

# PREHISTORIC SURVEYS IN THE LIBYAN SAHARA

Elena A.A. Garcea\*

*RESUMEN.- Informe preliminar de la prospección italo-libia de la meseta de Messak Settafet en el suroeste de Libia, con el catálogo de los yacimientos registrados que abarcan las fases achelense, musteriense-ateriense y neolítica, e incluyen abundantes conjuntos de grabados rupestres.*

*ABSTRACT.- Preliminary report of the Italo-Lybian survey in the Messak Settafet plateau (Southwest Lybia), presenting the catalogue of recorded sites of the Acheulian, Mousterian-Aterian and Neolithic phases, including a number of rock engravings spots.*

*PALABRAS CLAVE: Sáhara líbico, Prospección arqueológica, Arte rupestre.*

*KEY WORDS: Lybian Sahara, Archaeological survey, Rock art.*

## 1. THE STUDY AREA

The research given in concession to the Italo-Lybian Joint Mission for Prehistoric Research in the Sahara, directed by Fabrizio Mori of the University of Rome "La Sapienza" includes the Tadrart Acacus mountain range and the Messak (or Amsak) Settafet (or Sattafet) plateau. The two sandstone outcrops are located in south-western Libya and are 60-80 km apart (Fig. 1).

The Tadrart Acacus is known for both its rock art (Mori 1965) and archaeological deposits (Mori 1965; Barich 1974, 1987; Cremaschi and Di Lernia in press). On the contrary, the Messak Settafet is renowned for its rock art, particularly engravings, but any other archaeological information has been so-far neglected.

The Messak Settafet is a flat crescent-shaped hamada and is about 250 km long and 70 km wide. It appears deeply incised by the valleys of former wadis, which run from west to east into the basin of the Edeyen of Murzuk and developed in the Middle Pleistocene (Cremaschi 1996). Unlike the Tadrart Acacus, natural rock shelters are very rare, as the local sandstone has a different formation and coarser matrix. The Messak outcrop represents the westernmost edge of the Nubian Sandstone (Busche 1980). The rock art is located along the walls of the wadi valleys. As it is mostly in the open-air, paintings we-

re less likely to preserve than engravings.

The frequency of rock engravings and the occurrence of artifactual material on the entire surface of the Messak suggested that the plateau was occupied by different human groups over the Pleistocene and Holocene periods. Thus, extensive archaeological surveys became necessary and were conducted together with geomorphological and palaeoclimatic investigations.

Rock engravings were first discovered in 1850 by Heinrich Barth (1857), who visited the Tilizzaghen valley. In 1932, Leo Frobenius (1937) began to collect some documentation on the rock art of the wadis Tilizzaghen and In Habeter (or Abeter), in the Bergiug area. Beginning from 1933/34, the Pace-Sergi-Caputo Mission started its research in the region, but mostly concentrated on the historical cemeteries around the Germa oasis at the northern foot of the Plateau (Caputo 1949; Pace, Caputo and Sergi 1951). In the 1930's, Paolo Graziosi (1942) travelled along the caravan route going from the oasis of El Awaynat (previously called Serdeles) into the Messak, through the wadis Tilizzaghen, In Habeter, and Bergiug. However, his systematic research in the area started in the 1960's (Graziosi 1962, 1970).

More recently, several authors collected systematic documentations on rock art (Jacquet 1978, 1988; Jelinek 1984a, 1984b, 1985a, 1985b, 1993, 1994; Le Quellec 1984-86, 1987, 1993; Van Albada

\* Dipartimento di Filologia e Storia. Università di Cassino. Via Zamosch. 03043 Cassino (Fr). Italia.

