THE ARCHAEOLOGICAL MANIFESTATION OF CONTEMPORARY MARSHALLESE BURIAL PRACTICES

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While prehistoric and early historic burials in Micronesia are on occasion uncovered either as a result of construction activities or due to shoreline erosion, there is no information how modern burial practices might be recognisable in the present and future archaeological record. This paper describes the observations made during exhumations and provides for some projections how modern burials might be interpretable in the future.

This paper sets out the observations on modern Marshallese burial practices made by the author on occasion of a brief stay on Mejatto Island, Kwajalein Atoll, Republic of the Marshall Islands. The author was commissioned to conduct a total of six exhumations on Mejatto Island as part of a U.S. Congress mandated study into the radiological problems surrounding the resettlement of Rongelap Atoll, Republic of the Marshall Islands (see Franke 1992; Franke et al. 1995; Spennemann 1993a for further details on the exhumation project). The findings of the exhumations as well as the stratigraphy of the individual burials have been documented elsewhere in great detail (Spennemann 1993a) as have been other cultural observations made while carrying out the fieldwork (Spennemann 1993b). The implications of the observed decomposition rates on the archaeological interpretation of prehistoric and historic burials interred on tropical sand islands have been discussed elsewhere (Spennemann and Franke 1994; 1995a-c).

The present paper shall be confined to a discussion of the contemporary Marshallese mortuary practices as they present themselves in the archaeological record. To the knowledge of the author no such assessment has been carried out in the Pacific, let alone in the Marshall Islands.

PREVIOUS RESEARCH

Only very limited previous research has been carried out on the mortuary practices of the Marshallese. Early references to Marshallese burial customs are scattered in the ethnographic literature and contemporary travel accounts (cf. Erdland 1914; Finsch 1893; Hager 1886; Krämer & Nevermann 1936; Warren 1860). Further, the Marshallese dictionary contains a number of terms related to traditional burial practices (Abo et al. 1976). Following anthropological and archaeological research and cultural resource management activities, a number of cemeteries were described (cf. Riley 1987; Rosendahl 1987). On occasion of a cultural resource management plan for Majuro Atoll, the nature and distribution of the prehistoric and historic cemeteries was assessed (Spennemann 1990a).
The majority of the work, however, was limited to the observation and description of human remains, with little, if any, detail on the burial practices. The description of burial sites was included in several resource assessment reports (cf. Spennemann 1990d; 1992b, 1994). Some bones were encountered on the surface (Shun & Athens 1990 Spennemann 1990f; Spennemann & Lajuan 1990), others within World War II structures (Adams et al. 1989; Spennemann 1989b). In addition to these, there were finds of human bones on the shoreline, presumably evidence of eroding burial grounds, on Majuro, (Spennemann 1990c) or from Taroo Island, Maloelap Atoll (Spennemann 1989a; 1990c; 1992c). The latter could be traced to an eroding cemetery, which had also been vandalised by subsequent action (Spennemann 1993c). The incidence of erosion and its implications on cemeteries on Majuro was studied (Spennemann 1990a) along with the dispersal of bones eroding from other cemeteries (Spennemann 1991; 1992). Finally, some data were gathered on occasion of excavations on Mejatto Island (Spennemann 1993a; 1993b). It is these latter data that are reported here.

**Burial customs**

Traditionally, only chiefs (iroojo) were buried, while commoners were thrown into the sea or set adrift on rafts. The chiefs’ burials were placed within the land allotments (watos) between the houses and the breadfruit forest. The burials were covered with an oval-shaped pile of coral rocks. Two paddles were stuck in at the head and the foot end to serve as grave markers.

Krämer & Nevermann (1938) make frequent reference to traditional burial goods found in graves. The burial goods found were small Conus armrings in children’s graves (ibid. 102) and a small bone fish hook. Excavations at Laura as part of salvage work found burials with conus armrings, shell beads, vasticardium charms, cypraea belt ornaments, and bone needles (Spennemann 1994). Following Christianisation, burial occurred at a number of small communal or, preferentially, congregational cemeteries of less than ~40 graves each. Only in the post World War II phase some larger and more concentrated cemeteries occurred, such as on Majuro. A survey of the ocean side from Djarrt to Delap has shown that many of these cemeteries are very close to the shore and are eroding at a rapid rate (Spennemann 1990a).

