

# THE POLISHED STONE EARRINGS OF SITE RH5 AND THE DISTRIBUTION AND CHRONOLOGY OF THE PREHISTORIC EARRINGS OF COASTAL OMAN

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## INTRODUCTION (P.B.).<sup>1</sup>

The prehistoric site of RH5 lay on the western-most cape of the promontory of Ra's al Hamra, a few kilometres North West of the Capital Area. Discovered by R. Jäckli in the Sixties<sup>2</sup> it was later excavated by the Italian Archaeological Expedition between 1980 and 1985. The site, a shell/fish midden some 90 metres long and 45 wide (fig. 1), was destroyed in the summer of 1985. It was one of the eleven sites with these characteristics found in the area. Only a few of them were partly excavated, namely RH4<sup>3</sup> and RH10,<sup>4</sup> whilst RH6, in the National Reserve of Qurm, was test trenched in January 1986<sup>5</sup> and October 1988.<sup>6</sup>

The excavation of RH5 produced both superimposed stratified settlements and a cemetery with some 220 graves.<sup>7</sup> The settlement area had a complex stratigraphy, some 1.5 metres thick, mainly composed of sand, shell, fish, ash and charcoal layers. Man-made structures were also abundant, represented by hundreds of postholes, often in curvilinear alignments, rubbish pits and fireplaces. The material culture artefacts include flat edged hammers and anvils obtained from *wadi* green-stones as well as net weights chipped from beach pebbles and a couple of querns. Flint, jasper and quartzite instruments are also common, characterized by extremely peculiar tools such as different types of triangle sectioned 'chisels'<sup>8</sup> while bifacially retouched foliate instruments are represented by two specimens only.

Bioarchaeological investigations revealed that the subsistence of the site was mainly based on fishing and the collection of marine and mangrove shellfish (*Terebralia palustris* L.). Hunting and the rearing of small flocks of ovicaprids was practised on a small scale, while the hunting of Green Turtles (*Chelonia mydas* L.) also played an important role in the prehistoric diet.<sup>9</sup> When the site was inhabited, the mangrove swamp lying nearby, at the mouth of Wadi Aday, was already established. *Avicennia* is the commonest arboreal species re-

corded from the fireplaces from which also *Tamarix*, *Ziziphus* and *Acacia* charcoals were identified.<sup>10</sup> *Ziziphus* stones were also collected and *Sorghum* cultivated or imported as suggested by the recovery of two grains from layer 4.<sup>11</sup>

## CHRONOLOGY (P.B.).

While the cemetery was almost completely excavated, only a small part of the village was accurately investigated mainly during the two last seasons. Eleven main archaeological layers were recognised in the central region of the mound. A good set of C14 dates revealed that RH5 was settled between the middle of the IV and the first two centuries of the III millennium bc. The aceramic shell/fish midden only produced shards of one black burnished bowl almost certainly imported from abroad, found in a pit of the topmost layer of the sequence.<sup>12</sup> Twenty three radiocarbon dates are actually available for the above mentioned excavated area. They are displayed in table 1.

A more reliable date for layer 5b, lying on the rubified bedrock, was obtained from charcoal pieces from Hearth 2: Bln-3149 ( $3530 \pm 60$  bc), while a few more dates from charcoal samples from the fireplaces found in other areas of the village do not invalidate the general picture of the sequence (fig. 2). The datings of a few charcoal samples from the cemetery fall between  $2790 \pm 50$  bc (Bln-2737), Grave 21, and  $2970 \pm 60$  bc (Bln-3156), Grave 215 sup.<sup>13</sup>

## THE POLISHED STONE EARRINGS (E.I.)

Come both from the prehistoric villages and the graveyard. From a computation made on 151 specimens brought to light from the settlement in a well defined stratigraphical position, they are obtained from serpentinite (95=62.9%), serpentinoschist (29=19.3%), phyllite (15=9.9%), mi-

TABLE 1

Layer	Square m	Feature	Material	Years bc	Lab Number
0	HXF	Pit	Charcoal	2810±100	Bln-3140
0	HXP/B	Pit	Charcoal	2990±60	Bln-3410
1	HWT/CD	Pit	Charcoal	2890±60	Bln-3168
1	HWJ/AB	—	Charcoal	2930±60	Bln-3143
1	HWN/D	—	Charcoal	2950±50	Bln-3144
1	HWM/D	Pit	Charcoal	3080±60	Bln-3141
2	HWO/AB	—	Charcoal	2870±60	Bln-3403
3	HXG/AB	—	Charcoal	2800±60	Bln-3145
3	HXP/C	Pit	Charcoal	2950±60	Bln-3402
3a	HXG/AB	—	Charcoal	2850±60	Bln-3146
3b	HXG/CD	—	Charcoal	2970±60	Bln-3147
3d	HWI	Hearth	Charcoal	2885±70	Hv-13198
3d	HWT/D	—	Charcoal	3120±50	Bln-3398
4	HWJ/BC	—	Shell (Arca)	3140±60	Bln-3394/I outer
4	HWO/AB	—	Charcoal	3180±50	Bln-3399
4	HWJ/BC	—	Shell (Tereb.)	3240±60	Bln-3393/I outer
4	HWJ/BC	—	Shell (Tereb.)	3250±50	Bln-3393/II inner
4	HWJ/BC	—	Shell (Arca)	3250±50	Bln-3394/II inner
5	HXO/B	Hearth	Charcoal	3140±60	Bln-3400
5a	HWO/AB	—	Charcoal	3040±50	Bln-3404
5a	HWO	Pit	Charcoal	3100±50	Bln-3406
5a	HXQ	Hearth	Charcoal	3160±60	Bln-3405
5b	HXL/BC	—	Charcoal	2910±50	Bln-3407

caschist (11=7.3%) and plagioclase (1=0.6%). All these raw materials are extremely common in the Northern Oman mountains which are « mainly composed of ophiolite rocks intensively serpentinized at the base ».<sup>14</sup>

The rings, many of which are undecorated and often broken into small pieces, were recovered throughout the whole sequence of RH5. No well defined area of manufacture was recognised, so that is difficult to ascertain whether the ornaments were produced locally or imported from outside. Nevertheless a few serpentinite, serpentinoschist and phyllite 'plaquettes' with polished or chipped edges and with or without traces of perforation on one or both surfaces, possibly related to the manufacture of these ornaments, were also recovered (plate 1/20).

