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Rock Gongs from the Nile Third Cataract Region: In Archaeological and Traditional Contexts

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Introduction

Bernard Fagg (1994) suggested that the term 'rock gong' should include any naturally situated rock, boulder, exfoliation, stalagmite or stalactite that resonates when struck and shows evidence of use as an idiophone - in contrast to other lithophones (stone and voice) which are portable, and were either artificially tuned, or selected for their tonal suitability.

Rock gongs are common features in the southern part of the third cataract region of Sudan. They are naturally formed granite, diorite and basalt slaps or boulders. When they are struck with hard objects they emit metallic tones or dull thuds. Some of them have regular percussions that produce different tones. More than 15 solitary, complex or clusters of rock gongs are reported in the region. There is some evidence of recent patination in the percussion cups (cupules), indicating recent human use.

Rock gongs are reported in other parts of Sudan. For example, they are reported in the fourth cataract region by Kleinitz (2004), and in the fifth cataract region and from Kebkebia, Darfur by Lanning (1959). Rock gongs also are well known in most parts of Africa e.g., Algeria, Libya, Uganda, Kenya Tanzania, Namibia, Botswana, Zimbabwe, Nigeria, South Africa, Zambia and Malawi. Most frequently, these gongs are associated with rock paintings and drawings. The past use of these gongs is not well known, but some local and modern traditions are being reported from some African countries.

This paper tries to investigate the rock gongs in the third cataract region of Sudan, their association with other archaeological sites and tries to understand their ancient purpose through surviving traditions and ritual practice in the vicinity of these rocks.

The pioneer worker, Bernard Fagg (1956), found rock gongs in Nigeria (Birnin Kudu, Kano) in an archaeological context. Their distribution near painted caves leaves little doubt that they are associated in some way with these sites. The rock gongs themselves are usually clustered within about 100ft of the paintings.

Fagg (1956: 18) added:

The contemporary uses of these rock gongs varies greatly though they are most frequently used in secret religious ceremonies, often in connexion with circumcision at initiation rites (Mbar, Bokkos, Daffo, Fobur). They are used at Nok in the ceremonies just prior to the harvest of the first acha 6 when certain grass seeds are carried up to the cave by the unmarried girls and ground on the solid rock. Here and in several other places the gongs are closely associated with corn-grinding grooves worn down into the solid granite. At Kusarha Hill in the Northern Cameroons they are said to be used for communicating with spirits whose reply is received in the form of echoes from the depths of the cave... At Nok and elsewhere in Jabaland they are said to have been used as warning signals of the approach of Fulani cavalry during the Holy Wars of the nineteenth century, and indeed the sound will carry up to two or three miles in favourable conditions...They are in addition used in many places also for merry-making, for they provide an excellent accompaniment for singing and dancing, resembling in sound and rhythmic use the conventional double hand-gongs of iron, which are so widespread in Equatorial Africa. They are frequently closely associated with rock slides, sometimes as long as 150 feet, on which the boys amuse

themselves by sliding down on small rock sledges from the tops of bare granite hills.

Rock gongs may be the earliest musical instruments.

Goodwin (1957) mentioned that in Nigeria, at Dutsen Murufu, children came out frequently and played on the rock gong. He also discovered that every bride in the staunch Mohammedan town of Birnin Kudu was expected to go to this shelter early on her wedding morning and to remain there until late in the afternoon. At Nok, in more warlike times these gongs were used to warn villagers of approach of mounted Hausa or Fulani riders. Williams (1957) recorded in Old Oyu, Yorubaland, Nigeria that there is a cave with rock gong and paintings. Williams (1957) added that it is also of interest that the local people link the cave (Iya Mapo's house), the sliding groove, and the rock gong, to a fertility goddess.

Vaughan (1962) wrote that in northern Nigeria, near the villages of Womdi and Uvu, rock gongs are present near a shelter with paintings. Some marriage rituals and religious ceremonies in the farming season are performed in this location. During the celebration the gongs are struck randomly but are beaten in a rhythmic pattern with drumming and singing. The outcome is an awe-inspiring sound.

