

Surveys Along the Oman Coast: A Review of the Prehistoric Sites Discovered Between Dibab and Qalhāt

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***Abstract.** The surveys carried out by the Italian Archaeological Mission to the Sultanate of Oman in 1985-1988, led to the discovery of many prehistoric sites, along the coast between Dibab, to the north, and Qalhāt, to the south. Among these are shell-middens, flint scatters, stone structures and groups of cairns. The author describes the chipped stone assemblages collected from these sites, some of which are of great importance for a better understanding of the Early Holocene prehistory of the coast of Oman.*

Preface

This paper illustrates the results of the archaeological surveys carried out by the Italian Archaeological Expedition to the Sultanate of Oman from 1985 to 1988, along the coastal strip between Dibab and Qalhat. Its main goal is to integrate the data already published by Biagi (1988) and Ibrahim and ElMahi (2000) on the prehistory of this region, and to provide the first detailed description of the chipped stone assemblages collected from both surface scatters and shell-midden sites.

The sites are described from north to south, according to their reference number and UTM geographic coordinates (fig. 1), as already reported by Biagi (1988: 286). Most of them have been visited several times, with the exception of those located between Tiwi and Qalhat, which were surveyed only in November 1988. The coastline between Tiwi and Wadi Haidha did not yield any evidence of archaeological sites, most probably because of the presence of thick, alluvial, gravel deposits that characterise the area, which were formed by the wadis that flow from Jabal Bani .

The archaeological sites

1) Dibab 1.

The shell-midden of Dibab 1 (DB1)

(GL108541) is located along the southern shore of the bay, at the right mouth of Wadi al Arabiyin, east of the village bearing the same name (fig. 1: DB1; fig. 2, top). It lies on a conglomerate promontory, covered with a very sparse vegetation, some 30 m long and 20 m wide, which probably originated from an underwater coral barrier. Its archaeological deposit is some 50 cm thick. The finds are scattered all over the deflated, gravelly surface of the midden. Among these are flint artefacts, potsherds, pierced *Columbella* beads and copper fragments, as well as *Anadara Uropigimelana* marine shells, a sample of which has been radiocarbon-dated to 5270 ± 60 BP (Bln-3647/I) and 5420 ± 60 BP (Bln-3647/II)⁽¹⁾ (Biagi, 1994: 23).

The chipped stone assemblage, obtained from flint of brown, rarely light grey colour, and quartzite comprises some characteristic Ra's-al-Hamra-Facies types (Ürppmann, 1992), among which are chisels, one straight point and several denticulated tools, which have already been published by Biagi (1988: 273).

2) Bimmah 1.

The shell-midden of Bimmah 1 (BMH1) (GL168457) is situated on a terrace, covered with a sparse vegetation of *Rhus* shrubs, that faces the ocean, and is delimited by two small

wadi courses (fig. 1: BMH1; fig. 2, bottom). Its sandy gravelly, deflated surface yielded only a few concentrations of flint artefacts, 2 net-sinkers obtained from beach pebbles, with two chipped opposite, bifacial notches along the sides, and a few discolored marine shells.

The chipped stone assemblage, chipped from small nodules of local flint (Ibrahim and ElMahi, 2000: 126) of dark yellowish brown (10 YR4/4) and dark grey (2.5 Y4/1)⁽²⁾ colour, sometimes with thermoclastic and concassage detachments, includes one short end scraper on a microflakelet⁽³⁾ with simple, deep, direct, denticulated retouch (fig. 3, n. 1); one nosed end scraper on a flakelet obtained with simple, deep, direct retouch (fig. 3, n. 2); one corticated flakelet with simple, deep, sommaire retouch (fig. 3, n. 3), one chisel on a thick flakelet, of type 1⁽⁴⁾ (fig. 3, n. 4) and one

denticulated side scraper on a bladelet-like flakelet obtained with simple, deep, direct retouch on the left side (fig. 3, n. 5).

3) Bimmah 2.

Bimmah 2 (BMH2) (GL203435) is a deflated site, very rich in flint artefacts, among which were a few copper pieces, collected from the surface in the same area where a black (organogenic) deposit and a few circular stone structures were noticed. In November 1988 the site was in danger because of the development of the neighbouring village (fig. 1: BMH2).

The flint assemblage, obtained from local flint nodules of the same variety of those of BMH1, comprises 30 complete, unretouched artefacts, which were measured to develop the

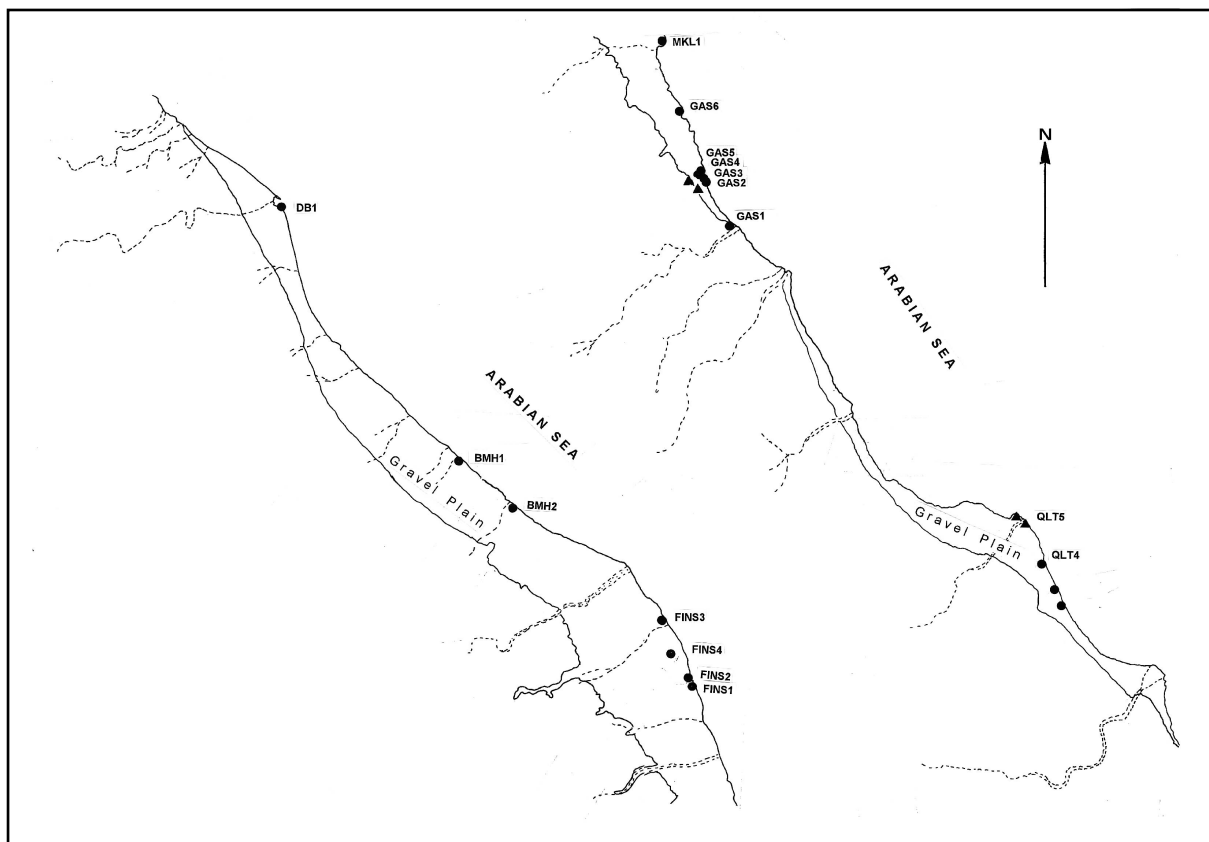


Fig. 1: Distribution of the prehistoric sites mentioned in the text, from top left, to bottom right. Shell middens and flint scatters (dots) and cairns (triangles) (drawn by P. Biagi).



Fig. 2: The shell-midden of Dibab 1 (DB1) from the south (top) and the site of Bimmah 1 (BMH1) (bottom) (photographs by P. Biagi).

