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# PRECOLUMBIAN GOLD

**Technology, Style and Iconography**



**EDITED BY COLIN McEWAN**

# Contextualized Goldwork from 'Gran Coclé', Panama

## An Update Based on Recent Excavations and New Radiocarbon Dates for Associated Pottery Styles

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### The 'Gran Coclé Semiotic Tradition'

The subject of this paper is the metallurgy of a region of Precolumbian Panama, which is well known for its mortuary artefacts decorated with distinctive combinations of abstract and figurative icons. These occur not only on goldwork but also on pottery, stone, bone, ivory and resin. When S.K. Lothrop first described these artefacts, he attributed them to the 'Coclé culture' because the Sitio Conte site where he discovered about sixty stratified graves is located in Coclé province (see map on previous page).<sup>1</sup> Lothrop proposed that the 'Coclé culture' flourished for 190 years before the Spanish settlement of the lowlands of central Pacific Panama, i.e. AD 1330–1520.<sup>2</sup> A few years later Alden Mason excavated additional graves at Sitio Conte, which represented the most recent part of Lothrop's sequence.<sup>3</sup>

In the 1950s and 1960s a few radiocarbon dates and analyses of stratified refuse middens induced Lothrop himself and other archaeologists to propose that the Sitio Conte funerary artefacts were older than originally thought.<sup>4</sup> These and subsequent investigations<sup>5</sup> identified three styles of painted pottery ('La Mula', 'Aristide' and 'Tonosí'), which are more ancient than the 'Conte'- and 'Macaracas'-style vessels that predominate in the Sitio Conte graves, and two that are more recent ('Parita' and 'El Hatillo').<sup>6</sup> Thus the Sitio Conte artefacts represent the middle rather than the end of a 1,500-year-old continuum.

The spatial dimension of Lothrop's 'Coclé culture' has also been revised. Although we do not know much about manufacture and exchange or about regional variability within styles, artefacts decorated with the characteristic 'Coclé' iconography were surely made (and used daily) outside

Lothrop's original cultural epicentre.<sup>7</sup> In this part of the isthmus Spanish troops described small but well-populated territories in montane valleys, along major rivers and near estuaries. Each territory possessed its own 'language' and all interacted in both hostile and cooperative engagements. Political elites exchanged women.<sup>8</sup> This documentary information suggests that relationships among communities, material culture and imagery were so complex that archaeological data will never be able to reconstruct them satisfactorily.

A 'culture area' scheme with temporally and spatially immutable boundaries<sup>9</sup> now seems inappropriate.<sup>10</sup> This paper is not the place to discuss alternative schemes. Suffice the advancement of a proposal that three major 'interaction spheres' existed in Panama during the last 1,500 years of the Precolumbian period. Within each one, relations between larger and smaller settlements, 'cores' and 'peripheries' and purveyors and recipients of goods varied through time in response to poorly understood demographic and economic parameters.<sup>11</sup> The western and eastern spheres extended beyond Panama's current frontiers into Costa Rica and Colombia. Lothrop's 'Coclé culture' was not restricted to this province. Therefore, since the term 'Greater' or 'Gran Chiriquí' is now in general use,<sup>12</sup> it is appropriate to prefix the same adjectives to 'Coclé' and 'Darién' as well. Our paper refers, then, to the metal and ceramic components of the 'Gran Coclé Semiotic Tradition'.

### Recent finds of Gran Coclé metalwork

Since the spectacular finds made at Sitio Conte, most archaeological research projects in Gran Coclé have addressed subsistence economy, human-land relationships and cultures that ante-

## 8.1 Gold artefacts from

'Gran Coclé', Panama:

(a) El Caño, 1974–6

excavations, uncertain  
provenance;

(b–d) Miraflores, Tomb 2;

(e) El Cafetal;

(f) Las Huacas, Tomb 47;

(g) El Caño, Mound 3

(depth 2.9–3 m);

(h–i) El Caño, mound area,  
unprovenanced;

(j) Cerro Juan Díaz,

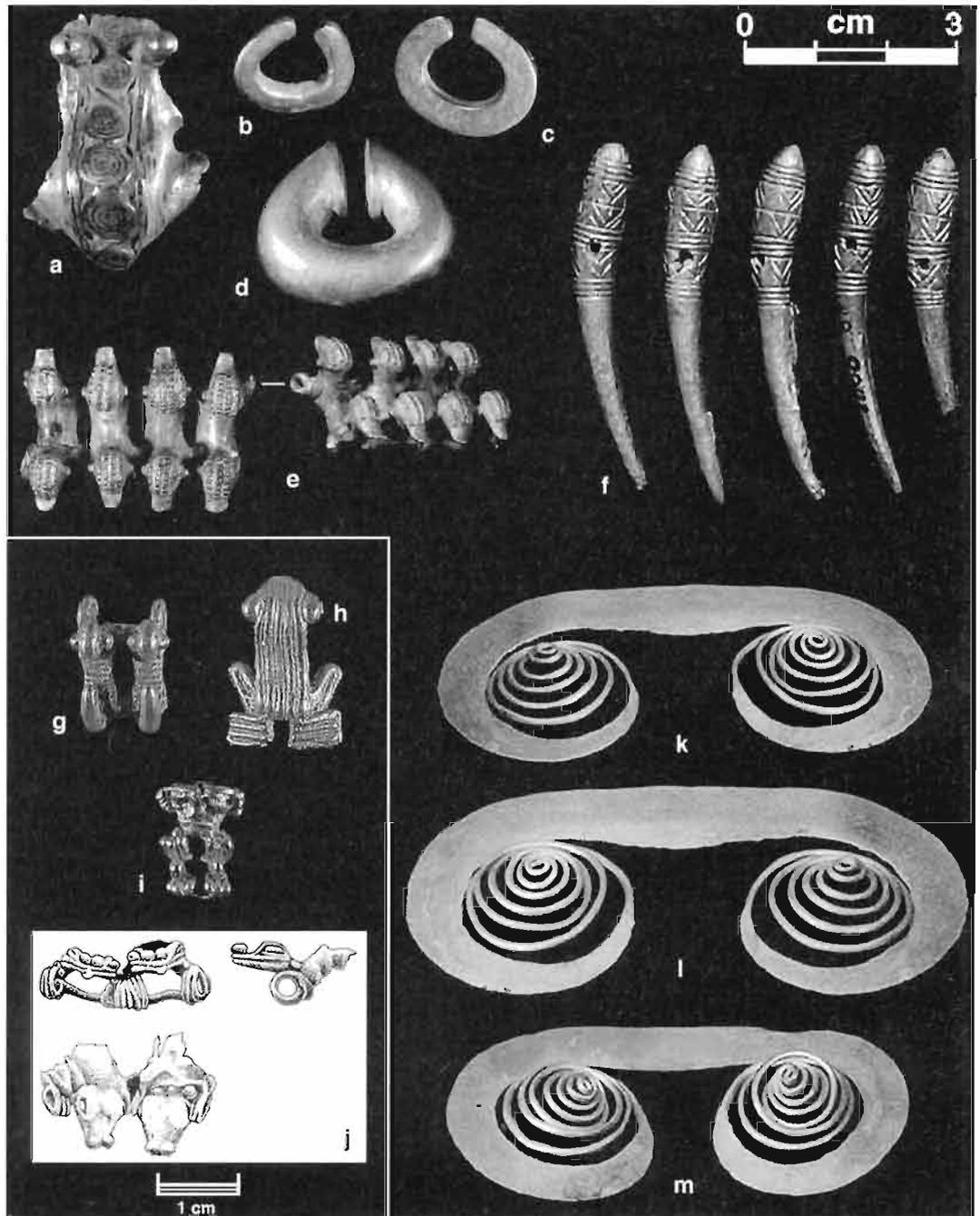
Operation 3, Feature

(F) 115; (k) Cerro Juan Díaz,

Operation 3, F. 2;

(l–m) Cerro Juan Díaz,

Operation 3, F. 1.