Most of the polished stone rings have traces of rough polishing, remarkably clear in their inner surface. Their average diameter lies between 18.5 and 42.5 millimetres. Evidence from the cemetery,

particularly from Grave 51 (plate 2), 72, 81, 83, 85 and 210, which produced *in situ* objects, indicates that at least the specimens from these tombs were undoubtedly employed to decorate the ears (earrings).<sup>15</sup>

182 earrings were discovered in the settlement area and 13 in the graveyard. 12 of these are undecorated, while 1, from Grave 210, is ornamented with a vertical line of dots. 10 specimens were found *in situ*, in close connection with the skulls of the individuals from the above mentioned 6 tombs.

Fig. 3 represents the schematic distribution of the finds from the different layers of the central area of the village, while the diagrams of fig. 4, show the number of specimens recorded layer by layer according to their material (A), the total number of objects (B) and of the decorated pieces on the basis of their ornamentations, which are: a) vertical, multiple, zig-zag, incised patterns, especially common to the more recent occupation pha-

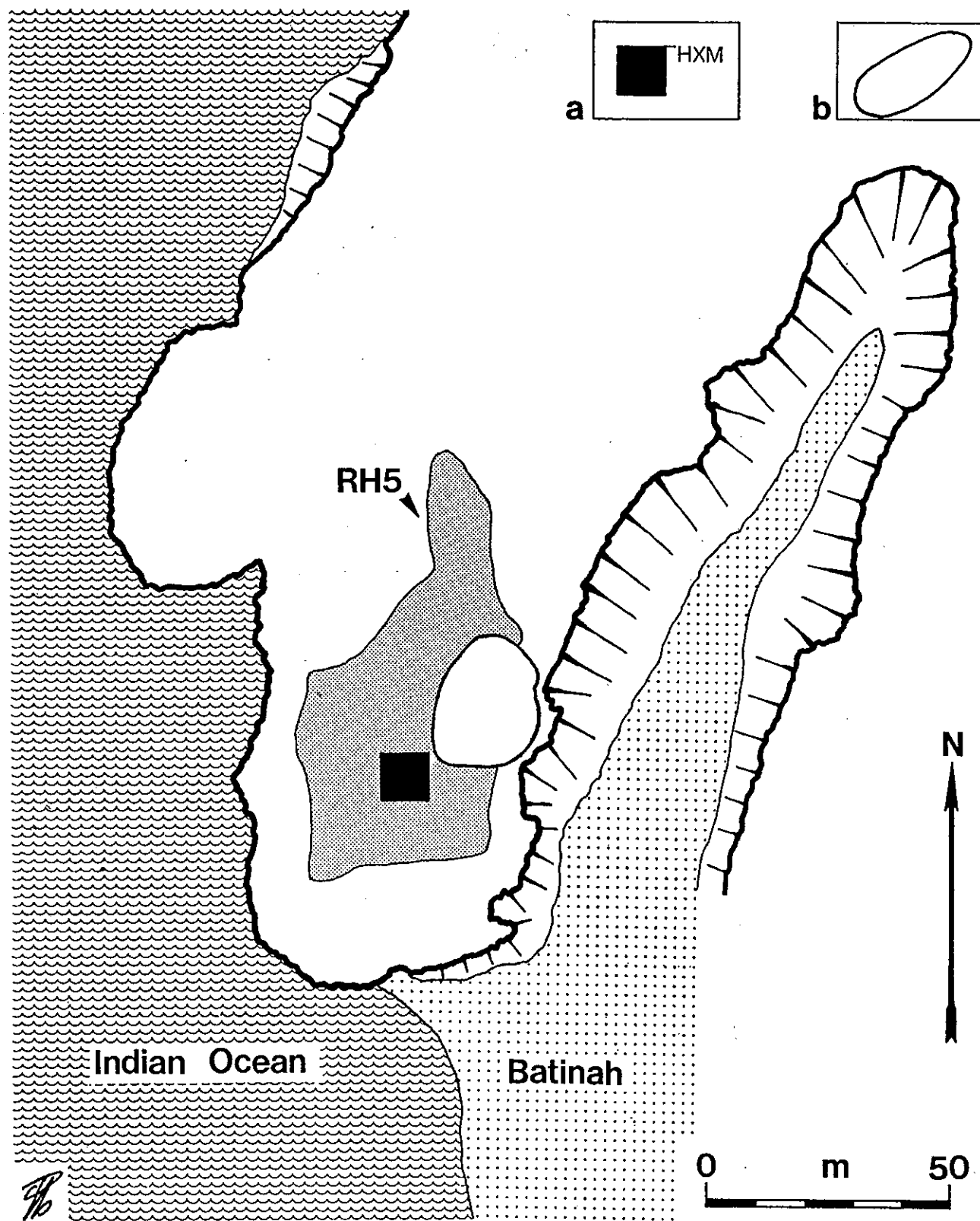


FIG. 1. - Location of site RH5 on the Tertiary limestone terrace of Ra's al Hamra. a) central area of the shell/fish midden. b) graveyard.