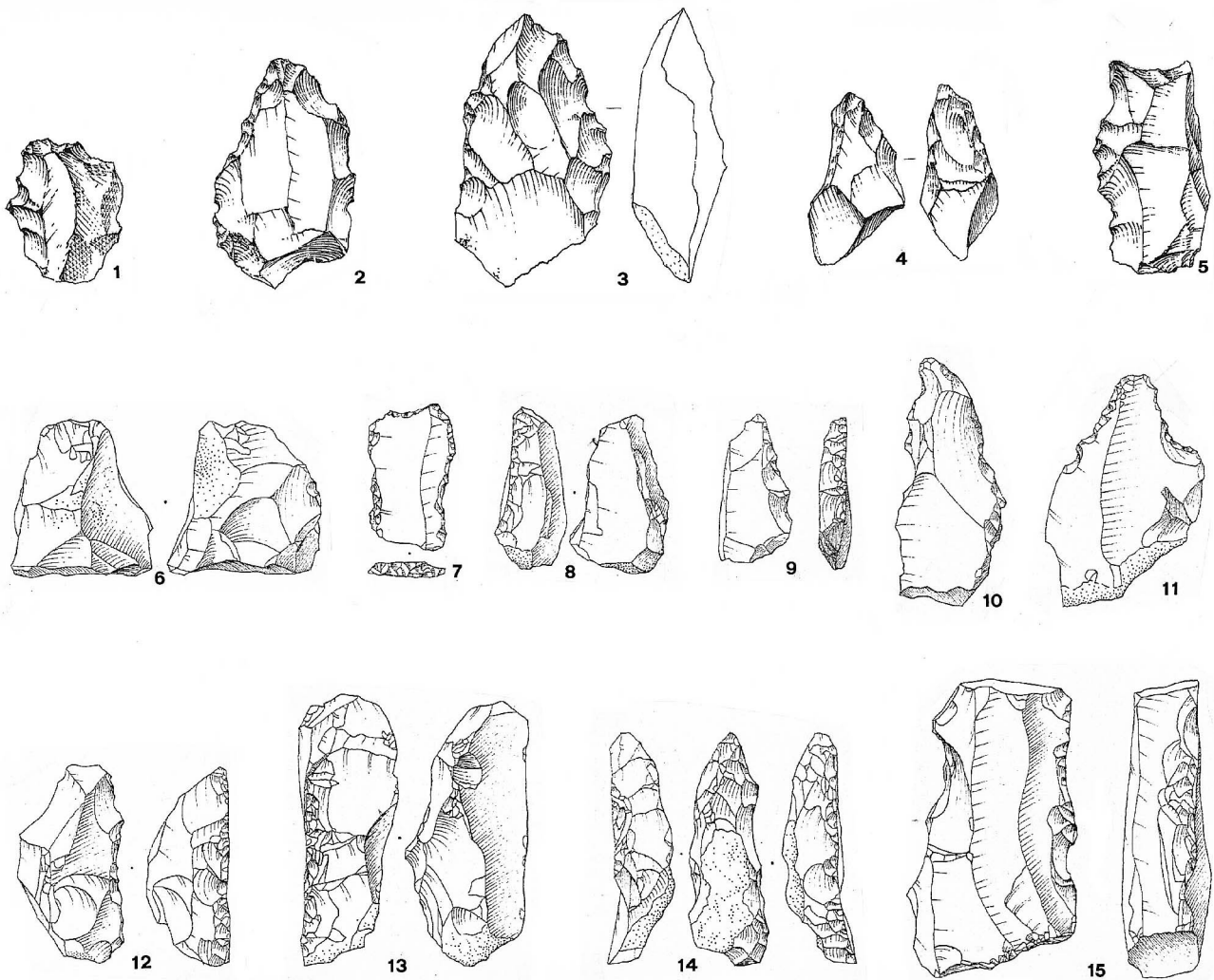


Fig. 3: Chipped stone assemblages from Bimmah 1 (BMH1) (1-5) and Bimmah 2 (BMH2) (6-15) (2:3) (drawings by G. Almerigogna and G. Bombonato).

length-width scattergram of fig. 4: BMH2; one hypermicroflakelet prismatic core with two adjacent platforms (fig. 3, n. 6) and 12 instruments among which are: one straight, proximal, truncation on a bladelet with abrupt, deep, direct retouch (fig. 3, n. 7); 2 chisels of type 2 on thick flakelets (fig. 3, nn. 8 and 9); one denticulated point on a thick flakelet obtained with sommaire, deep, direct retouch (fig. 3, n. 10); 3 perforators, one of which is on a flakelet and two on microflakelets, obtained with sommaire, deep, direct, convergent, retouch (fig. 3, n. 11); 2 thick side scrap-

ers, one on a flakelet and one on a flake obtained with abrupt, deep, direct retouch on the right (fig. 3, n. 12) or on the left (fig. 3, n. 13) side; one thick point on a corticated flakelet obtained with abrupt, deep, bilateral retouch (fig. 3, n. 14) and the medium part of one thick, denticulated blade with simple, deep, direct retouch along the right side (fig. 3, n. 15).

4) Fins 1.

The site of FINS1 (GL265381) is located some one km north of the synonymous village, on the coastal terrace that faces the ocean, be-

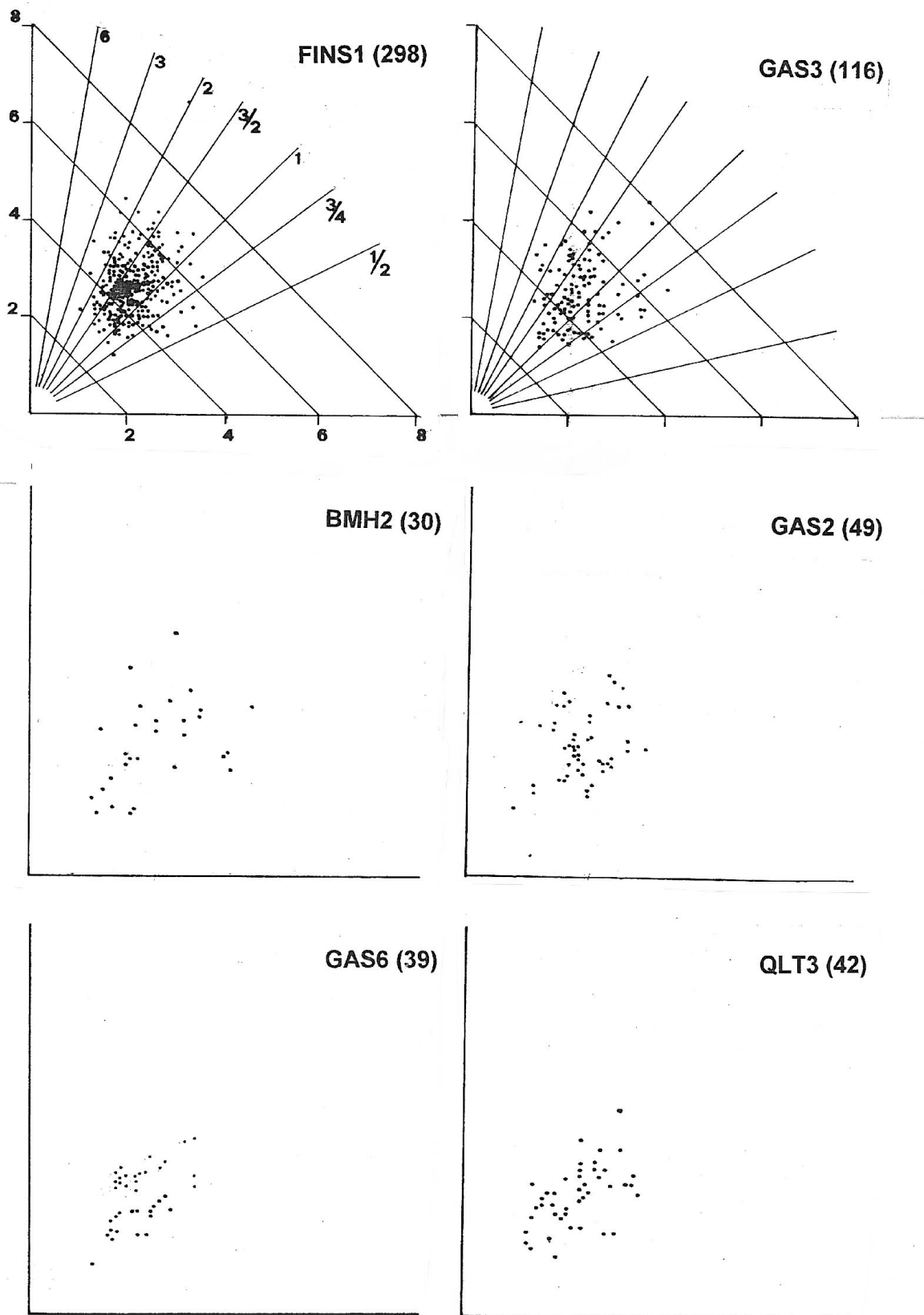


Fig. 4: Length-width scattergrams of the complete, unretouched artefacts from Bimmah 2 (BMH2), Fins 1 (FINS1), Ash Shab 2 (GAS2), Ash Shab 3 (GAS3), Ash Shab 6 (GAS6) and Qalhat 3 (QLT3). Microliths 0-4, normoliths 4-6, macroliths >6 (drawings by P. Biagi).

tween two small wadis (fig. 1: Fins1; fig. 5, top). The deflated gravelly surface of the site has a very sparse vegetation cover. A great quantity of flint artefacts is scattered over an area of some 30x30 metres. Few decoloured, marine shell fragments were also recorded.

