Jörg Linstädter

Rocky islands between oceans of sand – Archaeology of the Jebel Ouenat / Gilf Kebir region, Eastern Sahara

It is a fact that during the Holocene peripheral areas of deserts and semi-deserts were frequented by prehistoric men from the today inhabited regions of Northeastern Africa like the Nile valley, the Egyptian Oasis or the Wadi Howar in Northern Sudan. Examples are the use of the Laqiya region in times of the Nubian A-Group (4th millennium cal BC) from the Nile Valley or the exploitation of the Eastern Great Sand Sea and the Abu Ballas escarpment area from the Dakhla Oasis. But in addition archaeological findings from the Western Great Sand Sea, the Gilf Kebir and the Selima Sandsheet (Jebel Kamil area) show the existence of a prehistoric occupation at that time. The exploitation of these regions from the mentioned areas with favourable conditions is unlikely because of their large distance and the unresembling artefact material. Now this work should prove the hypothesis whether the Jebel Ouenat / Gilf Kebir region in the core of the today's hyperarid Eastern Desert was a favourable centre itself. In this context the amount and temporal availability of the water reservoirs behind the blocking dunes of the southern Gilf Kebir (Linstädter & Kröpelin 2004) and the wells of Jebel Ouenat are of outstanding importance. If they had permitted an occupation of the Gilf Kebir and the Jebel Ouenat all year round a use of the adjacent waterless surroundings is supposable.

The rock massifs of the Gilf Kebir and the Jebel Ouenat with their directly adjacent plains cover an area of ca. 90,000 km². They are located 650 km west of the Nile valley at the same geographical high as the Aswan lake and therefore in the core of the Eastern Sahara – today the worlds largest hyperarid region with less than 2 mm of average annual rainfall.

The Gilf Kebir (Arabic: 'big cliff') is a flat-topped sandstone plateau in the remote southwest of Egypt. It consists of two plateaus, connected by a narrow bridge. The southeastern plateau, also called "Kemal el Din Plateau" (Linstädter 2005b: 16), has an extension of ca. 5,800 km². Its height declines from 1,050 m at the south to about 900 m height above sea level in the northern part where it disappears below the dunes of the Great Sand Sea. In the south, rampant to almost vertical cliffs rise up to more than 300 m above the surrounding desert plains. Canyon-like valleys, up to 20 kilometers long and 4 kilometers wide, dissect the eastern part of the plateau. They predominantly trend from west to east. The wadis are typically flat-floored with remnants of drainage channels in their alluvial fill (Kröpelin 1989). Due to the almost complete lack of surface water and the very deep groundwater level, the discussed area has been totally uninhabited for several millennia.

The Jebel Ouenat and its smaller neighbour Jebel Arkenu, located approximately 100 kilometers southwest of the Gilf Kebir, are two mountains also rising above the surrounding plain. The Jebel Ouenat forms a landmark where the frontiers of Libya, Egypt and the Sudan meet. The western part of the mountain belongs to the Libyan side, whereas the Sudanese (southeast) and Egyptian (northeast) parts are much smaller. The highest peak reaches about 1,900 meters above sea level. Deep wadis, the so-called Karkurs, cut into the almost circular shaped mountain. On the northern and western side are located the Karkurs Hamid, Idriss and Ibrahim, on the eastern side the Karkur Murr and Karkur Talh. Up to this day, there are springs at Ain Doua, Ain Zuweia and Ain Murr. Their existence seems to have induced the mountain's name as the arabic word "`Uwênât" can be translated with "the small fountains" (Schiffers 1973: 423).

Geologically the Jebel Ouenat consists of two parts: the western part is composed of circles of praecambric layers; in the eastern part sandstone-pillars dominate the appearance of the mountain (Schiffers 1973: 426).

The Gilf Kebir and the area of the Jebel Ouenat, both were visited and explored by numerous expeditions from different countries (v. Czerniewicz et al. 2004: 82ff, Linstädter 2005b: 23ff). But just a few expeditions were regarding the Gilf-Ouenat-Area as an integrated landscape unit maybe used by the same people in prehistoric times. One possible explanation might be an affiliation of the described area to today three different countries whose frontiers are in places difficult to cross.

