29 upright boulders, whose heights range from 20cm to 70cm above ground level. Most of the circles contain 1 or 2 larger monoliths, generally placed roughly at the centre. The interior of several of the circles was covered with stone pebbles.

The stone circles form part of a huge cemetery. Within and between the circles, beneath some of the stones, and inside nearby kurgans (barrows), archaeologists have discovered no fewer than 602 burials. Most of the kurgans contain 1 to 3 inhumations.

History of the site: The site was investigated in the second half of the 19th century by two amateur archaeologists, Wilhelm Stryjkowski and Abraham Lissauer, who excavated several burials, removed some of the stones, and concluded that the remains were Neolithic in date. Paul Stephan, a geodesist from Poznan, surveyed the site in 1915 and was the first to propose astronomical alignments. Jozef Kostrzewski (Poznan University) excavations the site in 1926 and was the first to date the stone circles correctly to the 1st and 2nd centuries AD.