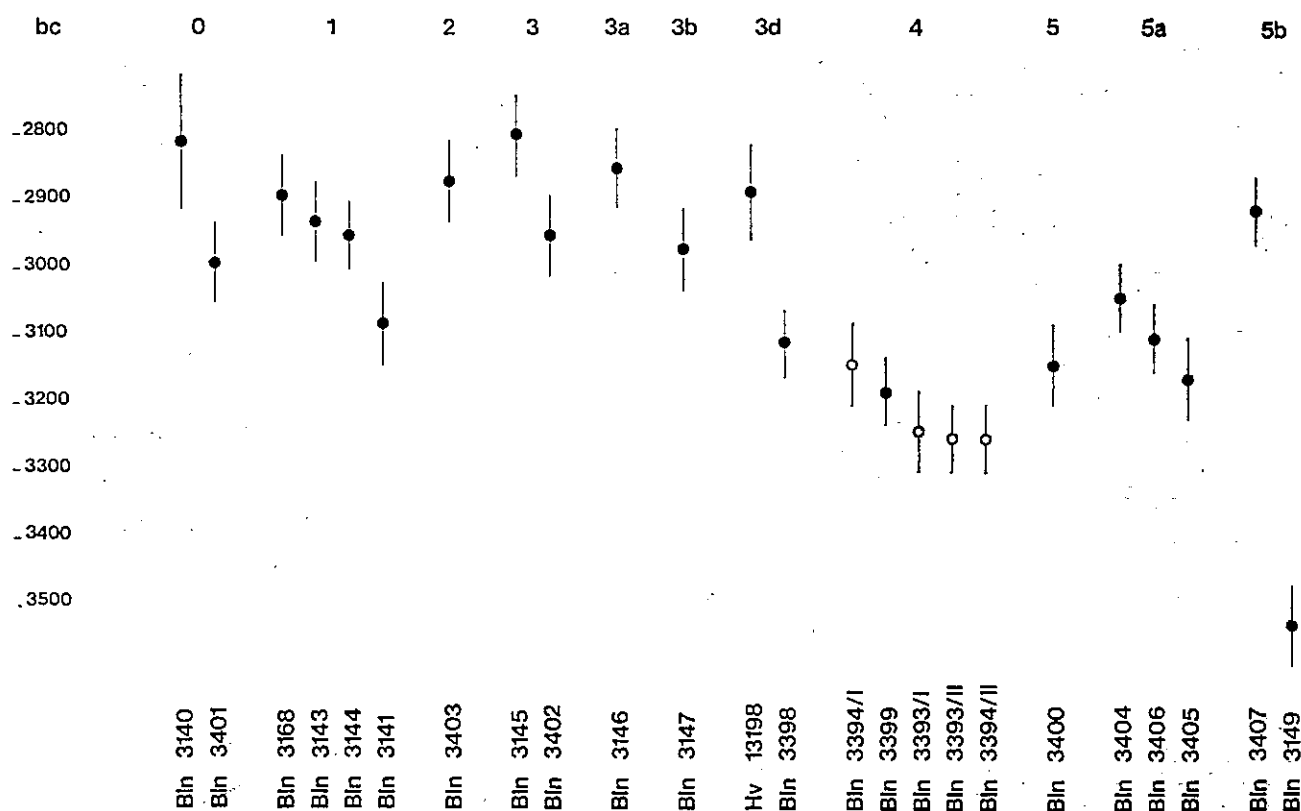


FIG. 2. - RH5. Display of the C14 dates (bc) actually available for the sequence of the central settlement area.

ses; b) simple, horizontal, incised motifs, common to the ancient and middle occupation phases; c) dotted, cut-out motifs, represented by two specimens only. Typological varieties are restricted to the thickening of the mean body and to the variability of the sections. Where still preserved, the edges are both sharpened and in a few cases pierced (fig. 5/1, 11, 13; plate 1/7, 9, 14). Repairing holes are also rather common as in the case for fig. 5/7, plate 1/7 and the two *in situ* earrings from Grave 51 (plate 2).

#### OTHER SITES (E.I.).

Two more sites at Ra's al Hamra yielded polished stone earrings, that is RH4 and RH 10. RH4, a few hundred metres to the North East of RH5, was rescued in 1977.<sup>16</sup> It was an oval shaped shell/fish midden now completely destroyed, some 40 metres long and 30 wide. The excavations, which only lasted four days, produced evidence of both settlement and cemetery areas. The assem-

blage recovered is quite similar to that from RH5. The actually available radiocarbon dates, all from charcoal samples, range from  $3190 \pm 200$  bc (P-2739), Grave 11, to  $2080 \pm 50$  bc (P-2741). The presence of polished stone earrings is attested by at least 1 complete, undecorated, specimen discovered not far from a skeleton.<sup>17</sup> Site RH10 also yielded 7 undecorated polished stone earrings found both in the village and in the graveyard. The C14 dates from this site, which lied just to the North of RH5, are rather controversial since two burnt soil samples gave the following results: Hv-10004:  $3290 \pm 65$  bc, Grave 121, and Hv-1003:  $1990 \pm 90$  bc; while a charcoal sample was dated to  $1500 \pm 60$  bc (Bln-2739). More ancient datings were obtained from two shell samples.<sup>18</sup>

Polished stone earrings were also found at the shell/fish midden of Khawr Milh (KM1),<sup>19</sup> South East of Quriyat (fig. 6/2) on the right bank of Wadi Munayzif, close to the sea shore. A radiocarbon date from a marine shell sample collected from the top of the mound gave the following result:  $3180 \pm 90$  bc (ANU-2813).<sup>20</sup>