Prehistoric burials are very rare. Some burial areas are known, where individual graves are surrounded by coral slabs alignments. Yet, their exact chronological status is unclear and it is well possible that most of them belong to the prehistoric period. Concrete was introduced to the Marshall Islands during the German period (1885-1914) but was not widely available. Historic photographs show concrete graves of irooj for 1904 and other graves for 1905 (Spennemann 1990a).

During the Japanese Period, and especially during the early part of Japan’s preparations for the Pacific War concrete became more readily available. Several graves of the US occupation phase of Majuro show examples where Coca-Cola Bottles were used in the fill with necks protruding, apparently to serve as receptacles for flowers and other ornaments. Some graves even show a combination of Coca-Cola bottles and Sake bottles, the latter being identifiable by their diagnostic blue-tinted glass.

**CONTEMPORARY BURIAL GROUNDS**

The cemetery, the only one on the island, is located on the northeastern shore of Mejatto Island, some 80 paces (~80 m) west of the shoreline. The cemetery itself is located on a palaeo–shoreline which is about 1.2 to 1.5 m (4-5 feet) above the present beach area. The cemetery is situated in an open, grassy area bordered by coconut groves on the north and south, and by a scatter of trees, mainly Scaevola sericea (Marshallese: kõnnät), Guettardia speciosa (Marshallese: utilomar), Tournefortia (Messer schmidia) argentea (Marshallese: kiden), and Pandanus tectorius (Marshallese: bob).

The perimeter of the immediate cemetery area is defined by a scatter or coral gravel, the surface of which was covered to a thickness of 0.2 m with bleached coral gravel collected on the beach of Mejatto and neighbouring islands. Some recent colonisation of the cemetery area
with könnät had occurred. Surrounding the
cemetery some holes of land crabs could be
found. None of the holes, however, occurred
in the immediate neighbourhood of the burials.
The layout of the cemetery shows a clear sepa-
ration of adult graves along the old shoreline
and of children’s graves further inland (Fig. 1).

Horizontal Stratigraphy
The horizontal stratigraphy of the Mejatto
cemetery has been set out in Fig. 1. As can be
seen, the cemetery began in the northeast with
the burial of an adult. A second row of burials,
dedicated to the children was begun further in-
land. The adult cemetery was expanded con-
tinuously southward until 1992, when a burial
was placed at the northern end of the se-
quence.

The children’s cemetery followed initially
the same pattern, with the second burial placed
southward of the first. The third interment,
however, was then placed between the two
previous children’s graves.

Both the incidence of the recursion to the
north as in case of the 1992 interment, and the
interment of the third children’s grave cautions
against the use of horizontal stratigraphy for
the analysis of contemporary Marshallese
cemeteries where the dates on the head stones
may no longer be readable. While overall the
trend seems to be true, variations may occur.

Coral Gravel Scatters
The average grain size of the coral gravel mak-
ing up the scatter surrounding the graves is be-
tween 3 to 10 mm, while the size of the gravel
distributed within the grave monument was
markedly larger and measured between 10 and
25 mm. The scatter surrounded the grave
markers, as well as an area to the south of the
adult row of graves. It appears that at one time
the cemetery was extended that way to cater
for future graves.

The gravel of the scatters surrounding the
house sites measures between 3 and 15 mm in
grain size. Most houses on Mejatto have coral
gravel scatters, even though there are a few,
which have not yet been surrounded with
them. The failure to do so is borne from the
fact that the Rongelapese consider the settle-
ment on Mejatto as temporary and that no ex-
cessive effort should be placed on the
development of that island.

Contemporary Grave Markers
The grave markers are made of concrete with
reinforcement of steel/rebar both horizontal
and vertical in the marker. On one occasion, a
children’s grave with a smaller marker, the re-
forcement rod was made of a wooden dowel,
presumably a broom handle. The aggregate
content of the concrete was very high and con-
sequently the strength of the concrete low.
Consequently, some of the markers cracked
either during the removal or during replace-
ment on occasion of the exhumations.
The monument is commonly of rectangular shape measuring 1.2 by 2.4 m in horizontal dimensions and 0.2 m in thickness. The flat monument has a central opening filled with coral gravel. The central section of the flat surface has been lined with an elevated narrow (100 mm wide) concrete rim. Both the flat surface and the rim have four short lengths of plastic pipe (diameter 25 mm [1 inch]) embedded, which act as receptacles for the stems of plastic and natural flowers. The pipes protrude between 40 and 100 mm above the concrete.

