Chapter 6  

Resources, Use Potential, and Basic Needs: A Methodological Framework for Landscape Archaeology

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Landscape archaeology as an analytical concept is not really new. Compilations of publications on this issue list several hundred references. Although they are far from being unanimous in their understanding of landscape archaeology, there is a common theme among almost all approaches, that is, the use of the term “landscape” as an analytical concept for a comprehensive understanding of the relation of prehistoric people to their environs, how they acted upon it, and, for a lesser number of papers, how they were cognizant of it. To clarify its full potential the term “landscape” is defined here and an epistemological frame developed for its implementation. The aim is to grasp the complex network of relations between resources, use of resources, and basic human needs in one comprehensive representation. This approach helps to work through all relevant issues in a checklist and facilitates comparisons between different case studies. Case studies from northern and southern Africa demonstrate the value of such an approach.
6.1. INTRODUCTION

This chapter discusses a method to systematically record the archaeological remains of a certain landscape at a certain time in its full range. The aim of this approach is to present a checklist of possible human–environment interactions and to propose a procedure for making these interactions comparable across different case studies.

Another innovation of this method is its strict deduction from a definition of the concept “landscape.” This definition results from pertinent investigations in archaeology as well as in other disciplines. The authors understand the concept of landscape as a notion that develops at the interface of natural assets and human agency, use as well as cognition. These four columns have to be translated into categories that can be investigated by archaeological means. A “natural asset” is a resource such as water, food, or raw materials and “human agency” subsumes all traces of how humans shape their surroundings (Gestaltung). To investigate the relations between the parameters all usable resources are listed and their use potential discussed. Additionally, all human needs from nourishment up to spirituality are accounted for. The way in which these needs are satisfied on the basis of which resources are available shows the complexity of human land use at a certain point in time and space. Finally, cognition would seem to be an ephemeral phenomenon in the archaeological record but through the occurrence of rock art in a region we find stable, symbolically loaded markers of locations of relevance for the prehistoric people in the landscape and with indicators for the linkages of empirical and imaginary space.

The archaeology of landscapes—the landscape of archaeologies: a brief overview

Concepts of landscape archaeology are usually more clearly discernible in the archaeological practice than being the demonstration of a previously defined body of procedures, working concepts, rules, and postulates. A short scan of the relevant literature shows the different foci which can be the basis for approaches in this vein (cf. Anschuetz et al., 2001, pp. 164ff.). The scale reaches from unabridged positivist concepts to fully fledged hermeneutic narratives, which also express the discrepancies between processual and post-processual approaches. There are, however, further conceptual positions along this continuum, such as the pragmatic position, the position giving priority to emic views or the position trying to consolidate the benefits of processual and postprocessual approaches.

The empirical approach is rooted in the 1960s and 1970s (e.g., Hodder & Orton, 1976; Vita-Finzi, 1978) being very close to the natural sciences and trying to grasp the complex information of the human existence in a landscape
through empirical verification, quantifiable and measurable in artefacts and other material evidence. Very clearly in this approach the landscape is mainly seen as a resource apt for human exploitation, being a set of assets conditioning human livelihoods.

The **pragmatic approach** to a landscape grows out of a rather intense preoccupation with an archaeological corpus inseparably linked to a spatial environment. It is in rock art studies where the link between artefacts and the natural surroundings is particularly stable (e.g., Bradley, 1994; Bradley et al., 1994; Swartz & Hurlbutt, 1994) because the sites and the landscape setting in most cases remain more or less unchanged in their large-scale properties such as geology or topography.

Of course **emic views** depend on indigenous voices which still have a chance to be heard. They can help to challenge the western conceptualization of landscape in which often pristine nature plays an important role (e.g., Schama, 1995; Luig & von Oppen, 1997). It has long been known that landscapes can be perceived in very different ways (e.g., Littlejohn, 1963; see also Rössler as well as Dieckmann, this volume) and this realization has led to concepts that move away from the Western bias when using the term landscape. In order to emphasize this shift, new concepts have been introduced, such as “taskscape” (Ingold, 1993) or “mindscape” (Ouzman, 1998a,b, 2002). Taskscape sets the focus on activities and consequently on time which is inseparably linked to action (Ingold, 1993, pp. 157ff.; see also Widlok, this volume). Backed by the views of nineteenth century San hunter-gatherers and their relation to rock art, the mindscape approach emphasizes the cultural specificity of every individual mind in landscape perception (Ouzman, 2002, p. 101).

The **postmodern turn** archaeology has recently taken is clearly visible in a lot of papers which are exercises in writing up histories in the sense of ever-new stories that lie behind the perceived (e.g., Tilley, 1994). Postmodern researchers expressly link up with a phenomenological approach (e.g., Bender, 2002, p. 108) and Tilley’s study is based entirely on a phenomenology founded on Heidegger and Merleau-Ponty (Tilley, 1994, p. 14), providing a highly theoretical and abstract background. In its essence this approach is based on the notion that experiencing a landscape—if it is only intensive enough—bears some trustworthiness even if today we are the ones who want to understand a Mesolithic landscape (ibid.: 74f.).

The attempts of consolidating processual and postprocessual approaches in archaeology obviously grew from the opinion that neither of these approaches is completely obsolete and that relevant information can be gathered either way. Thus R. Layton and P. Ucko concede that it “has become impossible to deny that our explanations are culturally constructed; even if they refer to an independent reality, they enable knowledge of the world not as it is, but merely as we represent it to ourselves” (Layton & Ucko, 1999, p. 3). But they also see that “Reading the landscape as an expression of meanings negotiated in past or

(continued)
Landscape archaeology in Germany

Landscape archaeology in Germany is rooted mainly in the concept of settlement archaeology. A detailed discussion of the history of the term and of the sources and methods of settlement archaeology can be found in Jahnkuhn (1977). He defines settlement archaeology as a field of research that, first of all, strives to study questions relating to settlements on the basis of archaeologically comprehensible and explainable material sources without considering phylogenetic or ethnic aspects. Janhkuhn emphasizes the closeness of settlement archaeology to settlement geography and its two branches, physiogeography and anthropogeography. In this context he applies the term settlement archaeology not only to the examination of the records of a settlement but encloses the economic units pertaining to the settlement as well as raw materials and burial sites (Jahnkuhn, 1977, p. 6ff.; cf. Schade, 2000, p. 140).

Another consolidating strand is manifest in the teaching of landscape archaeology at universities. A short survey on the Internet (e.g., www.bristol.ac.uk 2007, www.exeter.ac.uk 2007, www.oxford.ac.uk 2007, www.sheffield.ac.uk 2007) reveals that the aim is the reconstruction of human interaction with a landscape through time, encompassing the earliest hunter-gatherers as well as recent historical times. What makes this understanding of landscape archaeology new and establishes its broadness is the search for analogies in human geography, anthropology, and art history, as well as in philosophy. On the other hand, these studies embrace an interpretative framework that links this kind of landscape archaeology to postprocessual archaeology by looking at emotional and political values. The interpretive framework includes issues such as ritual and cognitive landscapes, sacred geography and the political dimension of the past in the present.

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Shortly after Jankuh’s paper had appeared the term “landscape” was used in the German archaeological literature. In his article of 1982, “Siedlung in bandkeramischer und Rössener Zeit,” J. Lüning remarks that one should preferably speak of an archaeology of prehistoric cultural landscape if the
archaeology of settlement is combined with the examination of agricultural areas, cult, political, and military works and networks of traffic (Lüning, 1982, p. 9). His paper, “Landschaftsarchäologie in Deutschland – Ein Programm,” (Lüning, 1997) deals explicitly with the concept of landscape archaeology, defining it on an abstract theoretical level:

The term landscape archaeology . . . describes mainly an overarching view. With the help of this view older approaches of research, namely settlement-, economic-, social-, and eco-archaeology, each with its own focus, can be combined to form a strand of questionings. The classical settlement archaeology is closest to the term landscape archaeology. . . . (Lüning, 1997, p. 277, translation by J.L.)

Another German publication that tries to substantiate the concept of landscape archaeology is C. Schade’s Masters thesis: “Landschaftsarchäologie – eine inhaltliche Begriffsbestimmung” (Schade, 2000). Although he does not contradict Lüning’s position he suggests a definition of landscape archaeology that is closer to practice:

The term landscape archaeology denotes the systematic examination of regions settled in prehistoric times (Leser, 1997, p. 690), which usually aims at the reconstruction of settlement structures and diachronic settlement processes. The structure of a settlement system and of economic areas provides clues for the type and extent of land use and via this strand also for the communal system of a concrete historic and cultural-spatial section of a landscape. Changes in society and economic conditions can be discerned in the choice of different locations and also in number, size, and function of settlements. (Schade; 2000, p. 182, translation by J.L.)

Based on this definition a synthesis of different archaeologies is emphasized, thus stressing an intradisciplinary interlacing in addition to the interdisciplinary teamwork with the natural sciences.

In general the reconstruction of the cultural landscape and its mutual effects with the surrounding natural sphere is the objective of landscape archaeology. Therefore the archaeological sites of the area under investigation have to be recorded as comprehensively as other elements of the landscape (Lüning, 1997, p. 227f.; Schade, 2000, p. 184). The core thought of this concept is that, in a given landscape, there is no isolated site but every trace of human activity is part of a settlement system that has to be recorded (Schade, 2000, p. 160). Because it is impossible and also of little use to dig up whole landscapes, apart from excavation, surveys combining natural scientific and archaeological methods are indispensable (Lüning, 1997, p. 281f.; Schade, 2000, p. 172ff.).

With the help of statistical methods the representativity of the surveyed and excavated areas (Zimmermann, 2001) and of the examined random samples of the inventories (Linstädter et al., 2002) can be checked. Mappings with geographic information systems (GIS) show the distribution of sites in space
and on a timescale as well as the relationship between the archaeological sources and the natural factors. Apart from a two- or three-dimensional representation of the information, GIS also enables their statistical interpretation.

An excellent example of landscape archaeological work is the examination of the Linearband-ceramic settlements of the Aldenhovener Platte (North Rhine-Westphalia, Germany). In the project, Settlement Archaeology of the Aldenhovener Platte (SAP), five settlements were almost entirely excavated during the years 1972–1973. On the basis of this record the area became a main focus of research. The SAP project continued into the 1980s. In the meantime in an area of approximately 300 km², 34 sites are known and all the work concerning the structure of settlements (Boelicke, 1982), ceramic typology (Stehli, 1973), and the supply of raw materials (Zimmermann, 1995) have formed the basis for further archaeological research. In addition the settlement archaeological examinations were always connected to palaeoecological and especially palaeobotanical research (Kalis, 1988; Kalis & Zimmermann, 1988). Thus evidence was presented concerning vegetation history, agriculture, and anthropogenic environment change in the settlement’s surroundings.

Since 1998 settlement and environmental archaeological work has been continued in the project Landschaftsarchäologie des Neolithikums im Rheinischen Braunkohlerevier (LAN). This project is based on an explicit landscape archaeological concept. The objective of the project is to investigate the settlement corridors of the Rhenish Lössbörde in representative sectors (small regions). Both the internal structure of single settlement clusters and the connecting economic and social networks are the focus of this project (Frank & Wendt, 2003). To compare or complete data from these different levels of scale, methods of upscaling and downscaling have been developed (Zimmermann et al., 2004). All in all, empirical approaches dominate German landscape archaeology.

### 6.2. LANDSCAPE-ARCHAEOLOGICAL DEFINITIONS AND METHODOLOGY

#### 6.2.1. Definition of the Term “Landscape”

Different scientific disciplines foster their own definitions of the term “landscape,” as the articles of this volume show, and within archaeology itself there is no consistent definition. Archaeologists often make use of the dichotomy of “cultural landscape”
versus “natural landscape” (Schade, 2000, p. 156). The term “cultural landscape” is used to describe the human impact on the environment. Opposed to that, “natural landscape” is used for a system which is barely or not influenced by humans at all, which is the state people encounter when first colonizing an area.

In landscape ecology the term landscape is synonymous to the concept of “landscape ecosystem.” This system is characterized as part of the earth’s biogeo-sphere (ecosphere), realized as a highly complex, substantial, and energetic system of natural influences to which anthropogenic factors and processes stand in direct or indirect relation (Leser, 1997, p. 187). The relationship of natural and anthropogenic factors builds the center of this definition, termed the society-milieu relationship (Hirsch, 1995, p. 9). Even geographical definitions of the term “landscape” such as Sauer’s (1963, p. 343) follow this understanding: “The cultural landscape is fashioned from a natural landscape by a cultural group. Culture is the agent, the natural area is the medium[;] the cultural landscape is the result.”

According to these landscape-ecological and geographical definitions and in synthesizing the terms cultural and natural landscape frequently used in an archaeological context, we apply landscape as a concept in between human cognition and action (subsuming both as *Gestaltung*) on the one hand and independently existing material resources. We postulate that there is an independent natural complement to human agency. It is well established in the humanities that a distinction of nature versus culture does not correspond to the views of non-Western societies (e.g., Heyd, 2002; Dowson, 2007). However, in a Western scholarly context there are useful aspects in the existence and use of these terms if the incongruence with emic categories is always kept in mind. But the denial of such distinguishing categorization inevitably leads to an unsystematic mingling of two epistemologically different corpora.

In order to avoid getting caught up in a lasting discussion on the validity of these two categories we suggest the analyzing of landscape with a categorization which is not particularly biased, although the analogy to other concepts is evident (Figure 6.1).

### 6.2.2. A General Procedure for Landscape-Archaeological Practice

According to our understanding of the term landscape it incorporates methodological properties that enhance the strength of landscape archaeology as an integrative tool. Natural resources, subdivided according to their parameters, are correlated with basic human needs. Both are linked by the use potential that transforms a resource into an asset.