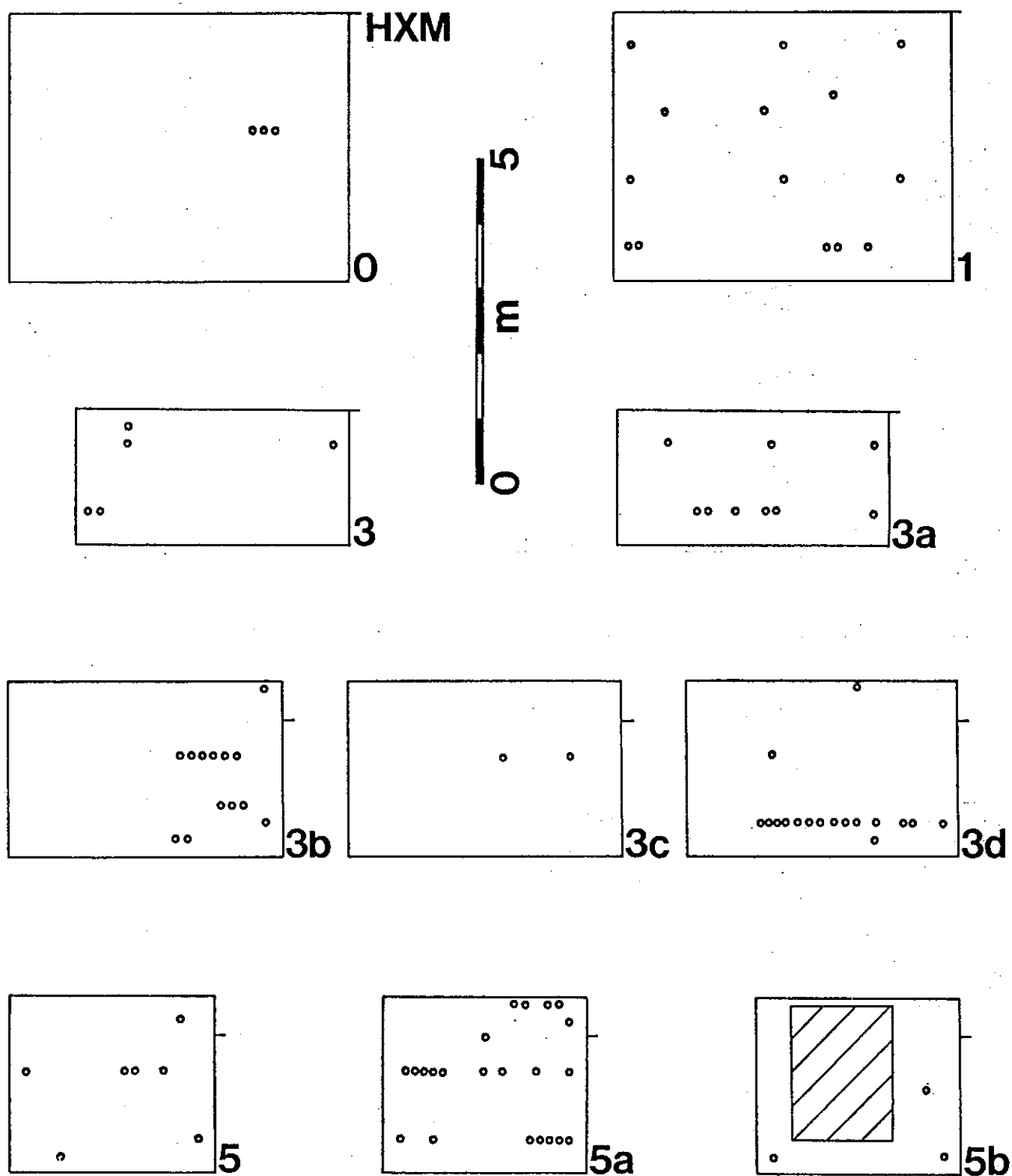


FIG. 3. - RH5. Schematic distribution maps of the polished stone earrings from the central settlement area.

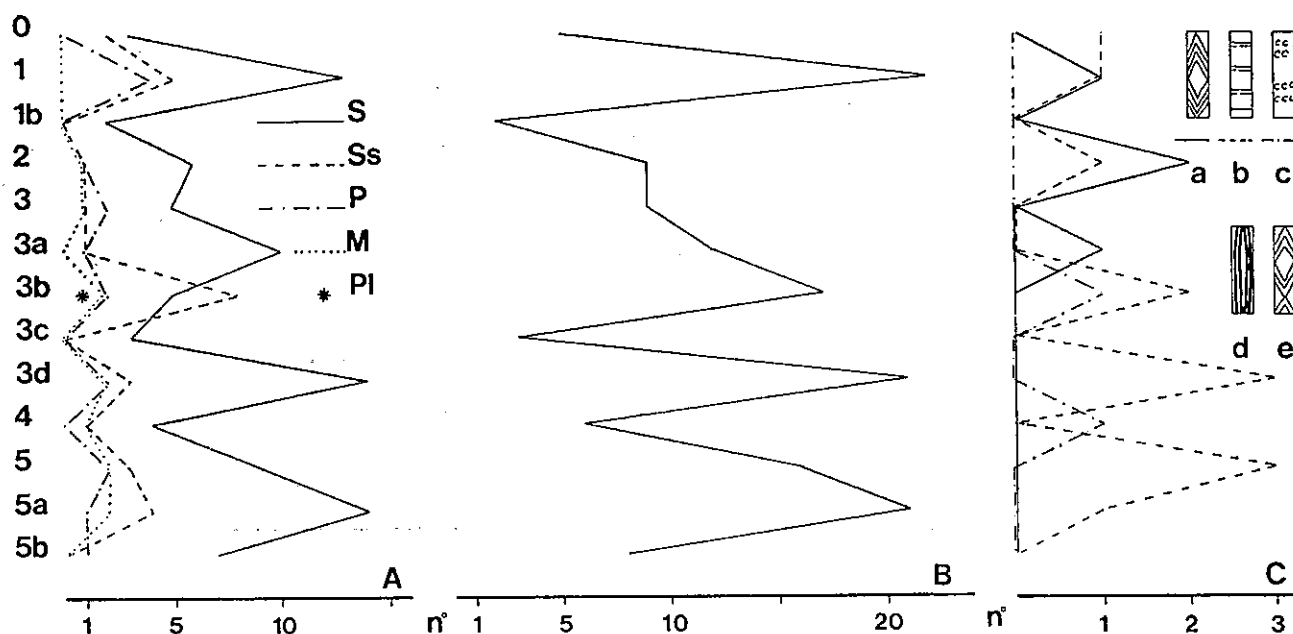


FIG. 4. - RH5. A) earrings from each layer according to their material. B) total number of earrings from each layer. C) number of decorated earrings from each layer. d and e, decorative patterns from GAS1 and RJ1 respectively.

The shell/fish midden, partly excavated by the Tübingen, Archaeological Expedition in 1986, also produced polished stone, long, tubular, beads, flint and chert artefacts among which are 'chisels', perforators and atypical scrapers, bilaterally notched net sinkers and anvils.

A group of 18 earrings from both serpentinite and serpentinoschist comes from site GAS1 at Wadi Shab (fig. 6/3). This shell midden, which lies on the Tertiary terrace overlooking the Indian Ocean just to the left of the eponymous *wadi*, was partly destroyed in 1985. Several surveys produced a rich material cultural assemblage which includes flint artefacts represented by hypermicrolithic bilaterally backed points, microlithic and normolithic perforators with backed retouch, Ra's al Hamra type 'chisels' and macrolithic side scrapers. The collection also comprises hammerstones, anvils and net weights as well as copper instruments such as fragments of fish hooks. The polished stone ornaments are represented by long, tubular, serpentinite, beads and 18 earrings, 4 of which are decorated with very deep vertical grooves (plate 1/17-19) and 4 have true repairing holes. The presence in the chipped and polished stone inventory of tools and ornaments extremely similar to those recorded from some Ra's al Hamra sites indicates

that the settlement probably flourished between the end of the IV and the III millennium bc. A more recent phase of occupation might be confirmed by the presence of copper instruments such as fish hooks and pins, even though no C14 date is actually available for this site. Evidence of polished stone earrings also comes from Ra's al Junayz (fig. 6/4). The II millennium BC village with rectangular stone walled houses which lies on top of the central Tertiary *mesa* gave 2 of these serpentinite artefacts. 1 complete, comes from the surface. It is decorated with oblique, fine, incised, zig-zag patterns. Another small fragment, with one pierced edge, comes from the excavations recently carried out at Structure 5 of site RJ1<sup>21</sup> which also produced red slipped pottery with black painted geometrical motifs as well as shards with typical scratched Harappan signs.