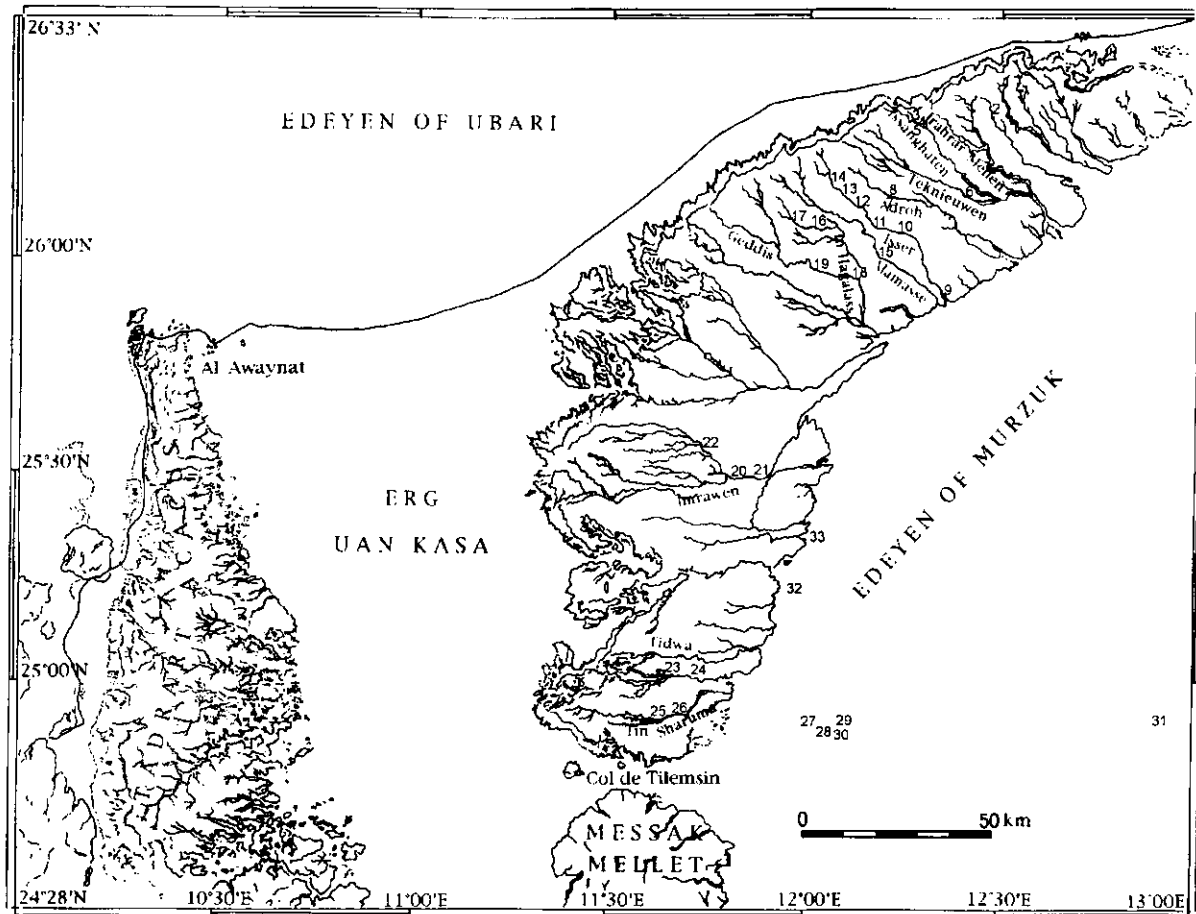


Fig. 1.- Map of the Messak Settafet.

and Van Albada 1990a, 1990b, 1992a, 1992b, 1993a, 1993b, 1993c, 1993d, 1994; Gauthier and Gauthier 1992, in press; Lutz and Lutz 1992a, 1992b, 1993a, 1993b, 1994a, 1994b, 1995; Gauthier and Le Quellec 1993; Le Quellec and Gauthier 1993a, 1993b). In a wider archaeological perspective, the need to incorporate rock art in a more complex context, including all evidence for human occupations and adaptations to the geomorphological features of the area and to the local palaeoclimatic conditions, increased with the increasing production of documents on rock art.