Through the configuration of both antipodes a lot of possible relationships between use potential and the satisfaction of human needs can be generated. The pattern that emerges through the satisfaction of a specific need by making use of particular options produces the individual fingerprint of a community utilizing a certain landscape at a certain time. This fingerprint is termed in the following the general pattern of use.
Although resources of a prehistoric landscape are often still detectable today, the former needs can only be assumed. However, these assumptions are founded on an empirical base. According to the landscape-archaeological concept no isolated site exists without being part of a settlement or use system. Likewise no isolated human action exists beyond the common human behavior of nourishment, settling, tool production, mobility, or interaction with the environment and his or her own species (identity, communication, symbolism).

A general procedure for landscape-archaeological projects has already been described elsewhere (Schade, 2000, p. 184ff.). Modified to our methodological approach, the procedure is divided into six steps (Figure 6.2). The first step is the generation of archaeological data. This includes the definition of the research goal as well as the research area, followed by surveys, excavation, and documentation of all sites and finds. The second step follows the determination and the ranking of human needs (a step which has to be done only once, unlike the generation of archaeological data). Step number three in our chaîne opératoire is the identification and mapping of all potential resources. The resource survey takes place most appropriately with the search for the materials recorded on the sites. Moreover, the knowledge and understanding of resources that were not used provide interesting insights as well. Step four results automatically from step three, that is, the definition of the use potential of all resources and the qualitative assessment of the raw materials. Finally this step shows what the landscape actually offers to its inhabitants. In the fifth step the sites are analyzed and combined to temporal and spatial units. Here archaeological entities are evaluated with their natural resources and

Figure 6.1. Categorization of landscape relevant for landscape archaeology
their use potential for the consequential comparison. At the final step generalized patterns of land use can be formulated, land use maps or cognitive maps can be produced, and particular questions can be investigated by modeling methods.

6.2.3. Concepts of Landscape Description: More Definitions and their Methodological Implications

6.2.3.1. Nature and Natural Assets

Nature, we maintain, is the empirical landscape that can be examined by the natural sciences in order to supply evidence that provides explanations and
understanding for us but may not do so for indigenous people. The advantage of describing nature in natural scientific categories lies in the possibility of developing comparisons and analogies between different landscapes, procedures that do not lie in the scope of emic knowledge systems. Accordingly nature retains relevant information for outsiders without indigenous insights. We may yet be potentially able to communicate parts of our notion of nature to indigenous people because it refers to that part of the world (following Schütz’ understanding of phenomenology) where they can meet us physically, we, who are not cultural insiders of their world. Nature holds the resources of interest for human exploitation or symbolization; it is the arena where natural assets are available or negotiable. The choice of the term “natural assets” is based on the aspect that through its connotation of being useful or beneficial to someone, it implies human involvement, thus strengthening the view that a landscape concept is futile without the human role in it, even if it were manifest only in perception. Moreover, the term natural assets should be understood as a heuristic descriptive tool by which the resources that help to satisfy human needs can be registered.

6.2.3.2. Gestaltung

The complementary second component in this approach to landscape is termed Gestaltung, which means giving a gestalt to something. More specifically it denotes the process by which a structure or configuration is given to physical, biological, or psychological phenomena so integrated as to constitute a functional unit with properties not derivable from its parts in summation (after Webster’s, 1993, p. 952). In part this refers to the physical act of shaping or processing given assets (e.g., fitting a stone tool or seeding crops) and using the resources whereas another part of the concept Gestaltung refers to cognition, that is, the “knowledge, purposes, practices, and skills of the people” (Segal, 1994, p. 22) who have interacted with the landscape. These two broad aspects of Gestaltung are grasped here with the terms “use” (see below), for which field archaeology is the relevant research tool, and “cognition” where cognitive archaeology is the appropriate instrument.

Cognition is listed here as a means of Gestaltung because it denotes an active procedure by which perception is processed in the mind in order eventually to be uttered as behavior and action. Among the cognitive means of Gestaltung rock art takes a salient position inasmuch as it is a sign system often with universally readable elements. They may become understandable to a certain extent even without indigenous comments through the employment of information of intercultural knowledge, such as animal behavior (e.g., Lenssen-Erz, 1997, 2000; Hollmann, 2003). Further advantages of rock art are the restrictedness of taphonomic processes (usually weathering, erosion, and/or repatination only) and, as a consequence thereof, the reliability of the spatial context in which rock art is found which, better than in any other artefact class, enables considerations as to the original, intended spatial arrangement.
6.2.3.3. Basic Needs

Use of resources is a behavior that is inseparably linked to the basic needs which people must satisfy if they want to lead a decent human life. Our list of basic needs follows conventional needs after Abraham Maslow (Figure 6.3, left; Maslow, 1970, 1981; see also Lenssen-Erz, forthcoming, for a detailed discussion) such as food, protection, and so on. The hierarchy established with this pyramid was subdivided by Maslow into the four lower D-needs = deficiency needs and the three higher B-needs = being needs, indicating that the lower needs necessarily have to be satisfied whereas higher needs may not even turn up in every person (Maslow, 1981, pp. 102, 128f.). Once someone has reached the upper levels, he or she may—at least temporarily—dispose of the satisfaction of the lower ones (ibid., 79, 102). This model of needs should therefore be understood as flexible with permeable levels that provide a framework for the motivations under which people may act in any given situation.\footnote{Recently Maslow’s model has been developed into a paradigm based upon another metaphor, i.e. that is, the “spiral dynamics” model (Beck & Cowan, 1996). This, however, does not invalidate the Maslow pyramid which would seem to be more down to earth and therefore more adequate for archaeological appropriation even though the spiral dynamics model has been put into political practice.}

As with Maslow’s model, needs are ranked differently according to their priority. Our list includes issues that are normally not registered in the many variations of Maslow’s pyramid of needs, such as tool production or mobility (Figure 6.3, right). The reason for including such needs lies in the fact that, first, they are means and sometimes preconditions for satisfying the more basic needs and, second, the ubiquity of the respective items (e.g., tools) indicates that people everywhere and at any time display the behavior of producing these traces. Tool production defines humanness and is the major diagnostic evidence of human activity. There is a cogent link of human life with tool production that consequentially is conceptualized here as one of the more or less basic needs.

In order to adapt Maslow’s understanding of needs and its psychology-loaded terminology to the conventions of archaeology, Figure 6.3 provides a correlation of Maslow’s levels with terms which are current in archaeology.

6.2.3.4. Resources

According to the dictionary, “resource may refer to any asset or means benefiting or assisting one, often to an additional, new, previously unused, or reserve asset” (Webster’s, 1993, p. 1934). On purpose there is little specification in this definition but there are characteristics that can still be contextualized archaeologically. Accordingly resources are those assets which:
Figure 6.3. Human needs as defined in the present study, correlated with the levels of Maslow’s pyramid of human needs (Maslow, 1970)
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- Cover all human needs (cf. Figure 6.3)
- Have always been used by humans since the early hominids
- Are accessible to and can be made use of by every able person
- Can be grasped empirically to a large extent, thus being described in formats that enable comparisons and analogies

Such a holistic view on resources sets up a close connection with the concept of lifeworld as established by Schütz (Schütz & Luckmann, 1975). The purpose of linking lifeworld to resources is to establish a descriptive unit that could be an autarkic entity in which the entire life of a population could possibly take place without the necessity to leave this territory in order to gain access to vital outlying resources.

In the context of landscape archaeology, as it is suggested here, five main resources can be established: water, abiotic raw materials, plants, animals, and space but the inclusion of further resources may be possible in future, for example, time or human. The first four resources follow a universal rationality and underlie universal causalities. Here the forces of physical laws, evolution, or geology are at work and restrict the options for human intervention. They are therefore prone to be dealt with by natural sciences if a general first overview of the availability and richness of these resources is needed in a case study. Space, by contrast, is a resource that, to a large extent, underlies culture-specific rationality and causalities (e.g., Dünne & Günzel, 2006) with use being guided by cognition to a much higher degree than that of the other resources.

Each resource is apportioned into several parameters. These parameters define the resource precisely and have to be checked as to whether they are available in the research area. The resource “water,” for example, is characterized by

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2 Hannah Arendt, following A. Schütz, developed and summarized his concept for a modern world context, but nonetheless her interpretation matches all premodern lifeworlds very well because “the world of common experiences and interpretation (Lebenswelt) is taken to be primary and theoretical knowledge is dependent on that common experience in the form of a thematization or extrapolation from what is primordially and pre-reflectively present in everyday experience” (after Yar, 2001).

3 The parameters of time range from day/night over seasons and lifetime to generations and also past and future may be listed here. Time has a potential to be used for labor, leisure, recreation, or movement, as well as social and religious management. Traces of these kinds of use are either too ephemeral or too variant to be analyzed systematically. The human resource certainly awaits a clear definition but it may comprise parameters such as ratio, language, symbolic thinking, reproduction control, and skilled movements. These specific abilities can potentially be used for working power, Gestaltung, innovation, abstraction, imagination, communication, or social differentiation, and the like. Finally, it is only through the human resource that the satisfaction of a basic need can be accommodated which undoubtedly is of universal character, namely sexual activity. Although the relevance of time in landscape archaeology has been emphasized recently by, for example, Ingold and Bender (Ingold, 1993; Bender, 2002), the human as a resource has not received similar attention.
the parameters surface or groundwater (in addition to rain). Of special interest
are, in this case, questions such as how much water is available (annual precipi-
tation or groundwater) and at what distance. Furthermore it should be clarified
whether water is available permanently or just temporarily. The other parameters
are listed in Figure 6.4 in the column “resources.”

6.2.3.5. Use and Use Potential

For the interaction with resources one may resort to a rather simple, everyday
term, namely “use” (German: Nutzung). It encompasses exploitation, consump-
tion, curation, nurture, development, occupation, and symbolization. Usually the
use of resources leaves traces in the ground. As a rule of thumb one might say
that, to a large extent, in the physicality of the findings of field archaeology one
has to deal with the results of productive targeted activities—mainly aimed at
tangible addressees—that are based on a cognitive spectrum of everyday with the
causalities and rationalities of the physical world. Such issues have always been
dealt with by conventional archaeology concerned with settlements, economy,
social structure, or ecology.

In contrast, the cognitive elements are rather tokens of symbolic actions
whose cognitive spectrum may not be linked to our real world thus having its own
causalities and rationalities. They are not necessarily derivable by logic reasoning
and may partially be aimed at intangible addressees. Yet, cognition is not entirely
arbitrary and retains many elements that are accessible from the inevitably etic
perspective of a prehistorian (Zubrow, 1994a, b, p. 110f.).

For each resource parameter there is a potential for use. The potential is the
maximum of what can be extracted as an asset from a resource but may never
have been managed to the full extent in prehistoric small-scale societies (such
as gaining energy from water). In this potential there are options of use that are
dependent on temporal and spatial circumstances inasmuch as not every land-
scape will inevitably provide the full range of resource parameters. Therefore,
from the options available, every society makes its choices thus producing pat-
terns of use. It may, however, happen that a society does not exploit the full use
potential at its availability and in such a case it should be worked out why this is so.
Maybe it was conscious choice, inadequate technology or knowledge, and so on,
or maybe relevant needs could be satisfied with another resource or access to the
respective resource was blocked by a competitor.

The three strands of resources, use potential, and basic needs form the pillars
of any livelihood and pattern of land use. It is the archaeological data that hold
the information for the understanding of how one pillar is connected to the other
with use potential attaining a central position (Figure 6.4). This scheme enables
the researcher to make valid statements concerning the way of living for any
society and to format the knowledge about it in a layout that enables comparison
to any other society.
Figure 6.4. Analytical scheme of the relationship among resources, use potential, and human needs
The Millennium Ecosystem Assessment (2005, p. 28) has presented a comparable matrix of relationships working with two basic poles: First “ecosystem services”, encompassing “life on earth – biodiversity” which combines components that our model lists under resources but on the other hand are clearly culturally embedded needs. This pole is complemented in the Millennium Ecosystem Assessment (MA) by the second pole of “constituents of well-being” in which basic needs are combined with qualified resources (e.g., “sufficient nutritious food”). Because the use of this model is aimed at political decision making it also contains issues such as “freedom of choice and action” among the constituents of well-being. Both poles are linked with arrows assessing the “intensity of linkages between ecosystem services and human well-being” on the one hand and—here again the political purpose becomes tangible—“potential for mediation by socioeconomic factors.”

Both models, the MA as well as ours, are attempts at finding a representation for the complex social–ecological systems’ relationships. The necessary differences between both are based on the dissimilar purposes, where our model aims at bringing together all kinds of archaeological finds and data in a consistent empirical framework.

Three case studies presenting archaeological landscapes (the Gilf Kebir in southwest Egypt, the Brandberg/Daureb in central Namibia, and the Ennedi Highlands in eastern Chad) exemplify how the two poles of resource and need can be represented in a matrix showing their interrelation with the use potential thus producing the fingerprints of livelihood of these cultures.

### 6.2.3.6. Case Studies

The case studies in this chapter serve to exemplify the method proposed here. They are not at all complete descriptions of the discussed sites, cultures, or phenomena. Each of the presented studies is able to fill monographs (Linstädter, 2005) or even book series (Pager, 1989–2006). But the case studies show that by using the relation module of resource/use/basic needs as a guideline the presentation of land use studies can be structured in such a way that different case studies become comparable.

### 6.2.4. The Gilf Kebir Case Study (Southwest Egypt)\(^4\)

The Gilf Kebir is a sandstone plateau situated 650 km west of the Nile valley on the same geographical latitude as the Aswan Lake. In the north it disappears under the Great Sand Sea, and in the southeast its cliffs rise about 150 m above the surrounding plains. Here the plateau is intersected by broad wadis. Some of them, such as the Wadi Bakht, the Wadi Maftuh, or the Wadi el Akhdar, are of special interest for geographers and archaeologists because of their unique geomorphological

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\(^4\)The Gilf Kebir case study is based on fieldwork carried out in the framework of several DFG-sponsored projects at the University of Cologne. The Great Sand Sea case study (Riemer, this volume) was undertaken with the same background.
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situations: the so-called barrier dunes or terraces (Kröpelin, 1989). Over a period of several millennia, the sediments of playas accumulated behind these barriers. These sediments are the result of seasonal or episodic rainfall which has produced temporary water reservoirs used by prehistoric inhabitants.\(^5\)

Comparable to the SAP-project in Germany described above, in the Gilf Kebir stone tool and ceramic technologies, settlement structures, and subsistence strategies were investigated according to the settlement-archaeological approach. At the end of the twentieth century many of the excavated sites were published and a chronological sequence was established (Figure 6.5) (Hallier, 1996; Schön, 1996; Linstädter, 1999; Gehlen et al., 2002).