Soper (1968: 175-179) discovered rock gongs to the south of Lake Victoria in the Chole area that were associated with a Late Stone Age rock shelter with paintings. One of the sites in Nyamholo was used by herdsmen. In Ntulya, dome-shaped rock gongs were used by a famous rainmaker to conduct his rituals. Also there is a chute (groove) reported to be used by Ntulya in the detection of witchcraft that causes drought. In Seke there are two stone drums of religious importance to the clan, which have no musical note and no sign of percussion. Some rock gongs are related to Early Iron Age sites in Mwanza Gulf (Chapman 1967) and others coincide with rock paintings (Tanner 1957).

Campbell (2008) wrote that Tuaregs in the Oued Djerat seasonal river (Algeria) still play the gongs. One man rolls a large stone in the deeply ground depression in the stone and the other man alternately rolls a second large stone on top and then taps the upper surface of the gong with

a smaller stone. The resulting sounds create an undulating moaning interspersed with sharper notes that reverberate down the Oued seasonal river. The Tuareg believe that the stones speak on behalf of the spirits in the rock. These spirits speak mainly about the present and the future including good times with abundant rain. They also warn about bad times of raids, war, drought and future hardship. Women can understand and interpret the sounds emitted.

Kleinitz and Olsson (2005: 36) mentioned that in the fourth cataract region in Sudan, the crosses and percussion zones are of a similar degree of patination and thus appear to have been made and or used at the same time. This potentially dates the last use of the rock gong to the Christian period.

Kleinitz (2008:137) mentioned that rock gongs are often encountered in close spatial relationship to rock art imagery, and rock sounds were recognized as playing key roles in performances in ritual and other contexts.

Materials and Methods

A number of questions were raised in the study of the archaeology of rock gongs in the Nile third cataract region:

- What are the natural characteristics of the rocks e.g., the size, shape, rock type, landscape and location?
- What is their archaeological context?
- Is there any surviving local traditions and ritual activates associated with the rock gongs?

To achieve answers to these questions, a fieldwork survey was carried out in 2010 to study the known rock gongs and to discover new ones. The survey was conducted as part of the Mahas Survey Project (Edwards and Osman 1992, 1994) and is the basis for the sites that were visited. During the survey, when rock gongs were discovered, the site was located using GPS. The rock's length and width were measured whenever possible.

Cupules were counted, their arrangements pattern was documented, and the state of patination of cupules was noted. The general landscape of the site and neighboring sites was reported. A sample from every rock gong was taken for classification and for chemical and physical properties analysis later in the laboratory. The sound samples of every rock gong were recorded for further study. In addition, data was collected from citizens in Arduan Island, Kjbar, Tondi and Sai Island regarding traditions and rituals associated with practices at rock gong sites and any other shrine However, chemical properties, or holy rocks. physical properties and musicological studies of the gongs lie outside the framework of this paper.

Rock Gongs in the Third Cataract Region

Rock gongs in archaeological contexts. The major component of the Mahas area is the third cataract region, which extends over 55km along the Nile. A seasonal stream branches from the Nile and adds three major villages to the area. The Nile River flows northward across a wide floodplain in the area between Dongola and Kerma. About 20km north of Kerma, there is a sudden change in the geology as the river crosses over a crystalline rock basement complex. The ground on either side of the river becomes rugged, with numerous small granitic jebels rising up a 100m or so above the river water level (Vail et al. 1973: 3). The riverbanks became steeper and rocky, and the river itself breaks into numerous channels passing around many large islands. There is an abrupt change from the northerly flow of the river when the river divides around Arduan Island and flows almost due east for some 25km before resuming its northerly direction in Kajbar-Sabu village. This flow change was due to an abrupt change in the structure of the gneiss and granite bedrock (Vail et al. 1973: 3). This special landscape, and the presence of granite, diorite and basalt rocks in the southern part of third cataract, led to the rock gong phenomenon's appearance in the area and make it a conspicuous archaeological feature in the area.

Based upon the work of Osman and Edwards (2002), and the survey carried out by the author

in 2010, there are more than 15 solitary, complex and clusters of rock gong sites known in the southern part of the third cataract region (Figure 1).

The rock gongs of the area can be very large boulders up to 5m in height, e.g., Hambokol village (MAS 032 Figure 2), or small slaps, e.g., Fad village (FAD 003- Figure 3), which has a length of 1.5m.