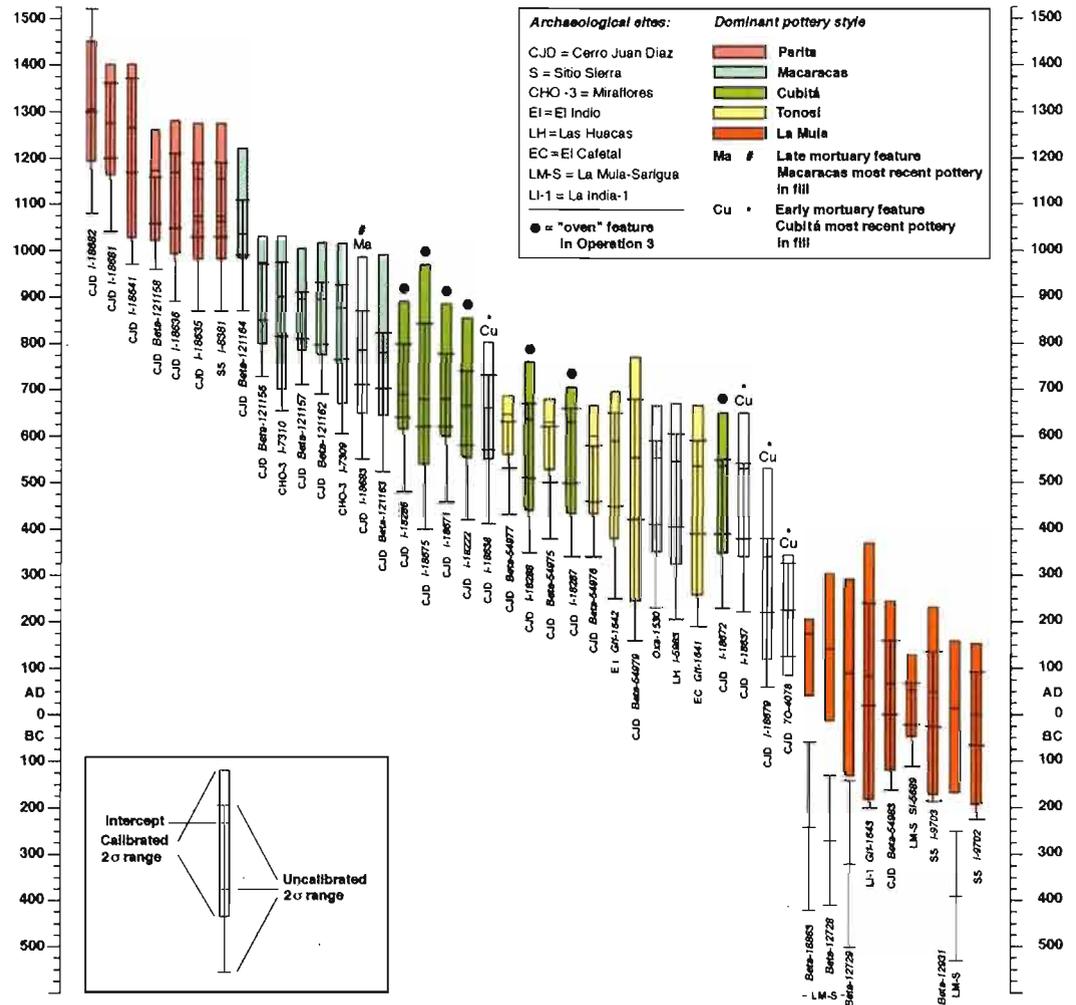


date the arrival of metallurgy from South America.<sup>13</sup> For this reason, archaeologists have added very few items to the inventory of 'contextualized' metal artefacts.<sup>14</sup> Some of these finds made after the Sitio Conte excavations in the 1930s and 1940s are important, however, because they represent the 'Initial Group', which in Bray's opinion is the earliest metallurgy in Lower Central America.<sup>15</sup> Other finds come from mortuary features approximately coeval with the Sitio Conte graves, but much less wealthy. And a few artefacts date to the beginning of the sixteenth century AD when the Spanish were colonizing the region.

The first goal of this paper is to reassess the nature and chronology of Initial Group metalwork. To assist us in this task, we shall summarize data from the Cerro Juan Díaz site (see map p. 153), where ongoing excavations have added useful details about gold-pottery associations and the radiometric dating of relevant pottery styles.<sup>16</sup>

The most recent syntheses of the Gran Coclé painted pottery sequence propose that the graves excavated by Lothrop and Mason represent the period AD 400/500–900/1000 in uncalibrated radiocarbon time.<sup>17</sup> Interestingly, though, only

Table 8.1 Radiocarbon dates associated with the major polychrome pottery styles of the Gran Coclé Semiotic Tradition.



two radiocarbon dates have been associated stratigraphically with the characteristic four-colour polychromes of the Conte and Macaracas styles, and these come not from sites in Gran Coclé but from Miraflores (CHO-3), a large cemetery on the Bayano river in 'Gran Darién', where imported Macaracas sherds were found in tomb fills.<sup>18</sup>

Our second goal, then, is to present new information from Cerro Juan Díaz about the dating of the Conte and Macaracas styles. This will help specialists refine the chronology of the many kinds of metalwork that Lothrop and Mason found in the Sitio Conte graves.

Our third goal is to recapitulate what we know about metallurgy at Spanish contact. Some of the relevant artefacts have already been reported, but mostly in poorly illustrated Panamanian sources.<sup>19</sup>

We are archaeologists, not specialists in metallurgy. For this reason, we avoid guesses about metal content and manufacturing techniques. The new material from Cerro Juan Díaz is available for study by technical experts.

### Initial Group metalwork

Contextualized finds of Initial Group artefacts indicate that they are synchronous with two painted pottery styles – Tonosí and Cubitá, whose manufacture we now believe spans the period cal (calibrated) AD 200/300–700 (Table 8.1).

The database is exasperating. Most of the relevant sites have not been completely published. Many lack field notes and catalogues. The relationship between artefact and archaeological context has often been mislaid or lost. An added complication is that Pre Columbian people during this time period were accustomed not only to 'killing' mortuary artefacts, but also to reusing the same grave feature. This means that even careful excavation by natural stratigraphy does not guarantee that artefacts intentionally buried with the dead can be distinguished from others present in grave fills and not necessarily synchronous with the mortuary deposits.

Descriptions and illustrations are available for

the Tonosí style,<sup>20</sup> but not for Cubitá, which Sánchez described on the basis of a refuse feature in Operation I at Cerro Juan Díaz.<sup>21</sup> Sánchez's detailed *licenciatura* thesis in Spanish has not been published. If readers find the following typological and excavation details irksome, we apologize, but they are necessary for being objective about the antiquity of metallurgy in Gran Coclé. We have cross-referenced our observations as fully as possible with published illustrations.