The headstone, cemented into the monument, is in the shape of a cross set upon a square with bevelled corners, which in turn sits on a rectangle with bevelled corners (Fig. 2–Fig. 4). It extends below the underside of the flat grave marker and seems to have been erected before the concrete slab is poured. The marker has been painted white. A three-line inscription has been applied with blue paint on the western side of the marker and can thus not be read if one stand at the foot end of the grave.

All grave markers are very similar in appearance, while the grave markers of the adult graves are almost identical. From the data of informants it would appear that the grave stones were copied from each other by taking measurements of the predecessors when a new grave stone became necessary. The headstone was erected first. It protrudes for about 0.3 to 0.4 m into the ground. Then the flat slab of the marker was poured around it.

**Placement of the marker**

It is commonly assumed that the grave marker is erected exactly above the grave pit. The exhumations conducted as part of the radiological study allowed checking up on these assumptions. Both in exhumations n° 1 and n° 4 it was found that the location of the burial marker was not exactly above the burial pit. In case of n° 1 the marker had been shifted 0.5 m to the west, and in case of exhumation n° 4 the marker had been shifted 0.2 m to the south. Further, the marker of exhumation n° 4 had also been slightly turned to the northwest in relation to the grave pit underneath.
Fig. 3. Modern grave marker, Mejatto Island, as seen from the head end

Fig. 4. Modern grave marker, Mejatto Island, as seen from the foot end
Table 1. Parameters (in cm) of the interments at Mejatto

<table>
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<th>Depth</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
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<td>100</td>
<td>150</td>
<td>170</td>
<td>60</td>
<td>30</td>
<td>118</td>
</tr>
<tr>
<td>3</td>
<td>1988</td>
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<td>80</td>
<td>150</td>
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<td>150</td>
<td>145</td>
<td>60</td>
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</table>

Fig. 5. Volume of soil excavated for each burial pit.
Note that burials 5 and 6 are children’s graves.

CONTEMPORARY BURIAL CUSTOMS IN THE ARCHAEOLOGICAL RECORD

The discussion of the appearance of the contemporary Marshallese burial customs in the archaeological record comprises the analysis of the burial pits in their sizes and depth, as well as their stratigraphies, using that of exhumation n° 1 as an example. The orientation of the bodies is also discussed here.

Burial pits

The dimensions of the individual burial pits, well as those of the corresponding caskets are set out in table 1. The measurements of the burial pit opening refer to the opening at their top. Overall, in all cases, the opening of the pit narrowed towards the bottom, in some cases gradual, and in some case dramatically (n° 3).

In some case, such as exhumation n° 1, the bottom of the burial pit seems to have had a tight fit for the casket.

The depth of the interment varies, but in the whole is limited between 1.3 and 1.7m below ground surface. There appears to be a trend, whereby the older burials (exhumations #1 and #5, both interred in 1986) are buried deeper than the more recent ones (table 1).

Cross-sections and stratigraphies

An analysis of the infill patterns showed that the spoil heaps were not separated during the excavation, and that, in all cases, more than one person simultaneously filled in the pit. The following description refers to the plana and profile of exhumation n° 1. Similar observations were made for all exhumations and are reported elsewhere (Spennemann 1993a).

Exhumation 1—a case example

The excavation was placed exactly at the location where the grave marker had been, with about 0.10 m latitude to either side. As it turned out after planum 1 had been cleaned off, the grave monument, when it was erected, had been moved some 0.5 to 0.6 m to the east in relation to the actual burial pit. As a result, the area opened for excavation had to be extended for a small distance.

Three different x soils were encountered, a thin layer of topsoil (A-horizon, type #3) and unaltered littoral sand (C-horizon, type #1). The third soil (type #2) is a mixture of the two and slightly varies in colour and composition.