This structure produced two C14 dates, one from a charcoal sample from the fireplace discovered inside House 2 (Bln-3689: 1500±70 bc; 1895-1692 BC), and one from a *Mytilus* shell sample from the 'courtyard' (Bln-3652/I: 1340±60 bc; Bln-3652/II: 1500±60 bc).<sup>22</sup>

1 more fragment was found during the excavations of Room II of RJ2 together with Maysar 1 pottery and one steatite stamp seal which has pa-

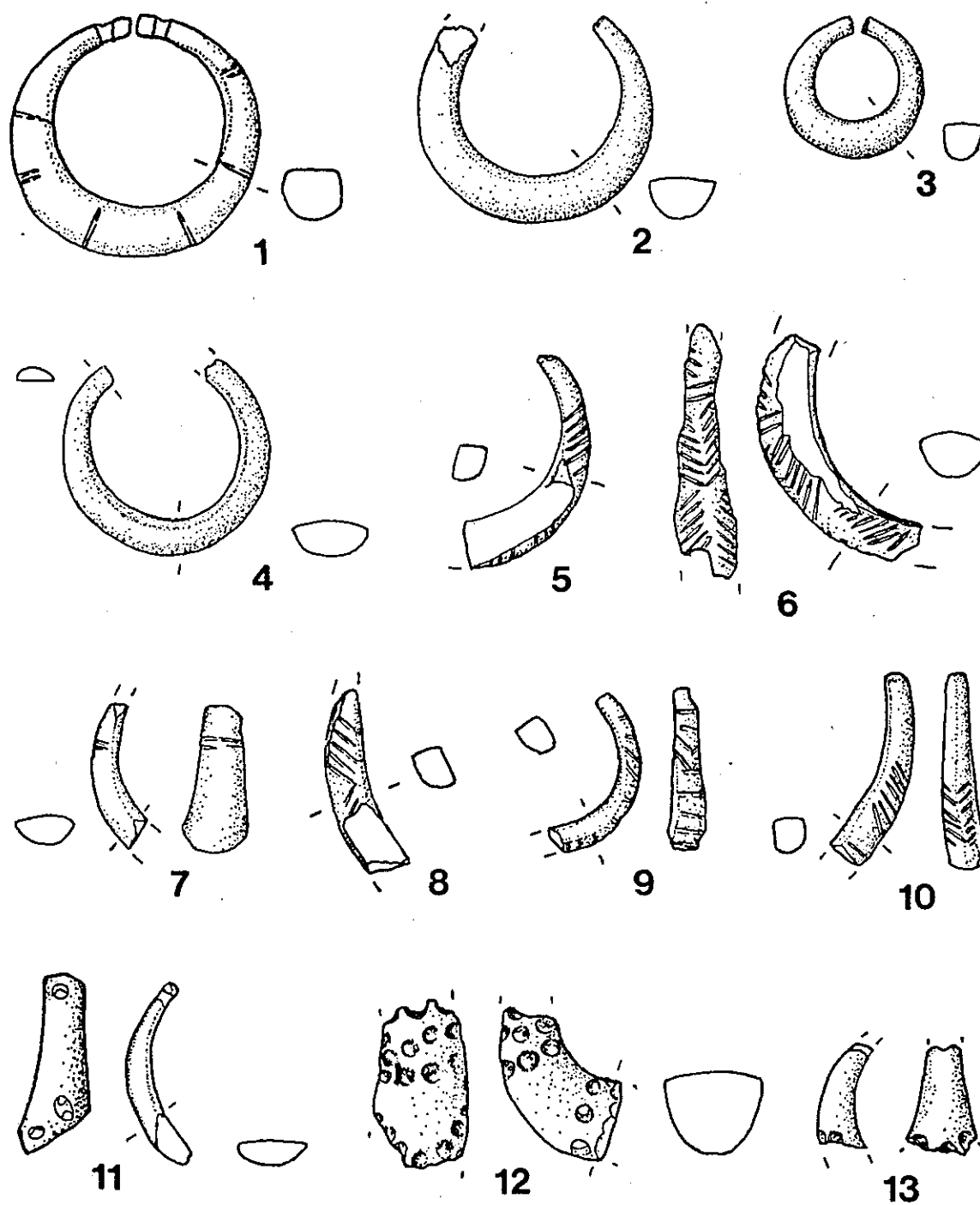


FIG. 5. - RH5. Polished stone earrings. 1, DA8042; 2, DA8046; 3, DA8043; 4, DA8045; 5, DA8060; 6, DA8084; 7, DA8293; 8, DA8054; 9, DA8095; 10, DA8061; 11, DA8291; 12, DA8058; 13, DA8057 (1:1).

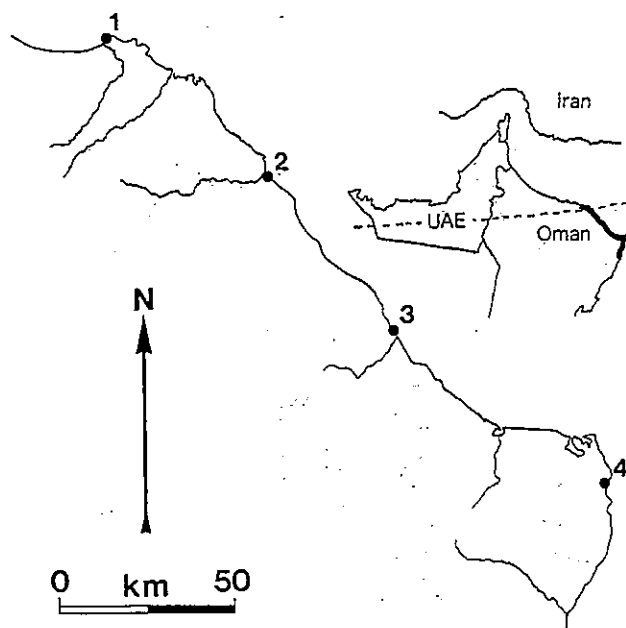


FIG. 6. - Distribution map of the sites with polished stone earrings: 1) Ra's al Hamra (RH4, RH5, RH10), 2) Quriyat (KM1), 3) Wadi Shab (GAS1), 4) Ra's al Junayz (RJ1, RJ2, RJ6).

parallels in the Harappan towns of Mohenjo Daro and Chanhu Daro. 1 complete specimen, with repairing holes, was found in Cairn 1 at RJ6 a graveyard more or less contemporary with RJ1 and RJ2.<sup>23</sup>

#### CONSIDERATIONS (P.B.).

A great number of polished stone earrings, mainly obtained from serpentinite and serpentinoschist, comes from site RH5 which was settled between the middle of the IV and the beginning of the III millennium bc. They do not show very remarkable typological variations even though a few are decorated with incised motifs and dots (fig. 4). Most of them (93.4%) come from the settlement where have often been found fragmented in very small pieces. Only 13 (6.6%) were found in the graveyard. This might indicate that they were not exclusively produced to be layd as grave goods.