The investigation of the archaeological sites close to the playa lakes formed the basis of a conceptual model on settlement activities in the upper reaches of the valleys. Crucial questions of research were the extent of the economic area used by the prehistoric population and the source of raw material supply for the production of lithic tools found in the valleys. It was obvious that the area inside the

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\(^5\)The upper reaches of Wadi Bakht, Wadi Maftuh, and Wadi el Akhdar have been subject to archaeological investigation by researchers of the University of Cologne during the past 20 years (Kuper, 1995; Schön, 1994).

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**Fig. 6.5.** Chronological sequence of the Gilf Kebir
wadis and close to the dwelling sites could not have sufficed either for the needs of hunter-gatherers nor for a pastoral-nomadic way of life. Moreover, no quartzite or chalcedony deposits were found close to the barrier dunes. There was also only little evidence of material or cultural exchange with other occupation areas investigated in the Eastern Sahara.

As a first step a research area in the southeastern Gilf Kebir was selected (Step 1). The research area extends from the upper reaches of the Wadi Maftuh and the Wadi Bakht in the west to the eastern plains of the Gilf Kebir in the east and has an extension of about 450 km². It includes three different landforms: plains, valleys, and the plateau surface (Figure 6.7). The vast forelands were surveyed by car, the barely accessible plateau area by foot. As a result 134 sites were documented and parts of them were excavated.

After defining the human needs (Step 2) the natural resources had to be checked (Step 3). In the research area these are mainly surface water behind the barrier dunes, and the quartzite outcrops on top of the plateau. These two resources have a high use potential (Step 4). As a water source there is no alternative to the water reserve of the wadis anywhere in the entire region. Of the stone tools more than 90% are made from the local quartzite.

After standardized analyses in order to obtain data on the material culture, the internal structure, and the age of each site, the findings were categorized (Step 5). One of these categories relates to raw material deposits (so-called outcrops) with diameters between 10 and 60 m, which in almost all cases show evidence of extensive human exploitation. A second category covers campsites which suggest extended stays due to evidence of stone hearths or stone circles or material such as grinding stones, pottery, bones, or ostrich egg shells. Isolated workshops are the third category, indicating short-term stays to renew the supply of stone tools or blanks. In the next step analysis followed that examined the relationships between the natural resources available in the Gilf Kebir including their use options, correlated with the basic needs of the prehistoric inhabitants of the region.

In order to investigate the general land use patterns of the research area all sites were mapped and their relations defined (Step 6). On the base of these data land use models on a local and regional scale were developed (Linstädter & Kröpelin, 2004; Linstädter, 2007).

The mapping of the three different categories shows a very different use of the landforms plain and plateau. Only 12% of the plain sites are raw material deposits and were used for raw material supply. About 88% of the sites (workshops and campsites) indicate short- or medium-term stays. On the plateau the reverse pattern is to be observed. More than half of the sites are quartzite outcrops, used in prehistoric times. The research area appears as a cultural landscape in which special land use systems developed as a function of raw material occurrences and geomorphologic factors.

One of the main aims of the landscape-archaeological concept is to show the change in land use practices at different times. In contrast to the Brandberg/Daureb case study (see below) where land use patterns of a single phase were examined, two phases with different patterns were compared in the Gilf Kebir
case study. The determination of a specific phase is achieved by radiocarbon dates or typological investigations. However, not every site provides datable material because of heavy erosion and deflation in most of the desert landforms. The area with the most dated sites is the plateau region. Here the different patterns of land use in the two main phases, Gilf B (6500–4300 bc) and Gilf C (4300–3500 bc; Figure 6.6) can be clearly distinguished.

The different resources yielded the following evidence.

6.2.4.1. Water

The availability of the resource water is the most likely factor that influenced the land use pattern at all times. According to our current knowledge there was no groundwater available in Neolithic time (Kröpelin, 1989, p. 232). Geological and archaeobotanical research show that precipitation was probably lower than 150 (Kröpelin, 1989, p. 286) or 200 mm/a for the entire period of the Neolithic wet phase. These rainfalls were episodical. In which season they were to be expected depended on the influence of the prevailing climate regime. It is assumed that for the time up till approximately 4300 bc summer rain and from 4300 on winter rain influence was predominant (Linstädter & Kröpelin, 2004). Phase Gilf B therefore falls into the period in which the eastern Sahara was under the influence of the summer rain regime. The wadi barriers in some of the valleys of the Gilf Kebir enabled the water from the brief rainfalls to remain available over a longer period during the entire phase of occupation (Figure 6.6). Because a large part of the heavy summer rains in phase B drained away on the surface, the locations close to the wadi barriers were of special importance.

Settlements during phase Gilf C were under the influence of the winter rains. The change of the rainfall regime had an effect on the water supply but also on flora and fauna, as well as on the economic and settlement system of the people. Despite the same quantity of rainfall as before, species were detected that indicate a more favorable water supply. Moderate rainfalls are better suited to the vegetation on the spot. From time to time it likely generated a grass covering on the plateau, which then could be used as a meadow. At the same time the run-off was diminished so that the settlement sites at the barriers became less attractive and campsites on the plateau confirm its usability.

6.2.4.2. Abiotic Raw Material

The most important aspect for stone tool production is the question concerning raw materials. Through surveys (Linstädter, 2003, p. 385), information on rich deposits of different quartzite varieties on the Gilf Kebir Plateau was gathered. The quartzites occur in outcrops in the vicinity of the valleys and are easily accessible. Eighty to ninety percent of all stone artefacts are made of this material (Schön, 1996; Linstädter, 1999). A chaîne opératoire reconstructs the quartzite quarrying on the plateau and its working in the valleys in this phase (Linstädter, 2003, Figure 2). The other artefacts were made of sand- or siltstone,
several chalcedony varieties, quartz, basalt, or desert glass (Schön, 1996, p. 353). The source of the quartz and chalcedony have not yet been identified, whereas the origin of the desert glass is precisely known. It originates in the southeastern Sand Sea, directly to the north of the Gilf Kebir and clearly proves contact with this region. Apart from the raw material for the stone tool production, raw material for ceramic production such as clay (playa sediments) or temper material (sand).
Figure 6.6. (continued) white arrows indicate new relations after livestock and rock art were introduced.

is available although there has been no indication of local ceramic production in the eastern Sahara up till now.

6.2.4.3. Flora

Information on the tree structure is provided by the research of Neumann (1989, pp. 116ff.) and Nußbaum (Linstädter & Kröpelin, 2004). The identified species
(Tamarix sp., Acacia sp., Maerua crassifolia, Balanitis aegyptiaca, Faidherbia albida—in the case of Neumann still Acacia albida—and Ziziphus sp.) are still existent in the Sahara and indicate an arid to semi-arid climate. For the early Holocene before 6500 bc only Tamarix sp. was detected. This species forms the so-called gallery forests and requires 50–100 mm/a precipitation. From 6500 BC (Gilf B) Acacia sp., Ziziphus sp., and Feidherbia albida can be found, where at least for Ziziphus sp. more favorable conditions must be assumed (Neumann, 1989, p. 123). The occurrence of F. albida, which is only present for a period around 5000 BC, indicates a monsoonal influenced summer rain regime for it is clearly a savanna species. Evidence of Ziziphus sp. lasts until 3500 BC and includes the phase Gilf C. Therefore it can be assumed that at least the species Ziziphus sp. indicates favorable conditions with annual rainfalls from 150 or 200 mm in the phases Gilf B and C. The influence of the summer rain (F. albida), however, is only to be expected for the Phase Gilf B. From 3500 BC on again only Tamarix sp. can be detected.

Tamarix sp. as well as Acacia sp., M. crassifolia, and B. aegyptiaca provide good firewood and are therefore possibly rather frequent in charcoals. With certain restrictions they can also be used for constructing simple housings.

Evidence of the herb structure is far more complicated to obtain. On the shores of open water Phragmitis communis, as well as Typha and Juncus sp. can be assumed. From the tree structure Acacia–Panicum societies can be reconstructed for depressions, wadis, and alluvial plains.

### 6.2.4.4. Fauna

The different faunal inventories from the Gilf Kebir area have been published by Van Neer and Uerpmann (1989), Peters (1987), and Gautier (1982). The following species were identified: Giraffa camelopardalis, Oryx damah, Addax nasomaculatus, Gazella dorcas, Gazelle dama, Canis vulpes, Crocuta crocuta, Struthio camelus, smaller birds, larger bovids (possibly Bos primigenius f. taurus), as well as Ovis aries and Capra hircus. On the site Wadi Bakht 82/21, H. Berke (personal communication, 2004) further identified Lepus sp., Rana perezi (a frog), turtle, and a bird species. For the phase Gilf A no identifications of fauna are available whereas phase Gilf B only yielded wild animals. In this phase the resource fauna only supplied the potential meat and material such as bones and leather. In the following phases Gilf C and also to a lesser degree phase D in addition to wild animals there are also domestic animals (cattle, sheep, goats) present. In what way their occurrence is connected with the changed climatic conditions or whether it is due to cultural development cannot be decided thus far. But it highly increases the usable potential of the resource fauna. In addition to meat, blood, and milk also the physical energy of the animals, for example, as pack animals, may have been used. Furthermore there is the possibility of animal husbandry offering not only the accumulation of food reserves but also a trade and status potential. The symbolic potential that wild and domestic animals had for settlers of the Gilf Kebir are demonstrated by the rock art sites, as, for example, Mogharet el Kantara (Shaw’s Cave, Shaw, 1936). Rock art as well as open-air sites at the Gilf Kebir show that the resource animal did not only fulfill
diet and tool production needs. Likewise it served to conceptualize the surroundings (symbolism) and the keeper’s own role (identity).

6.2.4.5. Space

The spatial extension of the phenomena typical for the prehistoric settlements of the Gilf Kebir is hard to determine. The thoroughly investigated and, in the sense of style and technique, fully comparable sites of the Wadi Bakht and the Wadi el Akhdar are separated by roughly 25 km. If the sites in closer vicinity (predominantly raw material sources) are included they cover an area of about 2000 km².

The epipalaeolithic microliths of the phase Gilf A are spread throughout the entire Eastern Sahara, a region of about 1,500,000 km². Typical for the phase Gilf B are likewise special microlithic forms but also mostly undecorated pottery, which occasionally exhibits notched rims. The microlithic forms (Linstädter, 1999, Figure 5, no. 1–7) can also be found in the south of the Great Sand Sea (Wilmanns Camp), and the pottery (Linstädter, 1999, Figure 5, no. 20–21) is dispersed as far as the northern Sudan (Wadi Shaw). Therefore the area under consideration in this phase probably extends over 300,000 km². Phase Gilf C does not consist of any significant stone technology and tool types. The mostly impressed pottery has hardly any parallels outside the Gilf Kebir (Hallier, 1996, p. 107). In view of the fact that, as mentioned above, domestic animals first occur in phase Gilf C, all rock art with cattle depictions can be dated in this phase. The cattle depictions of the Gilf Kebir and the Gebel Uweinat are stylistically similar. Although Shaw’s cave is close to the Wadi el Akhdar, the area under consideration expands to about 15,000 km² when including the rock art sites of the Wadi Sura and the Wadi Hamra, and to about 40,000 km² when including those of the Gebel Uweinat as well. Therefore a reduction of the coverage areas can be detected from the early to the later phases, apparently in a process of regionalization.

6.2.5. The Brandberg/Daureb Case Study (Namibia)

The Brandberg/Daureb in Namibia is an inselberg of 30 km diameter located on the fringes of the Namib Desert to the sparse shrubland at a distance of 80 km from the Atlantic coast. As an area that receives an annual precipitation of about 100 mm it is submitted to a desert climate but the vegetation of the mountain is much richer than the precipitation would suggest. Because the southern subcontinent has not suffered from climatic changes during the Holocene in the same way as the north, conditions of today do not differ drastically from that phase in the Later Stone Age between 2000 and 4000 years ago, when the bulk of the rock art in the area was created.

The Brandberg/Daureb is among the best-studied rock art areas worldwide (Pager, 1989–2006) with research aimed at the link between rock art and space from the onset. In fulfillment of general postulates of landscape archaeology the sites as well as their immediate and wider surroundings have experienced very close attention with systematic recording of contextual data (Lenssen-Erz, 2004).
These data together with the whole body of rock art that has been recorded in the area, enabled a classification of sites and, derived thereof, a pattern of use of the whole prehistoric lifeworld (Lenssen-Erz, 2001, pp. 254ff.; 2004).

Proceeding from recording to analysis and to interpretation the chaîne opératoire as laid out in Figure 6.2 was implemented: all sites in the area were recorded, surveyed, and documented (first step).

In the second step the basic needs were identified, largely by extrapolating from the vast ethnography on southern African hunter-gatherers (e.g., Marshall, 1976; Tanaka, 1980; Silberbauer, 1981; Guenther, 1986). Here mobility and settlement patterns in relation to the natural resources and carrying capacity play an important role (Lenssen-Erz, 2001, pp. 267–270).

The structure of the landscape with its most prolific and most important resources has to be recorded as a third step. Also features focusing on space such as passes, passages, gorges, or natural travel routes are phenomena that were frequently landmarked by prehistoric people (cf. Bradley, 1994; Swartz & Hurlbutt, 1994) and therefore are part of the comprehensive record.