Planum 1

The burial pit is well visible and boundaries can be well made out. Part of the burial pit disappears in the eastern profile. The burial pit is demarcated by a narrow, 20-40 mm wide band of dark grey to dark greyish brown sand (soil #3). Centre of the pit is made up of an unevenly coloured light brownish grey sand (soil #2), which constitutes a mixture of soils #1 and #3. The centre of the pit contains inclusions of soils #1 and #3 (see Fig. 10). The amount of root matter inside the burial pit was higher than outside.
Archaeological Manifestation of Contemporary Marshallese Burial Practices

1 metre
Mejatto Exhumation Nº 1
Planum 1
Unaltered Coral Sand
Topsoil/Subsoil mixture
Dark Topsoil
Light Topsoil
(For detailed soil descriptions see text)

1 metre
Mejatto Exhumation Nº 1
Planum 2
Unaltered Coral Sand
Topsoil/Subsoil mixture
Dark Topsoil
Light Topsoil
(For detailed soil descriptions see text)

Fig. 6. Exhumation Nº 1, Plana 1 and 2.
Fig. 7. Exhumation N° 1. Planum 3 and 4.
Fig. 8. Exhumation Nº 1. Drawing (left) and interpretation (right) of the stratigraphy of the central profile (note that the section below the casket is tentatively reconstructed, as the casket was not removed from the burial pit).

**Planum 2**

The burial pit is well visible and its boundaries can be well made out. The southeastern corner of the pit is narrowing in. An increased amount of dark brown soil can be found in the west of the planum and along the southern sides. The centre and the northeastern part of the burial pit are made up of a large patch of soil #1 with very limited admixture of topsoil. The western part and the southern face consist of type #2 soil. The northeastern part of the planum shows two large dark brown type #3 soil inclusions.

Two small land crab holes, both already filled in, were seen at the western side and the southwestern corner of the excavation pit, both outside the grave pit area. (see Fig. 10).

The soil in the interior of the grave pit is very unconsolidated and uncompressed. It compresses, when stepped upon, to a depth of 2.3 cm (pressure ~1.43 km/cm² or 7.9 psi).

The eastern end of the grave pit continues to collapse into the excavation pit because of the unconsolidated nature of the infill. By comparison, the natural soil stratigraphy stands up well. The amount of root matter in the planum is less than that of planum 1.
Planum 3
The casket has been reached and partially exposed. The right (northern) wall of the casket has collapsed and bent inwards. The lid has sloped to the north, the slope being the greatest in the centre of the casket. The casket is covered with a grey or brownish cloth, with some polyester fibres in it. The dark wood of the plywood shines through the cover.

The area of the pit not taken up by the casket was covered in type #1 soil. Due to the unaltered nature of the sand the boundary of the pit could not be made out.

At the foot (southwestern) end of the casket an aluminium bucket was encountered, which was covered (sown into) a bag of green and white-striped cloth. Only the handle protruded. The contents of the bucket were not inspected (Fig. 11).

A plastic, supermarket-type shopping bag containing some red fabric was found placed at the northwestern end of the casket. The red cloth gave off pigment, which stained (through holes in the bag) the directly surrounding sand pinkish (Munsell 10 R6/3-4, spots 7.5 R 5/8).

The bucket was sitting at an angle defined by the sloping top of the coffin’s lid towards the centre.

After documentation, both items were removed and placed outside the grave to permit the opening of the casket. According to oral information, the bucket as well as the bag contained personal clothing items of the deceased, as well as linen soiled in the effort to stem the hemorrhage.

Planum 4
This planum represents the opened casket. The body was resting prone on the back. The head was placed on a pillow, the hands were resting on the hips. Both legs were extended and parallel to each other.

The body of the deceased had been covered with a shroud which clung tightly to the bones. Many bones, as well as the head and the hair knot could be well made out even by superficial investigation. The shroud clung so tight to the body, outlining the vertebral column.

The body of the deceased was covered with a shroud, which was covered by a thin layer (2-4 mm thick) of very fine dark brown wet silt. An increased amount of fresh root growth could be observed in the central northern part of the coffin indicating that the collapse of the northern coffin wall may have been of a recent date.

A large number of roots was seen growing through the body.

Central profile
The central profile, to be established at the perceived centre of the grave (=stomach or pelvic area of the body), was drawn in sections, each section once the next planum had been reached. As it turned out after planum 1 had been cleaned off, the grave monument, when it was erected, had been moved some 0.5 to 0.6 m to the east in relation to the actual burial pit. The cross-section ended up being located at the neck area.