## 2. THE RESEARCH

A first part of the work of the Italo-Libyan Mission was carried out in the central plateau, in the wadis In Habeter, Tilizzaghen, and In Elobou (Cremaschi 1994, 1996); another study area comprised the southern and the north-eastern parts of the Messak Settafet (Garcea 1996).

The surveys had different purposes: identification of archaeological surface occurrences and an-

thropic deposits; systematic surface collections; excavation of sondages in the open hamada and in rock shelters (when present); topographic mapping; and geomorphological and palaeoclimatic investigations. A first map based on Landsat images was drafted by Axel and Anne Marie Van Albada after direct ground observation. Another map at a scale of 1:250,000 was elaborated from the previous one by the Italo-Libyan Mission.

The survey in the central area revealed that more than 60% of the lithics on the surface along the wadis, and at least 20% in the areas between the wadis, were archaeological artifacts (Cremaschi 1994). The only rock cave present in the area was identified in the wadi Mathendush and contained an anthropic deposit that was dated between  $4565 \pm 165$  and  $6825 \pm 90$  years BP. Lake basins were located in front of the central wadis and at least three different lake levels were recognised. The highest lake level was dated to  $6625 \pm 100$  years BP. An intermediate level was dated to  $8445 \pm 160$  BP and the lowest level to  $7325 \pm 130$  BP (Cremaschi 1994). Thus, we may note that the occupation of the cave in the plateau followed a rela-

WADI	LOCATION	ACTIVITY	Latitude N	Longitude E	m a.s.l.	Range	Bearing	No.sat.	PDOF
Irahrar Mellen	Northern cliff		26°23'56.4"	12°17'39.7"	810			6	3,4
	Pottery	surface collection	26°23'31.3"	12°29'35.0"	690	19,9	92	6	3,4
Issanghaten	Quartzite workshop	surface collection	26°20'51.7"	12°21'03.4"	870	15	251	5	4,5
	Rock shelter	excavation	26°20'52.6"	12°21'05.2"	790	0,1	61	5	3,2
	Bottom of the wadi		26°20'55.3"	12°21'06.0"	780	0,1	15	5	3,2
Teknieuwen	Highest concentration of engravings	artifact count+sondage	26°10'57.3"	12°27'12.4"	660	21	151	5	3,2
Adroh-right branch	Engravings at the bottom of the wadi	artifact count	26°09'35.0"	12°17'37.8"	630	16,2	261	6	3,9
Adroh-left branch	Endorheic basin	surface collection	26°08'09.4"	12°24'23.3"	750	11,6	103	6	3,8
Isser	Lower left bank-tethering stones	surface collection	25°45'59.6"	12°12'18.5"	690	45,7	206	5	3,3
	Middle left bank	artifact count	26°03'10.0"	12°19'44.3"	750	34,1	21	6	5,5
	2 km north of track 577-cave	surface collection	26°03'56.0"	12°18'41.5"	540	2,2	309	5	6
	Near engravings south of track 589	artifact count	26°08'21.6"	12°10'35.4"	690	15,8	301	5	4,3
	Engravings between tracks 589 and 597	artifact count	26°08'44.3"	12°10'07.1"	690	1,1	312	6	3,7
	Hamada south of track 597	sondage	26°10'24.1"	12°09'06.8"	720	3,5	331	6	3,2
Alamasse	Engravings on the hamada	artifact count	26°02'57.7"	12°14'30.4"	750	16,4	147	5	3,8
In Hagalass	Upper left bank-Aterian	artifact count	26°05'52.3"	12°02'47.1"	930	20,3	285	6	2,1
	Upper left bank-Microliths	surface collection	26°06'45.4"	12°00'47.2"	810	3,3	266	5	4,5
	Cemetery	surface collection	25°57'43.9"	12°04'01.4"	780	15,8	160	6	3,6
Geddis	Hamada on left bank	artifact count	25°59'11.9"	11°59'00.3"	840	8,8	288	6	2,8
Imrawen	Quartzite outcrop above engraving	surface collection	25°29'38.8"	11°50'33.3"	860	56,4	195	5	4,5
	Cattle engraving on the wadi bank		25°29'34.8"	11°50'33.9"	840	0,1	172	5	3,4
	Concentration of engravings in the upper wadi		25°34'27.4"	11°44'17.6"	870	13,8	311	5	3,2
Tidwa	Concentration of engravings and tumuli		25°03'16.5"	11°44'39.4"	840	57,6	179	6	3,1
	Ca. 900 m from engravings and tumuli	surface collection+sondage	25°03'32.1"	11°47'04.6"	840	4,1	83	5	3,2
Tin Sharuma	Cataract (a cave is 3 km south)	sondage in the cave	24°56'28.7"	11°41'17.9"	850	16,3	217	4	3,6
	Quartzite workshop	surface collection	24°58'22.1"	11°43'57.0"	720	5,7	52	4	3,3
Dunes	Area 1	surface collection	24°54'26.1"	12°02'06.0"	775	31,4	103	5	3,7
	Area 2	surface collection	24°54'14.2"	12°02'50.8"	720	1,3	106	5	4
	Area 3	surface collection	24°54'45.2"	12°05'28.4"	690	4,5	78	5	4,4
	Area 4	surface collection	24°54'36.8"	12°05'10.3"	780			6	3,2
	Area 5	surface collection	24°58'22.3"	12°54'55.9"	630			7	2,3
	Area 6	sondage	25°13'47.8"	11°59'20.1"	730	97,8	287	5	3,9
	Neolithic site	surface collection	25°22'46.9"	12°01'40.0"	730	17,1	13	5	3,9