The flint assemblage from this site is chipped from small pebbles of flint of the same variety of those of the Bimmah sites. It is one of the richest chipped stone assemblages of the region. It consists of 14 cores, 109 instruments and 298 complete, unretouched artefacts that were measured to develop the length-width scattergram of fig. 6: FINS1. The results show that the industry is mainly of normolithic dimension (215: 72%), while the macroliths represent (62) 21%, the microliths (18) 7%, and the hypermicroliths only (3) 1% of the total assemblage. It is mainly chipped from flakes (147: 49.5%), followed by blade-like flakes (79: 26.5%), wide flakes (49: 16.5%), blades (14: 4.5%) and very wide flakes (9: 3.0%). The cores are represented by 6 subconical, 4 prismatic and 4 polyhedral samples.

The subconical cores have bladelet or microbladelet detachments with flat (fig. 6, nn. 1 and 2) or prepared, dihedral platforms (fig. 6, nn. 3-5); the prismatic specimens have microflakelet detachments from prepared (fig. 6, nn. 6 and 8) or flat platforms (fig. 6, nn. 7 and 9); the polyhedral types have micro and hypermicroflakelet detachments from prepared platforms (fig. 6, nn. 10-12). The instruments include 7 end scrapers, two of which are long, the first on a bladelet with complementary simple, deep, direct retouch along the right side (fig. 6, n. 13), the second on a microbladelet (fig. 6, n. 14); three are short, one on a bladelet (fig. 6, n. 15) and two on microbladelets (fig. 6, nn. 16 and 17); and two are ogival, one on a bladelet (fig. 6, n. 18) and one

on a flakelet with complementary semiabrupt, marginal, direct retouch on the left side (fig. 6, n. 19); 5 truncations, three of which are normal, straight, one on a microbladelet with abrupt, deep, inverse retouch (fig. 6, n. 20), one on a microbladelet with abrupt, marginal, direct, concave retouch (fig. 6, n. 21), one sommaire on a microflakelet (fig. 6, n. 22); one is normal, oblique on a microflakelet with abrupt, deep, direct retouch (fig. 6, n. 23); and one is convex on a bladelet with abrupt, deep, direct retouch (fig. 6, n. 24); 22 perforators, eighteen of which are straight and four curved.

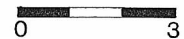
The straight specimens include thirteen bladelet and five flakelet samples. They are often obtained with abrupt, deep, direct, continuous (fig. 6, nn. 25, 26, 29, 31 and 32) or distal retouch (fig. 6, nn. 28-30, 34, 35, 37, 38, 40 and 41); one has an abrupt, deep, mixed retouch along the right side (fig. 6, n. 27), one an abrupt, deep, inverse retouch on the right and direct on the left side (fig. 6, n. 33), one proximal specimen has an abrupt, marginal, inverse retouch on both sides (fig. 6, n. 36), one an abrupt, deep, direct, distal retouch on the right side and an abrupt, marginal, inverse retouch on the left side (fig. 6, n. 39); the four curved types are represented by two right and two left specimens: the right ones, on bladelets, are both obtained with a normal, straight, direct truncation adjacent to an abrupt, marginal, inverse retouch (fig. 6, nn. 42 and 45); the left ones, both on bladelets, the first with an abrupt, marginal, direct, distal retouch (fig. 6, n. 43), the second with an abrupt, direct, deep retouch with a complementary abrupt, marginal, inverse retouch on the medial part of the right side (fig. 6, n. 44); one probable trapezoidal geometric tool of scalene type is obtained with one straight and one oblique truncations with abrupt, deep, direct retouch (fig. 6, n. 46); 18 retouched bladelets, 13 with sim-



Fig. 5: The site of Fins 1 (FINS1) from the south (top) and the headland of Ra's Makallah (MKL1) (bottom) (photographs by P. Biagi).



Fig. 6: Chipped stone assemblage from Fins 1 (FINS1) (2:3) (drawings by G. Almerigogna).



ple, marginal direct or inverse retouch on one or both sides (fig. 7, nn. 1-5 and 7), one proximal sample with simple, deep, direct retouch on the right and marginal, direct on the left side (fig. 7, n. 6), three with semiabrupt, deep, direct retouch on the right or left side (fig. 7, nn. 8 and 9) and one medial fragment of narrow microbladelet with abrupt, marginal, direct, continuous retouch on the right and abrupt, marginal, direct, partial retouch on the left side (fig. 7, n. 10); one carinated point on a thick flakelet obtained with abrupt, deep, direct, partial retouch on both sides (fig. 7, n. 11); 17 side scrapers, three of which are on microflakelets and fourteen on flakelets. They include one marginal flakelet specimen with simple, marginal, direct, partial retouch on the left side (fig. 7, n. 18); sixteen deep examples, eleven of which are lateral: four with simple, deep, direct retouch on the right side, four with simple, deep, direct retouch on the left side (fig. 7, nn. 12, 13 and 16), three have a simple, deep, direct, bilateral retouch (fig. 7, nn. 14, 15 and 17); five are transversal with simple, deep, direct retouch at the distal edge (fig. 7, nn. 19-21); 32 denticulated scrapers, two of which are on bladelets, six on microflakelets, the remaining on flakelets; among them are three single notches (fig. 7, nn. 22-24), one double, opposite notch, and a great variety of denticulated scrapers (fig. 7, nn. 25-47), a few of which obtained with sommaire, bilateral, bifacial retouch (fig. 7, nn. 29-31), while a few other specimens are denticulated end scrapers (fig. 7, nn. 38, 41, 42 and 46).

5) Fins 2.

FINS2 (GL264383) is a flint scatter discovered on the deflated, gravelly coastal terrace covered with a very sparse vegetation that faces the ocean, on the left side of a wadi mouth, some 250 m north of FINS1 (fig. 1: FINS2). The site consists of a few concentrations of

artefacts of the same type as those of FINS1.

The chipped stone assemblage includes 2 cores and 5 instruments. The cores are: one sommaire on a corticated pebble (fig. 8, n. 1) and one prismatic with hypermicroflakelet detachments from one simple platform (fig. 8, n. 2). The instruments are represented by one short end scraper on a microflakelet (fig. 8, n. 3); 2 abrupt-retouched microflakelets one of which with marginal, direct, proximal, transversal retouch (fig. 8, n. 4) and one with marginal, direct, lateral retouch on the right side (fig. 8, n. 5); one bifacial tool on a flakelet with sommaire, bilateral retouch (fig. 8, n. 6) and one side scraper with simple, deep, inverse retouch along the right side (fig. 8, n. 7).

6) Fins 3.

FINS3 (GL254401) is located on the left terrace of the wadi (fig. 1: FINS3), some 3 km north of the village of Fins and 2 km south of Ra's ash Shajar. It yielded a few tools chipped from the same type of flint, among which are some chisels of the same type 2 of that of fig. 8, n. 8.

7) Fins 4.

FINS4 (GL258390) is located at the western edge of the terrace that overlooks the gravel plain, some 300 m from the ocean (fig. 1: FINS4) and some 2 km north of the village of Fins. It consists of a few unretouched flint artefacts and one long, straight perforator obtained with abrupt, deep, direct, bilateral retouch (fig. 8, n. 9).

8) Ra's Makallah 1.