To emit sound, the rock gongs should not be on the ground but instead they must lie on another rock. This was observed during the survey in the region. The tone and the size of the sound are dependent upon several factors: the size of the rock, its chemical composition, and the physical strength of the strike. Different percussion cupules emit different notes in the same rock gong boulder. Most of the rock gongs are situated in naturally raised rock outcrops. The rock gong in Fad village is exceptional in that it has been transferred from another area. Vaughan (1962) notes that in northern Nigeria, in the villages of Womdi and Uvu, rock gongs had been carried to their present location.

In the vicinity of the rock gong there are many percussion tools: hand-sized quartz pebbles (Figure 4). The rock gongs in areas remote from recent human settlement, e.g., Wadi Farja (FAR 040-Figure 5), appear to not have been used recently because the rock percussion showed dark patination. However, gongs located near villages or on tapped ways e.g., in Arduan Island (ARD 04), have new percussions placed beside old ones (Figure 6). The big rock gong in Hambokol village has the most recent evidence of light percussion from children's recent play when they are grazing goats and sheep in the area. The recent percussion is documented in ARD 004 situated between two hamlets.

In some locations the percussion stones are placed on the surface or to the side of the gong according to how the rock is situated. The case was very clear in two drum-like rock gongs at the sites FAD 003 (2.5 x 2.5m) and ARD 004 where percussion capsules are in a line along the edge of the rock. Three rock gong percussions at FAD 003, FAR 040 and ARD 004 (4.5 x 2.5m) are directed to the north and relatively open land. The presence of percussions in the direction of the north and the existence of an open area in the same

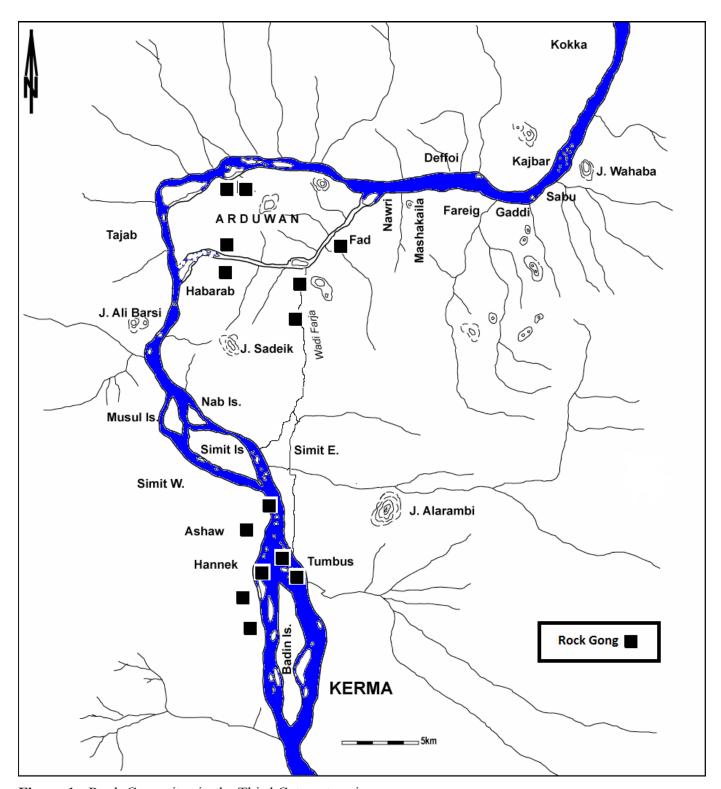


Figure 1: Rock Gong sites in the Third Cataract region.

direction seems to suggest that in these two cases the performance of some musical rituals with an audience in open land. Kleinitz and Olsson (2005: 120) notes also that rock gongs are often found in locations offering good views over the terrain.

In archaeological context observed, 46% of rock gong sites are associated with Neolithic



Figure 2: Granite rock gong – large boulder.



Figure 3: Rock gong – small slap.



Figure 4: Percussion stones near rock gong at site FAR 040.



Figure 5: Rock gong in remote areas.