The burial pit is well demarcated in the profile. The central surface area of the pit shows a thin lens of coarse coral gravel, originating from the coral gravel fill of the central section of the grave marker. The upper part of the burial pit to a depth of about 0.40 m below ground surface shows a well defined horizontal banding. Two layers exhibit upwards sloping to both the northern southern profile wall. Refill horizons of alternating dark and light soil can be made out easily. Towards the top the content of type #1 soil increases. The infill layers have a thickness between ~10 and ~60 mm (=type #3 soil measures).

The area below this zone, ranging from 0.40 to 1.10 m below ground surface shows a distinct banding of the infill horizons, consistently sloping downwards towards the north.

The bottom part of the northern half shows a higher content of type #1 soil than the southern half of the profile. The top part of this fill at the northern wall shows a zone of clean unaltered sand (#1). The top of the casket set at 1.2 m below ground surface is also covered with a 0.15 m thick layer of clean sand.

The stratigraphy of the unaltered soil profile shows a 0.10 m to 0.15 m thick A-horizon (soil #3) overlaying a C-horizon which shows some bands of coarser sand. The natural profiles
were not drawn but the western and the northern profile were photographed.

A large number of roots and rootlets was found in the grave pit profile. The roots apparently originate from coconut palms nearby.

**Animal disturbances**

Disturbances of burials can occur due to animal activity. On the small islands in the tropical Pacific the majority of disturbances is caused by the burrowing activities of land crabs, which have been shown to be responsible for the vertical movement of artefacts in archaeological sites.

An inspection of the area around the cemetery showed that there were a few holes of land crabs (purple backed crabs; Marshallese: *aton*, but no holes could be found within the area covered by gravel. During the excavations a few holes dug by land crabs could be encountered (exhumations nº 1, nº 3), but none of them were seen responsible for the disturbance of the funeral remains.

**Orientation of inhumations**

The body of the interred was oriented with the head pointing westward. Degrees observed were N235E (nº 4, 6) N245E (nº 1, 3) and N265E (nº 2, 5) (all magnetic north 1993). In all cases where it could be ascertained (nº 1–3, 5, 6) the face had been positioned upward and was looking towards the feet. In all cases the body was resting prone on the back. The head was always placed on a pillow. The hands were resting on the hips in exhumations nos 1, 2, 6 or in the lap as in case of exhumation nº 3. In one exhumation (nº 5) the hands were parallel to the body. Both legs were extended and parallel to each other (nos. 1, 2, 5, 6) with the feet pointing outwards (nº 3, 4)

**GRAVE ACCESSORIES**

The types of grave accessories discussed in this section comprise the caskets, which contained the body, the grave goods and clothing given into the casket, as well as the grave goods encountered outside the casket.

**Caskets**

Two basic types of caskets were encountered: five made locally of plywood and one made of pressed paper, which came from Honolulu, bearing the body of a person who had died there of fish poisoning. The measurement details of the caskets are set out in table 1.

The casket of exhumation nº 1, measuring 0.8 by 1.7 by 0.3 m in dimensions, was made of commercially available 1/2 inch plywood, held together by small galvanised iron nails. The casket itself was covered with a cotton/polyester-mix fabric, of brown-grey, formerly probably white colour. The nature of the cloth could not be determined at the time of the exhumations, but appears to have been a white bed sheet, which had become stained by humic acid carried by rainwater from the higher levels of the stratigraphy. The sides of the coffin had been lined with white cloth, presumably a bed sheet. While the lining covered the outer surface of the coffin’s lid, it did not extend over the inner surface. The sides and the lid of the casket were held together with nails set at irregular intervals. The interior of the casket was covered with cloth of white material. The head of the individual had been placed on a pillow.

The plywood had been exposed to a humid sand for eight years, so that the wood was in an advanced state of deterioration, although, on the whole, intact. The wood had become thoroughly soaked by the humidity of the soil and the glue seems to have come apart, making the plywood very flexible. Initially the casket had been nailed shut. Now, however, the nails broke out very easily when the coffin was pried open with a hammer. The left (northern) side of the coffin had collapsed and bent inwards, causing the coffin lid to slump in that direction. The coffin afforded substantial air space even at this stage of deterioration.