Step four (Figure 6.2) defines the use potential, that is, which were the actual options for the prehistoric hunter-gatherers in the area for their livelihood and which use could they have made of the given assets. With this background seven types of sites were defined (see below; cf. Lenssen-Erz, 2001, p. 285ff., 2004) in a hypothetico-deductive procedure (Bernbeck, 1997, pp. 58ff.) which accommodate all patterns of behavior that are known from the ethnography of southern African hunter-gatherers.

The detailed analysis (Step 5 in Figure 6.2) looks at rock art as the main cognitive source and at the special features of the sites where also aspects of use play a role. Cognitive phenomena such as specifications of motifs, complexity of depictions at a site, as well as patterns of depicted behavior were all included in the analysis (cf. Lenssen-Erz, 2001, pp. 301ff., 2004). Additionally, the physical features such as distribution of pictures, their visibility, or the interrelations with other sites are part of this analysis.

This complex array of data together with the classification of the sites in seven classes (Step 4 in Figure 6.2) produced first of all a pattern of the frequency of sites (Step 6 in Figure 6.2): (class A) waymark/landmark site (13% of all sites are in this class), (class B) short-term living site (14%), (class C) long-term living site (2%), (class D) aggregation camp (2%), (class E) casual ritual site (34%), (class F) planned ritual site (22%), and (class G) sanctuary, hermitage (14%).

In addition to being the basis for a distributional map, the classification with its patterned features for each site class also served to establish an Idealized Elementary Site (IES). This is a hypothetical site comprising those features of size, location, space, natural infrastructure, artefacts, and rock art which are most common among all sites, being the statistical average site, as it were. Such a site is characterized as follows.

- A small shelter comprising two large boulders, roofing five sleeping places under a rather low ceiling.
- The site is located on the side of a minimum 20 × 20 m level open area.
Two further sites can be reached over the level area within a 3–6 min walking distance.

A seasonally filled waterhole lies at a distance of about 300 m, yet being farther away than the nearest neighboring sites.

The site is located within a few minutes’ walk from a natural travel route.

There are unambiguous signs of occupation: an amount of several dozen artefacts, mainly of LSA origin, is scattered in front of the site, comprising stone tools and some ostrich eggshell, but also some pottery shards from later periods are present.

Paintings are low on the ceiling of the shelter, but not in a hidden location.

There are some 50 figures, comprising 80% humans and 20% animals; among the human figures 11% are clearly marked male, 8% are marked female, the remaining human figures are zero-marked; animals are mainly springbok, giraffe, and gemsbok.

The scenes mainly show humans commonly moving in one direction; there are only very few superimpositions but variations in the states of preservation suggest the practice of a long-lasting painting tradition.

Obviously this average site also mirrors part of the most common patterns of use and behavior. With this information at hand it is possible to analyze the relation between natural assets and Gestaltung thus providing a picture that illustrates the degree to which the society of a given case study made use of the options and coped with the restrictions of their lifeworld (Step 6 in Figure 6.2; see also Figure 6.7).

6.2.5.1. Water

In the Brandberg/Daureb, water is an ambiguous resource that may be available in drastically variable quantities. Although the average precipitation is around 100 mm per annum (Breunig, 1990, 2003, pp. 31ff.; Lenssen-Erz, 2001, pp. 27ff.), in a year when the rainy season fails (as occurred repeatedly in the beginning of the 1980s) vast areas of the mountain are without any accessible surface water. In years with neither a marked shortage nor abundance the Brandberg/Daureb would seem to have been an area of retreat in prehistoric times when months after the rains water resources became scarce in the savannas and shrubland extending north- and eastwards from the mountain (Lenssen-Erz, 2001).

But direct proximity to water was not an important criterion for the choice of a place to become a rock art site. For those sites near to reliable waterholes no cogent correlation with a certain painted motif could be established.

6.2.5.2. Abiotic Material

Abiotic material is virtually absent from rock art, with the exception that the pigments used in the art are abiotic by nature and therefore there is an obvious symbolic value to minerals such as hematite, ochre, or manganese which are the basis
for red, yellow, and black, respectively. The sources for these materials seem to be restricted to some valley outlets on the southern fringe of the mountain. Raw material for stone tools, on the other hand, is more commonly scattered around the mountain, only the availability of crystal, which was used for tool making, is restricted to a few outcrops in the otherwise relatively homogeneous granite of the Brandberg/Daureb.
6.2.5.3. Plants

Research among the hunter-gatherers of the Kalahari has shown that, besides water, plants are the resource which mainly guides the mobility patterns of nomadic hunter-gatherers (Tanaka, 1980, p. 79; Silberbauer, 1981, p. 202), hence their paramount importance for nourishment as opposed to the unreliable resource of meat. The plant cover of the mountain is rather rich and relatively evenly distributed in the upper regions, thus providing more or less equal conditions for the use of this resource everywhere. In its rich flora the Brandberg/Daureb provides a number of edible plants (Breunig, 1988) but plants play an absolutely negligible role in rock art (less than 0.3% of the motifs). Plant sap may, however, have been used as liquid or binder for colors but there is no evidence of this.

6.2.5.4. Animal Resources

The animal resources of the mountain ranges were of course important as food resources (Van Neer & Breunig, 1999) but they only play a subordinate role in the art (Lenssen-Erz, 2001, pp. 30f.). The bulk of animals on the mountain are small, such as hyrax (Procavia capensis) or rabbits (Pronolagus redensis). By contrast, the large game animals of the surrounding savannas were a central issue in the symbolic and religious practice of the prehistoric painters thus constituting rather a mental resource during the times people stayed in the mountain area. The focus on large hunting game in the rock art indicates that the mountain area, although it may have had the potential to sustain an autarkic life, did not constitute the entire lifeworld of the people who painted here.

6.2.5.5. Space

Space as such is only in exceptional cases an art motif, for example, in depictions of housings, be they huts or shelters (0.15% of the motifs). But through the spatial relations expressed in the locations and distribution of art the use of this resource is well manifested in the Brandberg/Daureb (Lenssen-Erz, 2001, pp. 254ff., 2003, 2004; Lenssen-Erz & Neubig, 2003) and provides the data that allow us to hypothesize about a cognitive map. The mountain’s salient position, which is also supported by being a particularly advantageous biotope, made it the focus of human activities especially during the Later Stone Age (c. 4000–2000 bp).

The matrix of relationships (Figure 6.7) provides clues for the significance of rock art for the early inhabitants of the region. Moreover, it contains clues for the potential of information we can glean from the art. The pattern of relations in Figure 6.7 makes it obvious that space is the resource which can satisfy most basic needs and all resources (except vegetation) share the potential to satisfy the needs of religion and symbolism. It thus appears that vegetation may have been the resource which is nearest to our understanding of nature as the lower needs
(corresponding to Maslow’s D-needs, Maslow, 1981, pp. 127–130), which have little “other world” connections, are all covered here. Moreover, the use potential of space is best exploited whereas, for example, the faunal resources are less comprehensively utilized.

The combined interpretation of the site distribution map, the idealized elementary site, and the patterns of use of the resources form the basis for a generalized pattern of use for the entire mountain area (Step 6 in Figure 6.2). This again combined with the specialized local patterns of use permits a reconstruction of the cognitive map of the prehistoric people (Figure 6.10; in order not to become too complex the cognitive map outlined below does not take much account of the specialized local patterns of use). What can be gleaned from a cognitive map are most obviously patterns of behavior that to a large extent leave their traces in material remains. Further patterns, like those of perception, are more difficult to grasp, and if so, only by plausible derivations from behavior. Yet, in a framework where comprehensive aspects are taken into consideration even patterns of thought—such as conceiving a certain situation as a crisis—seem to be in reach of our interpretation.

Based on the analysis of the whole rock art corpus from a 135 km² segment of the mountain, encompassing all landscape zones from the foot over the slopes up to the high plateau, the mental map of the prehistoric painters was modeled as follows (cf. Lenssen-Erz, 2001, 2003). By reconstructing the use of the resources as listed in Figure 6.4, this mental map evokes a lifeworld where all aspects of human life are accommodated (Figure 6.10). Accordingly the Brandberg/Daureb and its surroundings, about 3000 years ago, were the lifeworld of hunter-gatherers who could rather safely satisfy their basic needs because it provided all resources necessary for an autarkic life. However, these resources were not abundant everywhere in the mountain and in many places could sustain small groups only for a few days. According to the locations where paintings were placed on the rock faces, production as well as consumption of rock art was a public issue enabling all members of the groups to participate in whatever process took place in connection with the art. Consequently, also the reasons for the ritual activities out of which rock art was produced afflicted the whole community. It appears that the ubiquity of rock art is an indicator of a certain critical state of mind in which people repeatedly needed the security and stabilization that can be evoked through communal rituals.

From the characteristics and distribution of 300 rock art sites in the research area one can glean the strategies that were chosen to cope with the crisis, which was probably initially an ecological crisis, such as drought, but with the risk of turning into a social crisis: people limited the size of the groups to about a dozen members and kept up a high level of mobility, changing places every few days. They increased their ritual activities beyond the ordinary frequency of crisis-free times in order to achieve a stabilizing effect through the liturgical repetition of their three major values being community, equality, and mobility. This dominant pattern is superimposed over many other patterns that are expressed in sites that do not fit into the crisis-hypothesis, such as large aggregation camps or sanctuaries.
6.2.6. The Chad Case Study

The third case study also focuses on the rock art of a salient landscape, the Ennedi Highlands in northeastern Chad with the highest peak at 1450 m a.s.l. The Ennedi Highlands is a retreat area on the southern margin of the Sahara that is still today settled by camel nomads (Keding et al., 2007). Archaeological research is rudimentary here (Bailloud, 1997) and it is only within recent years that research within the ACACIA project of the University of Cologne has started to unveil the archaeology of the inner highlands (Lenssen-Erz & Czerniewicz, 2005; Lenssen-Erz, 2007; Keding et al., 2007). First intense settlement activities have become archaeologically visible at the time of roughly 3000 bce with the first cattle and small stock being introduced into the region. According to Bailloud (1997) horses and camels simultaneously arrived in the area around the beginning of the ce. Rock art, painted and engraved, is a ubiquitous phenomenon of the region and spans the period from the few early hunter-gatherers through the times of all herders to the present. At a given time subsistence patterns seem to have been rather homogeneous throughout the highlands (Keding et al., 2007), yet stylistic differences and idiosyncrasies of the rock art suggest a rather strong cultural diversity. Research still remains in the early stages, particularly in view of the analysis of the archaeological finds. Yet the investigation of the 148 rock art sites recorded during the research enables interpretations of the use of the prehistoric landscape.

For the demonstration of the landscape archaeological method the focus is on the differences of painted and engraved sites. Between these two groups of sites more divergences seem to manifest than in other selections of sites inasmuch as most of the main motifs turn up in pictures of both techniques. However, because all social groups appear to have shared the same subsistence patterns at a given time, the resource/use/basic need model is unable to detect differences among the various groups of herders. But the model helps to sort out the potential and limitations of the sources at hand.

It is possible to design a network of relations between the three domains of resource/use/basic need but many of the relations are necessarily insinuations based on general knowledge of the livelihood of herders and to some extent on rock art. The latter is particularly true concerning the horse keepers of the Ennedi of whom no archaeological record has been excavated so far but which are very present in the art. In order to exemplify the method on this particular case study, Figure 6.8 shows the matrix of the resource/use/basic needs model for the Neolithic herders of the Ennedi (disregarding Iron Age cattle herders, camel herders of the last 2000 years, and horse keepers probably from the first millennium ce).

6.2.6.1. Water, Plants, Animals

Use of these main resources will have been the same irrespective of whether the people produced paintings or engravings. All shared the same landscape and have produced their art almost equally in all periods. Accordingly painters as well as
engravers had to face the gradual shrinking of the water resources and as a consequence thereof a change in plant and animal resources, all of which left no choice other than a nomadic lifestyle with its consequential expansion of the lifeworld.

6.2.6.2. Abiotic Raw Material

The choice of producing either a painting or an engraving was made according to social and/or cultural values because it is the same bedrock on which both techniques can be found thus evincing that it was not a particular texture that
attracted either painters or engravers. Yet there is an indirect significance of abiotic material for paintings and engravings because the artists required either pigments or hard stones to produce their artwork. The geological formation of the Ennedi enables rather easy access to both because in particular hematite can be found strewn over wide areas with some interspersed ochre. Also, white mineral pigment can be found in many places. For the engravers it would not have been problematic to collect quartz all over the highlands which is one of the handy raw materials that can produce tools hard and sharp enough to engrave the sandstone of the Ennedi. Accordingly it is hard to determine the sources for these main technical media and to draw conclusions from it because they could be attained in many places in the highlands.

6.2.6.3. Space

In the use of space the most manifest differences between painters and engravers can be detected if taking their art sites as points of reference. Whereas painting sites through their location in shelters and through the constant association with other artefacts indicate the use of the sites as dwelling places, engravings are hardly ever in shelters and are less frequently associated with other artefacts. Accordingly, paintings are found in dwelling or economic areas whereas engravings seem to be located in sacred or in travel areas. Another difference between the two bodies of art is the significantly larger distance between the engraved sites as compared to painted sites. Engravings are scattered more widely without generally allowing visual or acoustic contact between two sites which is frequent among painted sites. Finally, there is a more cogent dependency on topography of the location of engraving sites than can be found among painted sites inasmuch as a large percentage of the engravings are located, for example, at the foot of elevations (42% as opposed to 24% of the paintings).

In view of the fact that there are little material differences between the groups in the Ennedi because they shared equal subsistence patterns, the existence of paintings and engravings indicates that cognitive differences may have prevailed between these groups on the side of manifestations of particular identities. In order to grasp these differences the chaîne opératoire (Figure 6.2) can be implemented and an idealized elementary site can be established, both for the painters and the engravers by taking the whole landscape setting into account and by drawing as much information as possible from the resource/use/basic needs model. Again the caveat has to be emphasized here that much of this information is based on the readings of rock art and has not yet been supported by the results of archaeological excavations.