Figure 6: New percussions at site ARD 004.

occupations, 62% with Kerma occupations and 23% with Christian cross drawings (Figure 7)¹. Fifteen percent are near churches (KBD 019 and MAS 031) and approximately 69% of rock gongs are associated with rock drawings of animals (KBD 005 – Figure 8)

or in vicinity of such drawings. Unfortunately, there are no definite dates for rock drawings (Table 1).

In the fourth cataract region, Kleinitz (2008: 137) correlated rock gongs with cattle



Figure 7: Rock gong and cross (RD 004).



Figure 8: Rock gong and rock drawings.

herders because of the great economic and symbolic roles that cattle played in the lives of the ancient cattle herders. In the third cataract region, cattle herding was practiced from the Neolithic up to the Kerma period. Most of the drawings associated with rock gongs are cattle forms.

Surviving (Vivid) Ceremonies and Rituals at Rocks

MacMichael (1918: 41) wrote that Midob, a northern Darfur Nubian group who claim Mahas origins from Dongola, has a ceremony that takes place just before the rains at the holy rock of Jebel Urdu known as Delli (God in Midobi Linguish). MacMichael (1918: 41) states:

The ceremony at Urdu is performed by certain old women of Ordarti section who inherit the privilege from mother to daughter. The offering of milk, fat, flour, meat etc., are handed by the votaries to these old women and placed on rock. The rest of the people stand some way off and

pass the time dancing, jumping and singing.

Lanning (1959) reported that Basil Davidson had heard of rock gongs when talking to a Fur chieftain at Kebkebia in Darfur. This rock gong lies at the western end of the Kaura Pass through the two massifs of Jebel Si and Jebel Marra- west of El Fasher. The stones were located at the palace of Mohamed Teirab and were used by servitors to call the people together in 18th century. He added that his two informants readily showed him how to use the gong. It might be argued that perhaps some kind of local tradition is attached to the gongs in addition to the one associated with Mohammed Teirab (Lanning 1959).

On Sai Island, (80km north of the study area) there are two stone boulders called Toogin-Kid (in Nubian: 'wind rock') in Arodin village. Until the 1980s there was a certain ritual practice performed at these rocks for wind blowing. After harvesting crops, wind is needed urgently to separate cereals from the straw. To perform the rite, boys would go to the Nile, swim and then come to the Toogin-Kid boulders where they hit the rocks with pebbles. Children up to ten years of age were

No	Site code and location	Village and Local name of the rock	Percussion pattern and number	Archaeological site(s) in vicinity	Morphology and landscape
1	HNK 013 19°43.92 N /30°21.663 E	-Hannik, west of Tiifaawir hamlet	-	Rock drawings of ovicaprines and cattle	-Rocky out crop Channel of Tiifaawir (in Nubian: cattle drawing)
2	HNK 032 19°43.15 N /30°22.15 E	-Hannik, west of Kisseenaarti hamlet	-	- 2 Rock drawings sites	-island of Kisseenaarti (in Nubian: Christian island)
3	HNK 034 19°44.73 N /30°22.29 E	- Ashshaw Ashshaw aarti island hamlet	5 cupules	- Neolithic and Kerma Occupations - rock drawings	in an island
4	KBD 005 19°44.3037N/ 30°23.082E	Name: Dakran Kid (Drum rock) -Koboddi village -Sheikh Mohamed Fadol hamlet	-	Neolithic and Kerma occupations -rock drawings (giraffe) -rock drawings (antelope) - drawing of crosses	Rocky out crop in plane area
5	KBD 019 19°43.100 N /30°22.960 E	-Koboddi village - Dabaki Island Name: Dakran Kid (Drum rock)	4 cupules	- near church	Dabaki Island
6	TMB 011 19°42.47 N /30°23.42 E	-Tombos village -island of Tombos	-	-rock drawings(indeterminate animal with horns)	Island of Tombos
7	MAS 031 19°53.23 N /30°23.495E	Kid Nuungi (Ringing rock) Kidin dungil (thudding rock)	- Scattered	-Neolithic and Kerma occupations -rock drawings - near church	Channel of Taahan to Farki
8	MAS 032 19°54.125N /30°19.860E	Kongielin Kid (Ringing rock) -Habokool village -Facing Guttad Island	Scattered and linear 26	- Neolithic and Kerma occupations -rock drawings	Northern seasonal Channel of Mesida
9	MAS 033 19°53.331 N /30°23.507E	Kid Nuungi(Ringing rock)	8 percussion cup marks	Neolithic and Kerma occupations -rock drawings	Channel of Taahan to Farki
10	MAS – 19°53.682 N /30°19.705E	-Habokool village -Korinto Hamlet	3 linear	-rock drawings	- seasonal Channel of Hambokool
11	FAR 040 19°51.939 N/ 030°23.401 E	-	Linear, 11	Kerma occupations -rock drawings	
12	FAD 003 19°54.431 N/ 030°24.432 E	Fad village	Linear, 12 percussion cup marks	Kerma occupations - Neolithic pottery sherds in vicinity	Isolated and in Open plain ground
13	ARD 004 a- 19°56.567N/ 30°20.360 E	-	Linear, at the edge 11 cupules. Recent percussion rock	Occupation pre/early	-In Rocky -out crop Channel of Mugur Island, facing to west
14	b- 19°56.558 /30°20.258 (Kokk of God	- Kokk Allah (Kokk of God) -Three boulders,	Scattered, 32 in big, 20 in the smaller	Kerma - Crosses rock drawings	West to above 185 m.
15	C- and d- 19°56.565N/ 30°20.480 E	-	Scattered, 10 in one, 3 in the other		East to Kokk Allah 400 m