Campaigns in both areas were in particular mostly before World War II, like those of the Egyptian diplomat and explorer Ahmed Hassanein Bey in 1924 (Hassanein Bey 1924: 354) and those of the Egyptian Prince Hussein Kemal el-Dine in 1925 and 1926 (Kemal el-Dine 1928, Kemal el-Dine & Breuil 1928). Furthermore the XI. and XII. DIAFE (Deutsche Inner-Afrikanische-Forschungs-Expedition), lead by Lazlo Almasy and Hans Rhotert (Almasy 1936, Rhotert 1952) and the combined Bagnold-Mond expedition carried out by Bagnold and his scientific team in 1938, sponsored by Sir Robert Mond (Bagnold et al. 1939, McHugh 1974) have to be mentioned.

After World War II the only team who carried out fieldwork in both massifs was a group of members of the collaborative research centre SFB 389 ACACIA / University of Cologne. While in the Gilf Kebir area several surveys with extensive excavations were carried out between 1996 and 2000, in the Jebel Ouenat two survey trips in 1998 and 2003 were accomplished.

The results of the ACACIA and the foregoing BOS field work in the Gilf Kebir were published in two monographs (Schön 1996, Linstädter 2005a). The outcome of the archaeological surveys in the Jebel Ouenat has been published in 2004 (v. Czerniewicz et al. 2004). Now a short synthesis of the scientific work in both areas should be given.

An overview about archaeological phases and precipitation regime gives Figure 2. The archaeological chronology of the Gilf Kebir is divided in four phases, first published in: Gehlen et al. (2002: 104ff). The definition of the phases is based on the development of ceramics, stone tools, land use systems and subsistence strategies (Linstädter 2005c: 359ff) Because of the lack of own excavations, the