Since no workshop has been discovered, it is difficult to ascertain whether they were made in the village or introduced from outside. Nevertheless the site yielded serpentinite, serpentinoschist and phyllite discs and 'plaquettes' with and without traces of perforation which, in a few cases,

can be interpreted as initial stages of production, even though many are undoubtedly in relation with the manufacture of other tools possibly connected with fishing activities such as small circular net weights. All the finished earrings have clear striations caused by the repeated rubbing of quartzite polishers which also occur at the site. Some specimens were also cut to be reemployed for the production of greenstone beads. (plate 1/15, 16).

Evidence from the surface collections indicates that these ornaments are typical for the coastal sites scattered between Ra's al Hamra and Ra's al Junayz. No earring is so far recorded from the shell middens discovered further to the South as far as Ra's Madrasah<sup>24</sup> and from the sites of the interior.<sup>25</sup> Furthermore they seem to have been in use among the local fishermen for some three thousand calender years. In fact they are not present at the more ancient shell midden sites, as RH6 in the Qurm swamp, dated between  $4580 \pm 80$  bc (Bln-3637/II) and  $3800 \pm 70$  bc (Bln-3636/I),<sup>26</sup> but are known since the earliest settlement phases of Ra's al Hamra 5 up to the first quarter of the II millennium BC as suggested by the discoveries of the Ra's al Junayz region.

#### ACKNOWLEDGMENTS.

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- <sup>1</sup> In this article the dates expressed in radiocarbon years are shown as bc, those calibrated to calendar years are shown as BC.
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- <sup>3</sup> S. DURANTE and M. TOSI, in *JOS*, 3 (2), 1977, pp. 141-151.
- <sup>4</sup> M. TOSI, in *East and West*, 33, 1983, pp. 334-337.
- <sup>5</sup> P. BIAGI, in *East and West*, 35 (4), 1985, pp. 410-415.
- <sup>6</sup> P. BIAGI and R. NISBET, in *TAVO* (in press).
- <sup>7</sup> P. BIAGI and S. SALVATORI, in *RdA*, 10, pp. 5-14.
- <sup>8</sup> M. UERPMANN, *Abschlussbericht über die Wissenschaftlichen Ergebnisse der Späten Steinzeit aus dem Sultanat Oman (SO-Arabien)*. Institut für Urgeschichte der Universität Tübingen, pp. 1-84 (manuscript).
- <sup>9</sup> P. BIAGI, W. TORKE, M. TOSI and H.-P. UERPMANN, in *WA*, 16 (1), 1984, pp. 43-61; P. BIAGI and R. NISBET, *op. cit.* (in press).
- <sup>10</sup> P. BIAGI, R. MAGGI and R. NISBET, in *South Asian Archaeology 1985*, Aarhus (in press).
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- <sup>13</sup> H. QUITTA, *pers. comm.*, 1985.
- <sup>14</sup> *GEOLOGY AND MINERALS OF THE SULTANATE OF OMAN*, Muscat, 1980.
- <sup>15</sup> S. SALVATORI, *pers. comm.*, 1987.
- <sup>16</sup> S. DURANTE and M. TOSI, *op. cit.*, 1977, pp. 141-151.
- <sup>17</sup> S. DURANTE and M. TOSI, *op. cit.*, 1977, p. 140.
- <sup>18</sup> P. BIAGI, W. TORKE, M. TOSI and H.-P. UERPMANN, *op. cit.*, 1984, p. 57.
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- <sup>21</sup> P. BIAGI, in *The Joint Hadd Project*, 2, 1987, pp. 5-10.
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- <sup>26</sup> K. RASSMANN, *pers. comm.*, 1988.
- <sup>27</sup> All drawings and photographs are by the Authors.
- <sup>28</sup> 1. Catalogue number of the Dept. of Antiquities of the Ministry of National Heritage and Culture of the Sultanate of Oman. 2. Preservation: C, complete; f, fragment; fc, voluntarily cut fragment. 3. Material: S, serpentinite; P, phyllite; M, micaschist; Ss, serpentinoschist; Pl, plagioclase. 4. Decoration: type a, b, c. 5. Edge perforations: Y. 6. Repairing holes: Y. 7. Maximum diameter in mm. 8. Provenance: square metre. 9: layer. 10: feature. 11. Weight: in grams (approximate).

FINDS CATALOGUE (E.I.).<sup>28</sup>

1	2	3	4	5	6	7	8	9	10	11
DA8042	C	S	b	Y	—	39.0	HXL/AB	5a	—	10.5
DA8043	C	P	—	—	—	22.5	HXP/D	1	—	2.5
DA8044	f	S	—	—	—	19.8	HXX/CD	3a	—	1.5
DA8045	f	S	—	—	—	32.5	HWT/C	5b	—	4.5
DA8046	f	M	—	—	—	—	E/W trench	—	—	9.0
DA8047	f	M	b	Y	—	—	HWJ/B	5	—	2.5
DA8048	f	S	—	Y	—	—	HXV/CD	1	—	0.5
DA8049	fc	S	—	—	—	—	HXG/AB	3	—	2.0
DA8050	fc	S	—	—	—	—	HWB/AB	2	—	1.5
DA8051	fc	S	—	—	—	—	HWS	3	Hearth	2.0
DA8052	f	S	b	—	—	—	HXQ/CD	3d	—	2.0
DA8053	f	S	—	Y	Y	—	HXG-HXL	5a	—	5.0
DA8054	f	S	a	—	—	—	HWT/AB	3a	—	1.5
DA8055	f	S	—	Y	—	30.0	—	5b	Ph13	3.0
DA8056	f	S	—	—	—	23.0	KCC/CD	1	—	2.0
DA8057	f	S	c	Y	—	—	HXD/BC	3b	—	2.0
DA8058	f	S	c	—	—	—	HWT/C	4	—	6.5
DA8059	f	M	b	—	—	—	HWT/CD	3d	—	1.5
DA8060	f	Ss	a	—	—	—	HXQ/AB	2	—	2.0
DA8061	f	Ss	a	—	—	—	HWO	1	Ph7	2.0
DA8062	f	S	—	—	—	—	HWT/CD	3a	—	5.0
DA8063	f	S	—	—	—	—	HXX/CD	—	—	3.0
DA8064	f	S	—	—	—	—	HWJ	1b	—	2.0
DA8065	C	S	—	—	—	23.0	HWE/B	0	Pit	2.0
DA8066	f	S	—	—	—	—	HWC/CD	5	—	1.5
DA8067	f	M	—	—	—	—	HXX/AB	5	—	2.5
DA8068	f	M	—	—	—	22.0	HWE/AB	3	—	3.5
DA8069	f	P	—	—	—	23.0	HXP/B	3d	—	1.5
DA8070	f	P	—	—	—	20.0	HWC/CD	5	—	1.0
DA8071	f	P	—	—	—	—	HWG/D	3a	—	1.5
DA8072	f	P	—	—	—	20.0	HWS	3	Hearth	1.0
DA8073	f	P	—	—	—	—	HWT/CD	3d	—	2.0
DA8074	f	M	—	—	—	—	HXX-HXL	5a	Pit	2.5
DA8075	f	S	—	—	—	—	KCC/CD	1	—	2.0
DA8076	f	S	—	—	—	—	HXP/CD	3d	—	1.5
DA8077	f	S	—	—	—	—	HXP/CD	3d	—	1.0
DA8078	f	S	—	—	—	—	KDA/AB	1	—	1.0
DA8079	f	S	—	—	—	—	—	5b	Ph13	1.0
DA8080	f	S	—	—	—	—	HWT/AB	3d	—	1.0
DA8081	f	P	—	—	—	25.0	HWB/AB	2	—	1.5
DA8082	f	P	—	—	—	—	HWT/AB	3d	—	2.0
DA8083	f	P	—	—	—	—	HXF/AB	1	—	1.5
DA8084	f	P	a	—	—	—	HXF/A HWI/C	2 3a	—	5.0
DA8086	f	S	—	Y	—	—	HXP/B	0	Pit	6.0