Table 1.- Position fixes in the Messak Settafet.

tively dry episode and corresponded to the largest expansion of the lake. The evidence is also corroborated by the palynological occurrences in the cave deposit, indicating a shift from humid conditions (with

Cyperaceae, *Quercus* and Cupressaceae) to a desert savannah landscape (with *Echium*, Gramineae, *Marrubium* and *Acacia*) (Trevisan Grandi, Mercuri and Cremaschi 1993).

The survey in the southern and north-eastern parts of the Messak was carried out by the present author. Thirty-three sites were identified. They were plotted on the general map (Fig. 1) with the support of further ground observation and an Ensign Trimble Global Positioning System (GPS) receiver. This instrument could acquire position fixes by tracking up to 8 satellites. No measurements based on less than 4 satellites were recorded. The receiver provided coordinates and heights a.s.l. with a Dilution of Precision (DOP) ranging from 1 to 12. It can obtain either two-dimensional position solutions with a Horizontal Dilution of Precision (HDOP), or three-dimensional position solutions with PDOP values. We only took 3-D measurements and rejected all PDOP values higher than 6. The receiver also calculated the range (linear distance in km) and the bearing (angular difference) between two waypoints. For each waypoint we took five measures of the latitude and the longitude and calculated their arithmetical mean. The accuracy of position fixes has an error of 10-100 m from the actual position of a point. The list of the sites, together with their data on the coordinates, height, range, bearing, number of received satellites, and PDOP is provided in Table 1.

### 3. DISCUSSION

In the southern and north-eastern parts of the Messak, different areas were investigated, both along the banks of the wadis and on the hamada. Erosion appeared to have been particularly strong in the open hamada, as the high frequency of archaeological artifacts on the surface suggested. However, sondages indicated that portions of anthropic deposits were still preserved in the subsurface. The question regarding the relation between surface and subsurface artifacts requires particular attention in this region. It must be remembered that anywhere, but particularly where erosion is very active, their relationship may not be direct, as suggested in the past (Redman and Watson 1970).

