RECONNAISSANCE OF A PREHISTORIC SHELL-RIDGE IN BARBUDA, WEST-INDIES

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Introduction

This report describes the remains of a prehistoric shell-ridge ("strombus line") along an ancient coastline east of Palmetto Point on the west coast of Barbuda.

This ridge has previously been reported by David Watters, who examined it in 1984 (Watters et al. 1992, 34. Also Brasier & Donahue 1985, 1113-14) and later published 12 radiocarbon determinations on conch shells collected on the surface which suggest that it formed between 5480±100 and 1755±74 BP (uncalibrated) (Watters et al. 1992, 39. See also Brasier & Donahue 1985, 1113-14; Watters and Donahue 1990, 376), i.e. in the last three millennia BC. Watters and his co-author geologist Jack Donahue disagreed about the nature of this ridge, Donahue suggesting that it was a cultural feature while Watters considered it natural (Watters et al. 34-42). Watters' own work at the River site, further southeast on the coast, showed that the formation of the shell ridge is coeval with human presence in Barbuda as conch shell celts collected on the surface of this site had given the age of 3650±35 and 3825±25 BP (uncalibrated) (Watters et al. 1992, 32). Watters considered the taxonomic uniformity of the shell ridge, where only *strombus gigas* shell had been found, and the absence of observations of artefacts and butchery marks on the shell as arguments against the ridge being a cultural feature. Donahue on the other hand argued that the taxonomic uniformity indicated the opposite, that a naturally formed shell ridge would contain a greater variety of taxa reflecting the species variety on the adjacent seabed. Also in doubt was the possible southeastward extension of the ridge. Their fieldwork had traced the ridge to the coast where the pier is, but they could not verify whether it might continue further along the coast. The site of River (BAA004) is some 300 m southeast of the pier and Watters also collected a modified conch shell just east of the pier at a place he labels JA1. This shell had a date of 1075±60 BP (uncalibrated) (Watters et al. 1992, 39). Shell ridges are also reported by Watters on the coast of Gravenor Bay south of Cocoa Point all the way to the tip of Spanish Point (BAA002). An excavation into the most substantial of these at the head of Gravenor Bay produced radiocarbon dates on

shell suggesting that this ridge had formed in the 7th-8th centuries AD and was contemporary with the nearby Sufferers ceramic age settlement site (BA003) (Watters 1999). This suggests that these shell ridges may include both Archaic and Ceramic age deposits and that they may have been forming for more than four millennia. Radiocarbon results obtained from the JA1 site in 2011 support this observation yielding dates from the second and first millennia BC (Friðriksson et al. 2011).

It is possible that the shell ridge continued more or less all the way between the pier and Cocoa Point, as well as on the east side of it, in Gravenor Bay. On January 13th 2011 remains of shell were traced more than1 km southeast of the pier on the edge of the limestone shelf which defines the coast in this area. The shell debris is continuous but there do not seem to be any in situ deposits remaining and no artefacts were picked up. This reconnaissance was however in no way methodical so this has limited significance. If there was a continuous shell ridge on the coast northwest of Cocoa Point it may have been largely destroyed in recent years as a result of the construction of a new road and other activity along the coast. This reconnaissance, led by Professor Tom McGovern, was conducted to locate an in situ section of the shell ridge which had previously been identified by the CUNY team working in Barbuda under the direction of Professor Sophia Perdikaris. These in situ deposits were quickly located some 100 m southeast of the road leading to the pier where a recent water channel had breached the ridge exposing sections on either side. This site is 200 m northwest of River, the site described by Watters which yielded the earliest radiocarbon date so far of human settlement in Barbuda. It is however probably the same site as JA1 where he picked up the modified shell dated to 1075±60 BP (uncalibrated) (Watters et al. 1992, 39). The condition and possible southeastward extent of the shell-ridge was not further examined in 2011 and it remains a possibility that sections of it remain intact closer to Cocoa point.