The small flint scatter of Ra's Makallah 1 (MKL1) (GL282338) is located on a small, flat promontory, at the northern edge of Makallah Wabar (fig. 5, bottom). This site produced only a small number of unretouched,

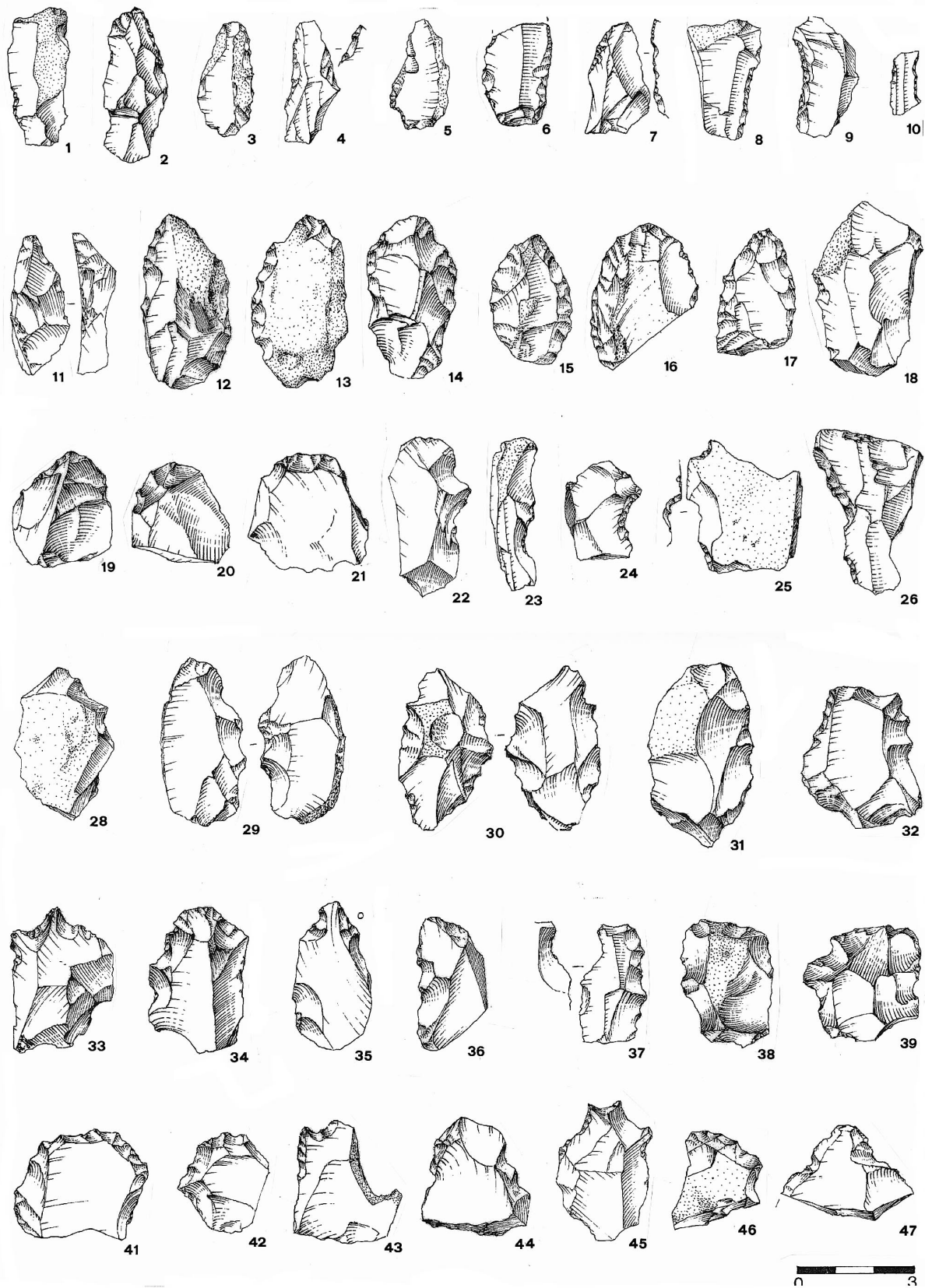


Fig. 7: Chipped stone assemblage from Fins 1 (FINS1) (2:3) (drawings by G. Almerigogna).

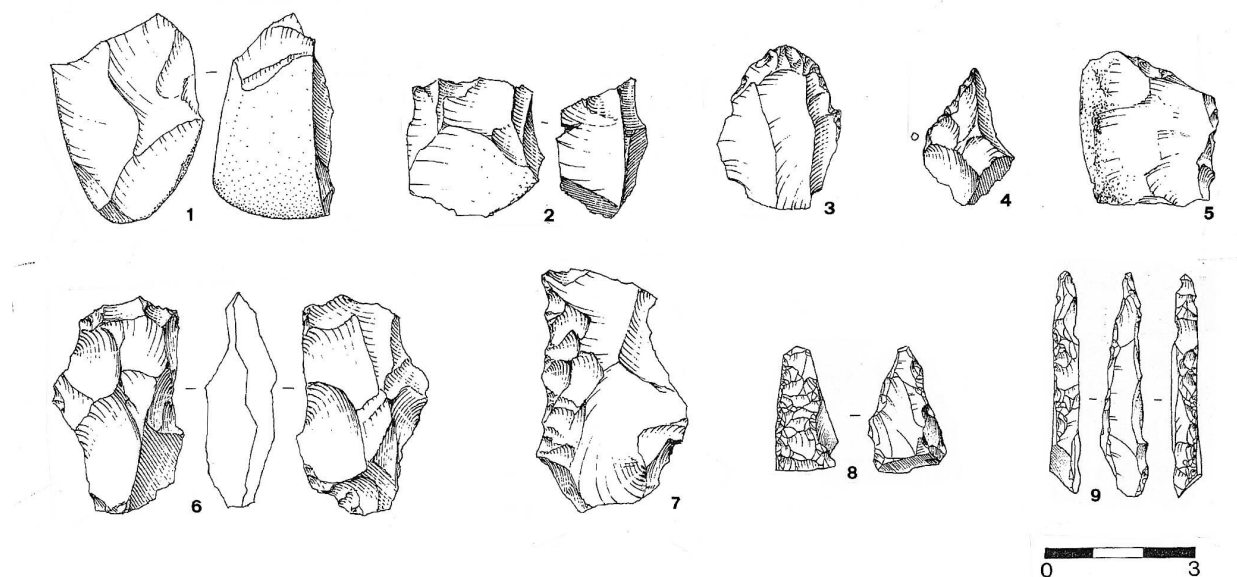


Fig. 8: Chipped stone assemblages from Fins 2 (FINS2) (1-7), Fins 3 (FINS3) (8) and Fins 4 (FINS4) (9) (2:3) (drawings by G. Almerigogna and G. Bombonato).

patinated chipped stone artefacts of microlithic and normolithic dimensions.

9) Ash Shab 1.

The shell-midden of GAS1 (GL304277) was discovered in 1983 (Tosi, 1983) on the high, left terrace of the Wadi Shab mouth (fig. 1: GAS1; fig. 9). The first systematic surface collection was carried out in January 1992 in the richest area of the midden, along a strip of 4x25 square metres (fig. 10). It led to the recovery of 11,152 flint artefacts among which are 336 instruments. 1,526 complete, unretouched artefacts were measured to obtain the results shown in table 1. During the same season an organogenic soil sample, collected from a profile exposed by the road construction at 30 cm. of depth (fig. 10), was radiocarbon dated to 5127±80 BP (GX-17881)⁽⁵⁾ (Biagi, 1994: 23).

10) Ash Shab 2.

Ash Shab 2 (GAS2) (GL295289) is a deflated site discovered some 1.5 km northwest of GAS1, on the right terrace of a small wadi (fig. 1: GAS2), where one circular stone struc-

ture (cairn?) was also recorded.

The site yielded a rich flint assemblage, including 49 complete, unretouched artefacts, which were measured to develop the length-width scattergram of fig. 4: GAS2. The assemblage is composed of six hypermicroflakelet polyhedral and prismatic cores with single, opposite or adjacent platforms (fig. 11, nn. 1-6); two short end scarpers, one of which on a flakelet with complementary semiabrupt, deep, direct retouch along the two sides (fig. 11, nn. 7) and one on a microflakelet (fig. 11, n. 8); one nosed end scraper with complementary simple, deep, direct retouch along the right side (fig. 11, n. 9); one carinated point obtained with abrupt, deep retouch (fig. 11, n. 10); one side scraper on a flakelet with semiabrupt, deep, alternate retouch (fig. 11, n. 11); one side scraper with simple, marginal, partial, direct retouch along both sides (fig. 13, n. 12) and one typical chisel on a microflakelet of type 1 (fig. 11, n. 13).

11) Ash Shab 3.

The site of Ash Shab 3 (GAS3)



Fig. 9: The shell-midden of Ash Sh?b 1 (GAS1) with the indication of the area investigated in January 1992 (arrow) and the profile sampled for radiocarbon dating (dot) (photograph by P. Biagi).

(GL294288) is located on the same terrace, some 100 m behind GAS2, east of the road to Tiwi (fig. 1: GAS3). It consists of a few scatters of weathered flints in the same area where seven stone cairns are located. Just to the west, on the other side of the same road, two cairns were recorded.