6.2.6.4. The Mental Map of the Painters’ and the Engravers’ Landscapes

The IES of the painters is a small roofed shelter that lies in a group of sites. The next water source is several hundred meters away but an open area of at least $20 \times 20$ m is just nearby. The site is not located at a particular point of accent in
the landscape and it can be easily reached. The sites face either north or south (rarely east or west), providing limited outlook. The relatively high number of paintings (55) is mainly on the ceiling of the shelter and becomes visible only when nearing the site; some pictures are even hidden in “private” locations. Sometimes the surface structure of the rock is incorporated into the paintings.

By contrast, the IES of the engravers is a vertical rockface at the foot of an elevation without a roof and other features of a dwelling site. The next water source and also the next engraving site are many hundred meters away but there is an open field just nearby. The site can be reached easily and it faces either north or south, providing limited outlook. A few of the pictures (14 on average) are occasionally made to achieve far-ranging visibility.

Without going into details on the specific types of sites, these IESs allow us to hypothesize about the use of the landscape by the painters and the engravers.

The painters traveled the land in small groups and accepted almost every upcoming shelter as a place to stay. Even though normally they would not stay for long at a given site, they would rather quickly turn to producing pictures, the comparatively large number of pictures in part also owed to the fact that they would repeatedly visit such a place. Obviously in the same sense as people of the area today stow away their gear in such shelters, in prehistory people would also “stow” their symbolic capital (which were mainly cattle and later camels; pictures of these animals consequently being metasymbolic capital). The painted shelters were part of the everyday lifeworld and the pictures were components of everyday activities (arguably in production and consumption). These characteristics together with the relative density of sites and paintings per site show that the Gestaltung of the landscape and its appropriation happened in an everyday context of use of the natural infrastructure (although being ritual activity) and may hence be termed an active approach to the landscape because the painters did not have a particular configuration and symbolism of the landscape in mind for the choice of a site, but rather properties of a place with its suitability for dwelling purposes. If these were fulfilled paintings could be attributed in order to complete the appropriation of the place with ritual means.

The engravers, on the other hand, seem to have had a certain model of the landscape in mind and searched for particular topographical configurations for their engravings. These were independent of the natural infrastructure so that sites were not necessarily linked to everyday life and were more or less unconnected among themselves. Consequently sites were mainly, if not exclusively, used for art production so that the pictures as parts of ritual activities were less connected to everyday activities than the paintings. The entire landscape was symbolically loaded and the marked places remained part of a sacred landscape and did not become part of the everyday lifeworld through mundane activities. This approach to landscape may be termed passive as it is not the people who establish the symbolically charged places through their use of the natural infrastructure, but these places are predetermined by the landscape and the engravings (in part a single picture suffices) are a means to set this sacred status free by making it visible.
Landscape-archaeological reconstructions

Based on the comprehensive mapping and analysis of the archaeological data of a given region the patterns of use and behavior at a certain time become discernible. These two examples demonstrate the complexity of early herder and of hunter-gatherer livelihood in the Gilf Kebir (Figure 6.9) and the Brandberg/ Daureb, (Figure 6.10). Based on the given resources, that is, the natural component, it is shown how they are interrelated with culture, that is, the use people made of this landscape.

Figure 6.9. Reconstruction of the Wadi Bakht landscape focusing on resources and use patterns during the phase Gilf B (c. 6500–4500 bce) (See also Color Plates)
Chapter 6

The framework presented here aims at the reconciliation of two extremes of archaeological work, that is, pragmatism of fieldwork and theoretical foundations. This apart, it is also designed to express any conceivable case study in an all-inclusive format that allows the comparison of it to other case studies. The methodology is founded on a concept of landscape that puts equal emphasis on the empirical landscape as on the culturally mediated landscape by implementing the subconcepts of infrastructure and *Gestaltung*.

The three case studies presented here focus on the resources of water, abiotic material, vegetation, fauna, and space thus following a strict systematization which is further strengthened through *chaînes opératoires* (Figures 6.2, 6.6, 6.7, and 6.8) that were implemented in both studies. Their origins lie in two rather

**Figure 6.10.** A section of the Later Stone Age Brandberg/Daureb landscape indicating resources and reconstructing the use patterns in a schematic representation. Note that the ecotope did not undergo a change comparable to that of the Sahara (Photo: courtesy of H. Mooser) *(See also Color Plates)*

![Figure 6.10. A section of the Later Stone Age Brandberg/Daureb landscape indicating resources and reconstructing the use patterns in a schematic representation. Note that the ecotope did not undergo a change comparable to that of the Sahara (Photo: courtesy of H. Mooser) *(See also Color Plates)*](image-url)
different archaeologies, namely the cognitive archaeology of two African rock art traditions and the conventional field archaeology of the Eastern Sahara where only relatively few indicators of symbolic behavior were found. Nevertheless both projects had independently developed analogous working procedures. The resource/use/basic needs model, by contrast, grew out of intense discussions on how the everyday terms of resource, use, or needs could be forged into concepts with methodological substance. This chapter is an attempt to provide working procedures for intradisciplinary cooperation of different archaeologies.

The methodological approach of landscape archaeology forwarded here cannot completely annul differences in the corpora of data that are collected by cognitive and field archaeology. However, it opens a road to analyze data, from whatever origin, in a basic scheme that is concerned with a comprehensive view of a lifeworld wherein, by means of the checklist character of the scheme, all aspects receive the same attention and are being assessed within the same frame of understanding.

In comparing the case studies from Gilf Kebir and the Ennedi Highlands with the Brandberg/Daureb it becomes evident that through domestic animals there seem to be more possibilities to exploit the use potential of the resources. This is manifest in the more numerous arrows of relation (between the two left columns) for the phase Gilf C in Figure 6.6b and the herders of the Ennedi. There is little surprise in the fact that through the innovation of domestication more complexity is added to a society. However, as can be seen from the comparison with the predominated animals phase of Gilf B and particularly with the pure hunter-gatherers of the Brandberg/Daureb (Figure 6.7), this growth of use potential does not go together with a likewise significant growth in relations of use potential and human needs; in other words, the novel exploitation does not open many more options for the satisfaction of needs.

Even the evidence from Brandberg/Daureb rock art—which is only peripherally supported by data from excavations (e.g., Breunig, 1989, 2003) and which is therefore scarce in terms of material finds—shows a rather complete coverage of needs through the different resources for this society of comparatively little complexity. This may hypothetically be seen to indicate that, assuming general conditions do not change, the introduction of domesticated animals is not a factor that makes life easier because it might enhance the satisfaction of human needs. Rather the introduction of livestock may be understood as a diversification of use options when general conditions deteriorate, notwithstanding the potential to advertise status and wealth through livestock.

Admittedly, the present form of this approach is not yet a complete method. It still suffers from shortcomings such as that it is unable to accommodate the resource of time adequately and therefore lacks a tool to systematically grasp the phenomenon of change in its dynamics. For the time being the scheme requires us to study two sequential phases (such as the Gilf B and C phases) as two more or less static events. The same counts for the various keepers of domestic animals in the Ennedi Highlands.

Further development of the method will have to make it more flexible and also to mitigate its deterministic character towards the inclusion of a module
that accommodates human agency even better without disposing of its universal applicability. The acceptance of this newly proposed method will depend on its capability to serve as a reconciling procedure that provides useful aspects for all views of a landscape, be they empirical, pragmatic, emic, or postmodern.

REFERENCES


A Methodological Framework for Landscape Archaeology


Part II

State, Power, and Control in Africa’s Arid Landscapes: Perspectives from the Historical Sciences
Chapter 7

The ‘Landscapes’ of Ancient Egypt: Intellectual Reactions to the Environment of the Lower Nile Valley

MICHAEL HERB AND PHILIPPE DERCHAIN

The specific landscape of the valley of the river Nile played an important role in the development of the civilisation of ancient Egypt. At first sight describing this habitat seems to be a simple matter. Using topographical criteria we can say that the inner structure of the Lower Nile Valley is clear. Also there is an abundance of ancient sources we may analyse to obtain information dealing with the landscape occupied by the Ancient Egyptians over more than three millennia from around 3200 BC to AD 400. However, when considered in more depth the situation turns out to be more complicated. There is no proof that an Egyptian in the time of the pyramid-builders of Giza (2579–2486 BC) used the same epistemic structures or applied the same terminologies as his later historical companion of the Ptolemaic period (332–330 BC). Quite to the contrary it would be a rather unexpected result if concepts, technologies, and economic practices related to the environment remained unchanged over a period of 3000 years. Between 3200 BC and AD 400 Egyptian society and culture changed, as did its habitat both in a physical as well as in a conceptual sense. There was a multiplicity of intellectual reactions to the environment they lived in, and so it is more appropriate to speak about the ‘landscapes’ of Ancient Egypt. In contrast to other studies in this volume this
chapter deals with a wealth of sources stretching over millennia of intense production of physical environmental features, meaning(s), and symbols.

It is the aim of this contribution to offer a first impression of the manifold dimensions of the theme. First we describe the country from a geographical point of view trying to produce an objective point of reference. Then we introduce some very common Egyptian words which have been used over a long period of time designating the land in order to obtain ideas concerning a few basic landscape conceptualisations. In a third step we have a look at an epigraphic programme of a tomb of the Old Kingdom and analyse the way in which it mirrors the environment. Finally we speak about a religious theory of the structure of the world which in the opinion of the Ancient Egyptians resembles the environment of the river oasis of the Lower Nile Valley, that is, the landscape of Ancient Egypt.

7.1. THE GEOGRAPHICAL POINT OF VIEW

The land of Ancient Egypt differs profoundly from other regions of northern Africa. A long time before the rise of the ancient culture around 3200 BC it became part of the huge arid zone impressing its constraints on northern Africa (see the contribution by Riemer, this volume). In a narrow sense Ancient Egypt can be defined as the last part, that is, the last 1000 km, of the river Nile streaming over more than 6500 km from its headwaters in Central Africa and the Ethiopian Highlands to its delta at the Mediterranean Sea. This country is not identical with the present state of the Arab Republic of Egypt which includes not only the river valley but also the Sinai peninsula, the desert regions east and west of the Nile, and a region south of the First Cataract up to 22°N (Baines & Málek, 1980, pp. 12ff.; Ibrahim, 1996; Bard, 1999, pp. 1ff.). Ancient Egypt was limited to the oasis of the Lower Nile Valley. The profound contrast between the riverine landscape abounding with water and the adjacent hyperarid environments characterised this basic situation. The annual inundation of the Nile was the base for the rise of the Egyptian civilisation. Rain did not play a role in ancient Egypt culture or economy (Said, 1993, 82ff.; Ibrahim, 1996, pp. 27ff., 50). The long stretch of the Nile from its sources to the Mediterranean Sea shows different riverine landscapes (Said, 1993, pp. 28ff.). The width of the Nile valley from Khartoum and the 6th cataract (16° 20′N) to the Gebel el-Silsila (24° 39′N) is on average less than 6 km. Between the Gebel el-Silsila and the end of the characteristic Nile-turn at Nag Hammadi (26° 00′N) the width is approximately 6 km. Then it extends to 20 km up to Beni Suëf (29° 00′N) near the Fayum. In the Delta (30° 00′N–31° 20′N) the situation differs extremely. Here the extension of the areas flooded by the Nile reached more than 100 km in width.

Starting again at the First Cataract near Aswan (24° 00′N) then going north passing Thebes (25° 44′N), Asyut (27° 11′N), and Memphis (29° 51′N), the number of watercourses, channels, and rivers forming what we call ‘Nile’ increased and the system branched out more and more. From a historical point
of view it is difficult to describe the development of this riverine environment and its changes. The numerous watercourses and even the main river itself often shifted their courses. The high-dams having been built since the nineteenth century make it even more difficult to map the exact historical situation. Finally in the Delta north of Cairo there have been two, five, and seven different rivers over time transporting the waters to the northern marshes and the Mediterranean Sea (Bietak, 1975, pp. 67ff.; Said, 1993, pp. 57ff.; Ibrahim, 1996, pp. 52ff.).

This kind of ‘river multiplication’ and the expansion of the riverine system at the same time led to a significant reduction of velocity of waterflow. This is one of the reasons why the development of the riverine environment from Khartoum (16° 10′N) to the coast of the Mediterranean Sea (31° 20′N) in the north influenced both the quantities of arable land and the qualities of their soils. In Nubia and in the southern parts of Egypt up to the Gebel el-Silsila (24° 39′N) there were only relatively small areas within the Nile Valley which could be used for settlements, agriculture, cattle-keeping, or other cultural activities. Going down to Thebes (25° 44′N) in Upper Egypt then going northwards via Dendera (26° 08′N), Abydos (26° 11′N), Asyut (27° 11′N), and Beni Suëf (29° 27′N) and at last reaching the Delta (30° 00′N–31° 20′N) the areas being flooded seasonally in ancient times increased more and more. So the speed of the water was reduced and consequently sedimentation increased. This is the main reason why the qualities of the soils used by the Egyptians were much better in the northern than in the southern regions. This may be one reason why the culture of Ancient Egypt was developed in the northernmost part of the long-stretched riverine environment of the Nile.

Principally speaking there were five factors constituting the habitat of Ancient Egypt (Abu al-‘Izz, 1971; Herb, 2001 pp. 379ff.): (i) the river or the system of watercourses; (ii) the natural high-dams and sandy islands (Arabic gazîras); (iii) the alluvial grounds; (iv) the marshes and swamps; and – not really belonging to Ancient Egypt – (v) the desert regions beyond the valley rendering strict borders to the culture (Figure 7.1). The main feature of the environment was the Nile and its flooding. The land’s water supply was completely based upon the river and its inundation mechanism. In antiquity the annual flood began in July. It marked the beginning of the Egyptian calendar year which comprised the seasons ḥt ‘inundation’, Prt ‘emergence (of the alluvial grounds from the flood)’ and ḏmw ‘deficiency (of water)’. Regularly the inundation reached its peak in September. The ‘low-phase’ was between the middle of May and June (Stricker, 1956; Bonneau, 1993; Said, 1993, pp. 96ff., 127ff.; Seidlmayer, 2001).