1	2	3	4	5	6	7	8	9	10	11
DA8087	f	P	—	—	Y	—	HXL-HXG	5a	—	3.0
DA8088	C	S	—	Y	—	22.5	—	Surface	—	2.5
DA8094	f	S	b	—	—	—	HXF/CD	3d	—	0.5
DA8095	f	Ss	b	—	—	—	HWJ/B	3b	—	1.0
DA8096	f	Ss	b	Y	—	—	HXQ/D	3b	—	1.5
DA8097	f	S	b	Y	—	—	HWE/CD	5	—	1.5
DA8098	f	S	—	—	—	—	HXY/CD	5	—	1.5
DA8099	f	S	—	—	Y	—	HXP/CD	4	—	1.5
DA8100	f	S	—	—	Y	—	HXQ/CD	5a	—	1.5
DA8101	f	S	—	—	Y	—	HXP/CD	3a	—	2.0
DA8102	f	S	—	—	—	18.5	HXG/AB	3a	—	1.0
DA8103	f	Ss	b	—	—	—	HXQ/AB	5	—	1.0
DA8104	f	M	—	—	—	—	HXL/CD	3b	—	1.0
DA8105	f	S	—	—	—	—	HWT/CD	3d	—	1.0
DA8106	f	S	—	—	—	—	HWT/CD	3d	—	1.0
DA8107	f	S	—	—	—	—	HWO	5a	Pit	1.0
DA8108	f	S	—	—	—	—	HWN/A	3	—	1.0
DA8109	f	S	—	—	—	—	HXQ/AB	3a	—	1.0
DA8110	f	S	—	—	—	—	HXS/C	5b	—	2.0
DA8111	f	S	—	—	—	—	HXQ/CD	2	—	1.0
DA8112	f	S	—	—	—	—	KCC/CD	1	—	1.5
DA8113	f	S	—	—	—	—	HXL/CD	5	—	1.5
DA8114	f	S	—	—	—	—	HWT/AB	4	—	1.0
DA8115	f	S	—	—	—	—	HXF/BC	4	—	1.5
DA8116	f	Ss	—	—	—	—	HXK-HXL	5a	Pit	1.0
DA8117	f	Ss	—	—	—	—	HXV	5	—	1.0
DA8118	f	S	—	—	—	—	HXL/AB	3a	—	1.0
DA8119	f	P	—	—	—	—	HWC/CD	5	—	1.0
DA8120	f	S	—	—	—	—	HXF/CD	3b	—	1.0
DA8121	f	S	—	—	—	—	HXK/CD	—	—	1.0
DA8122	f	S	—	—	—	—	HXP/AB	3c	—	1.5
DA8123	f	S	—	—	—	—	HXQ/D	3b	—	1.0
DA8124	f	S	—	—	—	—	KDA/AB	1	—	1.5
DA8125	f	M	—	—	—	—	HXC/AB	4	—	2.0
DA8126	f	S	—	—	—	17.0	HXQ/AB	3d	—	0.5
DA8127	f	S	—	—	—	—	HXP/AB	2	—	0.5
DA8128	f	S	—	—	—	—	HXL-HXG	5a	—	0.5
DA8129	f	S	—	—	—	—	HXL/AB	3	—	0.5
DA8130	f	S	—	—	—	—	HXP/CD	3a	—	0.5
DA8131	f	Ss	—	—	—	—	HWO/CD	3d	—	0.5
DA8132	f	Ss	—	—	—	—	HXF/CD	3b	—	0.5
DA8133	f	Ss	—	—	—	—	HWN/AB	3a	—	0.5
DA8134	f	S	—	—	—	—	HXL/CD	3b	—	1.0
DA8135	f	M	—	—	—	—	HWT/CD	5a	—	1.0
DA8136	f	S	—	—	—	—	HWT/CD	3a	—	1.0
DA8137	f	S	—	—	—	—	HHY-HHT	5	—	0.5