#### Southern Azuero sites

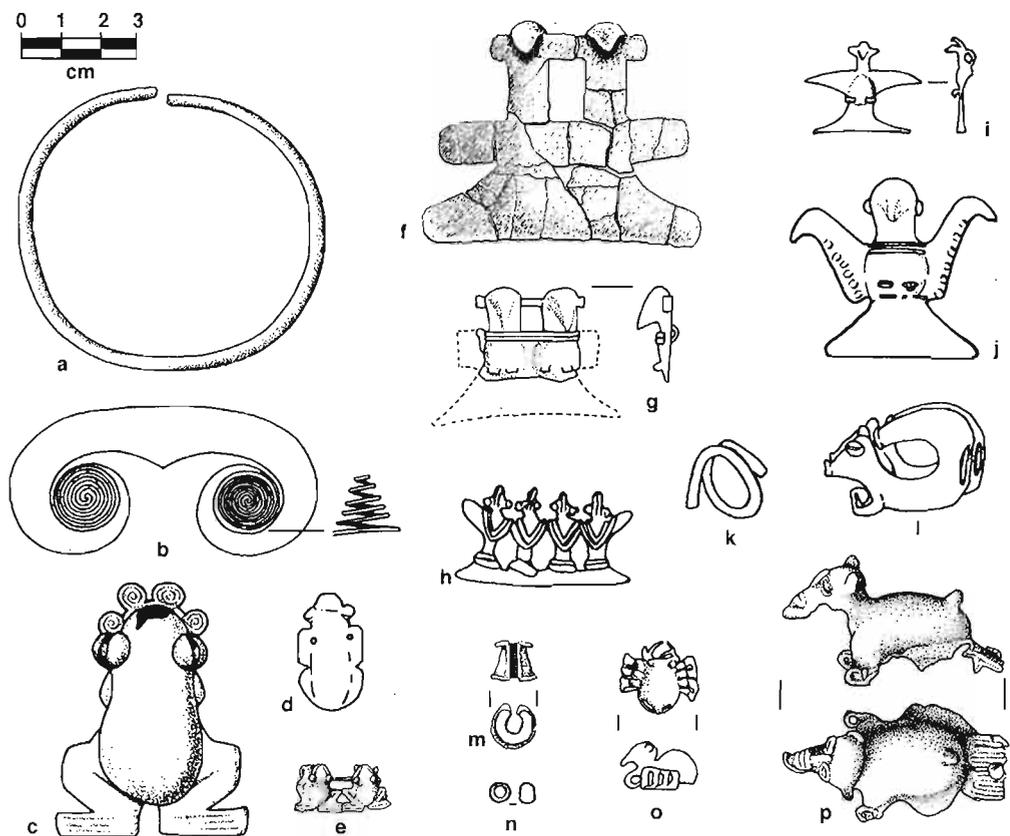
Ichon, who first described the Tonosí-style pottery, did not find any metal items in forty-three

were often found in the same feature. There was evidence for two sequential funerary episodes. We have gleaned the following metal-pottery associations from González (1972):

1. The plaque with the dorsal fold was associated with a Tonosí-style Vase Double.
2. The 'necklace' and the hammered plaque with spirals (Fig. 8.2b) were found around the neck and under the mandible of a primary flexed burial. A bird-effigy jar, a red plate and fragments of a 'Culebra Appliqué-Incisé' pedestalled chalice<sup>25</sup> were associated with these remains. The conjoined bicephalous creatures (Fig. 8.1e) and the twisted ring (Fig. 8.2k) were buried with a second

#### 8.2 Metal artefacts from the Azuero Peninsula and the site of Las Huacas, Veraguas:

- (a) El Indio, second mortuary phase;  
 (b) El Cafetal;  
 (c) El Indio, second mortuary phase;  
 (d) La India-I;  
 (e) El Indio, second mortuary phase;  
 (f) La India;  
 (g) El Cafetal;  
 (h) La India-I;  
 (i) El Indio, second mortuary phase;  
 (j) La India-I;  
 (k) El Cafetal;  
 (l) Las Huacas, Tomb 8;  
 (m) El Indio, second mortuary phase;  
 (n) Las Huacas, Tomb 19;  
 (o) El Cafetal;  
 (p) El Indio, second mortuary phase.



burials in the earlier of two cemeteries at El Indio, in one burial at La India-I and in another at Búcaro.<sup>22</sup> The eleven Tonosí-style funerary vessels belonged to his 'Vases Doubles' and 'La Bernardina à Bord Decoré' varieties.<sup>23</sup>

At neighbouring El Cafetal González (1972) recorded eight metal artefacts in five mortuary features (Figs 8.1e, 8.2b, g, k and o). He described the unillustrated items as (1) a gold 'necklace' (collar), (2) a plaque with a fold on the back for a string and (3) the head of a cast 'armadillo'.<sup>24</sup>

Stratigraphy at El Cafetal was complicated: primary flexed and secondary burials in packages

daily prepared skeleton, which formed part of the same mortuary unit. Between these two skeletons González found sherds of plain jars with lateral handles and an incense burner.<sup>26</sup>

3. The remaining metal pieces were associated with a complex group of interments, which included (a) a primary flexed skeleton, (b) a jumble of long bones, (c) an urn with jumbled bones and no crania and (d) an urn that contained a primary flexed burial. The cast gold spider (Fig. 8.2o) was found on top of a red plate buried with (b). The bicephalous bird (Fig. 8.2g) and the 'armadillo' head were found alongside (d). The

only decorated pottery vessel in this funerary group was a Culebra Appliqué-Incisé chalice.<sup>27</sup>

Mitchell and Heidenreich (1965) – members of the Archaeological Society of Panama (see note 1) – uncovered ‘urn’ and ‘open’ burials at La India-1. The latter comprised secondary ‘bundle’ and primary flexed skeletons. Some open burials had intruded upon urns. They report the following metal artefacts: (1) a double-animal *tumbaga* effigy inside an urn in which four Tonosí-style Vases Doubles had been placed, (2) a spiral nose-ring recovered on top of a legged *metate*,<sup>28</sup> (3) a frog-effigy pendant (Fig. 8.2d), (4) another effigy pendant depicting three curly-tailed animals and (5) a large double-headed bird effigy (Fig. 8.2f). In a letter to Bray Mitchell added to the above list: (6) fragments of a *tumbaga* sheet, (7) a second spiral nose-ring, (8) part of a bell-eyed creature, (9) a conical nose clip, (10) a monocephalous spread-eagled bird (Fig. 8.2j), (11) two *tumbaga* discs and (12) a cast pendant depicting four birds (Fig. 8.2h).<sup>29</sup> Mitchell informed Bray that items nos 3, 10, 11 and 12 were found inside a ‘La India Rouge’ urn.<sup>30</sup>

These metal-pottery associations at El Cafetal and La-India would be easier to evaluate if the ceramics had been adequately illustrated. Nevertheless, we can say with confidence that cast and hammered metal artefacts of Bray’s Initial Group were associated in mortuary features with Tonosí-style Vases Doubles, bowls with expanded and everted lips that carry a painted decoration (La Bernardina à Bord Decoré), pedestalled chalices of the Culebra Appliqué-Incisé type and red-painted vessels of Ichon’s ‘Infiernillo’ and La India Rouge types. Ichon assigned this group of vessels to his El Indio Phase, which he then believed spanned the period AD 200/250–550 (uncalibrated) with an ‘apogee’ at c. AD 400.<sup>31</sup>

Certain features of ceramic type distributions within the El Indio Phase led Ichon to propose that some of the El Cafetal graves were later than the ones he excavated in the early cemetery at El Indio. Sherd counts in stratified middens showed that the red-daubed Infiernillo type – present in the El Cafetal burials – appeared in the latter half of the El Indio Phase.<sup>32</sup> New data from Cerro Juan Díaz support Ichon’s hypothesis: some of the El Cafetal painted vessels<sup>33</sup> share motifs and shapes with the ‘Nance Rojo y Negro sobre Crema’ type, which Sánchez (1995) includes in the Cubitá style. El Cafetal, then, may be intermediate in time between the first El Indio cemetery, which lacked goldwork, and the early mortuary phase in Operation 3 at Cerro Juan Díaz (to be described shortly), which contained metal artefacts.

Unfortunately, none of the southern Azuero Peninsula sites provided radiometric dates derived from organic materials recovered within mortuary features. The two radiocarbon dates that Ichon associated stratigraphically with Tonosí-style pottery were run on charcoal fragments scattered through habitation refuse.<sup>34</sup> To complicate the issue, these middens were excavated by arbitrary layers. The El Cafetal sample dated to AD 390 ± 100 (Gif-1641) and the El Indio sample to AD 450 ± 100 (Gif-1642). These calibrate respectively to cal AD 260 [535] 665 and cal AD 380 [590] 695.<sup>35</sup> Although their intercepts are in reverse order to Ichon’s typological sequence, we shall see later that they overlap with dates from Cerro Juan Díaz strata that contained abundant Tonosí sherds.