The casket of exhumation nº 2, measuring 0.6 by 1.7 (by 0.3–0.4 m?) was made of used plywood, held together by small nails. The casket itself was covered with a cotton/polyester-mix fabric, of brown-grey colour. At the time of the exhumations, the coffin lid has collapsed in the north-western corner. The sides and the lid of the casket were held together with galva-
nised nails set at irregular intervals. Padding materials: The interior of the casket, but not of the lid, was covered with a dark blue cloth with narrow white stripes and rectangular motif interwoven at regular intervals. The head rested on a pillow, which had a pink print with small blue, red and green flowers on it.

![Fig. 9. Schematic cross-section of the plastic-covered casket of exhumation nº 5.](image)

The casket of exhumation nº 3 measuring 0.6 by 1.80 m was made of plywood, held together by small nails. The casket itself was covered with a cotton and polyester-mix fabric, of brown-grey colour, probably a former bed sheet. The casket body intact and still strong, even though the wood had become saturated with moisture. The casket had been lowered into the burial by the means of a 3/8 to 1/2 inch rope, which had been dropped into the pit. The sides and the lid of the casket were held together with iron nails set at irregular intervals. The interior of the casket was covered on the bottom and the sides with an orange coloured print which had green and blue flower motifs on it. The colours of the print were still bright. The interior of the lid had not been lined and only the edges showed a marginal overlapping of the cloth which covered the outside of the casket.

The sides and the lid of the casket were held together with galvanised nails set at irregular intervals. The interior of the casket was covered with a white cloth. The body was placed on a padded layer covered with a white cloth with longitudinal blue and red stripes. The head rested on a pillow with green, blue and red ornaments.

The casket of exhumation nº 4 was made of a card-board or press paper-board like material, which crumbled upon impact. The thickness of
the cardboard was about 1 inch. The casket lid had two small plywood sections on the top (~0.3 to 0.5 m), apparently to strengthen it and to provide solid flat surfaces upon which other items could be placed during the burial ceremony. On the outside casket was covered with a dark grey cloth material. On the inside, the casket had been lined with a white cloth. In the cross-section the casket was hexagonal rather than rectangular as were the home-made cas- kets (see Fig. 15).

Grave goods

Until the findings of the exhumations, interviews with people of the Marshall Islands had resulted in the impression that today, that is in the 1980s and 1990s, no burial goods would be given into the grave. It was held that in the 1930s and 1940s, as well as in the early 1950s women might be given an—empty—perfume bottle, while both men and women, but more often men, might be given a small plate and/or a cup into the casket.

The findings of the small number of exhumations conducted on Mejatto tends to suggest that burial goods continued in fact to be given into the grave, either on the casket or inside the coffin: photographs, sleeping mats, both synthetic and traditional, buckets, plastic bags with personal belongings (mainly items of clothing), clothes and the like. In addition, unintentional grave goods, such as lengths of rope, were found.

Inside the casket

Following the principles of minimal intrusion and appropriateness of measures taken, no systematic searches were undertaken inside the caskets.

In exhumation n° 4 a plastic shopping bag, with unknown contents, was noted inside the casket, located between the legs of the deceased. A black frilly border was laid out around the inside perimeter of the casket.

Two black frilly bands were also placed on the chest of exhumation n° 2, and a garland of pink synthetic flowers was placed on the waist.

The body of exhumation n° 3 was placed on a mat woven from Pandanus leaves (jaki). This mat partially covered the body as well and overlapped with the shroud. When the casket was opened, the mat was intact, but crumbled on touch. It had completely deteriorated and turned into a silty substance, maintaining the weave pattern.

The body of exhumation n° 6 had been covered with a shroud leaving the head end free. On top of the shroud a number of grave goods had been placed. On top of the stomach area a multiple bow ornament was placed, made of a golden, waxed paper band, with a blue flower in the centre. A similar item of blue colour was placed on the right chest. A long necklace of golden plastic beads (diameter approximately 8 mm) was spread over the stomach, and a necklace of light green plastic beads (diameter approx. 3.5 mm) was spread on the chest. A similar necklace, laid out parallel to the body, was placed between the legs (Fig. 17).

Outside the casket

Exhumation n° 1 showed some grave goods outside the casket: An aluminium bucket had been placed on the left (as seen from the observer) foot end of the casket. The bucket, which had a diameter of 340 mm, was draped (sown into?) a green and white-striped cloth. Only the handle of the bucket protruded from the parcel.