The chipped stone assemblage comprises seven cores with hypermicroflakelet detachments, among which are polyhedral, prismatic and subconical types with one or more platforms (fig. 11, nn. 14-18), and 18 instruments. 116 complete, unretouched artefacts were measured to develop the scattergram of fig. 4: GAS3. It shows that the unretouched artefacts are mainly of normolithic dimension (80: 69.0%), while the microliths (25: 21.5%) and the macroliths (11: 9.5%) are present in

much lower percentages. As regards the elongation indexes, the flakes are present with 58 specimens (50.0%); they are followed by wide flakes (23: 20%), blade-like flakes (18: 15.5%), very wide flakes (13: 11.0%) and blades (4: 3.5%). The instruments consist of two truncations, the first of which is on a microbladelet-like microflakelet, obtained with simple, deep, inverse, concave retouch (fig. 11, n. 19), the second is on a microflakelet with simple, marginal, direct, oblique retouch (fig. 11, n. 20); four straight perforators: one is on a microbladelet-like microflakelet, obtained with abrupt, marginal, direct retouch at the distal edge (fig. 11, n. 21); one on a microbladelet with abrupt, deep, direct, bilateral retouch (fig. 11, n. 22), one on a bladelet with simple, marginal, direct, bilateral retouch at the distal edge (fig. 11, n. 23) and

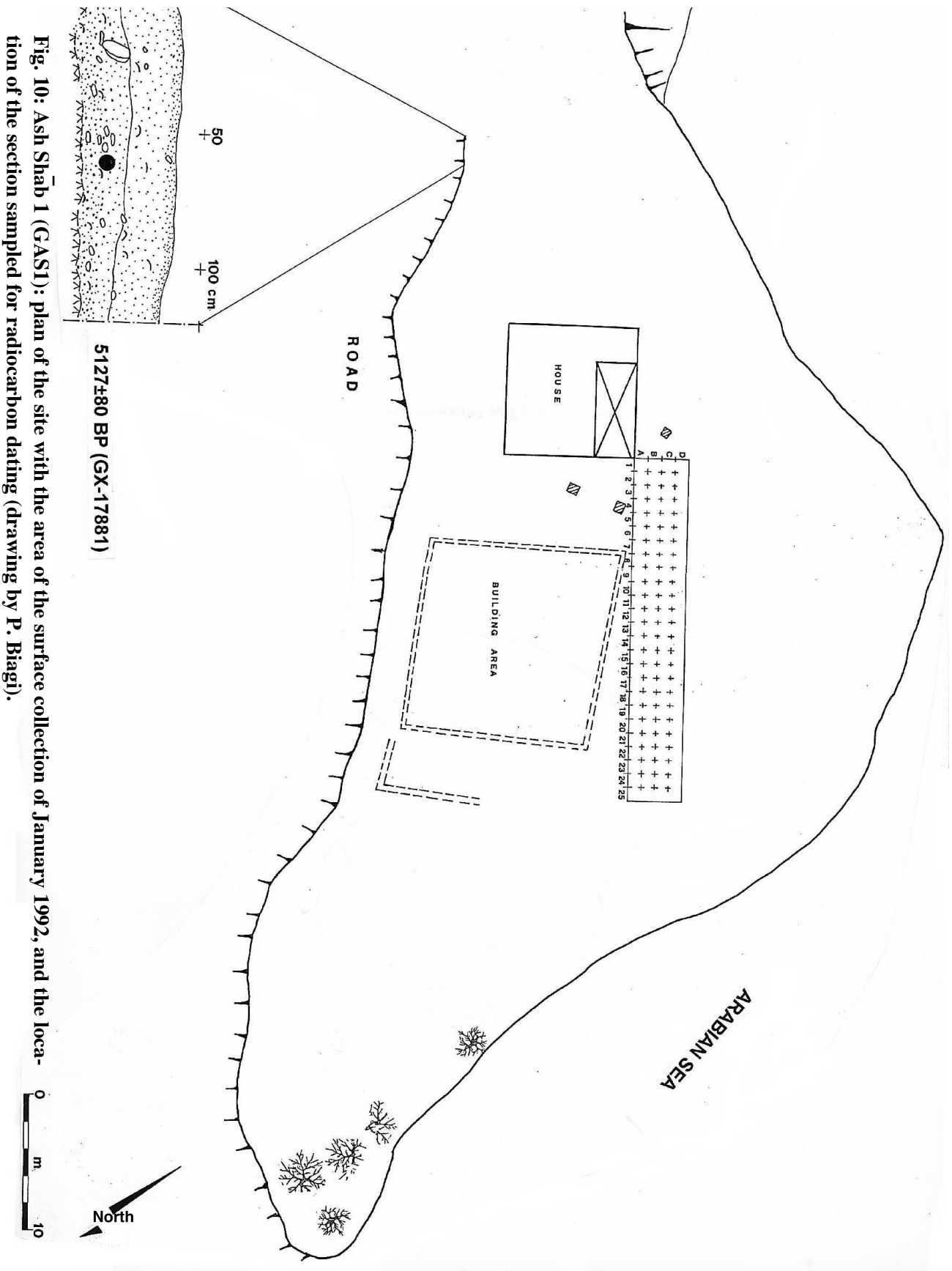


Fig. 10: Ash Shab 1 (GAS1): plan of the site with the area of the surface collection of January 1992, and the location of the section sampled for radiocarbon dating (drawing by P. Biagi).

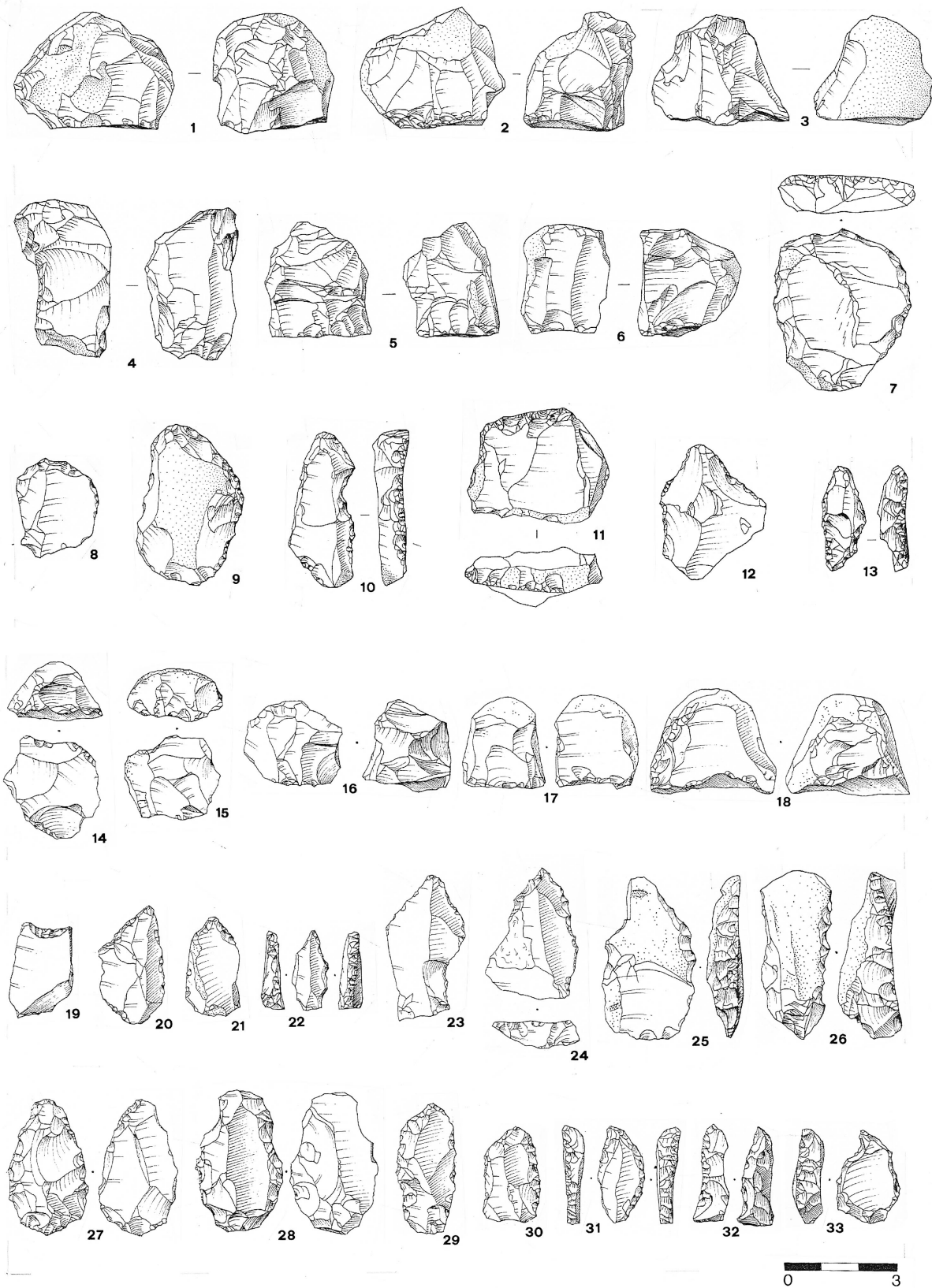


Fig. 11: Chipped stone assemblages from Ash Shab 2 (GAS2) (1-13) and Ash Shab 3 (GAS3) (14-33) (2:3) (drawings by G. Bombonato).