### Las Huacas

Another site at which Initial Group metalwork has been reported is Las Huacas on the Gulf of Montijo where de Brizuela (n.d.) excavated about forty-six tombs in 1971–2. She recovered 140-odd ceramic vessels and 30 *metates*. Cut through bedrock to a maximum depth of 4.7 m, these features were often used more than once. De Brizuela left Panama before she could write up her fieldwork. It is apparent from her field diary, however, that she found fourteen metal objects in the following features:

**Tomb 8:** A cast figurine in the form of two curly-tailed conjoined animals (Fig. 8.2i) found inside a red-and-buff collared jar with two biomorphs modelled on opposite shoulders (Fig. 8.3h). This is a most unusual vessel whose chronology is unknown.

**Tomb 19:** Five overlays for small beads (cf. Fig. 8.2n). We believe that a trichrome jar with a rampant quadruped was found in this grave.<sup>36</sup> Its design is similar to that of a vessel from Tomb 27, described on the next page.

**Tomb 28:** Fragments of a double-headed ‘eagle’ found on top of a three-legged *metate*. This feature did not contain whole mortuary vessels. Some Tonosí sherds were found in the fill.

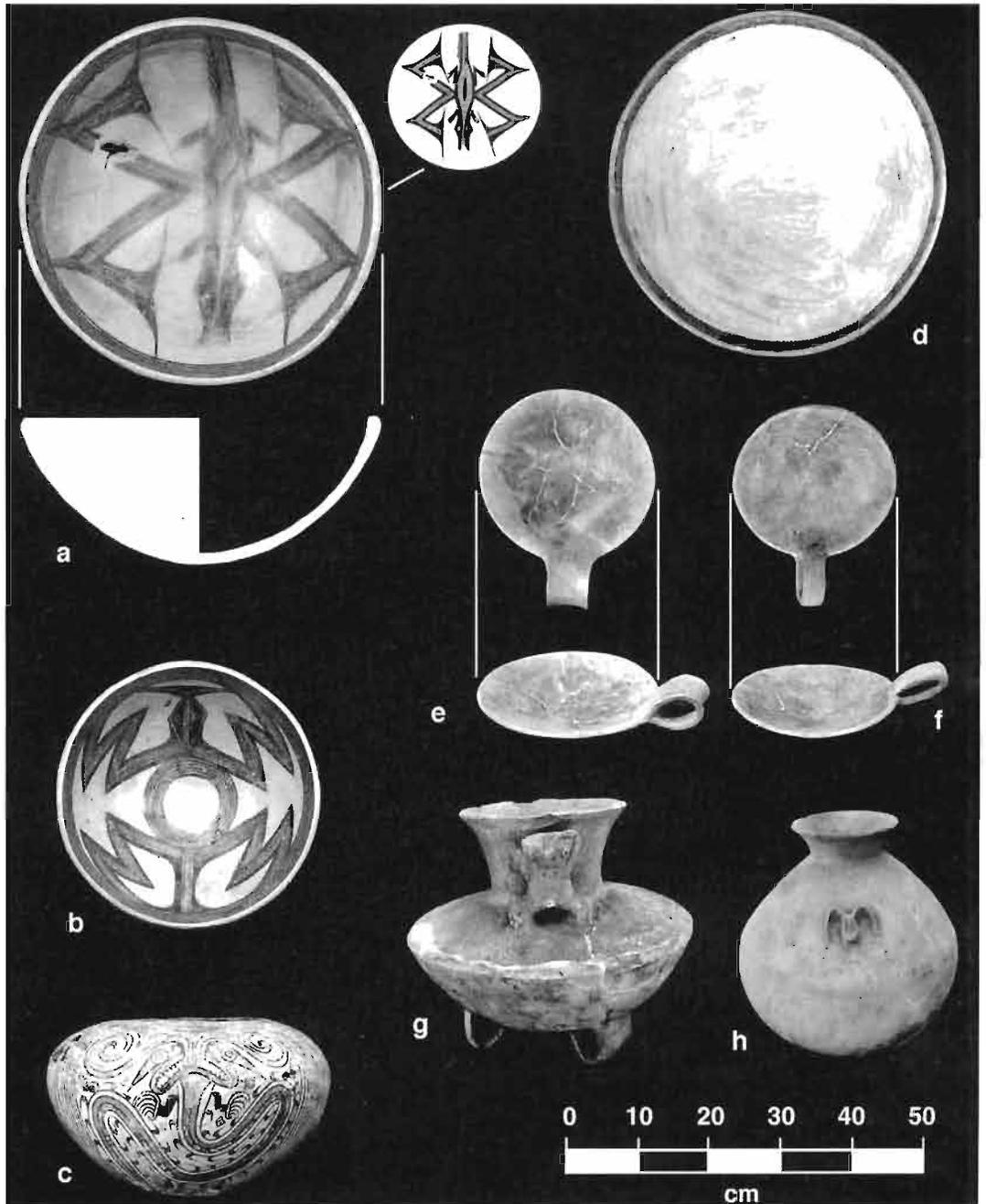
**Tomb 39:** Fragments of a very deteriorated *tumbaga* object also found on top of a *metate* and associated with a fragmented Tonosí-style vessel.

**Tomb 47:** (a) Five canine-shaped pendants – these have clay/charcoal cores underneath gold leaf overlays with incised decoration (Fig. 8.1f); (b) fragments of a *tumbaga* ‘eagle’ found on top of a *metate* embedded into the grave floor. The major ceramic offering in this feature was a Tonosí Vase Double with painted human figures.<sup>37</sup>

Only one radiocarbon date was obtained at Las Huacas: cal AD 325 [545] 670 (I-5983). It came

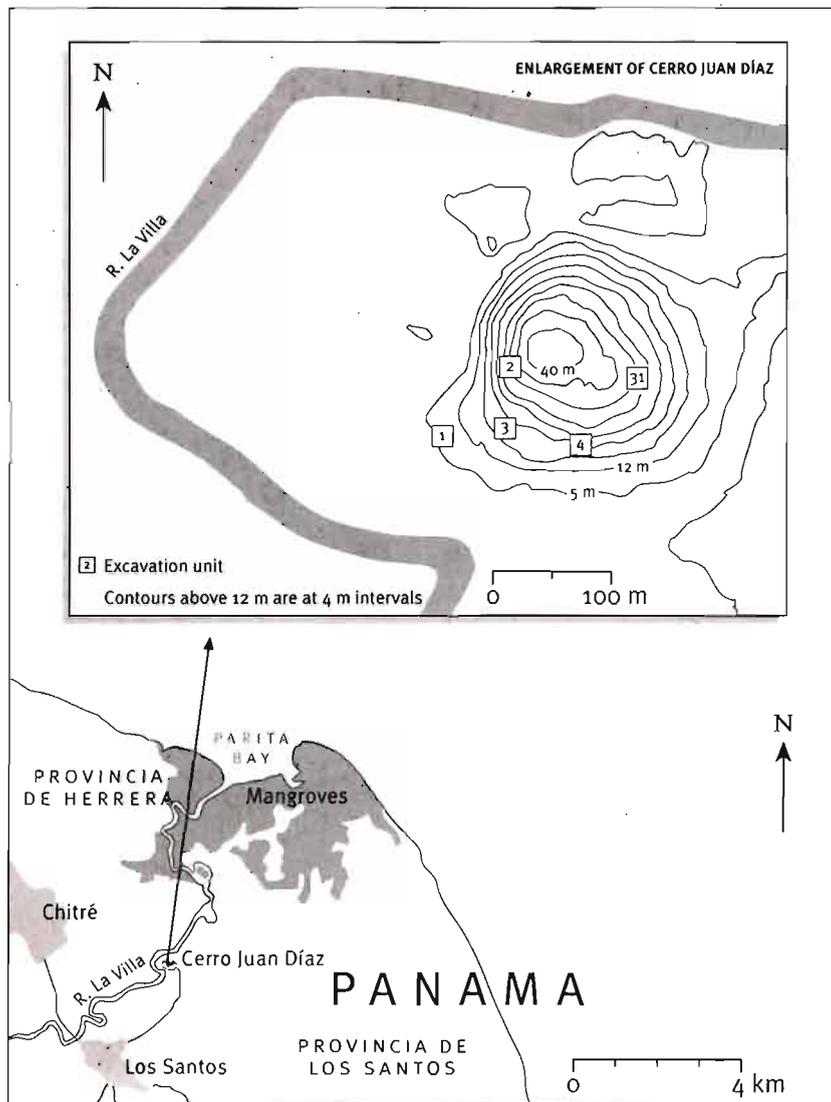
8.3 Mortuary ceramics from Operation 3 at Cerro Juan Díaz and Las Huacas:

- (a) Cerro Juan Díaz, F. 94, Ciruelo Black-on-Red bowl (Cubitá style) representing a stylized crocodilian;
- (b) Cerro Juan Díaz, F. 94, Ciruelo Black-on-Red plate representing a turtle;
- (c) Cerro Juan Díaz, F. 68, Macaracas (Pica-Pica) burial urn (with rim broken off and ground down);
- (d) Cerro Juan Díaz, F. 94, Guábilo Black-on-White bowl (Cubitá style);
- (e–f) Cerro Juan Díaz, F. 1, Espavé Red incense burners;
- (g) Las Huacas, Tomb 27, plain ware collared and bevelled jar with three strap feet and two Atlantean figures grasping the collar;
- (h) Las Huacas, Tomb 8, plain ware jar with two modelled biomorphs.



from Tomb 27, which did not contain metalwork. We are sure that this feature was used at least twice. It contained a plain collared jar with three strap feet, sharp median bevel and two human figures which hang on to the rim (Fig. 8.3g). This vessel is typologically analogous to Parita-style 'Atlantean' vessels.<sup>38</sup> The Parita style did not materialize until about cal AD 1000–1100.<sup>39</sup> In this feature de Brizuela also found a collared vessel with a saurian figure painted in red and outlined in black, which runs around the white-slipped shoulder (Fig. 8.9f). The background 'filler' motifs in black are called 'snail-shell scrolls' by Lothrop,

who considered them diagnostic of the earliest burials at Sitio Conte, e.g. Grave 32.<sup>40</sup> Similar vessels can be studied in Cooke and Labbé.<sup>41</sup> Labbé's inclusion of this material in a 'Montijo Transitional Style' accurately reflects the fact that it is stylistically intermediate between Cubitá and Conte. The radiocarbon chronology we propose in this paper suggests that these vessels were manufactured nearer cal AD 700 than cal AD 545. It is possible, then, that the Tomb 27 radiocarbon date represents older charcoal incorporated in the grave fill – a common occurrence in these kinds of features.



8.4 Maps of Cerro Juan Díaz showing (a) the location and (b) the contours of the site.

To sum up the situation at Las Huacas, it is rash to assume that the single and oft-quoted radiometric date is a sound temporal datum for all the metalwork at this site,<sup>42</sup> even though it is consistent with finds of Tonosí-style pottery in many of the graves. The beads, canine-shaped overlay pendants and cast bird figures are probably contemporary with Tonosí-style vessels (some of which bear zoomorphic designs akin to those illustrated in Labbé<sup>43</sup>) or with collared jars stylistically transitional between Cubitá and Conte. The antiquity of the cast conjoined animals (Fig. 8.21) remains uncertain.

#### *Rancho Sancho de la Isla*

Cooke and Bray (1985) include the three *tumbaga* chisels found in a shaft tomb at this Coclé site in the Initial Group of metalwork. This is because the five painted vessels illustrated by Dade (1960) clearly represent the transition from the Cubitá

into the Conte styles upon which we have just commented. This feature appears to overlap chronologically with Graves 31 and 32 at Sitio Conte.<sup>44</sup>

#### *Cerro Juan Díaz*

The sixth Gran Coclé site that has provided information about Initial Group metalwork is Cerro Juan Díaz. Since the results of these excavations, which began in 1992, are not yet available in English, we preface our comments on ceramic chronology and gold-pottery associations with a brief description of this site's geography and salient cultural features.<sup>45</sup>

Cerro Juan Díaz is a 40 m-high hill with steep, stone-strewn flanks and a flattish summit. It is located landward of the southern shore of Parita Bay (Fig. 8.4a–b) along both banks of the La Villa river that divides Herrera and Los Santos provinces. On the southern flank is another flat area. Excavations directed in 1998 by Desjardins (Université de Montréal, Québec) indicate that this platform was modified as a special mortuary zone. Two excavations – Operations 3 and 4 – have uncovered about 200 human skeletons on the platform, buried in many kinds of graves with several primary and secondary treatments (Fig. 8.5).

#### *Operation 3 burials*

At the western end of the platform a 12 × 20 m cut exposed features initially revealed by emptying out looter pits.<sup>46</sup> Prominent among these is a circular arrangement of stone-lined oval pits, which may have been used as ovens (Fig. 8.6). When these large features were constructed, they disturbed graves. After they were abandoned, people were buried on top of them. Therefore, they act as a convenient stratigraphic division between an early and a late group of burials in Operation 3.

The early graves that were disturbed by the 'ovens' are Features (F.) 1, 2, 16, 17, 21, 26, and 94 (Fig. 8.6). F.1, 17 and 26 are less than 1 m deep and have sub-rectangular floor plans. F.2, 16, 21 and 94 are narrow straight-walled pits, with a depth of 1.5–2 m. F.2 cut through F.1, pushing its contents to one side. Likewise, F.16 disturbed F.26. F.94 was used at least twice. These disturbances – and the extremely tight packing of skeletons into multiple graves F.2 and F.16 – mean that it is not always possible to relate specific funerary goods to a particular grave, burial event or skeleton.

F.1 contained two ceramic incense burners (Fig. 8.3e–f), twenty-four jaguar and puma canines perforated through the roots, 400 elongated *Spondy-*

8.5 Mortuary features in Operation 4 at Cerro Juan Diaz: (a) F. 44, Individual 55 (adult female, 40–45 years) – the white arrow points to the polychrome vessel illustrated in 8.9e; (b) F. 43, Individual 66 (unstudied) – the white arrow points to the polychrome vessel illustrated in 8.9d; (c) F. 51, which contained several superimposed layers of burials, some primary (flexed) and others in urns; (d1) F. 1, first level, containing an urn burial with the remains of an infant (0–2 months); (d2) F. 1, second and third levels, containing a flexed adult, six juvenile crania and the dispersed remains of a second adult.



8.6 Archaeological features found in Operation 3 at Cerro Juan Diaz, Panama.



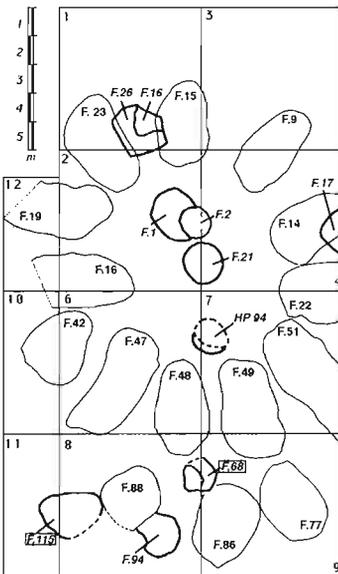
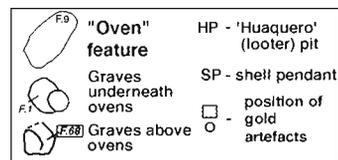
Feature 2



Feature 16 on top of F.26



Feature 115



Feature 1



Feature 15



Feature 94

8.7 Small mortuary artefacts from Operation 3 at Cerro Juan Díaz:

(a–b) ocelot (*Felis pardalis*) canines, F. 16;

(c) puma (*Felis concolor*) canine, F. 2;

(d) jaguar (*Panthera onca*) canine, F. 2;

(e–h) mother-of-pearl pendants, F. 94, lower level;