 Table 1: Rock gongs in the Third Cataract region in archaeological context.

naked when they hit the rock gong, while young girls ululated and sang certain words. The indigenes believe that the wind will blow immediately.

In Kajbar village in the northern end of the third cataract region, there is a holy rock called Kokka Dajae (in Nubian: 'hit and lick'), Jebel Noh or Sitti Nefisa's shrine. It is situated 1.3km north of the village in the desert. In marriage and circumcision ceremonies a special ritual was held at the foot of this Jebel. The procession (in Nubian: 'irrmer') of the groom and bride goes to the Jebel Noh rock outcrop. The people sing and dance and travel around the jebel many times. Some of the younger males climb up on top of the jebel and hit the rock with small gravel pebbles and lick the sandstone powder that is produced by this action. Noh is the known Prophet Noah and Sitti Nefisa is an Islamic sofi shikha, said to be one of the greatgranddaughters of Prophet Mohammed (Peace upon him). She was buried in 832 in Egypt as is noted by Al-Magrizi (Zenhom and Shargawi 1998), and not in Kajbar village. So this is a cairn for Sitti Nefisa in Kajbar. Other archaeological sites in the vicinity include Neolithic sites, Christian graffito and engraved crosses in rock, and an Egyptian inscription from the 18th Dynasty on a boulder.

Kleinitz (2008: 136-137) noted in the fourth cataract region that rock gongs near the villages and on the pathways are played with by children but without any surviving traditions. Rock gongs found in faraway places show medium to darker patination and have no evidence of having been played recently. Fortunately, in the third cataract region some local traditions were reported as follows.

In Arduan village (ARD 004) a cluster of rock gongs are recorded. A local person said that in the past and until the 1970s, anyone who passes Kokk Allah (God Gong) rock gong must take a gravel pebble before passing it and hit the gong three times. Local people believe that this action will provide the person with a feeling of peace and protection from devils and animals while crossing the area. If the person returns from their journey by the same way, then he should hit the gong three times before entering the hamlet of Saadeeg. They believe that female devils inhabit the rock boulders between Saadeeg and Dugadjae hamlets. To avoid harm, the passerby should hit the rock gong three times.

It must be noted that the rock gong called Kokka Allah, is attributed to God and consists of three standing rocks similar to the Nubian house gates. There is a local belief that a person must knock three times on this rock. They believe that if they do so, they are safe from the evil demon. Noting that the site has many graphics e.g., crosses on the rocks, we may ask whether there is a relationship between these and the Holy Trinity in Christianity. The local people add that any person leaving or entering the village knocks three times on the rock gong; the sound emitted is a declaration that the person was leaving from, or arriving in, the village. So it was a means of communication.