Here, the surface had been repeatedly disturbed by natural agents and recent human frequentations, including rock art photographers, tourists, and

oil-well builders. Nevertheless, sampling by intensive surface collection (in the sense of Flannery 1976) was made in some particular areas like, for example, quartzite quarries, which are frequent in the Messak. Small sondages were excavated to check the information on spatial variability resulting from surface collections.

To sum up, most sites appeared to be located in the middle course of the wadis, at a certain distance from the outlets into the open palaeolakes. Acheulian evidence was more unusual than Mousterian-Aterian occupations, suggesting that the mountain range became increasingly settled in the later Pleistocene.

Quartzite outcrops and workshops were mainly recorded in the southern plateau, near the wadis Imrawen, Tidwa, and Tin Sharuma. They were exploited by both Mousterian-Aterian and Neolithic peoples. Another quartzite outcrop occurred to the north, in the wadi Issanghaten, where only Late Neolithic evidence was present. A more intensive occupation of the range was attested to the Neolithic. During these times, the Messak became part of a larger and more systematic settlement organisation, which included the palaeolakes in the lowlands, as well. The ecological conditions in the plateau must have favoured seasonal migrations from the surrounding lowlands in the Edeyen of Murzuk, but also the Edeyen of Ubari and the Erg Uan Kasa.

Finally, the range remained a safe area for the subsistence of human groups until very recently, as the radiometric dates from the excavation of the deposit in the wadi Issanghaten shelter indicated. In fact, the two main archaeological layers were dated to  $1775 \pm 55$  and  $2305 \pm 65$  years BP (Garcea 1996).

### Acknowledgments

I wish to express my greatest gratitude to Gabriele and Rüdiger Lutz, who provided me with the most comfortable and complete logistic support one could imagine in the Sahara. Considering the harsh conditions of the hamada, the work could have been hardly carried out without their cooperation. Axel and Anne Marie Van Albeda should also be acknowledged for very kindly providing the Italo-Libyan Mission with the maps they had personally drafted for their own use.