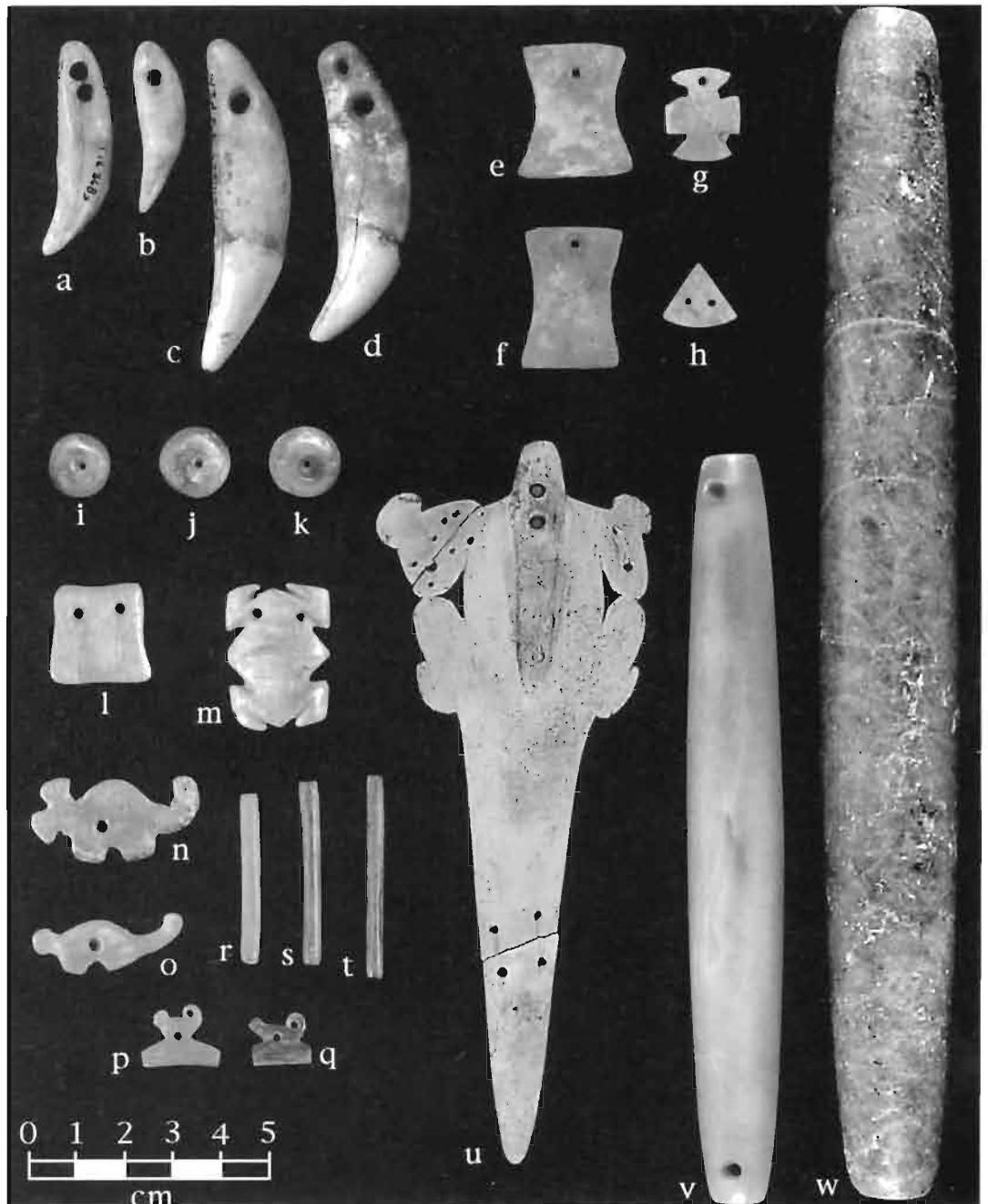
(i–k) polished agate beads, F. 2;

(l–t) *Spondylus* beads, F. 16;

(u) frog of marine gastropod shell, F. 94 (see Fig. 8.6);

(v) polished bar of agate with terminal perforations, F. 16;

(w) polished bar of a bluish stone with longitudinal perforation, F. 16.)

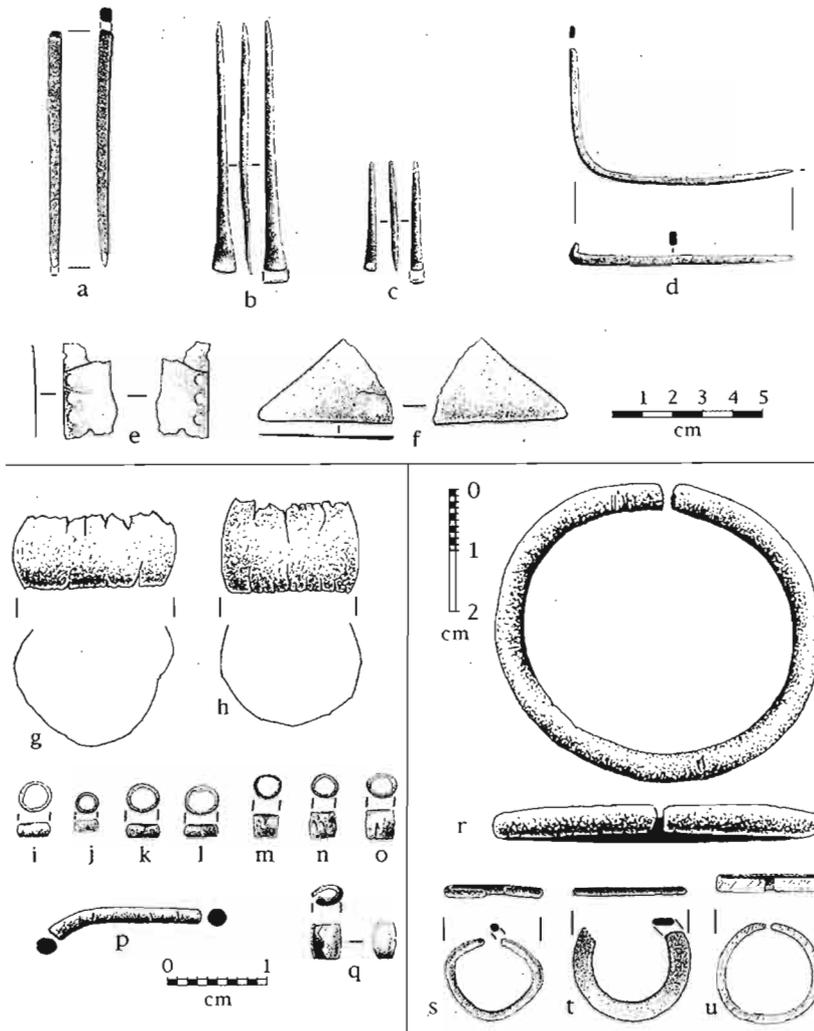


*lus* beads (cf. Fig. 8.7r–t), and two hammered gold plaques with double raised spirals (Fig. 8.11–m). The black rectangle in the relevant photograph in Fig. 8.6 shows where the plaques were found – alongside the *Spondylus* beads and the felid teeth. This suggests that teeth, shell and metal belonged to a composite artefact – a necklace, perhaps, or a garment with the above items sewed onto it.

F.2 contained thirteen packages of human skeletons, most of which were already disarticulated when they were wrapped and deposited in the grave – on three different occasions.<sup>47</sup> Burial

goods found within the feature consisted of (1) five polished agate beads (cf. Fig. 8.7i–k). (2) one puma and four jaguar canines (cf. Fig. 8.7c–d),<sup>48</sup> (3) a worked marine gastropod (*Calliostoma* sp.), (4) thirty-four elongated *Spondylus* beads (cf. Fig. 8.7r–t) and (5) a gold plaque with raised spirals (Fig. 8.1k). The gold artefact was found at the top of the shaft near its junction with F.1. It is possible therefore that it was dislodged from F.1 when F.2 was dug through it.