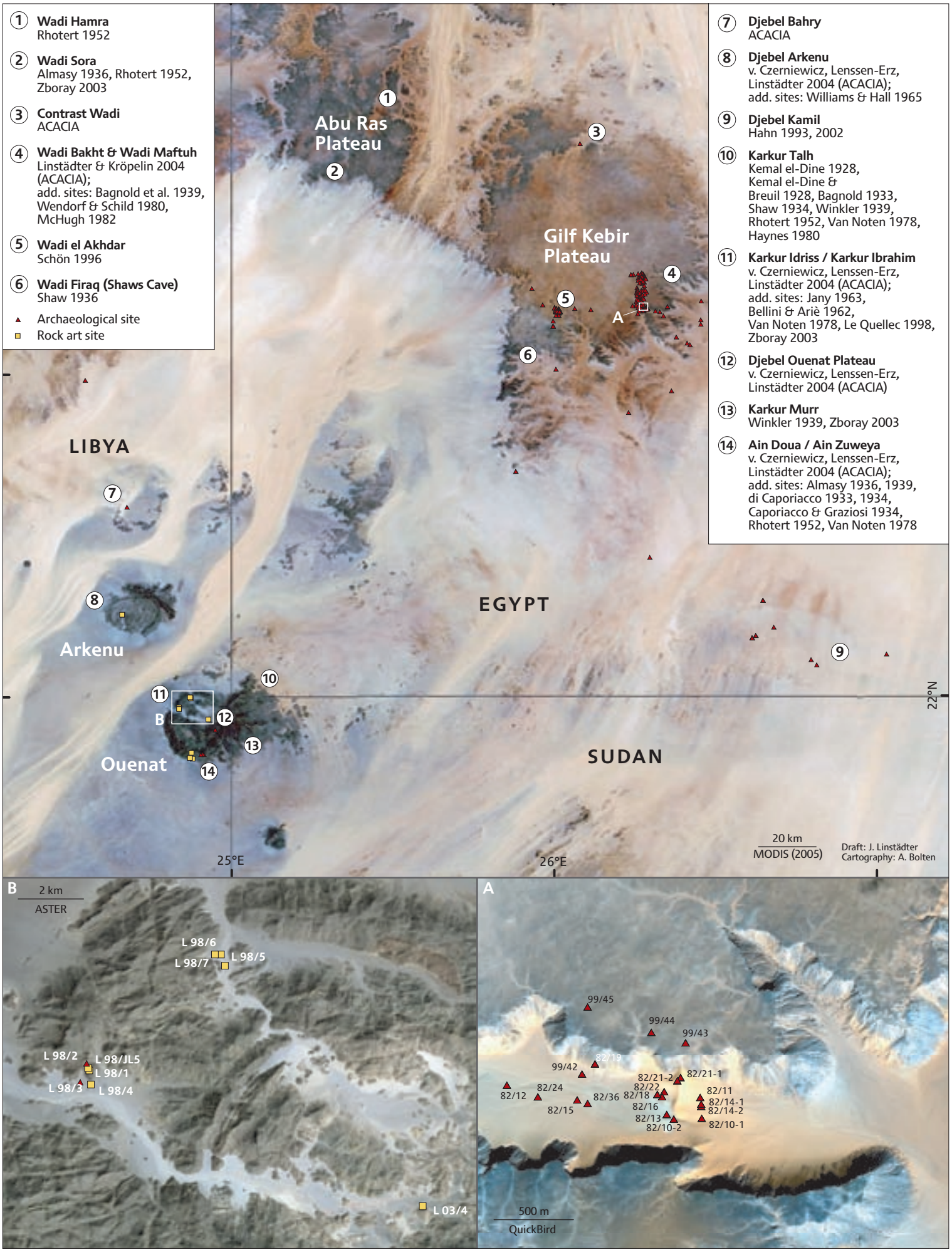

Fig. 1 The Jebel Ouenat / Gilf Kebir region at the border triangle of Libya, Egypt and Sudan with two case studies. (A) 'Archaeological inventory' of the Jebel Ouenat / Gilf Kebir region. Here the position of the 14 locations are shown, were archaeological material or rock art is recorded. (B) The northwestern pluton of the Jebel Ouenat with the two Valleys Karkur Ibrahim and Karkur Idriss. (C) The middle reaches of the Wadi Bakht with the blocking dune in the centre.

chronology of the Jebel Ouenat occupation is mainly based on the decoration of the surveyed ceramics. Additional pottery steming from excavations of Van Noten in 1969 is analyzed and published by Aumassip (1993).

The earliest occupation of the whole research area is documented in the Gilf Kebir with the phases Gilf A and Gilf B. Gilf A is an epipalaeolithic phase starting from about 8,300 cal BC. The economy is based on hunting and gathering, ceramic findings are controversial. Interregional contacts first trace back to the east (southern Egypt) and to the north (Great Sand Sea and Quattara depression) and place the Gilf Kebir at that time in a context area of more then 400,000 km^2.