Excavation at the exposed sections at the river channel started that same day, to determine the condition and possible age of the deposits (Friðriksson et

Map 1. Shell-ridge mapped in 2011. Superimposed on a GoogleEarth AP from 2003.

al. 2011), but it was also observed that the shell ridge continued northwest of the channel, turning inland. Although Watters seems to have considered that the shell ridge did not extend south of the quarry area east of the pier it clearly does and a definite ridge can be detected on either side of the cannel, although only a few metres to the southeast of it. Considering the importance of this feature for the earliest history of Barbuda it was decided that it would be useful to obtain more exact information about its location and condition. The mapping of the northernmost section of the shell-ridge, north of the site JA1, was completed on January 14th and is described below. The aim of this exercise was to obtain

Fig 1. The water channel which has breached the shell ridge south of the pier. Tom McGovern and Adolf Friðriksson stand by the section where trench A was later dug.

locational data on the ridge and assess its condition. Artefacts were not looked for and nor were systematic observations made on shell taxa or the possibility that the shells have been modified. This work remains to be done as does work on the possible extension of the shell ridge along the coast southeast of JA1.

Description of shell-ridge

The results of the mapping are shown on Map 1. The labels (STL1, STL2 et c.) refer to GPS coordinates taken on the ridge and the following description refers to these for orientation.

Fig. 2. The shell ridge between STL5 and STL6 where it serves as the foundation for a fence. Looking NNW

"JA1" refers to the excavation area A but in situ deposits where also observed and excavated on the southeast side of the channel (not shown on Map 1) where the ridge is faintly visible as a positive feature on a short stretch (<10 m). It appears that the water channel has cut into the subsoil and breached the shell ridge on the southeastern side of a ca. 90 m wide section where the underlying limestone shelf is approximately 0,5 m lower than to either side. In this area the ridge is not visible as a positive feature but rather as a more or less continuous line of shell fragments on the surface with a northwesterly direction to STL2 where there is a small rise cut by the road. It is possible that in this area the ridge is preserved by materials which have filled in this depression in the limestone, accumulating against the shell ridge on both sides.

Between STL2 and STL3 the shell ridge is cut by a road and a large industrial area which has probably completely destroyed the ridge on a c. 200 m

Fig. 3. The shell ridge at its widest and best preserved, at STL7, looking SSE.

stretch although it is possible that something remains at the northwestern edge the plot. The shell ridge is clearly visible where a side road along the industrial area crosses it (STL3), with a ca 0,75 m high rise on its southwestern (seaward) side. To the northeast of this road there is a fenced off plot with thick young bush but the ridge can be traced across it although it has clearly been disturbed in places for gardening. On the north of this plot a path crosses the ridge at STl4 and STL5 and north of that a wire-fence has been built upon it to STL6. Here there is also thick bush growing on the ridge with signs of disturbance. North of STL6 the ridge lies in open pasture and at STL7 it is 25-30 m wide and 1,5 m high. The stretch between STL7 and STL8 is clearly visible from the main road and probably represents the most accessible portion of the ridge where extensive in situ deposits may be preserved. Between STl8 and STL9 a large corrugated iron shed has been built on the ridge, probably destroying completely a 30 m section. Between STL9 and STL10 the ridge continues in open pasture but it is

Fig. 4. Hole for fence-post at STL16.

lower and the frequency of shell drops markedly and limestone boulders become more dominating, perhaps due to disturbance. North of this pasture the ridge again lies through an area of bush and at STL11 six holes for fence-posts have been dug across the ridge. The holes span a 13 m stretch but the ridge is probably closer to 20 m wide here. The holes are all dug to a depth of 50 cm and in the central ones had not gone through the shell layers (which look in situ) but in the holes at the edges the depth of shell deposits was c. 30 cm. 4 m north of this point there is a fence and north of that a more open area with less vegetation on the ridge. Here it is 15 m wide with wetlands on either side. It seems therefore that between STL7 and STL11 the ridge decreases in size, both in width and height, but is nevertheless still substantial. STL12 is a large mound of upcast where the ridge has been disturbed at the edge of another plot, this one covered in thick bush where it was not possible to observe the ridge on account of the thick vegetation. STL 13 and STL14 are points on shell material originating