A plastic shopping bag (supermarket-type bag) had been placed on the right (as seen from the observer) foot end of the casket. The cloth covering the bucket was of a polyester-mix fabric, and in very good and strong condition. The plastic bag, which was torn, contained a piece of red coloured clothing, which gave off some red dye, staining the sand in contact with the clothing.

According to oral information, the bucket as well as the bag contained personal clothing items of the deceased, as well as linen soiled in the effort to stem the haemorrhage. In line with the principles of minimal intrusion and appropriateness of measures taken neither the contents of the bag nor those of the bucket were inspected.

In exhumation n° 3, a pair of trousers, made of a synthetic material, was encountered on top of the southern foot end of the coffin. The trousers were coloured black, red and yellow.
Fig. 11. Planum view of planum 2 of exhumation nº 4 showing the position of the Polaroid® photos (2) and the synthetic jaki mat (3). The lid of the coffin has collapsed save for one corner (1).

Table 2. Burial goods and personal items countered during the exhumations at Mejatto Cemetery.

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<th>Women</th>
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<td>■</td>
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Notes: [1] as container; [2] unintentional grave good;

None of the dyes had given off any colour pigments to the surrounding soil. The fabric was firm. A length of rope was encountered, partially tied around the casket. The rope, made of hemp or Manila hemp had a diameter of about 3/8 to 1/2 inch. It was solid and very strong and needed to be cut with a knife for removal.

Exhumation nº 4 contained a fair number of burial goods. A modern-type, Japanese made jaki mat, woven from yellow-brown and green synthetic fibres was found folded and rolled up on top of the northern central section of the casket. Three Polaroid® photos were
seen on top of the casket. Two of them could be separated and were looked at. The emulsion had turned yellow and the shadowy outline of a man, possibly that of the deceased, can be made out.

**Personal belongings**

Some of the assessments of the time since death of human burials have tried to use the decay of associated materials, such as clothing, leather items, paper and so forth. Rodriguez & Bass (1985) carried out interment experiments of human bodies in the soil without coffins. They found that synthetic trousers showed macroscopically no sign of degradation after one year, while cotton trousers, buried at 0.6m for six months showed some sign of degradation (and so did the leather shoes). Let us now look at the data gained on Mejatto:

The body of exhumation nº 1 had been covered with a shroud and, following the principles of minimal intrusion and appropriateness of measures taken, no attempt was made to unnecessarily uncover the body. Only the leg end of the sheet was lifted to extract the bones. The woman was wearing a white (?) dress and a petticoat. The fabric of the dress was in a good state of preservation. Her feet were bare. An ornamented belt, made of a belt string with green and black plastic beads (diameter ~3-5 mm) attached in a spiral fashion was seen.

The body of exhumation nº 3 had been covered with a sheet and no attempt was made to unnecessarily uncover the body. Only the leg end of the sheet was lifted to extract the bones. The body had been dressed in a pair of trousers. These trousers had disintegrated to shreds. The socks, on the other hand, made of synthetic material, were still strong and intact. They contained the disarticulated foot remains. A pair of black coloured slip-on shoes, made of a synthetic upper material and a yellow rubber or plastic sole, was well preserved.

The casket lid of exhumation nº 4 had completely disintegrated and no attempt was made to unnecessarily uncover the entire body. Only the leg end of the casket was opened by the removal of a number of pieces to extract the bones. Exposed were the legs of the individual, clothed in a dark blue (?) pair of trousers. Part of the jacket of the suit could also be seen. The feet were in socks.

The neck of the dress of exhumation nº 6 was buttoned tight, the plastic buttons being in good condition. Three necklaces were noted on top of the shroud (see above). The hair was held in place by five bow-like plastic hair claps, two of transparent brown colour, two opaque yellow and one of an opaque red. In addition what appears to be a piece of white pottery was noted next to the hair.

**Artefacts in secondary position**

No artefacts in secondary position were encountered during the excavation of the exhumations.

**Spatial distribution of grave accessories**

The spatial distribution of the grave accessories encountered at the bodies is shown in Fig. 17.