F.16 contained at least eighteen individuals deposited very tightly in the shaft in bundles. As in F.2, no whole pottery vessels were found in the



8.8 Metal artefacts from Cerro Juan Díaz:

(a) Operation 3, Level 4, 16S-11E; (b) Operation 3, surface shell feature; (c) Operation 3, underneath F. 68; (d) Operation 4, F. 43, Level 6, 10–15 cm; (e) Operation 3, F. 16, fill; (f) Operation 3, F. 16, fill; (g) Operation 4, F. 1, Level 5, 190–200 m; (h) Operation 4, F. 43, Level 4, 0–10 cm; (i) Operation 4, F. 51, bottom of Urn 26; (j) Operation 4, F. 44, Individual 55; (k) Operation 4, F. 51, between Urns 26 and 29; (l) Operation 4, F. 51, Individual 99; (m) Operation 4, F. 44, Level 40–50 cm; (n) Operation 4, F. 51, Individual 55; (o) Operation 4, F. 44, Individual 55, underneath polychrome vessel; (p) Operation 3, F. 16, fill; (q) Operation 3, F. 94, upper part of fill; (r) Operation 3, F. 16; (s) Operation 31, shell feature; (t) Operation 1B, F. 1; (u) Operation 31, Trench 1, 47.5 cm below datum.

grave. Mortuary artefacts consisted entirely of small objects made of marine shell (mostly *Spondylus*), pearls, stone, animal teeth and metal. Only one metal item was found intact: the ring illustrated in Fig. 8.8r. This was associated with a package that contained an adult and an infant, several *Spondylus* pendants shaped like mammals (cf. Fig. 8.7n), seventy-three perforated canine teeth (mostly puma and ocelot; cf. Fig. 8.8a–c)<sup>49</sup> and two polished stone bars (Fig. 8.7v–w). Seven other metal fragments were recovered from the clayey matrix of the tomb fill. It is feasible that these are fragments of artefacts originally buried in underlying F.26, which was all but emptied when F.16 cut into it. One is elongate and bent (Fig. 8.8p).<sup>50</sup> One thin and flat fragment exhibits small embossments (Fig. 8.8e), which suggest that it was broken off the wing of a bird effigy similar to the one found at La India-1 (Fig. 8.2j). Another thin fragment is triangular and has a raised edge (Fig. 8.8f). This could also be a piece of a bird-effigy tail. The remaining four fragments in F.16's fill are very thin gold overlays.

F.94 was used twice. In the bottom of the shaft were the scattered remains of an adult on the same level as ninety-odd pearl oyster pendants cut into geometric shapes (cf. Fig. 8.7e–h). Later, a primary flexed burial of a twenty- to twenty-five-year-old woman was put in the same shaft (Fig. 8.6).<sup>51</sup> She was placed on top of a broken legged *metate* and fragments of three ceramic bowls, which had been intentionally smashed before being deposited in the grave (Fig. 8.3a, b, d). A long-tailed shell anuran was placed alongside her (Fig. 8.7u). A single gold bead (Fig. 8.8q) was found in F.94's fill. Perhaps it was strung together with the mother-of-pearl ornaments.

F.16 and 94 were disturbed by 'ovens' F.23 and 88. Other field evidence suggests that F.1 and F.2 were also constructed before the 'ovens'.<sup>52</sup> The stones in the centres of the 'ovens' were laid into a 0.5 m-thick reddish clay lining. The spaces between the stones were filled with ash, earth, burnt clay and sherds (see F.15 in Fig. 8.6). Five charcoal dates are available for the clay linings of F.15, 19, 23, 42 and 49 (Table 8.1) (I-18222 and 27, I-18671, 72 and 75). Their combined 2 $\sigma$  range is cal AD 350–970 and the average of their intercepts: cal AD 647. We do not know whether the soft fills within the central stones represent use or abandonment debris or both. Two dates obtained from the fills of F. 15 (I-18286) and F. 19 (I-18288) have a 2 $\sigma$  range of AD 435–890 and intercepts of cal AD 635 and cal AD 690.

Sánchez has analysed the sherds found in the red clay linings of F.15 and 23. No Conte-

Macaracas- or Parita-style sherds were present. The most recent and predominant style is Cubitá, which represents 62% of painted sherds in F.15 and 74% in F. 23.<sup>53</sup> It is likely, then, that the construction of the 'ovens' coincided at *c. cal AD 650* with the apogee of the Cubitá style.

Only five complete ceramic vessels were recovered in the graves stratified underneath the 'ovens'.<sup>54</sup> The two incense burners from F.1 are similar in shape to those recorded by Ichon and González at El Indio and El Cafetal.<sup>55</sup> This kind of burner with the ribbon handle was not reported at Sitio Conte where round or 'fish-tail' handles and nubbin feet prevailed.<sup>56</sup> Two of the plates from F. 94 belong to the 'Ciruelo Black-on-Red' type and one to the 'Guábilo Black-on-Cream' type, which are synchronous with Cubitá-style trichromes.<sup>57</sup>

Charcoal flecks from the fill material that enclosed the packages of bones in F.16 dated to *cal AD 120 [340] 530 (I-18679)*. Larger chunks of wood charcoal found around the upper skeleton in F.94 – the one that was associated with the painted plates described above – dated to *cal AD 550 [660] 800 (I-18638)*. A similar sample recovered at the level of the disturbed burial in F.94 returned *cal AD 340 [530] 650 (18637)*.

To sum up, funerary ceramics and sherd distributions in fills suggest that the sub-'oven' grave features in Operation 3 were deposited when the Cubitá style was in vogue. They probably do not antedate the 'ovens' by very long (some of the charcoal samples could have derived from soils used to fill the tombs).<sup>58</sup> We now turn to two stratified refuse deposits elsewhere on the site in which Cubitá and Tonosí sherds were the dominant painted categories and in which no Conte or later materials were recovered.

#### *Sherd and metal distributions in Operations 1 and 2*

In 1992 two test pits (Operations 1 and 2) were excavated in stratified refuse. Sherd distributions and radiometric dates from two strata are relevant to the temporal relationship between the Tonosí and Cubitá styles and therefore to the antiquity of Initial Group metalwork. These are:

1. Macrostratum C in Operation 2: a 0.5 m–1 m thick layer of clayey burnt soil that runs circumferentially around the summit of the hill. In one 1 × 1 m section of Operation 2, this unit was divisible into an upper and lower member by a layer of ash.
2. F.1 of Operation 1: a shallow (0.2 m deep) refuse dump near the La Villa river, which was deposited over house features including post-holes and clay floors. A broken flat metal ring –

probably for the nose – was found in this feature (Fig. 8.8t).

In Macrostratum C the lower member contained 78% Tonosí sherds, 18% Aristide, 3% Cubitá and 1% others in a sample of 188. In the upper member, the proportions were: Tonosí 48%, Aristide 27%, Cubitá 23%, and others 3% (*n*=181). In F.1 of Operation 1 the situation was reversed, with Cubitá dominant (87% of a sample of 143), Tonosí 8%, Aristide 2%, and others 3%. This sequence demonstrates that the Cubitá style gradually replaces Tonosí.<sup>59</sup> Some additional details are relevant to our discussion of gold-pottery associations: (1) no sherds of the 'Nance Red-and-Black on Cream' or Ciruelo Black-on-Red types of the Cubitá style were found in Macrostratum C, and (2) 93% of Tonosí sherds in both the lower and upper members of Macrostratum C were Vases Doubles and 2%, La Bernardina à Bord Decoré. We commented earlier that the majority of metal items associated with Tonosí-style pottery in graves at El Cafetal, La India-1 and Las Huacas were associated with Vases Doubles.

Two charcoal dates were recovered in Macrostratum C in Operation 2 (lower member): *cal AD 435 [660] 635 (Beta-54976)* and *cal AD 530 [630] 680 (Beta-54975)*. Charcoal from the same Macrostratum elsewhere around the hill returned: *cal AD 560 [645] 685 (Beta-54977)* and *cal AD 245 [555] 770 (Beta-54979)*. The average of the intercepts of these four dates is *cal AD 623*. The average of the intercepts of the two dates associated in the Tonosí valley with Tonosí-style pottery is *cal AD 563 (Gif-1641, 42)*. If we ignore results with a standard deviation of >80, the 2σ range of charcoal samples associated with abundant Tonosí pottery in refuse lenses is *cal AD 380–685*.