## REFERENCES

- BARICH, B.E. (ed.) (1974): La serie stratigrafica dell'Uadi Ti-n-Torha (Acacus, Libia). *Origini*, 8: 7-184.
- BARICH, B.E. (ed.) (1987): *Archaeology and Environment in the Libyan Sahara. The excavations in the Tadrart Acacus, 1978-1983*. BAR Int. Series 368, Oxford.
- BARTH, H. (1857): Reisen und Entdeckungen in Nord- und Zentral-Afrika. *Gotha*, Vol. I: 209-218.
- BUSCHE, D. (1980): On the Origin of the Msāk Mallat and Hamādāt Mānghini Escarpment. *The Geology of Libya* (M.J. Salem and M.T. Busrewil, eds.), Vol. III. Tripoli: 837-848.
- CAPUTO, G. (1949): Scavi archeologici nel Sahara libico. *Annali dell'Istituto Universitario Orientale di Napoli*, Nuova Serie 3: 11-33.
- CREMASCHI, M. (1994): Le paléo-environnement: du Tertiaire tardif à l'Holocène. *Les Dossiers d'Archéologie*, 197: 4-13.
- CREMASCHI, M. (1996): The Rock Varnish in the Messak Settafet (Fezzan, Libyan Sahara), Age, Archaeological Context, and Paleo-Environmental Implication. *Geoarchaeology*, 5: 393-421.
- CREMASCHI, M.; DI LERNIA, S. (eds.) (in press): *Wadi Teshuinat (Acacus, Libya). The History of Man and Environment in Central Sahara from the Late Pleistocene to the Early Holocene*. Quaderni di Geodinamica Alpina e Quaternaria. C.N.R. Milano.
- FLANNERY, K.V. (1976): Sampling by Intensive Surface Collection. *The Early Mesoamerican Village* (K.V. Flannery, ed.), Academic Press, Orlando: 51-62.
- FROBENIUS, L. (1937): *Ekade Ektab. Die Felsbilder Fezzans*. Leipzig.
- GARCEA, E.A.A. (1996): Archaeological investigation in the Messak Settafet. *Libya Antiqua*, new series 2: 15-21.
- GAUTHIER, Y.; GAUTHIER, C. (1992): Nouvelles figurations humaines dans l'art rupestre du Fezzân (Libye). *Survey*, 5-6(7-8): 157-162.
- GAUTHIER, Y.; GAUTHIER, C. (in press): Le lycan, le chacal et l'éléphant: symboles et mythes du Messak Mellet et du Messak Settafet. *Valcamonica Symposium*. Capo di Ponte, 1993.
- GAUTHIER, Y.; LE QUELLEC, J.L. (1993): Découvertes exceptionnelles au Messak Mellet (Fezzan sud-occidental, Libye). *International Newsletter on Rock Art*, 4: 1-3.
- GRAZIOSI, P. (1942): *L'arte rupestre della Libia*. Napoli.
- GRAZIOSI, P. (1962): *Arte rupestre del Sahara libico*. Firenze.
- GRAZIOSI, P. (1970): Recenti missioni per lo studio dell'arte rupestre nel Fezzan. *Valcamonica Symposium* (E. Anati, ed.), Capo di Ponte: 329-343.
- JACQUET, G. (1978): Au coeur du Sahara Libyen d'étranges gravures rupestres. *Archéologia*, 123: 40-51.
- JACQUET, G. (1988): Gravures rupestres du Sahara Fertile. *Archéologia*, 239: 34-41.
- JELINEK, J. (1984a): Mathrndush, In Galgien, two important Fezzanese rock art sites. *Anthropologie*, 22(2): 117-170.
- JELINEK, J. (1984b): Mathrndush, In Galgien, two important Fezzanese rock art sites. *Anthropologie*, 22(3): 237-68.
- JELINEK, J. (1985a): Tilizahren, the key site of Fezzanese rock art. *Anthropologie*, 23(2): 125-165.
- JELINEK, J. (1985b): Tilizahren, the key site of Fezzanese rock art. *Anthropologie*, 23(3): 223-275.
- JELINEK, J. (1993): Some ideas on the possibilities and traps of the Saharan rock art chronology. *L'arte e l'ambiente del Sahara preistorico: dati e interpretazioni* (G. Calegari, ed.), Memorie Soc. Ital. Sci. Nat. e Mus. Civ. St. Nat. Milano, 26 (II): 293-295.
- JELINEK, J. (1994): Etude historique du Messak Settafet. *Les Dossiers d'Archéologie*, 197: 14-21.
- LE QUELLEC, J.L. (1984-86): Acheuléen évolué et Atérien à Gârat El Mâl, Fezzan (Libye). *Libya*, 32-34: 117-137.
- LE QUELLEC, J.L. (1987): *L'art rupestre du Fezzan septentrional (Libye)*. BAR Int. Series 365, Oxford.
- LE QUELLEC, J.L. (1993): *Symbolisme et art rupestre au Sahara*. Paris.
- LE QUELLEC, J.L.; GAUTHIER, Y. (1993a): Un dispositif rupestre du Messak Mellet (Fezzan) et ses implications symboliques. *Sahara*, 5: 29-40.
- LE QUELLEC, J.L.; GAUTHIER, Y. (1993b): Nouveaux personnages mythiques en relation avec des rhinocéros sur les gravures du Messak Sattafet (Fezzan, Libye). *Le Saharien*, 124: 30-34.
- LUTZ, R.; LUTZ, G. (1992a): Erforschung unbekannter Felsbilder im Amsach Sattafet und Amsach Mellet im Südwest-Fezzan, Libyen. Die Begehung von Wadi Gedid. *Universitätsforschungen zur prähistorischen Archäologie*, 8: 305-315.
- LUTZ, R.; LUTZ, G. (1992b): Grotte e ripari nell'Amsach Sattafet. *Sahara*, 4: 130-135.
- LUTZ, R.; LUTZ, G. (1993a): From picture to hieroglyphic inscription. *Sahara*, 5: 71-78.
- LUTZ, R.; LUTZ, G. (1993b): Rock engravings in the SW-Fezzan, Libya. New discovery of a rock art gallery in the Amsach Sattafet. A contribution to the relative chronology of the earliest rock pictures in the Sahara. *L'arte e l'ambiente del Sahara preistorico: dati e interpretazioni* (G. Calegari, ed.), Memorie Soc. Ital. Sci. Nat. e Mus. Civ. St. Nat. Milano, 26 (II): 333-358.
- LUTZ, R.; LUTZ, G. (1994a): Elefanten in der prähistorischen Sahara. Mensch und Elefant. *Staatliches Museum für Völkerkunde, München*, Innsbruck: 58-67.
- LUTZ, R.; LUTZ, G. (1994b): Wadi Tilizaghen A. *Sahara*, 6: 41-50.
- LUTZ, R.; LUTZ, G. (1995): *The secret of the desert. The rock art of Messak Sattafet and Messak Mellet, Libya*. Innsbruck.
- MORI, F. (1965): *Tadrart Acacus. Arte rupestre e culture del Sahara preistorico*. Torino.
- PACE, B.; CAPUTO, G.; SERGI, S. (1951): Scavi sahariani. Ricerche nell'Uadi el-Agial e nell'Oasi di Gat della missione Pace-Sergi-Caputo. *Monumenti Antichi*, 41: 152-552.
- REDMAN, C.L.; WATSON, P.J. (1970): Systematic Intensive Surface Collection. *American Antiquity*, 35: 279-291.

