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Wild West Frisia : the role of domestic and wild resource exploitation in Bronze Age subsistence

Amerongen, Y.F. van

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Author: Amerongen, Yvonne van

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3. Reconstruction of subsistence

This chapter is meant as a general introduction for the following five chapters, which all relate to the reconstruction of the subsistence economy of Bronze Age West Frisian farmers. Also in this chapter, the new approach of this thesis towards the reconstruction of subsistence is introduced, as well as its main assumptions for the model for the West Frisian Bronze Age situation.

3.1 SUBSISTENCE ECONOMY

The subject of this thesis was pre-defined to research the subsistence economy of West Frisian farmers. Before further investigating this subject, it is important to establish what a subsistence economy actually entails. A subsistence economy is defined as an economy which produces only enough output for its own consumption and does not attempt to accumulate wealth (Merriam Webster dictionary 2016). Clearly, if it is assumed that Bronze Age West Frisian people were indeed part of a subsistence economy, it means that they can therefore be characterised as practicing subsistence farming, at least until other observations contradict this assumption. Subsistence farming, in turn, is defined as farming or a system of farming that provides all or almost all the goods required by the farm family, usually without any significant surplus (Merriam Webster dictionary 2016). Thus, for West Frisian Bronze Age farmers, it is assumed that they produced goods for the household and settlement to remain above the survival threshold, but not much more.

It is also an important aspect of this thesis to clarify the main components of subsistence, since it provides a better focus for the research. Defining such main components, however, is a difficult task, since no clear definitions exist. In an attempt to identify the main components of subsistence, and to create a plausible platform for the reconstruction of the subsistence economy, basic subsistence was viewed as a form of survival. By viewing subsistence in this manner, it was possible to elucidate the most basic

principles required for survival: basic needs. These basic needs, which form the absolute minimum to uphold a subsistence and to survive, include food, fire, housing and clothing (shelter against the elements), and water (United States Dept. of the Army 2009). Although the Bronze Age situation may not have been as dire as a pure survival situation, these five subjects are essential to life in general and form a good starting point for the research on subsistence. Of these basic needs, shelter in the form of the farm is already researched in another sub-project of the Farmers of the Coast project (Roessingh in prep.). Water and fire, which will have formed a definite part of Bronze Age subsistence as well, will not be researched extensively in this thesis but will be remarked upon when appropriate. Therefore, food is the basic need that will form the main focus in the reconstruction of the subsistence economy in this research. Nonetheless indications for other basic needs are also discussed in Chapter 4-7. Examples of tools and other equipment required in and around the house, as well as for the construction of clothing will also be summarized, integrated, and discussed in Chapter 8.

3.2 FOOD PROCUREMENT

Food can be procured in different ways, ways which have shifted in relative importance throughout (pre) history. The main food procuring strategies, or subsistence strategies, can be roughly divided into wild resource exploitation and domestic resource production. Wild resource exploitation, often the main form of subsistence in earlier prehistory but also various cultures later in time, includes the gathering of plants and the hunting of animals, where the latter can be further sub-divided into fishing, fowling (*i.e.* hunting birds), and game hunting (*i.e.* hunting mammals). Domestic resource production has increasingly become the more prominent form of procuring food. The cultivation of crops and the breeding of animals have ensured the availability of nutrients for the settlement, and crop and animal

husbandry have allowed people to control their access to food in an unprecedented manner.

Although the above divide seems rather definitive, mixed forms of subsistence which include all four subsistence strategies also exist, and contribute in different ratios. Since it is unknown what the contribution of each may have been to farmers in West Frisia, the four food procurement strategies are investigated individually, after which a combination is made to view the subsistence economy as a whole. This being said, because the Bronze Age subsistence is first and foremost characterised by farming, crop and animal husbandry are assumed to have been the main subsistence strategies, providing the staple food for the settlements. Therefore, in this thesis Bronze Age West Frisian people are assumed to be (full-time) farmers, and the extent of the other two subsistence strategies is evaluated accordingly.

3.3 FARMING IN THE BRONZE AGE

Farming, including animal and/or crop husbandry, can either be specialised towards one of the two subsistence strategies, or be a combination of both. Two extreme examples of specialised farming systems may include pastoralism (*i.e.* herders with flocks/herds pursuing grazing areas, no crops), or specialised crop husbandry (*i.e.* only practicing the cultivation of crops, no livestock).

In West Frisia, evidence for both crop and animal husbandry practices were uncovered at every site in the form of remains of crops and domestic animals, and the presence of plough marks (IJzereef 1981; Buurman 1996). In cases where both the breeding and keeping of livestock and the cultivation of crops are encountered on a settlement, it is assumed that this signifies the presence of a mixed farming system, where both practices are combined and integrated (Schiere & Kater 2001, Ch 2).