one on a flakelet with simple, marginal, direct, bilateral retouch at the distal edge (fig. 11, n. 24); two corticated flakelets with abrupt, deep, direct retouch along the right side (fig. 11, nn. 25 and 26); eight side scrapers on flakelets: one has a simple, marginal, inverse retouch on the left side; one a simple, deep, direct, partial retouch on the right side; one a simple, marginal, direct, transversal retouch at the distal edge of a corticated flakelet; one a simple, marginal, mixed retouch along its entire perimeter; one a simple, deep, direct retouch along the left side, while the right one shows a simple, marginal, mixed retouch (fig. 11, n. 27); one has a simple, deep, direct retouch on the right side, while the left side has a simple, marginal, direct, proximal retouch (fig. 11, n. 28); one has a simple, deep, direct retouch along the left side (fig. 11, n. 29) and one a simple, deep, direct retouch on the right side (fig. 11, n. 30); three chisels on thick microflakelets, two of which are of type 1 (fig. 11, nn. 31 and 32) and the third of type 3 (fig. 11, n. 33).

12) Ash Shab 4.

Also Ash Shab 4 (GAS4) (GL295291) lies on the left terrace of the same wadi mouth (fig. 1: GAS4), where one oval stone structure rising from the ground was recorded.

The site is rich in flint artefacts, among which are 12 instruments: one truncation on a microflakelet obtained with simple, marginal, inverse retouch at the distal edge (fig. 12, n. 1); three straight perforators, two of which on microflakelets obtained with abrupt, deep, direct, bilateral retouch (fig. 12, nn. 2 and 3) and one on a flakelet with the same retouch characteristics (fig. 12, n. 4); one carinated side scraper on a thick flake obtained with abrupt, deep, direct retouch on the right side (fig. 12, n. 5); one side scrapers on a flakelet with sim-

ple, marginal, direct, partial retouch on the right side (fig. 12, n. 6); one point with abrupt, deep, direct retouch on the left side and simple, marginal, direct retouch on the right one; and five characteristic chisels on thick microflakelets of type 1 (fig. 12, nn. 7-9, 11) and type 2 (fig. 12, n. 10).

13) Ash Shab 5.

Ash Shab 5 (GAS5) (GL294295) is a weathered site, very rich in flint artefacts, on the left bank of a small wadi mouth, some 2 km north-west of the village of Ash Shab (fig. 1: GAS5). Some cairns were mapped on the terrace about 500 m southwest of the site, across the road to Tiwi.

The chipped stone assemblage comprises five cores and 21 instruments. Four cores are prismatic with microflakelet detachments (fig. 12, nn. 12-15), one is polyhedral with hyper-microflakelet detachments (fig. 12, n. 16). Among the instruments are: one long end scraper on a corticated bladelet with semiabrupt, deep, direct retouch on the left side (fig. 12, n. 17); one short end scraper on a corticated microflakelet (fig. 12, n. 18); four perforators, one on a microflakelet with semiabrupt, deep, alternate retouch on the right side and semiabrupt, deep, inverse retouch on the left one (fig. 12, n. 19); one on a microflakelet obtained with semiabrupt, deep, direct, bilateral retouch at the distal edge (fig. 12, n. 20); one on a microflakelet with simple, deep, direct retouch at the distal edge (fig. 12, n. 21); and one on a corticated flakelet with abrupt, marginal, direct retouch at the distal edge (fig. 12, n. 22); eight side scrapers, four of which are lateral, on flakelets with simple, marginal, direct (fig. 12, nn. 23 and 24) or simple, deep, direct (fig. 12, n. 26) or inverse (fig. 12, n. 25) retouch; two are transverse on a microflakelet (fig. 12, n. 27) or a flakelet (fig. 12, n. 28) with simple, deep, direct retouch at the distal

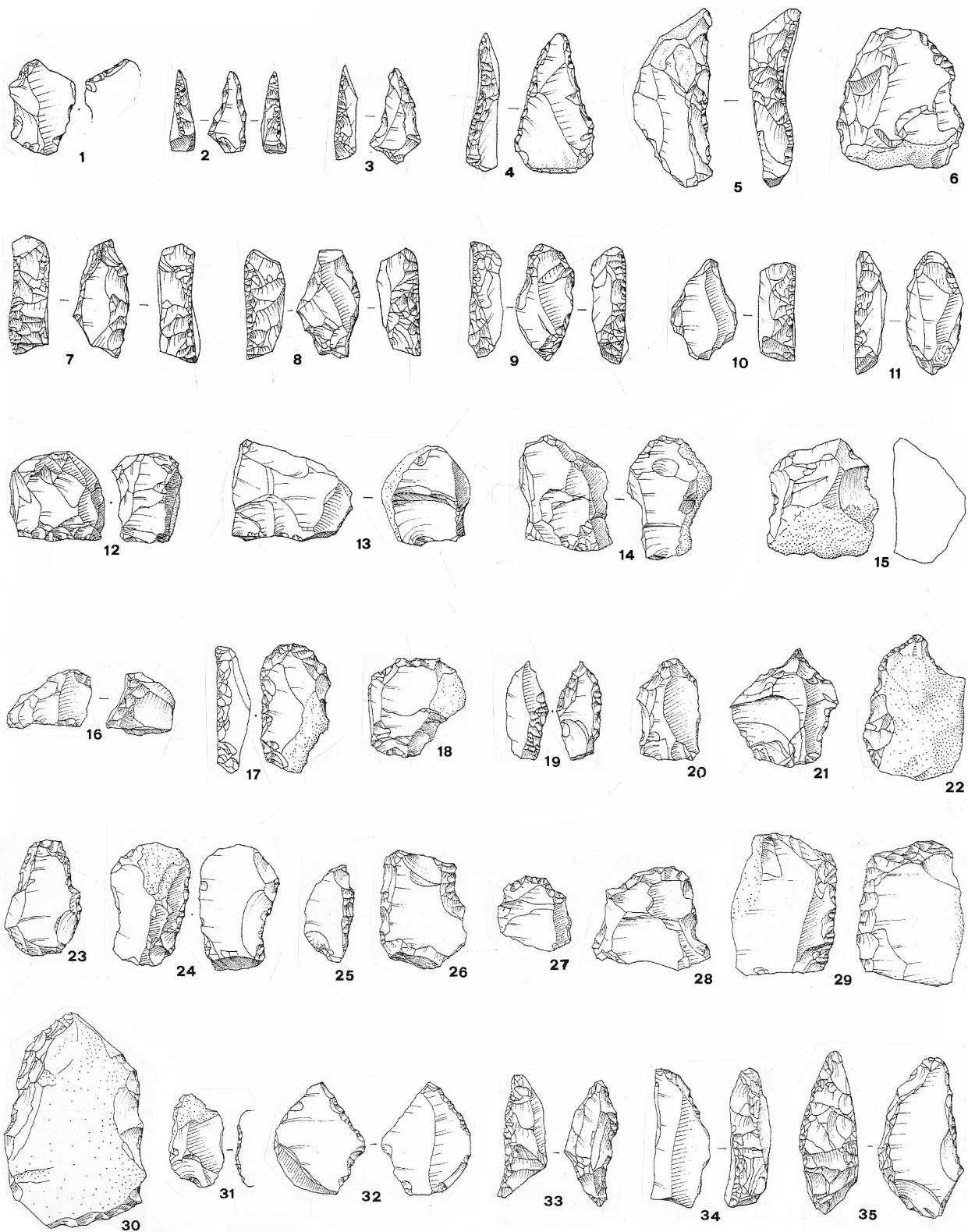


Fig. 12: Chipped stone assemblages from Ash Shab 4 (GAS4) (1-11) and Ash Shab 5 (GAS5) (12-35) (2:3) (drawings by G. Bombonato).

edge; and two are latero-transversal, one on a flakelet with simple, deep, bifacial retouch along the right side (fig. 12, n. 29) and one is on a corticated small flake with simple, deep, direct retouch on both sides and the proximal edge (fig. 12, n. 30); three flakelets with abrupt, marginal retouch, inverse on the right side (fig. 12, n. 31) or alternate (fig. 12, n. 32) or inverse on the right side; one corticated microflakelet with simple, deep, denticulated retouch at the distal edge; and three chisels on thick flakelets of both type 1 (fig. 12, nn. 33 and 34) and type 2 (fig. 12, n. 35).