The Nile had three basic functions: (i) the river ‘presented’ the water and made the valley so extraordinarily attractive, (ii) the mechanism of flooding determined agriculture, the most important sector of economy of Ancient Egypt, and (iii) the branches and channels of the Nile were the streets for inner-Egyptian merchandise traffic. The Nile is best understood as a natural net of waterways. Natural dams were frequently located directly at the banks of watercourses. Dams and gazîras were on higher grounds. Normally they were not reached by the inundations of the Nile. Being nonflooded, these areas were dry and safe places
Figure 7.1. Scheme of the landscape of the Nile Valley giving the topographical factors constituting the habitat of Ancient Egypt (Drawing by the author)
and most attractive for settlements (Bietak, 1975, pp. 27ff., 49ff; Butzer, 1976, pp. 22ff.; Herb, 2001, pp. 381ff.). Large areas of the Egyptian Nile Valley consisted of alluvial grounds. These were flooded seasonally for three to four months (Said, 1993, pp. 61ff., 128ff., 188; Herb, 2001, pp. 382ff.). These areas were used mainly for agriculture which – as the inundation itself – determined the economic system of Ancient Egypt from the beginning of its history round about 3200 BC until its end in AD 400. Sowing took place after the decline of the inundation when the brackish alluvial grounds ‘emerged’ (pr) from the water. The harvest followed five months later before the beginning of the dry period in May. The seasonally flooded grounds had two characteristics which were important for the economic development since 3200 BC: Both the settlements and the alluvia were nearby. The ways between the fields and the villages with their threshing floors, storages, and so on, were short and thus transport was easy to handle. The alluvial grounds offered a gigantic agricultural potential, and the development in pharaonic times was marked by a growing efficiency to exploit this potential.

At the beginning of the Old Kingdom 2700 BC there were four extensive marsh and swamp regions in Egypt (Herb, 2001, pp. 383ff.). Here in the areas at the edges of the river-oasis groundwater came to the surface, the depth of water was low, and the velocity of waterflow was very low, so that the temperature of water became relatively high, important conditions for the growth of reed, papyrus, and lotos. These were used as important economic resources, especially in the Old and the Middle Kingdoms (2600–1800 BC). The region flanking the east side of the Birqet Qarun (29° 27′N), the lake in the centre of the Fayum depression, was the most famous swampy region of Ancient Egypt (Said 1993: 78ff.). Two other ancient swamps in Upper Egypt extended along the western border of the valley. Large inundated areas can be assumed between el-Qusija (27° 27′N) and the southern border of the Fayum near Beni Suêf (29° 00′N). Another marsh can be reconstructed between Akhmim (26° 34′N) and Asyut (27° 11′N). Finally the huge marshes (31° 30′N) in northern Lower Egypt separated the whole country from the Mediterranean Sea. Especially in the Old Kingdom (2700–2200 BC) these mhjjt ‘northern swamps’ were centres of fishing, bird-catching, cattle-keeping, and different kinds of using plant materials, especially papyrus.

7.2. TERMINOLOGICAL ASPECTS

In the time of the Middle Kingdom between 2000 and 1800 BC a poet named Neferti looks back on the history of his land. He complains about the adverse situation in a time we call First Intermediate Period (2150–2025 BC). Neferti does not use the name ‘Egypt’. The term was created much later by the Greeks. It was derived from the Egyptian hwit-k3-pth ‘house of the Ka of (the god) Ptah’, one of the names of Memphis. Neferti describes what had happened in tš ‘the land’ written with the hieroglyphic sign . The reader immediately understands this is the designation of his land, the native country of the poet extending from the first cataract-region in the South to the Northern regions of the Delta (Lichtheim,
1973, pp. 139ff.). Characterising the homeland of a person as ‘the land’ in the sense of ‘my land’ (i.e., landscape of home), is not a specific Egyptian way of thinking. It probably exists in every culture. So at first sight there is no direct help for our problem in the words of Neferti but they lead us to *t3wj ‘the two lands’, a *terminus technicus widespread in Ancient Egypt referring to the original divide of Ancient Egypt.

Since the beginning of their history in 3200 BC the Egyptians divided their native country into two parts drawing the line near Memphis (29° 51′ N), the later capital of the Old Kingdom. Some 900 years later during the reigns of kings Unas and Teti (2342–2312 BC) we get for the first time the information how the Egyptians named these ‘two lands’: *t3-mH, shortly *mHw ‘land of the northern-plant’ (Erman & Grapow, 1957b, pp. 123.12–14, 124; 1957e, pp. 224.10–13), that is, the Delta, and *Smaw, literally perhaps *tA-Smaw ‘(land of the flowering) southern plant’ (Erman & Grapow, 1957d, pp. 472–476; 1957e, pp. 227.4–14), that is, Upper Egypt. Obviously the Egyptians felt specific plants to be significant elements of the landscape of both Lower and Upper Egypt. In Lower Egypt there are extensive papyrus swamps and marshes. A gigantic marshy area extends in the northwestern part of the Delta (Herb, 2001, pp. 384ff.). So it is understandable why papyrus * was seen as a kind of ‘landscape-marker’, the plant being the symbol of the Delta. But the word *mHjjt ‘papyrus’ (Erman & Grapow, 1957b, p. 124.8) is a *terminus technicus only found in medical texts and definitely was not the root of *-mHw- in *t3-mHw.

The situation with *Smaw ‘Upper Egypt’ is more complicated. The exact species * ‘the southern-plant’ refers to is unknown, although it was often mentioned in texts and pictured in decorations (Smith, 1981, pp. 93ff.). The most plausible theory connects the designations *tA-*mHw ‘Lower Egypt’ and *Smaw ‘Upper Egypt’ with the old roots *mH ‘norther’ and *Sm ‘southern’. This construction reflects a strong bipartite conception explaining the homeland of the Ancient Egyptians in relation to the characteristic south-north extension of the river-oasis.

A good example of this kind of basic thinking is found on a stela from the second year of King Thutmosis I reign (1503 BC). He gave a short but significant description of his power (Sethe, 1914, pp. 85.13–14). He determined the complete extension of his territory mentioning only the southern and northern borders: *tś = *frsij r-htnj t bn mhntj = fr *mw qdw *ḥddij m-htnj ‘its (i.e., the kings might) southern border is up to this land (i.e., Nubia) and (its) northern one (is) up to that circling water going downstream and southwards (i.e., the river Euphrates)’. The attempt to fix the geographical situation of the river Euphrates within Egyptian terminology is astonishing and leads to the question of why the ancient writer avoided the well-known term *jtrw ‘river’ using *mw ‘water’ for the Euphrates.

The Egyptians themselves seemed to have problems in explaining the terminological relations of *tś-*mHw ‘Lower Egypt’ and *Sm-*w ‘Upper Egypt’. The two names were created at the beginning of the historical epoch around 3200 BC. Some 1000 years later the Egyptians restricted the use of the complicated phrases to official texts. More often they used the well-known abbreviation *t3wj ‘the two lands’ (Erman & Grapow, 1957e, pp. 217.1–219.3) stating correctly
the known facts and avoiding at the same time the difficulties of etymology. Surprisingly they did not construct any name of its own for the very complicated system of rivers, watercourses, and water channels but used neutral terms as \( jtrw \) ‘river’ (Erman & Grapow, 1957a, pp. 146.12–17).

The terminological development gives a good impression of the ancient perception of the environment. The Greek word is an abbreviation of the telling description given by the Egyptians to their country: ‘Nile’ means \( njtrw(.w)^3w \) ‘the great rivers’ (Smith, 1979, pp. 163ff.). So through the eyes of the first millennium BC Egypt is ‘(the land of) the rivers’. In the eighth to sixth centuries BC the Greeks colonised the Mediterranean world. Arriving in Egypt they had to find a specific name for the river with which they were confronted. Using the common phrase ‘Nile’ they made a clear distinction between this and all the other rivers in their world. In the eyes of an Ancient Egyptian living 2000 years earlier these terminological efforts were not necessary because there was only one river in his world. From the point of view of the Old and Middle Kingdoms phrasing the idea of the importance of the Nile with words such as ‘the land of the river’ or ‘the land of the great rivers’ would not be wrong. But it would be trivial, or even obvious in a way people would not understand the message.

7.3. RIVERINE LANDSCAPE AND DESERT

The basic riverine situation of the Nile was the source of other phrases denoting typical environment situations. A very significant example is \( jdbwj \) ‘the two banks’ as a description of the riverine landscape (Erman & Grapow, 1957a, pp. 153.5, 7). Again the intellectual construction is very clear. Egypt was felt to be everywhere where there were two banks of a river. In other words Egypt was ‘the land of the riverbanks’. Although the terminological relations seem to be very simple they give us a good idea of why the Fayum and the great oases in the Western Desert were never felt as part of the Egyptian homeland. As with riverine Egypt these huge fertile regions are embedded in an hyperarid environment. In the case of the Fayum there is even a large lake providing people with water. But there are no rivers and because of that a ‘two banks’ situation does not exist, a condition which is characteristic of the Egyptian Nile valley. Furthermore in the oases there is no inundation mechanism, and so the interrelations between the cycle of seasons and economy (agriculture, gardening, cattle-keeping) differed profoundly from the Nile valley.

In ancient times one of the most popular terms characterising the environment of the riparian landscape is \( kmt \) ‘the Black’. The term came into use at the end of the Old Kingdom 2200 BC (Erman & Grapow, 1957e, pp. 126–127; Shaw, 1993). Literally the word \( km \) ‘(to be) black’ designated the very dark colour of any material element, for example, of stone as black granite, of animals as dark cattle, and even of the dirt under the fingernails of men working hard outside (Erman & Grapow, 1957e, pp. 123.4, 12, 124.11, 125.4–9). In this line the term was applied to the large alluvial areas of the Nile Valley and by extension to the land itself.
After the inundation the alluvial grounds were covered with fertile layers of dark brackish mud which was the basic natural element of agriculture, the most important economic sector of Ancient Egypt. The area designated by the word *kmt* bore its characteristic colour only during the months of the *prt*-season, that is, from November to February. So the term did not refer to the valley as a whole, but only to one of its landscape factors. To designate Egypt as *kmt* ‘the Black’ is less a description of the Egyptian Nile Valley or a part of it but the expression of a deep process of conceptualisation of the riverine habitat relating to its economic value. It is the supraregional importance of agriculture which permits the transfer of meaning from the alluvia to Egypt as a whole. ‘Egypt (is) the Black (land)’ and ‘. . . (is) the land of agriculture’ are two sentences describing the same idea in different words, and the modern spectator may have the feeling that the respective word of the English language reflects the interrelations between culture and environment at this point: agri-*culture*.

Likewise *kmt* offers a key for the understanding of the famous phrase summarising Egypt as ‘gift of the Nile’ attributed to Herodot, a Greek historian of the fifth century BC. The real gift presented by the Nile to the Egyptians was the inundation and the mud brought by it and the water as such. Significantly the Egyptians did not construct ‘the White’ as the opposite to *kmt* ‘the Black’ although there are many relating phenomena and of course such words as *hd* ‘(to be) white’ (Erman & Grapow, 1957c, pp. 206–208). The homeland of the Egyptians is surrounded by huge deserts. So it seems logical that these regions are perceived as the main contrast to the ‘black’ river landscape and the ‘red’ (*dṣr*) colour as their distinctive feature. Speaking about the ‘black’ Nile valley as contrasted with any ‘white’ lands definitely was not the Egyptian way of thinking even though the white colour concept was used in describing one of the most typical Egyptian desert animals: *m3-hd* ‘the white desert-animal’, the generic term for different species of antelopes terminologically not being separated by the Egyptians (Osborn, 1998, pp. 160ff.).

The term characterising the deserts outside the Nile Valley and being conceptualised as the opposite of *kmt* ‘the Black’ was *dṣrt* ‘the Red’ (Erman & Grapow, 1957e, pp. 494.5–13; Shaw, 1993). It goes back to a word *dṣr* ‘(to be) red’ (Erman & Grapow, 1957e, pp. 488–490). As a designation of deserts it was used from around 2400 BC onwards. One explanation connects the red colour with the sun turning red the sky and the land during his daily rising and setting, respectively. Another one suggests that it comes from the reddish-brown colour of many grounds in the deserts and puts it – as mentioned – in contrast with the black colour of the alluvial grounds of the Nile Valley. The most important term designating the deserts was *h3st* which literally means ‘(region of the) hills’ and is the opposite of *tB* ‘(region of flat) land’ (Erman & Grapow, 1957c, pp. 234.7, 234.15–16, 235.1). Accordingly there are two very frequently used ideograms representing the areas mentioned and the relating words, respectively. The *h3st*-sign shows three usually red-coloured hills. In hieroglyphic writing the number ‘three’ designates plural. So with we get a simple but a very clear picture of the ‘(lands of many) hills’, that is, the deserts on both sides
of the valley (Gardiner, 1957, p. 488). On the other hand the ideogramm \( t\delta \) consists of a long black stroke often completed by three small dots. The sign gives an impression of the flat alluvial grounds inside the Nile valley often mixed with grains of sand (Gardiner, 1957, p. 487). Again terminology and writing demonstrate the strict ‘nilocentric conceptualisation’ of the Egyptians. Ideogramms mirror the conceptualisation of the world. Now we can better understand the words spoken by the poet Neferti some 1000 years later.