- TREVISAN GRANDI, G.; MERCURI, A.; CREMASCHI, M. (1993): Palynology and stratigraphy of deposits from the Wadi Aramas cave (Messak Sattafet - Libyan Sahara). *Giornale Botanico Italiano*, 127(3): 696.
- VAN ALBADA, A.; VAN ALBADA, A.M. (1990a): Documents rupestres du Messak Settafet (Fezzan Libyen). *Sahara*, 3: 89-94.
- VAN ALBADA, A.; VAN ALBADA, A.M. (1990b): Scènes de danse et de chasse sur les rocher du plateau noir en Libye. *Archéologia*, 261: 32-45.
- VAN ALBADA, A.; VAN ALBADA, A.M. (1992a): Chasseurs et pasteurs du Messak Settafet. *Préhistoire Anthropologie Méditerranéennes*, 1: 99-104.
- VAN ALBADA, A.; VAN ALBADA, A.M. (1992b): Les gravures rupestres néolithiques du Sahara central. *Archéologia*, 275: 22-33.
- VAN ALBADA, A.; VAN ALBADA, A.M. (1993a): Art rupestre du Wadi Tin Sharuma (Fezzan-Libye). *Sahara*, 5: 96-7.
- VAN ALBADA, A.; VAN ALBADA, A.M. (1993b): Documents rupestres originaux du Messak Settafet (Fezzan Libyen). *L'arte e l'ambiente del Sahara preistorico: dati e interpretazioni* (G. Calegari, ed.), Memorie Soc. Ital. Sci. Nat. e Mus. Civ. St. Nat. Milano, 26 (II): 547-554.
- VAN ALBADA, A.; VAN ALBADA, A.M. (1993c): L'eau et le symbolisme lié à la fertilité dans l'art rupestre du Messak Settafet. *La religione della sete* (G. Calegari, ed.), Milano: 53-61.
- VAN ALBADA, A.; VAN ALBADA, A.M. (1993d): Hommes, animaux et légendes de la préhistoire fezzanaise. *Archéologia*, 289:40-49.
- VAN ALBADA, A.; VAN ALBADA, A.M. (1994): De nombreux "centres culturels". *Les Dossiers d'Archéologie*, 197: 22-33.