14) Ash Shab 6.

Ash Shab 6 (GAS6) (GL288315) is another scatter of weathered flints located on a small promontory west of a wadi mouth, some 4 km northwest of the village of Ash Shab (fig. 1: GAS6). It yielded 39 complete, unretouched artefacts, which were measured to develop the scattergram of fig. 4: GAS6, six cores and nine instruments. Five of the cores are prismatic: one is elongated with microbladelet detachments from one single, flat platform (fig. 13, n. 1), four are smaller with microflakelet detachments from one flat platform (fig. 13, nn. 2-4 and 6), and one is short, subconical, with hypermicroflakelet and hypermicrobladelet detachments from one flat platform (fig. 13, n. 5). The instruments are represented by one atypical short end scraper on a corticated microflakelet with simple, deep, direct complementary retouch on the right side (fig. 13, n. 10); one shouldered backed microbladelet obtained with abrupt, deep, direct retouch on the right side (fig. 13, n. 11); one atypical double backed point on a bladelet obtained with abrupt, deep, mixed retouch on the right side (fig. 13, n. 12); one side scraper on a flakelet with simple, marginal, mixed, bilateral retouch on both sides (fig. 13, n. 13); one denticulated scraper on a microflakelet with sim-

ple, deep, alternate retouch (fig. 13, n. 14) and one chisel of type 2 on a thick microflakelet (fig. 13, n. 15).

15) Qalhat 2.

The site of Qalhat 2 (QLT2) (GL411150) is located along the coastline, some 3 km northwest of Qalhat, between the courses of two wadis (fig. 1: QLT2). Its deflated surface is very rich in flint artefacts. Here circular and rectangular stone structures were recorded. The same surface yielded a few small net-sinkers chipped from beach pebbles.

The flint assemblage, which is obtained from small pebbles of dark greyish brown (10YR4/2), brown (10YR5/3) and dark grey (5YR4/1) colour, is represented by one prismatic core with bladelet-like flakelet detachments (fig. 13, n. 16); one short end scraper on a microflakelet (fig. 13, n. 17); one atypical shouldered point on a thick flakelet obtained with abrupt, deep, direct retouch on the right side (fig. 13, n. 18.); one microflakelet with abrupt, deep, direct retouch (fig. 13, n. 19) and one truncation on a microbladelet (?) with abrupt, deep, direct retouch on the right side (fig. 13, n. 20)

16) Qalhat 3.

The site of Qalhat 3 (QLT3) (GL409155) is situated some 500 m northwest of Qalhat 2, some 200 m from the sea shore (fig. 1: QLT3), along the left bank of a wadi mouth. It consists of flint scatters and many circular stone structures and cairns, very close to the edge of the terrace.

The flint assemblage includes two cores, three instruments and 42 complete, unretouched artefacts, which were measured to develop the scattergram of fig. 4: QLT3. The cores are: one polyhedral with microflakelet detachments (fig. 13, n. 23) and one prismatic

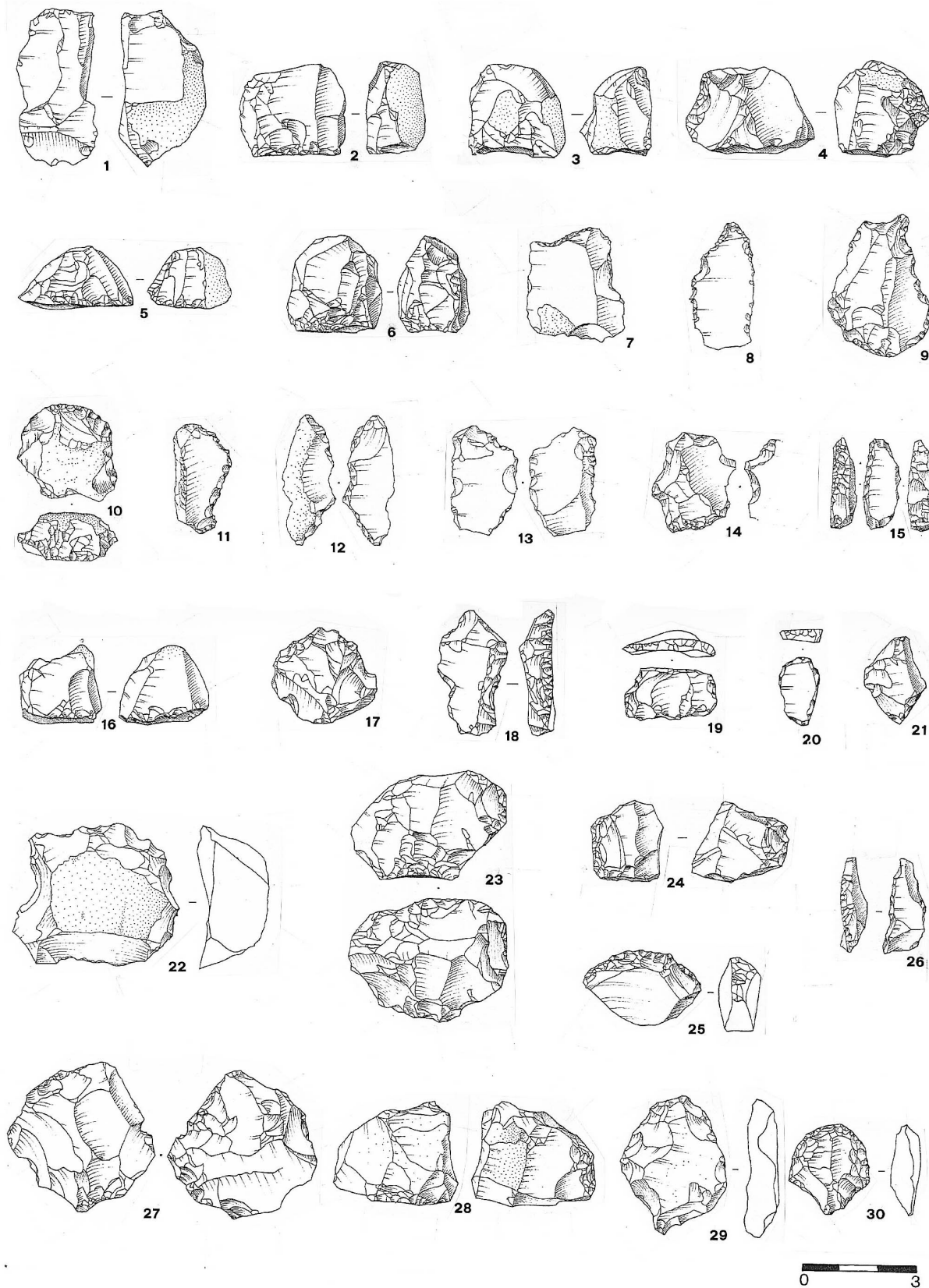


Fig. 13: Chipped stone assemblages from Ash Shab 6 (GAS6) (1-15), Qalhat 2 (QLT2) (16-21), Qalhat 3 (QLT3) (22-26) and Qalhat 4 (QLT4) (27-30) (2:3) (drawings by G. Bombonato).

with hypermicroflakelet detachments from two adjacent platforms (fig. 13, n. 24). The instruments include one carinated latero-transversal scraper on a flakelet with simple, deep, direct, denticulated retouch (fig. 13, n. 22); one microflakelet with abrupt, deep, direct, transversal, retouch (fig. 13, n. 25) and one perforator on a microflakelet obtained with abrupt, deep, direct, bilateral retouch (fig. 13, n. 26).

17) Qalhat 4.

Qalhat 4 (QLT4) (GL405164) lies on a fossil beach terrace, on the right side of the wadi mouth (fig. 1: QLT4), some 1.2 km northwest of QLT3, where one circular stone structure 2.5 m in diameter was also recorded.

The site yielded a few flint artefacts among which are one turtle core with microflakelet detachments on both surfaces (fig. 13, n. 27); one prismatic core with microbladelet-like microflakelet detachments with a flat platform (fig. 13, n. 28); one short end scraper with simple, deep, direct, bilateral retouch on a microflakelet (fig. 13, n. 30), and one flakelet with simple, deep, bifacial retouch (fig. 13, n. 29).