At the beginning of history \( r\tilde{m} \; t\delta \) ‘(region of flat) land’ indeed is a designation of Egypt. The flat lands pictured in the sign \( \text{flat land} \) are the alluvial grounds of the Nile valley. From a local perspective the mountains and hills \( \text{mountains and hills} \) are the characteristics for the world beyond the valley. Through the centuries there was a tendency of generalising the meaning of signs and words. From the sixth dynasty on (2300 BC and later) \( \text{not being Egypt} \) mostly meant ‘not being Egypt’, in the sense of kinds of foreign countries (Erman & Grapow, 1957c, pp. 234.8–10, 234.16, 235.2–17). Again \( r\tilde{m} \; t\delta \) is not any longer a word marking flat alluvial grounds but grounds and lands generally, and this is the meaning Neferti makes use of when speaking about ‘his’ land.

### 7.4. SWAMPS

Describing the environment they lived in the Egyptians created a highly complicated vocabulary often overtaxing the possibilities of a modern translation, and in some cases even our understanding. At this point we restrict our statements to a small but characteristic part of the landscape of the Egyptians: the marshes and swamps (Herb, 2001, pp. 378ff.). Developing an economic system which integrates all potential natural resources was one of the important achievements of the economy and culture (Herb, 2001, pp. 388ff.). Especially the marshes near the Mediterranean Sea were intensively used in the Old Kingdom (2600–1800 BC) for cattle-keeping, fishing, bird-catching, and plant-collecting. These economic activities were described in pictures and texts from the time of King Sneferu on (2614 BC and later). The relating processes of conceptualisation date from some 400–500 years earlier.

The principal way people used to go from their settlements to the swamps far away and vice versa was described as \( h\tilde{m} \) ‘going down to (the swampy regions)’ and \( pr\tilde{r} \) (hrj-tp) ‘going up (to the settlements)’. Looking at the valley structure given in Figure 7.1 we get an idea why this terminology operated in this way. The ground levels of settlements and cemeteries were relatively high. Swamps and marshes were low, the most part of them being flooded the entire year. Also we begin to understand why the Egyptians characterised the festival they celebrated after having worked in the swamps for some months as \( pr\; m\; mHt \) ‘coming out of the northern swamps and going up (to their villages)’, or in the short version which is typical for the Egyptian terminology: \( pr\tilde{t} \) ‘coming out and going up’ (Herb, 2001, pp. 412ff.).
mht, the extensive ‘northern swamps’ (Erman & Grapow, 1957b, p. 125.4) were located in t-q-mhw ‘the land of the northern plant’, both names being derived from one and the same root *mh- ‘northern’ but designating areas of completely different extensions. There are two further words connected with the root *mh- ‘northern’. The designation mhjw ‘northerner’ was directly derived from mht ‘northern swamps’. Literally it meant ‘the one who belongs to the northern swamps’. So mhjw was the designation of the people working there (cf. Erman & Grapow, 1957b, p. 126.4). Taking the picture-cycles of the tombs of the Old Kingdom as main sources for the relevant activities mhjw ‘the northerners’ were the men who were specialised to work in the swamps. In this period the designation had definitely not any national or racial character, and there were never any women working in the swamps and accordingly there is no word such as *mhjt ‘northern woman’.

The collective noun mhj (mhyt) ‘the northern (fishes)’ summarizes different species of fish living in the waters of the swamps and being caught not only by the men working there but also by sporting nobles (Erman & Grapow, 1957b, pp. 127.10–11; Herb, 2001, pp. 404ff.). Surprisingly the ancient sources give information that mhj (mhyt) ‘the northern (fishes)’ were caught in Upper Egyptian waters too. So the translation seems unsuitable. We may speculate that in early dynastic periods (3200–2800 BC) the terminology was created in the north. Some 400–500 years later in the fourth and fifth dynasties it moved upstream together with the technical know-how. In later times it was no contradiction to catch fishes in Upper Egyptian waters on the one side and to call them mhj (mhyt) ‘the northern (fishes)’ on the other.

Another designation of the Egyptian swamps was dwjt (djjt /parallelogram Dt) ‘papyrus’ (Erman & Grapow, 1957e, pp. 511.6–9). First it denoted the particular plant with which the mhjw ‘northerners’ were working. Papyrus was uprooted and carried by the workers to their camp. There papyrus was split and men made ropes, baskets, and rafts using the plant. In a broad sense the word designated the area in which the plant was significant (Herb, 2001, pp. 403f.). Working in the papyrus covered the same meaning as working in the papyrus-fields’. More often than dwjt (djjt /parallelogram Dt) ‘papyrus’ the enigmatic term phww (Erman & Grapow, 1957a, pp. 538.8–10) was used. Perhaps it is connected with a root *ph- ‘at the end, backward’ (cf. Erman & Grapow, 1957a, pp. 535ff.).

The tentative translations ‘backwaters’ or ‘distant (marsh)lands’ show the problems the modern translator has. Indeed there is no equivalent in any modern language. The common use of phww corresponds to mht ‘northern swamps’. In some inscriptions the former seems to take the place of the latter. On the other side there are indications that the phww were not identical to, but parts of mht ‘the northern swamps’. Analysing the scenes containing the word we can conclude that phww marked specific areas near or inside the swamps which were important for working activities. For example, the ‘backwaters’ were the places where the men installed the nets for bird-catching or grazed their cattle. The ‘backwaters’ seemed to be a region consisting of small pools and waterways, swampy areas, and solid grounds, a mixture which was very suitable for the different
activities of the mḥtjw-workers. So the $\text{ḥw}$ phw seemed to refer to the places where the water channels and rivers ended and the actual swamps began (Herb, 2001, pp. 409ff.).

All terms stress the spatial aspects of the Egyptian swamps. In contrast to them the words šsw and sswh accentuate some seasonal aspects of the marshes. Again there are no modern equivalents and we must paraphrase the underlying situation. $\text{ḥw}$ šsw were the grounds where the mḥtjw-workers collected lotos. This plant needs warm and shallow waters. Buds and blossoms come out of the waters only for a few weeks in the prt-season. The term designates a field possessing the important quality of being equipped with lotos. So ‘(fields of the) lotos-buds and -blossoms’ seems to be the best paraphrase of $\text{ḥw}$ šsw, and it is this that the sign shows (Erman & Grapow, 1957d, pp. 399.7–11; Gardiner, 1957, p. 480). The circumstances are similar to $\text{ḥw}$ sswh. Again in the prt-season the extensive papyrus thickets were suitable places for the birds building their nests and brooding there.

But only for a few weeks between November and February some areas were filled with masses of birds and the loud noise of their calls. Only for a few weeks in the prt-season the mḥtjw-workers could exhaust these important swamp resources. So ‘(grounds of the) nests (filled with young birds)’ best covers the meaning of the sign $\text{ḥw}$ sswh and the relating word sswh (Erman & Grapow, 1957c, p. 483.12, 484.1–11; Gardiner, 1957, p. 473). The seasonal changes of the areas were deeply influenced by outer circumstances. The water level of the swamps depended upon the quantities of the inundations. So $\text{ḥw}$ šsw ‘the (fields of the) lotos-buds and -blossoms’ were located in different years at different places. The mḥtjw-workers had to look for them anew every season. Similarly the migrant birds did not reach Egypt at the same days or weeks every year. Sometimes they came at the end of October, sometimes their arrival took place in December. Also they occupied alternating breeding places every year. Again the mḥtjw-workers had to observe these changes of the $\text{ḥw}$ sswh ‘the (grounds of the) nests (filled with young birds)’ (Herb, 2001, pp. 407ff.).

7.5. PICTURES AND DECORATIONS

Funerary architecture delivers a lot of important informations about the culture of Ancient Egypt. From the time of the pyramid builders in (2614 BC and later) up to the Ptolemaic and even Roman epochs (332 BC–AD 395) the walls of temples and tombs belonging to kings and nobles were covered regularly with pictorial scenes and inscriptions. Often the modern spectator feels them to be one of the significant features of the culture. But we should not forget that these sources reflect only the cultural tradition of the uppermost peak of the social pyramid. Although not directly depicted, the landscape of the river valley played an important role in the compositions of the pictorial programmes. Often the figures of animals and plants were pictured in such a naturalistic way that from a present point of view it is no problem to make botanical or zoological identifications. The Egyptological
literature is full of entries such as ‘Gazella dorcas Linné’ or ‘Nymphaea caerulea Savigny’, producing the impression of scientific exactness. One wonders how easy it is to categorise fauna and flora described in sources from 5000 years ago within the scope of the terminology of the twenty-first century AD. Indeed modern interpretation sometimes produces the impression that the ancient pictures work like photographs and can be seen and ‘read’ accordingly.

In order to obtain a deeper understanding of these concepts it is interesting to hear an ancient voice speaking on the subject. In the reign of king Pepi II (2254–2194 BC) there was a man named Snj living in the town of Akhmim and working nearby in the necropolis of El-Hawawish. One of his jobs was to cover the walls of the tombs with pictures and inscriptions. We would say Snj ‘decorated’ the walls. In the tombs of Kš=j-h3p:Ttj-jqr and his son Špsjpw-­mnw:Hnj, two local rulers of Akhmim, Snj obtained the right to picture himself and to give a short description of his activities (Kanawati, 1980, p. 19, fig. 8, pl. 5): ‘. . . I wrote the tomb of the count Hnj. I wrote this tomb (i.e., the tomb of Kš=j-­h3p:Ttj-jqr) too. Me alone’. The terminology Snj used is different from ours. Distinctly he formulated he ‘wrote’ the walls. He did not look at himself as a ‘painter’ or an ‘artist’ but as a scribe. Accordingly his title was zš–gḥwt ‘writer of the walls’. In the eyes of the Egyptians the immense collections of figures, motifs, and scenes covering the walls were inscriptions and writings (zšw), and the men having made them were scribes (Herb, 2006, pp. 169ff.). In other words: ‘decoration’ and writing are one and the same, and the problem of differentiating them is a modern one (Gardiner, 1957, pp. 438ff., 1989; Kahl, 1994).

Today we know more than 800 tombs dating to the Old and Middle Kingdoms (2600–1800 BC) and containing walls covered with epigraphic or pictorial programmes (Harpur, 1987). The basic ritual inside the tomb was the worship of the owner starting after his burial. Accordingly the main theme of every programme was to describe the ritual processes connected to the tomb. The funerary meal condensed this purpose, and the unit of the programme of the tomb which localised its position inside was the false-door having both epigraphic and architectural characteristics (Wiebach, 1981). The relating scene showed the owner sitting before a table and looking at the offerings presented to him by his priests. Typically the construction of the scene was accompanied by a second ‘table’: a list giving the components and the chronological course of the meal. The offering-list consisted of the most important provisions of the country, that is, different sorts of bread, cake, and meat, of fruits and vegetables, and so on. Water, wine, and beer were mentioned and thus the most important beverages of ancient Egypt. The chronological order of the meal was reflected by the rowing of the entries of the list. Again being highly standardised the funerary meal was more a schedule of the products of the country than the fixation of a real meal (Barta, 1963).

‘Environment’ was not a theme of any pictorial programme. Accordingly ‘landscapes’ were not depicted directly. But they played an indirect role in the themes of which every programme was composed. The main content was the activity of humans. Whatever was pictured, people were doing something, and
the target and source of all their activities was the riverine landscape of Egypt. From an ancient point of view environment and landscape were basic and unchangeable. The knowledge concerning it seemed to be a kind of truism and speaking about it is superfluous.

In Ancient Egypt the material aspect of the cult of a deity or a person was mainly based on food and goods. Producing them was a basic requirement and considered as part of the cult too. The goal of the ritual was the celebration of the meal near the door inside the tomb, and the activities of producing the meal preceded the ritual, chronologically and topographically. Scenes and inscriptions of the epigraphic programme reported the essential data of the biography of the owner, described the making of food of the funerary meal and informed the persons who were concerned with the cult and would celebrate it in the future, for example, the farmers, scribes, priests, and the members of the owner’s family. Corresponding to the Preceding character of the activities introducing the meal the relating units describing the producing of its components covered the walls leading to the false-door and escorted the priests on their way to the funerary meal (Herb, 2006).

The places where the preparatory activities were conducted can be easily located in the structure of the riverine landscape. The tombs and cemeteries were the places where the priests worked. The relating archaeological sites lie in the desert zone near the valley. Having called them zmjt (Erman & Grapow, 1957c pp. 444.8–445.3) the Egyptians developed a term of its own for these regions directly adjoining the riverine landscape. The tombs were the final points of ritual movement in antiquity and are the starting points of scientific investigation today.

The settlements the Ancient Egyptians lived in were close to the cemeteries. They were founded both at the edges of the oasis and often on jww ‘islands,’ that is, high-dams and gazîras inside the valley. In towns people lived together. Here were the marketplaces and the houses of the craftsmen manufacturing stones, vessels, furniture, and so on. Here were bakeries and breweries, and the enclosures to which people took cattle, goats, asses, and captured desert animals too. Here in the settlements were the threshing floors and granaries where the corn was stored. The alluvial grounds covering the main part of the valley were the places where the farmers sowed and harvested. From here they transported the corn to the villages and the granaries. In the extensive swamps the mhtjt-workers caught birds and fish. Here they fed their cattle, and here in the swamps they harvested the papyrus, the material base of the culture of writing of Egypt. In the deserts far away from the Nile the Egyptian hunters installed extensive corrals. From year to year they came back to these hunting grounds, looked for hares and hedgehogs, collected newborn gazelles and antelopes, and captured the adult mammals using throwsticks and lassos. Finally they transported the animals to the settlements in the Nile valley (Herb, 2001, pp. 377ff.).

Principally we can recognise two modes of landscape visualisation in the epigraphic programmes. First the country of Ancient Egypt is visible in the localities where the people worked. Second, the landscape is the economic basis of the culture. We obtain information on different kinds of activities, that is, agriculture, gardening, working in swamps, or hunting in deserts. Using the landscape for
ritual purposes is the key of understanding its role in the programmes of temples and tombs of the Old and Middle Kingdoms (2600–1800 BC), and the tomb of $K3 = j-m-nfrt$ is a good example explaining this idea.