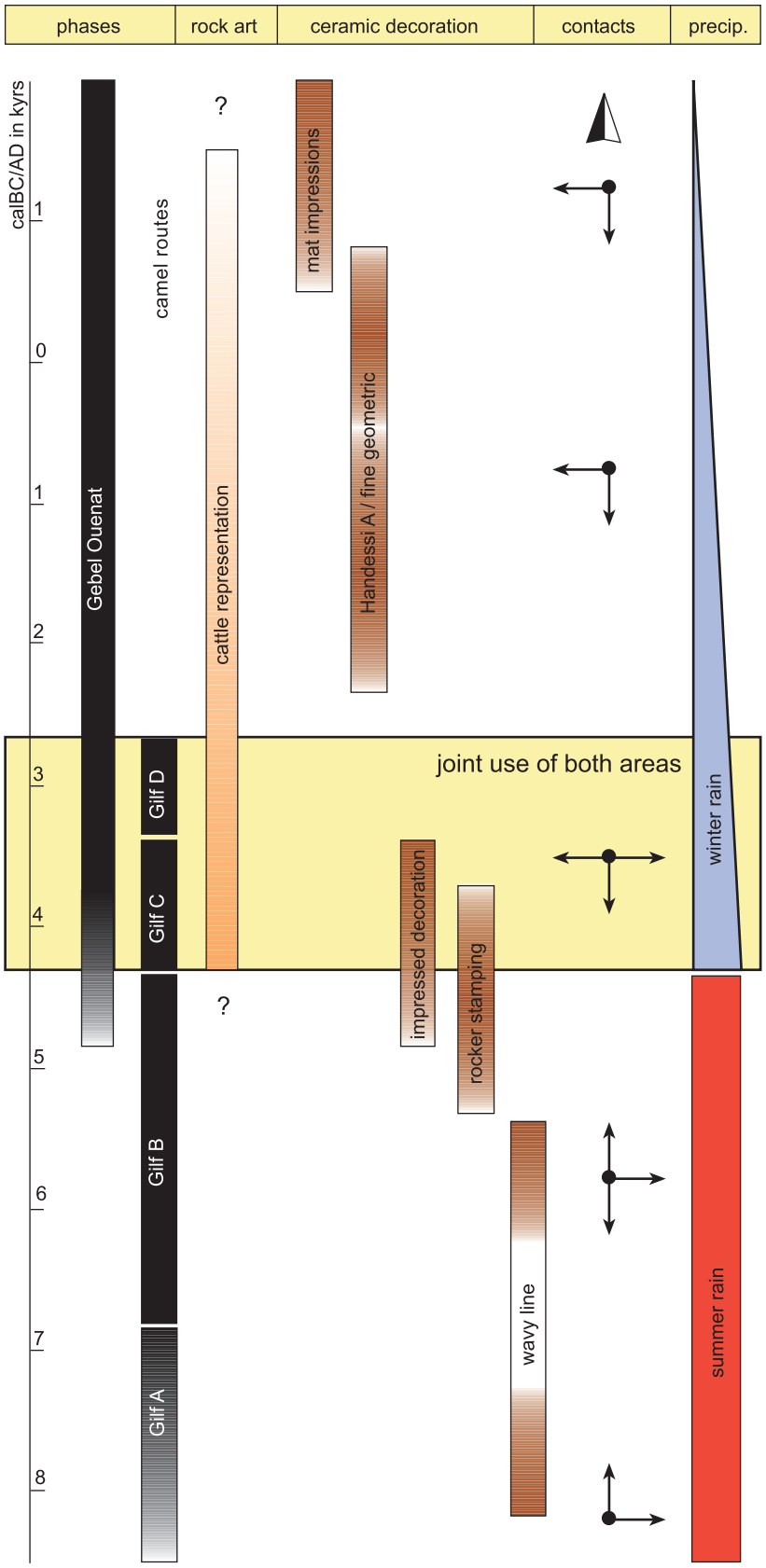

Fig. 2 Phases of the Jebel Ouenat / Gilf Kebir occupation. The phases are contrasted by the probable appearance of rock art, ceramic decoration and the change of the precipitation regime. The arrows in the 'contacts'-column point to the geographical orientation of interregional relations suggested by pottery decoration or other artefact features. The 'precipitation'-column shows the decline of the amount of rain from ca. 150 mm/a in the middle Holocene to ca. 2 mm/a today.

The inhabitants during the phase Gilf B (6,800-4,300 cal BC) were hunter-gatherers, too, but their use of ceramics is proved. The stone tool production is still based on a fine blade technology but the tool kit differs clearly from previous Epipalaeolithic. Comparable findings come from the north (southern Great Sand Sea), the east (southern Egypt) and the south (Wadi Shaw, Selima Sandsheet). The area has a comparable size or is even more extended then in the former phase.

At about 4,300 cal BC some grave changes seem to have taken place in our research area. As we know so far, the precipitation regime has changed from summer to winter rain at that time (Linstädter & Kröpelin 2004: 763). Simultaneously the onset of the Jebel Ouenat occupation is to be observed. Typical for this time is pottery with rocker stamping and other impressed decoration. This pottery appears both in the Ain Doua region of Jebel Ouenat (v. Czerniewicz et al. 2004: Fig. 2), and in the Gilf Kebir (v. Czerniewicz 2005, Linstädter 2005c, Wagner 2005). Comparable material exist in the east (Nile Valley, e.g. Caneva 1988: 65-67), south (Wadi Howar, e.g. Jesse 2003: pl. 7,10) or west (Tibesti Mountains, Bardague pan, e.g. Schuck 1989: pl. 64-66, 74).

For the Gilf Kebir this period is described and divided by the phases Gilf C (4,300-3,300 cal BC) and Gilf D (3,300-2,700 cal BC). One of the noticeable changes in that time is the introduction of domesticated animals in the phase Gilf C. Not only implications on subsistence strategies or land use concepts (in Gilf C the plateau itself is much more used then in the former phase Gilf B), but also the fact of the existence of domesticated animals such as sheep, goat and cattle give us the opportunity to date the famous rock art of both mountain areas. Rock paintings do exist at several places in the Gilf Kebir. The most famous are Wadi Firaq (Shaw 1933) and Wadi Sora (Rhotert 1952). While much smaller in size, the Jebel Ouenat offers a bigger amount of extraordinary rock art sites, such as Ain Doua, Karkur Talh, Karkur Murr, Karkur Idriss and Karkur Ibrahim (Winkler 1939, Rothert 1952, Van Noten 1978a & b, Le Quellec 1998). The paintings show different subjects in different styles. But the dominant feature is domesticated cattle. Subject and style have a great resemblance, both in the Gilf Kebir and in the Jebel Ouenat area. They give us information about the idea of a simultaneous use by the same people.