**CONCLUSIONS**

The exhumations at Mejatto Island allowed for an investigation of contemporary burial practices in outer island community in the Marshall Islands. In addition to clothing worn by the deceased, the items given into the graves are comprised of personal ornaments either worn or placed on the body as well as sleeping mats and ancillary items.

Given the limited sample of exhumations caution should be exercised when generalising the observations. Observed patterns are few. All three men seem to have sleeping mats associated with them, either inside or outside the casket, while none of the women graves did so. The grave goods (ornaments) of the three females are gender specific and would allow the identification of the buried as women.

Archaeologically the burial pits stand out well as the darker topsoil from the infill of the burial pits contrasts well with the light sand of the underlying island. The depth of the pit combined with the colour difference of the soils means that at this stage the infill process can be readily reconstructed. This may not be possible in the long term as the soil is sandy and given the darker colouration of the topsoil is caused by small humic particles which can be moved by water transport. It can be speculated
Fig. 12. Exhumations nº 1 to nº 3. Spatial distribution of grave accessories in relation to the anatomical remains.
Fig. 13. Exhumations nº 4 to nº 6. Spatial distribution of grave accessories in relation to the anatomical remains.
Table 3. Projected archaeological life span of the burial goods and personal items countered during the exhumations at Mejatto Cemetery. Black: survival very likely; grey: survival probable.

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that the delineation of the thin infill layers will be less clear as time goes by. Whether the layers will obliterate completely remains conjecture. Some indication that this may occur is provided by the burial pits observed at the prehistoric cemetery on Majuro Island (‘Laura’) on Majuro Atoll. Even though we can assume that the pits would have been excavated in the same fashion as the burial pits on Mejatto, the fill of the pits on Majuro I is a homogeneous grey (Spennemann 1994).

When speculating about the future archaeological signature of the interments, we can assume that the mixture of organic and synthetic fabric and materials will result in differential preservation. While some modern polymers are deemed biodegradable by the addition of starch, older plastics are not. These plastics and polymers will decay over time through the breakdown of the emulsifiers. On land this is aided by the impact of ultraviolet light, making the plastics brittle and easy to shatter. Plastics covered from light, immersed in water or buried are likely to break down much more slowly. While the experimental data in hand too limited to make concrete projections with too many variable to be considered (Hamid & Amin 1995; White & Turnbull 1994) some generalised predictions can be made (Table 3) which possibly underestimate the survival chances of the constituent materials.

ACKNOWLEDGEMENTS

The exhumations, as well as the formulation of the resulting report received the support of a number of people, without whose assistance the project could not have been accomplished. Above all, the author is indebted to the residents of Mejatto Island, who endured the intrusion into their community by the excavation party, and the intrusion into their spiritual life which an exhumation brings about.

For the field period and its preparations, I am indebted to Bernd Franke (Institute of Energy and Environmental Research, Washington, D.C. and Heidelberg, Germany); Newton Lajuan (Majuro Atoll, Marshall Islands); Steve Simon (Nationwide Radiological Study, Majuro); James Mataoshi and Abacca Anjain (Rongelap Resettlement Project, Majuro Office). Rev. Jacob Anjain (Mejatto) was so kind as to officiate over a brief ceremony before the exhumations began, and to reconsecrate each of the graves after exhumation.

ENDNOTES

1 Soil #3 Subangular mainly medium, partially coarse, sand of dark grey to dark greyish brown colour (Munsell 2.5Y 4/1-2). Single grain, friable, non-sticky and non-plastic. This soil has a very small humus content and a higher content of root matter.

2 Soil #1: Subangular coarse, very loose sand of very pale brown to pinkish white/pinkish grey
colour (Munsell 7.5-10YR 7-8/2-3). Single grain, non-sticky and non-plastic. This soil has no humus content and no root matter.

BIBLIOGRAPHY


**AUTHOR BIOGRAPHY AND CONTACT**

Dirk HR Spennemann is Associate Professor in Cultural Heritage Management at Charles Sturt University, Albury, Australia. His main research interests are German colonial heritage in Oceania, in particular Micronesia, and historic preservation issues in Micronesia in general. His second focus are issues of heritage futures, including the threats to heritage posed by natural and human hazards and threats posed by managers in their efforts to counter these hazards. Ethical Heritage Planning and Policy are the cornerstones that need to be understood and addressed if our past is to have a meaningful future.

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