In the reigns of kings Isesi and Unas (2380–2322 BC) a man named $K3 = j-m-nfrt$ obtained the right to be worshipped in a tomb of his own in Saqqara, the necropolis of the capital of the Old Kingdom (Simpson, 1992; Fitzenreiter & Herb, 2006). In this time about 250 years after their introduction under Sneferu (2614–2579 BC) the principles of ‘programming’ a tomb were established. In his chapel $K3 = j-m-nfrt$ was not represented with wife, children, or any other person of his family. The construction of the programme was not disturbed by a plurality of addressees. ‘The focus is entirely on the self-thematisation of the tomb owner’ $K3 = j-m-nfrt$ (Simpson, 1992, p. 1). So the programme is relatively simple. Having passed a long corridor the priest reached an antechamber opening the way to the chapel (Figure 7.2). He read the name of the owner on the lintel of the doorway. Thus he made sure he was at the right place. Then the priest entered the chapel, the room in which he was to celebrate the funerary meal (Simpson, 1992, pp. 1ff., fig. 2). Vis-à-vis he saw the false-door as marking the place where he ‘met’ $K3 = j-m-nfrt$ and thus had to work (Figure 7.6).

Inside the chapel all walls were covered with scenes and inscriptions (Figures 7.3–7.6); in other words, doing his work the priest was surrounded by the programme. Only the sections near the floor were not decorated. In comparison with other tombs the programme of $K3 = j-m-nfrt$ seems to be small and simple. The false-door on the western wall of the chapel marks the place of the funerary meal and is the starting or final point of our reading (cf. Figures 7.2 and 7.6). Having made a ‘cut’ at the edge between the western and northern walls the $K3 = j-m-nfrt$-programme becomes a kind of folder. How the scenes are arranged reflects the ordering of texts in a papyrus roll. Opening this ‘roll’ we recognize that the themes

![Figure 7.2. Sketch of the chapel of $KA=j-m-nfrt$ with the line of reading the decoration (Drawing by the author)](image-url)
of the programme are arranged according to the localisation of the activities of the people; that means it reflects the landscapes in which they worked.

The reading begins with the activities in marshes pictured at the northern wall of the chapel and the northern section of the eastern wall, and it ends with the funerary meal at the western wall containing the false-door, offerings, and the offering list. The northern wall gives a schematic papyrus thicket which localises the activities pictured nearby in the swamps at the edges of the valley (Figure 7.3). The economic activities consist of a sequence of three steps. The first step covers the lower part of the northern section of the eastern wall (Figure 7.3, right) and shows fishing, bird catching, and the main features of cattle breeding. Continuing on the northern wall the representation of \( K3 = j\text{-m-}nfrt \) himself follows (Figure 7.3 left). He is represented visiting the swamps and hunting birds with a throwing stick. But the main intention of his journey is to control \( mHtjw \) ‘the northerners’ working for him and being connected with the cult of his tomb (Harpur, 1987, pp. 176ff.; Herb, 2001, pp. 358ff.; Herb, 2006, pp. 315ff.).

Now the reading turns in a way *boustrophedon*. The motifs directly located at the thicket show men collecting papyrus and working with papyrus fibres in a

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Figure 7.3. Chapel of \( KA = j\text{-m-}nfrt \), decorations of the north wall and the northern section of the east wall (Simpson, 1992: Plates A, G)

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1 The palimpsest-situation does not affect our considerations (Dunham, 1935; Simpson, 1992, pp. 4ff).
camp. A large ensemble of figures and scenes follows representing the coming home of the *mḥtw*-men after having worked for months inside the swamps. They carry the fish and birds they caught and the bundles of papyrus they harvested. Also they drive their cattle to the villages. Partly the men use the rafts which they have constructed in the camps near the swamps for transporting their products. These scenes cover the upper parts both of the northern wall and the following northern section of the eastern wall (Figure 7.3–7.4, left).

Figure 7.4. Chapel of *KA = j-m-nfrt*, decorations of the southern section of the east wall (Simpson 1992: Plate F)
Leaving the swamps one reaches the alluvia and the agricultural activities. The relating scenes cover the southern section of the eastern wall (Figure 7.4). Agriculture begins with a scene above the doorway showing the sowing of grain in the *prt*-season (Figure 7.4, inset). Harvesting follows combined with the motifs of rope making in the fields (Figure 7.4, above). The lower part of the wall deals with the ways the farmers go to their villages and with their activities there. With the help of donkeys the men transport large bundles of grain to the threshing floors inside the villages (Harpur, 1987, pp. 204ff.). After having prepared the grain the results are registered and stored in granaries (Figure 7.4, below). Again a large figure of the tomb owner accompanies the sequences of small figured scenes. \( K3=j-m-nfrrt \) watches the agricultural activities during the different seasons of the year. A short inscription tells of his duties: \( m33\ sk3\ ji\ hj\ mh^w\ sdj\ ml \) ‘Viewing (i.e., controlling) the cultivating of grain, (of) pulling flax, reaping, loading (donkeys), striking, winnowing, and heaping’ (Simpson, 1992, p. 16).

The activities described on the southern wall (Figure 7.5) are connected with the settlements which have signed on working for \( K3=j-m-nfrrt \) and his cult (Simpson, 1992, pp. 15ff., fig. E, pls. 16ff.). There are two alternative interpretations. It is possible that the workers come from their towns to the residence of the tomb owner and present the results of their foregoing activities. Alternatively \( K3=j-m-nfrrt \) himself makes the journey travelling from village to village and controlling the different economic activities there. The inscription reads \( m33\ s^nn\ hr\ jnt\ mj\ njwwt=f\ nt\ pr-dt\ t3-mhw\ \) ‘Viewing (i.e., controlling) the accounting of the presentation brought from his towns of the funerary estate in the northland and southland very abundantly’ (Simpson, 1992, p. 15). According to the general theme the reading begins with the journey of the owner to the registration places. This trip is pictured in the lower part of the southern wall (Figure 7.5, below). Then the direction changes again. Moving to the upper registers we see the scribes writing down the quantities of the animals \( K3=j-m-nfrrt \) possesses. We recognize cattle, antelopes, gazelles, and ibexes standing being pegged in enclosures or led by herdsmen (Figure 7.5, above).

The programme of the western wall (Figure 7.6) deals with the funerary meal the priests have to celebrate for perpetuating the memory of \( K3=j-m-nfrrt \) (Simpson, 1992, pp. 8ff., fig. Bff., pls. 7ff.). Accordingly the activities are localised near or inside the chapel. In a kind of introductory sequence seven priests are pictured at the bottom of the left part of the wall bringing the offerings into the chapel. What they are doing is explained as \( sh\ st\ stp\ n\ hmrk\ t\ pr-d\ ) ‘delivering the offerings of the ka-priests of the funerary estate’ (Simpson, 1992, p. 12, fig. 12). With the word ‘we meet a meaning ‘all kinds of products for the (funerary) meal’ (Lapp, 1986, pp. 235ff.). The registers of the upper part show the offerings the priests have brought and have carefully arranged in rows inside the chapel and the rooms in front: The meat of cattle and birds from the swamps; the cakes and bread made of the grain of the alluvial grounds; the meat of the animals of the deserts; the wine, vegetables, and fruits from the gardens and plantations; and even the cool and pure waters of the Nile. The offering-list covering the right part
of the wall reports the chronology of the funerary meal and determines the order of the products. The false-door between the offerings and the offering-list in the centre of the wall symbolises the addressee of celebration. The door represents the house of $KA = j-m$-$nfr$ localising his place in the vastness of the netherworld, and the scene of $KA = j-m$-$nfr$ sitting at the table and eating bread, meat, and so on reveals the information about his physical prosperity.

Figure 7.5. Chapel of $KA = j-m$-$nfr$, decorations of the south wall (Simpson, 1992: Plate E)
The environment of the Nile Valley was never a direct theme of the pictorial constructions and epigraphic programmes of the tombs. But using the natural resources of their habitat the Ancient Egyptians described and pictured the relating activities in detail, and the deep interconnection between economy and religious practice opens the way to obtain information, not only about the Ancient...
Egyptians, but also about their perception of ‘landscapes’, that is, the environment seen through the eyes of the people in ancient times.

7.6. LANDSCAPE, MAN, AND GODS

Temples were the houses where the Ancient Egyptians visited their gods, and indeed the Egyptian temple was not only the house of a deity but also and even a symbolic condensation of the landscape of the Nile. It was a model of the world in which the gods and deities animating it were represented. Often the lower parts of the walls were decorated with figures and motifs of plants striving upwards to the sun. Sometimes the floor was also covered with thin layers of silver creating the image of the black colour of mud. The columns of the halls represented other kinds of plants. They supported the roof of the temple which symbolised the sky covered with stars. As in the famous ‘room of the seasons’ in the sun-temple Šsp- jb-rá of Niuserre the epigraphic programmes and scenes dealing with fauna, flora, and the natural life of Egypt suggested the stage of the appearances of the gods or their performances, respectively.

Since the beginning of the fourth dynasty and the reign of King Sneferu (2614–2579 BC) allusions to environment are often part of the epigraphic programmes of the Egyptian temples. But in the first millennium BC a new system was developed. Now the lower part of the walls of the temples were covered with long rows or ‘processions’ of fecundity figures and those bringing offerings (Baines, 1985). These human figures symbolised the nomes of Egypt and the different countries of the world having produced these offerings. The scenes went back to the idea of the so-called ‘domaines’, often pictured in the temples and tombs of the Old Kingdom. In a similar way these figures localised the regions of production of the offerings and represented the complicated processes of transporting them to the temples and tombs (Jacquet-Gordon, 1962). In the first millennium BC the large processions consisting of fecundity figures translated the simple decoration of plants into an anthropomorphous system explaining the relating regions with the help of short inscriptions, that is, the names of the human figures. But basically there was no alteration of meaning from plants to fecundity figures or those bringing offerings.

It is the Ptolemaic façade of the temple of Esna built in the second century AD which presents the most extraordinary abstraction of ‘landscape’ we know from Ancient Egypt. An unknown artist – or shall we say ‘philosopher’? – surpassed the basic procedures of the temple-programmes of the Old, Middle, and New Kingdoms. He created a vision of the world in three dimensions combining the very stereotyped pictorial constructions often described in Egyptology as ‘offering-scenes’ (cf. Figure 7.8). The main idea underlying these picture-cycles was to fix the meeting of the pharaoh and the gods. The acts of offering on the one side and the ritual scenes on the other describe the event of the meeting in a way that the succession on the wall finally constitutes a coherent message. The pictorial and textual programme of the Ptolemaic façade of the temple of Esna presents...
the world looking forward to the gods who still are concealed inside the rooms of the sanctuary (Sauneron, 1963, pl. 1). In total 24 scenes in three registers are arranged on the two walls of the façade. So one counts 12 scenes on both sides of the central gate (cf. Figure 7.7). Both parts show a corresponding scheme of scene distribution: they are divided into a rectangle containing nine scenes followed by a column with three scenes near the gate.

The registers and scenes on the left side ascending from bottom to top present the aquatic sphere, the atmosphere, and at last the firmament, that is, a vertical projection of the environmental space labelled by the relating essential components. The corresponding scheme on the right side shows the offerings which consisted of victuals, mineral resources, and clothes. Accordingly they are arranged from bottom to top but reflect a view of the horizontal layout of space from which the offerings being indispensable for life originate. Therefore the programme of the Ptolemaic façade of the temple analysed in this way describes the landscape in which the gods will appear. In this model the landscape is defined by the fundamental elements ‘water’, ‘air’, and ‘light’ on which ‘nature’ or ‘world’ is brought into being. On the other side there are the components constituting life and culture. This ‘landscape’ gets its dynamism from the two figures in the centre of the composition of each wall. On the left side Khnum-Re is depicted, solar might and local god. On the other side Osiris is shown in the relating scene, mediator of the resurrection of life and of all cosmic phenomena corresponding to each other and complementing one another.

In the Egyptian temple decoration Man was symbolised by pharaoh appearing in every ritual scene. Because of that Man was omnipresent in the epigraphic programmes of the temples describing world, nature, and landscape although there was never any ‘realistic’ motif or scene. It was the action of the pharaoh which determined the activities of the gods in the world. This kind of interrelation finds expression in the composition of the dialogues existing between them. The king spoke to the god using a present-perfect formula: ‘I have come to you . . .’, and

Figure 7.7. Sketch of the inner façade of the temple of Esna showing the scene-division (Drawing by the author)
the god answered using a future formula: ‘I will give you in exchange for . . . ’ (cf. Figure 7.8). It was this kind of interaction between the king and the gods which guaranteed a harmonious world, that is, the landscape of Ancient Egypt.

But the initial creation began on divine initiative. This idea substantiated the exceptional position of one picture being positioned in the centre of the whole decoration of the Esna façade. It is directly located over the gate the god will appear in and thus in the middle between the two scene-cycles on the left and the right side of the gate (Figure 7.9). The nocturnal sun personified by the ram-headed god Khnum is accompanied by eight persons symbolising the forces escorting him out of the depth of the night and ensuring his stability. The textual commentary announces the act of the first division of the Creator into male and female for making gods and mankind, and the lunar cycle at its starting point. Beginning with the first time of procreation and appearance of the sun and the moon it is Man who totally has under control the repetition which ensures the existence and the working of the world. The methods of expression the Egyptians used in decorating their temples made it possible to picture the environment of

Figure 7.8. Decoration over the gate of the inner façade of the temple of Esna, showing the nocturnal sun personified by the god Khnum (Photograph by Dagmar Budde, Mainz) (See also Color Plates)
the Nile Valley as a specific Egyptian kind of landscape: the stage where Man meets God: a deep declaration of the intimate union of nature and culture, and the predominance of the last.

REFERENCES


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**Figure 7.9.** Inner façade of the temple of Esna, offering scene (Photograph by Dagmar Budde, Mainz) *(See also Color Plates)*