Because of increased aridity and the lack of accessible ground water resources, the use of the Gilf Kebir ends at about 2,700 cal BC. Thanks to the particular surface structure of plutonic mountains, the western part of Jebel Ouenat disposes of several natural cisterns collecting the run-of of the plutonite in the western part of the massif. These cisterns were called 'Ain' (Arabic: 'well'), but obviously they are not fed by ground water, but by sporadic rainfalls, reaching the area at winter time from the north. Still today these cisterns provide water year-round. So the Jebel Ouenat was used as a re-treatment area even after the drying-up of the temporal lakes in the southern Gilf Kebir after 2,700 cal BC.

Fig. 3 Karkur Ibrahim, Jebel Ouenat. At the bottom of the valley some Acacia-trees could survive until today. This does not apply for two camels. The Jebel Ouenat is a reloading point for camels coming from Sudan and going to the Cities at the Libyan coast. A lot of them don't survive the exertions.

Archaeological triggers of this period are ceramics with bands of incised cross-hatchings bellow the rim, found in the Ain Doua region as well as on the southern top of the western pluton (v. Czerniewicz et al. 2004: Fig. 3). Similar ceramics are known from the middle Wadi Howar region (Prill 2000: pl. 1-3) and dated to the 2nd millenium cal BC (Hoelzmann et al. 2001: Fig. 11). This type of decoration is called "fine geometric" or "Handessi A" (Jesse, in prep.). Similarities to the above mentioned ceramic decoration exist in the central Sahel, like in the plains south of Lake Chad. In this region the incised decorated pottery is dated to the Early Iron Age, 500 BC to 500 AD (Wiesmüller 2001: 168-172, pl. 23).

The presumably youngest pottery of the Uweinat mountain is a mat-impressed ware, found in one of the 'tarfuni' called shelters at the bottom of Karkur Ibrahim (v. Czerniewicz et al. 2004: Fig. 4). This kind of decoration appears in the final neolithic, but is in use until today (Wiesmüller 2001: 158 - 162, Sterner & David 2003: Fig. 3). In addition to this ceramic of probably recent age, even pots made on a potter's wheel, were found. The chronological affiliation of the pottery found in the Uweinat, described above, should be regarded as preliminary. Without closer investigations an exact dating of this type of ceramic is hardly practicable.

Summarizing al these information, a combined use of both areas seems probable for a time span of 1,600 years between 4,300-2,700 cal BC. For the moment the onset of the Jebel Ouenat occupation seems to coincident with the shift from summer to winter rain regime. If the change of the precipitation regime triggers this onset has still to be proved. The inventories of the phase of common use are characterised by a pottery with impressed decoration. Vessel shapes as well as decoration have very much in common (Aumassip 1993: 6ff, Linstädter 2005e: 370). At the same time with the onset of the Jebel Ouenat occupation, the first domestic animals appear in the Gilf Kebir (phase Gilf C). This archaeological record, as well as the similarity of rock art style in both areas, tell us that the beginning of the rock paintings with cattle representations can be dated to this period.

So what about the hypothesis of the Gilf-Ouenat-Region as an 'independent centre', a base for the exploitation of more and more up-drying surroundings like the Wadi Howar or the Egyptian Oasis in the south and in the northeast? While the Gilf Kebir was also frequented in the early Holocene, the main focus of the Jebel Ouenat occupation is on the late Holocene. There is a phase of around 1,600 years in between. Sufficient archaeological and palaeoenvironmental record support this hypothesis. The Jebel Ouenat with his perennial water supply probably inhabited a higher capability than the southern Gilf Kebir with its seasonal lakes behind the barrier dunes just like McHugh (1974: 236) already pointed out. In this context the Gilf Kebir shows a very distinctive settlement pattern throughout time. Most of the archaeological record of the southern Gilf Kebir is concentrated in two valleys: the Wadi el Akhdar and the Wadi Bakht. In the 5,000 years of settlement during the Holocene the occupation seems to switch between the two Wadis. Just in a few cases contemporary data in both valleys exist. The result is an oscillating pattern which is probably caused by the insufficiency of firewood (Linstädter 2005c: 369). If the interpretation is correct, the southern Gilf Kebir was (seasonally or yearround) used by one single group, who stayed (or returned) for a 300-800 years cycle in one of the two Wadis. In the dry season or in unfavourable times, the Jebel Ouenat was the re-treatment area. It was the time of the dry season of the Gilf Kebir - the time when all the cattle stayed close to the mountains and the rock paintings emerged.