18) Qalhat 5.

Qalhat 5 (QLT5) (GL398177) is located at the mouth of Wadi Haidha (fig. 1: QLT5). Here seven cairns were recorded on the left and three on the right terrace of the wadi (fig. 14).

Discussion

Only two of the above-mentioned sites have been radiocarbon dated, namely those of Dibab (DB1) and Ash Shab 1 (GAS1). The results are rather similar, although they have been obtained from different materials such as marine shells (DB1) and organic soil (GAS1).

These dates attribute these sites to the end of the fifth/beginning of the fourth millennium cal BC. If we compare these results with those of the shell-midden of RH5, on the Ra's al-Hamra headland, near Muscat, we can notice that similar radiocarbon dates come from the lowermost layers (5b-4) of this sequence (Biagi, 1994: 18).

According to M. Ürpmann (1992: 91) "the Ra's-al-Hamra-Facies represents the major phase of shell midden deposition in the central part of the northern coast of the Sultanate of Oman. To the southeast there were other local contemporary facies". Although most of the RH5 flint assemblages are still unpublished, this author points out the high percentage of drills and burins that characterises this facies. Maggi and Gebel (1990: 18), who studied in detail only a part of the chipped stone assemblage from layer 1, subdivide the tools into two main classes, the conventional and the *sommaire* (blunted) instruments, these latter including a great number of typical Hamra chisels. Their presence should indicate that specialised activities were carried out at this site, which D. Usai (pers. comm. 2003) mainly links with the manufacture of steatite and other soft stone earrings (Isetti and Biagi, 1989).

In contrast, the excavations under way at the almost contemporary site of Ash Shab 1 (GAS1), yielded a flint industry rich in straight perforators of microlithic dimension, obtained with abrupt, deep, direct, bilateral retouch (Tosi and Usai, 2003: 15), which represent some of the commonest tools of this site. According to the above-mentioned authors these "perforators were used in the manufacture of beads, numerous examples of which were found" (Tosi and Usai, 2003: 20), although many of these beads are of very small dimension (Tosi and Usai, 2003: 18).

At this point, it is important to stress the occurrence of several straight perforators of microlithic size from the surface site of FINS1, which seem to be typologically different from those of GAS1. In effect, the FINS1 perforators are often from bladelets and more pointed than those from GAS1. This observation might indicate that they were utilised for different purposes (?), as also suggested by the absence of stone beads (and earrings) from the surface of FINS1, even though the collection from this site was conducted in a rather accurate way. In effect the FINS1 drills strongly resemble those from Ra's Shaqallah (Biagi, 1988: 281), a shell-midden located further south, along the Oman coast, from the surface of which a number of elongated flat-retouched, bifacial, arrowheads were collected. This site was radiocarbon-dated to 6040 ± 60 BP (Bln-3649/I) and 5920 ± 60 (Bln-3649/II) from the same marine shell sample (Biagi, 1989: 289). Similar dates were obtained from the upper trench of the shell-midden site of RH6, at Muscat (Biagi, 1999: 58), from which a very limited number of chipped stone tools is recorded, including a few hypermicrolithic drills (Maggi, 1990: 299). These observations might suggest 1) that different activities were carried out at the sites under discussion, 2) that these sites reflect a different chronology, as also indicated by the results of the radiocarbon dates, 3) that FINS1 might be older than GAS1, DB1 and RH5, on the basis of the techno-typological characteristics of the chipped stone artefacts, both instruments and unretouched pieces and 4) that the techno-typological differences noticed among the sites are not to be linked with the raw material sources exploited by the inhabitants of

the sites, which are always available within a short distance from the sites themselves.

It is unfortunate that most of the chipped stone assemblages described in this paper did not yield enough complete, unretouched artefacts to develop an acceptable number of length-width diagrams (fig. 4). Only three of them have produced reliable results (table 1).

The results of table 1 show some similarities, for example, as regards the elongation indexes, which always point out the importance of the flake technology, and the absence, or scarcity, of very narrow blades, narrow blades and extremely wide flakes. On the other hand the dimension indexes indicate a high percentage of normoliths at both FINS1 and GAS3, while the tendency towards a microlithic technology is clear at GAS1 (fig. 4). Also these results might reinforce the impression that the sites are not chronologically contemporaneous, although this is difficult to demonstrate on the basis of the available data.

To conclude, most of the chipped stone industries described in this paper show some similarities, such as the types and sizes of the cores and the occurrence of typical Ra's-al-Hamra chisels. The main exception is represented by the assemblages of GAS1, where the high number of drills might be partly due, to the local manufacture of necklace beads, and FINS1. This latter site yielded many straight perforators on bladelets, of a type which is rather common at Ra's Shaqallah (SAQ1) (Biagi, 1988) and Khor al-Hajar (Charpentier, 2001), although these two assemblages yielded a few flat retouched, bifacial arrowheads, which are characteristic of the so-called Saruq facies (Ürppmann, 1992: 89).

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		Sites					
		FINS1 (298)		GAS1 (1526)		GAS3 (116)	
Category	Limits	n°	%	n°	%	n°	%
Elongation indexes							
Very narrow blades	>6	0	0.0	0	0.0	0	0.0
Narrow blades	6-3	0	0.0	19	1.3	0	0.0
Blades	3-2	14	4.5	125	8.2	4	3.5
Blade-like flakes	2-1.5	79	26.5	279	18.3	18	15.5
Flakes	1.5 -1	147	49.5	583	38.2	58	50.0
Wide flakes	1- 0.75	49	16.5	351	23.0	23	20.0
Very wide flakes	0.75-0.50	9	3.0	164	10.7	13	11.0
Extremely wide flakes	<0.50	0	0.0	5	0.3	0	0.0
Dimension indexes							
Hpermacroliths	>8	3	1.0	17	0.9	0	0.0
Macroliths	8-6	18	6.0	155	10.2	11	9.5
Normoliths	6-4	215	72.0	523	34.3	80	69.5
Microliths	4-2	62	21.0	820	53.8	25	21.5
Hpermacroliths	<2	0	0.0	11	0.8	0	0.0

Table 1: Elongation and dimension indexes of the complete, unretouched chipped stone artefacts from Fins 1 (FINS1), Ash Shab 1 (GAS1) and Ash Shab 3 (GAS3).

ملخص: إن المسوحات التي قامت بها الحملة الأثرية الإيطالية في سلطنة عُمان، في الفترة ما بين ١٩٨٥ و١٩٨٨، أفضت إلى اكتشاف كثير من المواقع ما قبل التاريخية على الساحل، بين "ضباب" شمالاً و"قلهات" جنوباً. وقد احتوت هذه المواقع أكوام صدفية، وركامات حجرية، ومجموعات أدوات صوانية، ومنشآت حجرية. ويصف الباحث الأدوات الحجرية المشظاة، التي جمعت من تلك المواقع، ويرى أن بعضها ذو أهمية قصوى لفهم بدايات العصر الحديث لما قبل التاريخ، في ساحل عُمان.

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Notes

- (1) The ΔR values currently available for the western Arabian Sea are those published by Dutta et al. (2001: 484) and Southon et al. (2002). The mean value proposed by Southon et al. (2002: 171) for this part of the ocean is of 190 ± 25 years.
- (2) The colours are those of the Munsell Soil Color Charts (2000). GetasMachbeth, New York. The colours are those of the Munsell Soil Color Charts (2000). GetasMachbeth, New York.
- (3) In this paper the terminology employed for the measurements of the blanks is as follows >1.25 cm: hypermicroflakelets and hypermicrobladelets; 1.25-2.5 cm: microflakelets and microbladelets; 2.5-5.0 cm: flakelets and bladelets; 5.0-10.0 cm: flakes and blades; <10.0 cm: macroflakes and macroblades. In this paper the terminology employed for the measurements of the blanks is as follows >1.25 cm: hypermicroflakelets and hypermicrobladelets; 1.25-2.5 cm: microflakelets and microbladelets; 2.5-5.0 cm: flakelets and bladelets; 5.0-10.0 cm: flakes and blades; <10.0 cm: macroflakes and macroblades.
- (4) For the classification of these "unconventional" instruments, see Maggi and Gebel (1990: 18-20).
- (5) Corresponding to 4040-4020 (2.5%), 3990-3790 (65.7%) at 1σ ; and 4250-4100 (3.7%), 4050-3700 (91.7%) at 2σ cal BC according to OxCal v3.8.

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