3.3.1 Mixed farming

Mixed farming systems are characterised by a sedentary lifestyle (*i.e.* a permanent residence), from which activities regarding crop and/or animal

husbandry are practiced. Mixed farming systems can further be distinguished by the fact that both crops and animals have multiple important functions within the system, in which each can be used to support the other's existence: crop (residue) can be used to feed livestock, and dung from livestock can be used to fertilise arable fields. This integrated combination of individual components and recycling of resources is what supplies the mixed farm with its yields. When the single components of the system are not integrated or not balanced, the system is not viable. This means that farmers need to adjust their farming strategy on an annual basis depending on the changes which occur with regard to harvest and youngstock yields. Mixed farming is therefore not only a balanced, but also a dynamic system. Due to the fact that the overall system needs to be balanced, short-term dynamic practices may be averaged towards an overall long-term practice or strategy, which is investigated in the following animal and crop husbandry chapters. In addition, the synergetic aspect of the mixed farming system requires the research of all separate aspects relating to subsistence (*i.e.* subsistence strategies) to understand the whole system and the "factors that drive farmers and influence their decisions" (Schiere & Kater 2001, Ch 2). This observation underlines the importance of the following four chapters, and the summarizing and integrating Chapter 8 in understanding the subsistence economy as an intricate interplay of dynamic decisions which are dependent on both environmental and social conditions.

For farmers, one of the main advantages of having a mixed farming system is that the management of multiple species of livestock as well as the cultivation of crops can be regarded as a form of risk reduction. By practicing both subsistence strategies with multiple species, the chance of losing all resources during years of less successful animal and crop yields is reduced (Schiere & Kater 2001, Ch 2; Dose 2007, 6-8; Pica-Ciamarra *et al.* 2011, 4). Another advantage is that the combination of multiple species of animal on a farm can result in the efficient usage of the surrounding pasture (Reijntjes *et al.* 1992), reducing the total acreage of pasture required. A final advantage of mixed farming is that labour can be spread over several activities (Schiere & Kater

2001, Ch 2). However, this division of attention over multiple resources and activities inherently results in a limited total potential scale of the subsistence economy (Schiere & Kater 2001, Ch 2).

3.3.2 Small-scale farming

At mixed farms, by definition, crop and animal husbandry are practiced on a much smaller scale than when specialisation towards one of the two subsistence strategies occurs (Schiere & Kater 2001, Ch 2). Mixed farming therefore matches very well with the definition of subsistence farming (as outlined in section 3.1), and these two are often closely interlinked. Therefore, West Frisian farmers are assumed to have been small-scale mixed subsistence farmers, who produce solely what they need for their subsistence and rarely produce surplus. They are further assumed to have possessed both arable fields and flocks and herds of livestock of limited size. Any imbalance in the relative size of either one, and the mixed system would collapse.

The investigation of prehistoric subsistence farming needs a good and plausible starting point for what can be expected of past practices. In this research, the starting point was the search for basic elements which occur consistently in subsistence farming systems regardless of time period, geographical location or climate. Such recurring basic elements, for example certain practices in crop and animal husbandry, would therefore form plausible parallels for what can be expected for the West Frisian situation.

The examples of subsistence farming systems used in this thesis consist of ethnographic parallels in developing countries throughout the world, where traditional small-scale mixed subsistence farming is still being practiced. Locating these appropriate parallels proved, however, to be a difficult task. Small mixed farms are increasingly being replaced by large specialised production farms in many parts of the world (e.g. FAO 2012), and at a rapid rate: parallels with enough quantitative data on small-scale mixed subsistence economies are scarce. The discovered parallels applied in the following chapters are for now sufficient, but there is an urgent need for more quantitative research towards the different elements

of which small-scale mixed subsistence systems are composed.

So, based on a combination of the observed evidence from the excavated West Frisian sites and the above literature studies, the model for the farming in West Frisia during the Bronze Age is defined as small-scale mixed subsistence farming. More detailed characteristics of this system, hypothesized based on ethnographic parallels, are elaborated upon in the respective following Chapter 5 and 6 on animal and crop husbandry.

3.3.3 The role of hunting and gathering in small-scale farming communities

The role of hunting and gathering within the small-scale mixed subsistence farming communities is also explored in this thesis. The exploration is based on similar ethnographic parallels as mentioned in the previous section as well as on other, more specific ethnographic examples. In addition, biological information is employed to analyse the contributions that wild plants and animals may make to subsistence.

Although it is assumed that the largest part of subsistence consists of farming practices, the contribution of wild resource exploitation within farming communities should not be underestimated *a priori*. Especially in small-scale communities, it might not be possible to maintain subsistence solely based on the production of the settlement. Depending on the extent of wild resource exploitation being practiced in the Bronze Age, subsistence farming on its own may not be a sufficient term to describe the West Frisian subsistence situation. This however, will have to be revealed from the analyses of the respective following Chapters 4 and 7 on hunting and gathering.