In Malajab village on northern Arduuan Island, there are rock cupules associated with a pile of gravel pebbles. A local person stated that until the 1970s they collected a pebble before passing the cupules, then on reaching the cupules they threw the pebble on the pile when passing. The local peoples have no interpretation for this tradition, but they added that it was done by their parents and grandparents. In Hambokol village on southern Arduuan Island, there are El-Nabi Noh (Prophet Noah) holes in the rock boulders. A local person stated that until the 1970s, they collected a gravel pebble before passing these holes, on reaching the holes they put the pebble inside and then picked it out again, kissed it and left the pebble in the vicinity of the holes.

In Tondi village at Talam-niki Hamelt, 40km north of the third cataract region, there are holes in El-Nabi Noh rock boulders. Until the 1970s, older local people took a straw before passing these holes. On reaching the holes, they put the straw inside a hole and left it in the sand inside the hole. If a passerby does not do this, then he will be either stung by a scorpion or bitten by a snake. The presence of small stones in the vicinity indicates the possible shift to using straw instead of stone as is used in Hambokol village at the El-Nabi Noh rock boulders. Today boys hit the rock gong when they are in the area grazing goats and sheep just as children do in Hambokol and Masida villages. Recently, during football games, boys hit the rock gongs as a form of football promotion.

Discussion

Rock gongs in the third cataract region have a close spatial relationship with rock drawings. This agrees with findings of many authors (e.g., Fagg 1956; Goodwin 1957; Williams 1957 and Vaughan 1962 in Nigeria; Soper 1968 and Tanner 1957 in Lake Victoria, and Kleinitz 2008 in Sudan). The tradition of cattle scar symbolism is well known from the Kerma period as reflected in their burials. In the study area it was observed that rocks gongs have a spatial relationship with Neolithic and Kerma sites as well. Therefore we argue that there is some connection between Neolithic and Kerma sites and rock gongs sites. This suggests the same dates for rock gongs and their associated sites. Kleinitz (2008: 137) dated motifs of cattle primarily to the 3rd and 2nd millennia BC, which corresponds in the study area to the Pre-Kerma and Kerma periods. Soper (1968: 177) suggests that in Lake Victoria the Nymholo rock gong was used by herdsmen. This also could apply to our study area as is suggested by the presence of Kerma cattle burials.

On the other hand the spatial association of rock gongs with Christianity seems to be a Sudanese tradition as is reported also from the fourth cataract by Kleinitz and Olsson (2005:36) from Wadi Tbir. Kleinitz (2008:137) dated these sites roughly to the first and the middle of the second millennia AD. There are some artificial rock gongs used in Ethiopia as church bells (Fagg 1994). Although the traditions of rock gongs date back to the Neolithic and Kerma periods, it appears that their use continued into successive periods. However, there is no strong evidence yet that the crosses carved into many rock gongs and nearby rocks at Mesiada church are related. Licking sandstone dust from cupules in the Kajbar marriage and circumcision ceremony seems to be a Christian Baptism sign or an Islamic Shia group tradition. The cairn of Sitti Nefisa is sufficient justification for such a suggestion. This tradition might have been introduced into the area during the Fatimid Shia period in Egypt (909-1171). According to the literature of traditions in Africa of rock gongs, the harvest of crops and fertility were connected with these gongs (Fagg 1956: 618; Williams 1957). This is similar to the wind-making ritual on Sai Isalnd at Toogin-Kid rock gong. Soper (1968:

177) mentioned that in Lake Victoria at Ntulya rock gong, a famous rain-maker used the gong to conduct his rituals. Communication was another use mentioned by Fagg (1956), Goodwin (1957) and Lanning (1957) in Darfur. This is similar to what has been described by the Arduan village people.

Concerning the use of rock gongs for musical purposes, Campbell (2008) stated that the Tuareg in Algeria play music with rock gongs, and they believe that the sound emitted from the stones is a speech on behalf of the spirits in the rock. Vaughan (1962) commented that rock gongs are beaten in the rhythmic pattern of drumming and singing in Algeria. The two drum-like rock gongs of sites FAD 003, ARD 004 and FAR 040 are suggested to have played a similar role in the past in the third cataract region. Williams (1957) and Vaughan (1962) and Campbell (2008) commented on the religious and spiritual role of rock gongs: the tradition in Arduan and Sai Islands are of this type.