Fig. 5. Pile of conch shells at the northern terminal of the shell ridge, at STL24.

in the ridge but transported some distance from it, probably in relation to gardening. These points are therefore not on the ridge but can be taken as indication of the extent of disturbance on it in this area. At STL15 the ridge could be observed again on a bush track, but between STL16 and STL21 where it can be detected in several places but where also substantial stretches are difficult to observe on account of dense vegetation, it seems that the ridge is in generally poor condition. In addition to the road (between STL17 and STL18) this area has been heavily used for agriculture and gardening and shell has been distributed widely in the fields, presumably as fertilizer. Between STL21 and STL24 the ridge is in much better condition, mostly inside 10 m wide and less than 1 m high. It ends abruptly at STL24 where there is a sizeable pile of large, whole conch shell. It is possible that this pile is some sort of feature, but it may well be a secondary one. At this site the ridge is very low. Its seaward side faces a small lake or pond, remains of the earlier sea (or lagoon) shore. STL25 is some 20 m

Map 2. Aerial photograph (GoogleEarth 2003) showing the relationship between the River site described by Watters in 1984 and the shell ridge and JA1 where excavation took place in 2011.

east of the ridge at STL24, a circular patch of burnt limestone and shell fragments, some 3 m in diameter, but there were no indications about its age and it may well be recent. STL 22 and STL 23 are points on the edge of the limestone shelf where no shell could be seen, taken to ascertain that the ridge really does not continue north of STL25. It seems likely that an arm of the lagoon may have extended as far south as STL24 which is only 180 m south of the southernmost arm at present.

Conclusions

A 2,3 km long shell ridge has been traced inland, east of Palmetto Point, following an old shoreline predating the sand-dunes that now make up Palmetto Point and the southern shore of Codrington Lagoon. The ridge has a generally northnorthwesterly direction but stops just south of the southernmost arm of the Lagoon as it is at present.

Where the ridge turns inland from the present coast it seems to be in a depression with deposits at either side obscuring its width, but judging from deposits exposed by a water channel at JA1 the ridge is at least 15m wide in this area. Further inland the ridge is more substantial, as much as 30 m wide and 1,5 m high on a 200 m stretch (between STL6 and STL9). Further north it gradually decreases in width and height, which may in part be due to greater disturbance but also seems to reflect its original dimensions. The ridge ends abruptly in bush which has seen little disturbance (recently at least) and this end is interpreted as the limit of the original extent of the shell ridge.

The ridge is generally higher and steeper on its western (seaward) side while it merges more gradually into the landscape on the eastern (landward side). It seems everywhere to be perched on the edge of the limestone shelf and is probably everywhere in excess of 50 cm deep at the crest. In at least two places, at STL11 and STL24 there are waterlogged deposits abutting the ridge. No artefacts were observed in relation to the ridge, but they were not looked for either. Many of the conch shells have their tips knocked off, which may be a butchery mark.

The condition of the shell ridge is very variable. In parts it has been completely destroyed, particularly in the industrial area north of the pier where a 200 m section has been lost, but in all other parts it can be traced even though it has been disturbed. The disturbance has been greatest on a 700 m long section between STL16 and STL21, primarily in relation to agriculture, but there may well be substantial in situ deposits in this area too. The best preserved stretches are between STL6 and STL11 and between STL21 and STL24 (and possibly

between JA1 and STL2) but nowhere does it appear to be in a completely pristine condition.

This reconnaissance has not resolved any of the issues defined by Watters and Donahue in 1992. It is still not known how far southeastwards the shell ridge extended and it is not clear whether it is primarily a natural or cultural feature. What has become clearer through Watters' work in Gravenor bay and the excavation at JA1 in 2011 is that there are at least three, and very likely many more, archaeological sites associated with the ridge. These differ widely in age, from c. 3000 BC to c. 1000 AD and this suggests that the shell ridge may hold many more clues to the longue durée of Barbudan history. A more detailed and comprehensive examination of this enigmatic feature must therefore be high on the agenda of Barbudan archaeology.

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