3.3.4 Family size

In small-scale mixed farming systems, many hands are required to perform all kinds of subsistence-related activities. The possible size of herds and arable fields is also dependent on the size of the family. It is therefore important to establish a range of possible sizes of farming families. Several of the

aforementioned ethnographic parallels were used to estimate family size and it appears that in many rural areas throughout the world, the family size ranges from 1 to 10 individuals, with an average of 6 to 8 persons per household (Doran & ILRI 1995, §2.2; Ajala *et al.* 2007, 185; Dose 2007, 13; Laski 2007, 3-4; Lemke & Valle Zarate 2008, 209; Kongolo & Dlamini 2012, 104; Umeh *et al.* 2013, 108-9). This relatively high number of people in a household seems adequate to perform all the necessary tasks around the farmstead. However, this average number of people comprises the entire household, which also includes old people and (young) children. These two demographic groups are not expected to (already) contribute labour in a manner comparable to healthy (young) adults. In addition, a probable high child and adult mortality within these communities and its inherent consequences (Sherbinin *et al.* 2009, 9), in reality results in a significant reduction of the actual number of people per household contributing labour to farming activities. It should therefore be kept in mind that family size does not necessarily reflect the number of family members able to contribute to performing activities in and around the farm.

3.3.5 Action radius

Since small-scale mixed subsistence farming communities consist of relatively few people (section 3.3.4), and many activities related to both crop and animal husbandry still need to be performed, the action radius around the settlement will, on average, also be limited. Many studies have recorded action radii of differently sized communities, such as hunter-gatherer (10 km), pastoral-herder (7.5 km), and true farming communities (5 km) (*e.g.* Bakels 1978, 6-9 and references therein). These action radii are considered adequate for each community to acquire their daily supplies: the further one travels away from the settlement, the less time can be spent at that location due to loss of time for the return trip. The average values for each settlement type are not all applicable to the West Frisian farming situation, however, so only the radius value of around 5 km related to farming communities is considered here. This means that on average, both domestic and wild resource-related activities around the settlement are expected to be characterized as local practices.

3.4 RESEARCH QUESTIONS AND MAIN COMPONENTS

In order to investigate the extent to which each of the subsistence strategies may have aided the Bronze Age subsistence economy, all four strategies, including hunting, animal husbandry, crop husbandry, and gathering of wild plants are first researched separately in the following Chapters 4-7. The analysis of each subsistence strategy includes, amongst other factors, the impact on the landscape, the activities related to the strategy, as well as the seasonality of these activities.

As has become clear from this chapter, however, these strategies can in reality not be considered as separate entities: their interconnectedness is what upholds the mixed subsistence farm. So, where normally only one element of subsistence is researched in detail, or separate researched elements are left un-integrated, in this thesis the results of the separate Chapters 4-7 are re-integrated and distilled into three themes in Chapter 8. These themes can be considered to form essential parts of subsistence and include: the landscape in which people operate, the manner in which basic needs are fulfilled, and the activities that need to occur in order to accomplish this. It is only through these overarching themes that the interdependency and role of each subsistence strategy in the Bronze Age subsistence economy truly becomes clear.

The order of the next four chapters is not random, but rather chosen to improve the flow of subjects. In Chapter 4, the role and praxis of hunting is discussed, followed by Chapter 5, which discusses animal husbandry practices. Both Chapter 4 and 5 therefore include analyses and discussions on animal remains. Subsequently, in Chapter 6 crop husbandry practices are researched, so Chapter 5 and 6 combined investigate the domestic resource production aspect of farming. In Chapter 7, the role and praxis of wild plant gathering is established, so in both Chapter 6 and 7 the botanical remains are analysed and discussed. To complete the circle, the results from Chapter 7 are compared with the results from Chapter 4 in order to investigate the full range of exploited wild resources.

Per chapter, the analysis of each subsistence strategy is approached in a similar manner. In the introduction of each chapter the previous research performed is mentioned, as well as the current models constructed for the respective subsistence strategy. Then, a summation of these previous investigations and interpretations is distilled into a set of main components of the current model. These main components are challenged in each chapter by comparing them to the new results (cf. Chapter 2). The methods with which the subsistence strategies are researched differ per chapter and are therefore discussed separately each time, but are mainly rooted in ethnography and biology. Ethnographical parallels are, as mentioned in the previous sections, employed to create an expectation of basic practices in small-scale mixed subsistence farming communities, and biological information provides more indirect indications for the practices of each subsistence strategy. The results of this ethnographical and biological research forms the first half of the results section in each chapter. New and/or additional potentially important main components deriving from these ethnographical parallels will be added to the list of main components of the current model, to include in the comparison with the data. The second half of the results section comprises the analysis of the West Frisian data on each of the basic elements of the researched subsistence strategy based on the ethnographic parallels. These basic topics are structured in a similar manner for both the expectation and the data analysis and are related to the selection of and composition of species, praxis, use, location, and seasonality. The subsequent comparison of the main components based on the old data and the ethnographic research with the West Frisian data will provide indications for choices made by the West Frisian farmers in their subsistence strategies and economy. Finally, each chapter is concluded with a new model for each of the different subsistence strategies.