Wedding ceremonies reported by Fagg (1956), Goodwin (1957) and Vaughan (1962) are comparable to ceremonies in Kajbar village. One of the important observations is that all rock gongs are situated near a water channel whether it is running today or is in the form of a palaeochannel, e.g., Wadi Farja and Gamuffa.

Concerning the names of the rock gongs in the third cataract region they can be grouped into three categories. The first is musical instruments, e.g., Dakara (big drum). The second name category is an emitted sound e.g., Nuugi (ringing), Nuugil (ringing), Dungil (thud) and Kongil (vibrating sound). The third category of names is religious Arabic names, e.g., Kokk Allah (hit of God). Fagg (1956: 17) also found names of rock gongs in Nigeria, e.g., kwangalang (Ron dialect at Bokkos), kongworiang (at Daffo), as well as in the villages of Gwang and Gingiring. So the names from Sudan and Nigeria are onomatopoeia words.

Conclusion

Although the work in this area on rock gongs is slight, some conclusions can be reached:

- Rock gongs are spatially connected with rock drawings.
- Rock gongs coincide most properly with the Neolithic and Kerma periods.
- Rock gong traditions may be for musical, ritual (religious, spiritual and social), to communicate (civil or war information), and for entertainment (e.g., during herding).
- Rock gong traditions in the third cataract region resemble those of West and East Africa.

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Bibliography

Campbell, A.

2008 Rock gongs. Trust for African Rock Art (TARA) Newsletter 10. http://www.africanrockart.org/resources/newsletter10

Chapman, S.

1967 Kantsyore Island. Azania 2: 165-191.

Edwards, D.N and A. Osman

- 1992 The Mahas Survey, 1991, Interim Report and Site Inventory. Report No.1, University of Cambridge.
- 1994 The Mahas Survey, 1990, Interim Report and Site Inventory. Report No. 2, University of Cambridge.

Fagg, B.

- 1956 The discovery of multiple rock gongs in Nigeria. *Man* 56: 17-18.
- 1994 What is a lithophone and what is a rock gong? *The Galpin Society Journal* 47: 154-155

Goodwin, A.J.H.

1957 Rock gongs, chutes, paintings and fertility. *South African Archaeological Bulletin* 12: 37-40.

Kleinitz C.

- 2004 'Rock art' and 'rock gongs' in the Fourth Nile Cataract region: the Ishashi Island Rock Art Survey'. *Sudan & Nubia* 8: 11-16.
- 2008 Rock gongs and rock slides. *Man* 59: 84-85.

Kleinitz, C. and C. Olsson

2005 Christian period rock art landscapes in the Fourth Cataract region: The Dar el-Arab and et-Tereif rock art surveys. *Sudan & Nubia* 9: 36.

Lanning, E. C.

1959 Rock gongs and rock slides. Man 59: 84-85.

MacMichael, H.A.

1918 Nubian elements in Darfur. *Sudan Notes* and *Records* 1: 30-48.

Osman, A. and D.N. Edwards

2002 The Mahas Archaeological Survey, 2000 A preliminary Report . *Languish, Settlement & Long-term History in Upper Nile*. Cambridge.

Soper, R.

1968 Rock gongs and rock chutes in Mwansa Region, Tanzania. *Azania* 3: 175-179.

Tanner, R.E.S.

1957 A prehistoric culture in Mwansa district, Tanganyka. *Tanganyika Notes and Records* 47-48: 175-186.

Vail R.J., A.S. Daoud, A.S and F. Ahmed

1973 Geology of the Third Cataract, Halfa District, Northern Sudan. Ministry of Industry and Mining Geological and Mineral Resources Department, Bulletin No. 22. Vaughan, J. H.

1962 Rock paintings and rock gongs among the Marghi of Nigeria. *Man* 62: 49-52.

Williams, M.

1957 A cave painting, rock gong and rock slide in Yorubaland, *Man* 57: 170-171.

Zenhom, M. and M. Shargawi, M.

1998 (In Arabic) *El Khotat El Al-Maqrizia* 2. Cairo: Madboli Press, pp. 212.

Footnote

¹The total percentage exceeds 100% because some sites are complex containing more than one period and feature e.g., in ARD 003 there are settlements of pre-Kerma occupation; pre-Kerma and-Kerma occupation; and Medieval and Post-Medieval occupations, in addition to rock drawings.