1	2	3	4	5	6	7	8	9	10	11
DA8138	f	S	—	—	—	—	HXP/CD	3d	—	0.5
DA8139	f	Ss	—	—	—	—	HXX/AB	3b	—	0.5
DA8140	f	S	—	—	—	—	HWS/AB	2	—	0.5
DA8141	f	S	—	—	—	—	HXX/AB	5	—	0.5
DA8142	f	S	—	—	—	—	HXL/CD	5a	—	0.5
DA8143	f	Ss	—	—	—	—	HXQ/D	3b	—	0.5
DA8144	f	S	—	—	—	—	HXL/CD	3c	—	1.0
DA8145	f	S	—	—	—	—	HXV/CD	5	—	1.5
DA8146	f	Ss	—	—	—	—	KDA/CD	1	—	1.0
DA8147	f	S	—	—	—	—	HWJ	1b	—	1.5
DA8148	f	M	—	—	—	—	HXG/AB	3b	—	1.5
DA8149	f	S	—	—	—	24.0	KCC/CD	1	—	2.0
DA8231	f	S	—	—	—	—	HXQ/AB	5a	—	1.5
DA8232	f	S	—	—	—	—	HWA/D	1	—	0.5
DA8233	f	M	—	—	—	35.0	HWI	3d	—	3.5
DA8234	f	S	—	—	—	—	HWT	3d	—	1.5
DA8245	f	S	—	—	—	—	HXC/CD	1	—	3.0
DA8246	f	Pl	—	—	—	27.0	HWI/BC	3b	—	1.5
DA8247	f	S	b	Y	—	22.0	HWA-HWB	1	Ph32	1.0
DA8248	f	M	—	—	—	—	HXQ/AB	2	—	2.0
DA8249	f	Ss	—	—	—	—	HXF/CD	3b	—	2.0
DA8250	f	S	—	—	—	—	HWN/AB	3	—	2.0
DA8251	f	S	—	—	—	18.5	HWB/AB	2	—	1.0
DA8252	f	P	—	—	—	—	KDA/CD	1	—	1.0
DA8253	f	S	—	—	—	—	HXG-HXL	5a	—	0.5
DA8254	f	S	—	—	—	—	HXG/BC	5	—	1.0
DA8255	f	S	—	—	—	—	HXC/B	5a	—	1.0
DA8256	f	S	—	—	—	—	HXX/AB	3b	—	3.0
DA8257	f	S	—	—	Y	42.5	HWI	3d	—	3.5
DA8258	f	S	—	—	—	—	HXQ	5a	Pit	1.5
DA8259	f	S	—	—	—	—	HWT/CD	—	—	0.5
DA8270	f	Ss	—	—	—	—	HWT/AB	5a	—	1.0
DA8271	f	S	—	—	—	—	HXQ/B	5a	Pit	0.5
DA8272	f	Ss	—	—	—	—	HXX/AB	3b	—	0.5
DA8273	f	S	—	—	—	—	HWO	5a	—	0.5
DA8274	f	S	—	—	—	—	HXX/AB	5	—	0.5
DA8275	f	S	—	—	—	—	HWT/AB	3d	—	1.0
DA8276	f	Ss	—	—	—	—	HXP/AB	3b	—	1.0
DA8277	f	Ss	—	—	—	—	HXP/AB	3d	—	1.0
DA8278	f	Ss	—	—	—	—	HXP/AB	4	—	0.5
DA8279	f	Ss	—	—	—	—	HWM/CD	1	—	1.0
DA8280	f	Ss	—	—	—	—	HXP/B	0	Pit	0.5
DA8281	f	Ss	—	—	—	—	HWI-HWN	23	Pit	0.5
DA8282	f	Ss	—	—	—	—	HWD/CD	3	—	0.5
DA8283	f	Ss	—	—	Y	—	HXQ	5a	—	0.5
DA8284	f	Ss	—	—	—	—	HWJ	3d	—	0.5

1	2	3	4	5	6	7	8	9	10	11
DA8285	f	Ss	—	—	—	—	HHT-HHY	5	—	0.5
DA8286	f	Ss	—	—	—	—	HWO	5a	—	0.5
DA8287	f	Ss	—	—	—	—	HWW/CD	1	—	0.5
DA8288	f	S	—	—	—	—	HXX/CD	3c	—	0.5
DA8289	f	S	b	Y	—	—	HWO/CD	2	—	2.0
DA8290	f	S	—	—	Y	—	HWO/AB	5a	—	1.5
DA8291	f	S	—	Y	Y	—	HXQ/CD	5a	—	2.0
DA8292	f	Ss	b	—	—	—	HWC	0	—	1.0
DA8293	f	S	b	—	—	—	HXP/D	—	—	2.0
DA8294	f	P	—	—	—	21.5	HXP/CD	3b	—	2.0
DA8295	f	S	—	Y	Y	20.0	HXF/AB	3	—	2.5
DA8296	f	S	—	Y	—	—	HXP/B	0	Pit	1.5
DA8297	f	S	—	—	Y	—	HWR/AB	1	—	1.0
DA8298	f	S	—	—	—	23.0	HXL/BC	5b	—	2.0
DA6663	f	S	—	—	—	—	HXT/D	3d?	—	5.0
DA6664	f	S	—	—	—	—	HXN/A	3d?	—	2.5
DA6668	f	Ss	—	Y	Y	—	HSS/B	—	—	4.0
DA7244	f	S	—	—	Y	—	HST/C	1?	—	3.0
DA7266/A	f	S	—	—	Y	26.0	HOK	—	—	1.5
DA7266/B	f	S	—	—	—	20.5	HOK	—	—	1.0
DA7266/C	f	P	—	—	—	—	HOK	—	—	2.0
DA7281	f	S	—	—	—	24.5	HSI/D	—	—	1.5
DA7282	f	S	—	—	—	—	HTR	—	—	1.0
DA7284	f	S	—	—	Y	—	HTI	1?	—	5.0
DA7302	C	P	—	—	—	24.0	HST/C	1?	—	3.0
DA7700	f	S	c	—	Y	—	HTR	—	—	3.0
—	f	S	—	—	—	21.8	HXF	—	—	1.0
—	C	S	—	—	—	32.2	—	Surface	—	8.0
—	f	S	b	—	—	—	HST	—	—	2.0
—	f	P	—	—	—	—	HSE/C	—	—	2.5
—	f	S	—	Y	Y	—	—	Surface	—	3.0
—	f	S	—	—	Y	—	HSX/B	—	—	1.5
—	f	P	—	—	—	—	MIN/C	—	—	1.0
—	fc	S	—	—	—	—	HSJ	—	—	3.5
—	f	Ss	—	—	—	—	HOE	—	—	2.5
—	f	Ss	—	—	—	—	HTQ/D	—	—	1.0
—	f	Ss	—	—	—	—	HST/A	—	—	3.0
—	f	S	—	—	—	—	HJP/D	—	—	2.5
—	f	Ss	—	—	—	—	—	Surface	—	3.0
—	f	P	—	—	—	21.0	HTQ	—	—	1.0
—	f	Ss	—	—	—	—	HTU/B	—	—	3.5
—	f	Ss	—	—	—	25.5	HDT/D	—	—	3.0
—	f	S	b	—	—	—	HOU/B	—	—	4.5
—	f	M	—	—	—	22.5	HTF/BC	—	—	2.0
—	f	Ss	—	—	—	34.5	HTH/AB	—	—	2.0
—	f	P	—	—	—	—	HJG	—	—	4.0



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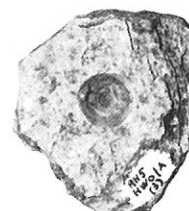
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*Plate 2*