The fact that no charcoal samples have been recovered in mortuary features with Tonosí vessels warns us against exaggerating the precision of the above group of dates. At Cerro Juan Díaz the presence of a few Cubitá sherds in the lower member of Macrostratum C could indicate that this layer was laid down synchronously with the 'oven' features and the early burial episode in Operation 3 and therefore that it represents an intentional fill that incorporated older cultural deposits. Even so, we have strong reasons to doubt the earlier contentions of the senior author<sup>60</sup> that the Tonosí style materialized as early as the period *cal 350 BC–cal AD 50* and that, inferentially, metallurgy was correspondingly ancient in Gran Coclé. We do not think that the Tonosí style developed until *cal AD 200–300*.

This revised opinion receives indirect support

from a suite of date estimates for the La Mula pottery style, which has been isolated stratigraphically at Sitio Sierra and La Mula-Sarigua.<sup>61</sup> The characteristic La Mula vessel type is a large sub-globular urn with cream or buff slip and a tall out-flaring collar, which is decorated with groups of vertical black lines running from rim to neck.<sup>62</sup> At La Mula-Sarigua this pottery was found in features whose four uncalibrated shell dates have a range of 530–60 BC.<sup>63</sup> When these dates are calibrated, however, the  $2\sigma$  range moves up to cal 160 BC–AD 310 (Beta-12728, 12729, 12931, I-8863) with an average intercept value of cal AD 105. This last estimate accords with four charcoal dates associated with the La Mula style and coeval red-painted wares. Two from Sitio Sierra came from refuse lenses associated with a circular structure: cal 170 BC [AD 50] AD 115 (I-9703) and cal 190 BC [AD 1] AD 155 (I-9702). One from La Mula-Sarigua returned cal 45 BC [AD 50] AD 130 (SI-5689) and another from La India-I cal 180 BC [AD 85] AD 370 (Gif-1643). The combined  $2\sigma$  range of the three dates with standard deviations of  $\leq 80$  is cal 190 BC–AD 230 and their intercept average cal AD 35. We infer from these data that the La Mula style materialized between about cal 200 BC and cal AD 200 with an apogee in the first century cal AD.

At least two La Mula style vessels were found by de Brizuela at Las Huacas, but we have not been able to identify their provenance.

#### Four-colour polychromy and the burgeoning of metalwork

Taking stock of Initial Group metalwork in Gran Coclé, we can reasonably infer that the following artefacts were being made between about cal AD 200/300 and 700, before the Sitio Conte burials were deposited: beads; incised and plain gold leaf overlays; cast figurines of (a) eagle-like birds with one or two heads, (b) frog-like creatures, (c) a spider, (d) an 'armadillo' and (e) the El Cafetal conjoined and crested animals (whatever these may be);<sup>64</sup> small hammered discs; hammered plaques with divergent raised spirals; circular, twisted and possibly spiral nose-rings; nose clips; and, perhaps, chisels.

The inventory is depauperate and mortuary artefacts are sparse. Where proper field records exist, no more than five items have been found in a single funerary feature.

When we turn the clock forward to Sitio Conte, the situation is radically different. Although we heed Briggs's observations that gold is not the only or even the primary correlate of rank and

status at this site,<sup>65</sup> the record states quite clearly that some folks were buried with socially meaningful quantities of gold and with artefacts whose size and weight dwarf the Initial Group objects just summarized.

That this change occurred at the *beginning* of the Sitio Conte grave sequence is evidenced by Grave 32, in which six bodies represented three burial episodes. Lothrop remarked that in this grave 'most of the objects ... whether of bone, ivory, metal or clay, differ markedly in style from other finds at the Sitio Conte'.<sup>66</sup> All the illustrated tri- and polychrome pottery is clearly Conte in style.<sup>67</sup> Some vessels, however, exhibit the snail-shell scroll, which, as we have already remarked, is a stylistic link with Labbé's 'Montijo Transitional Style' found at such sites as Rancho Sancho de la Isla, Las Huacas and Cerro Juan Díaz. A linkage with earlier times is also provided by the human effigy found in Grave 32's shaft<sup>68</sup> – the only vessel from Sitio Conte that clearly belongs to Sánchez's Cubitá black-and-red-on-cream group – and also by the black-on-red plate,<sup>69</sup> which conforms with the decorative criteria of the Ciruelo Black-on-Red type already discussed.

Sitio Conte's Grave 32 contained: three animal figurine pendants; one human figurine pendant; one animal figurine; one bar; 7,116 beads; a three-and-a-half-yard (3.2 m) string of tiny beads; three bells; four chisels; eight cuffs, some of these paired; seventeen embossed discs with zoomorphic designs; forty-one whole and six fragmentary small discs; one ear plug; four ear-spools; one head crest; two nose clips; two nose-rings; one nose pendant; twenty-seven overlays; two overlays for the tips of nose-rings; one plaque; two rings; twenty strips; eleven triangles; and three whistles (one of these a crocodile figure).<sup>70</sup> Notable by their absence in the above list are the two best-represented metalwork forms in the meagre Initial Group inventory: hammered discs with raised spirals (cf. Fig. 8.1k–m) and 'eagle' bird pendants with open wings.<sup>71</sup>

Does this contrasting situation really point towards a sudden burgeoning of metalwork and a rapid increase in wealth differentiation about cal AD 700? Has this situation been exaggerated by sampling vagaries? A little of both, we think. A key site to understanding the increasing importance of metallurgy in Gran Coclé is Playa Venado,<sup>72</sup> whose splendid cast figurines are well known in the international art market. Some of these are assigned to the Initial Group by Bray<sup>73</sup> and most to the 'Openwork Group'.<sup>74</sup> We pointed out in note 14 that we believe that most, if not all, the published metalwork was associated with mor-

tuary vessels painted in the Cubitá or Conte styles (and intermediate forms). We hope at a later date to be able to identify particular metal-pottery associations, which are necessary for estimating objectively the antiquity and development of metallurgy at this important, but tragically mismanaged site.

Ironically, in spite of the size and typological importance of Lothrop's and Mason's grave samples from Sitio Conte, there are fewer radiometric dates available for their Conte- and Macaracas-style pottery than for the other subsequently defined styles. One temporal datum has been provided by two charcoal samples recovered on the floors of two rock-cut tombs at Miraflores (CHO-3) on the Bayano river: cal AD 700 [900] 1030 (I-73.10) and cal AD 670 [875] 1015 (I-7309). Three gold nose-rings (Fig. 8.1b-d) were found in the largest tomb (no. 2),<sup>75</sup> which provided the latter date.

The mostly red-painted mortuary vessels at Miraflores are strikingly different from contemporary ceramic grave lots from Gran Coclé.<sup>76</sup> In the grave fills Cooke and Jacinto Almendra found a handful of Macaracas polychrome sherds.<sup>77</sup> Their surface finish and paste type point to manufacture in the eastern Azuero Peninsula. Grave fill associations do not, of course, guarantee synchrony of charcoal and artefacts. But the possibility that these particular dates really do identify the time span of the Macaracas style receives support from excavations in Operations 3 and 4 at Cerro Juan Díaz, to which we now turn.

*The second mortuary phase at Cerro Juan Díaz*  
We pointed out earlier that the 'oven' features in Operation 3 at Cerro Juan Díaz provided a convenient stratigraphic hiatus for distinguishing between an early and a late group of burial features in this excavation unit. Many of the stratigraphic details of the second mortuary phase remained to be collated with excavation notes and artefact inventories. Some data on metal-pottery associations are at hand, however.

In the south-west corner of Operation 3, a sub-circular grave with about five individuals was identified intruding upon the edge of F. 88 (one of the 'ovens') (Fig. 8.6). Looters had damaged it so severely that some mortuary artefacts must have been damaged or removed. There were no whole pottery vessels in the feature, but the most recent polychrome sherds in the fill around the bodies are Macaracas. The grave was filled with a heterogeneous mixture of clays amid which a single dispersed charcoal sample dated to cal AD 650 [785] 985 (I-18683). Two cast-metal figurine pendants were recovered alongside one of the skeletons

amid a fibrous mass that included phytoliths from the tree family Moraceae. Since the Moraceae genus *Ficus* is frequently used in the Neotropics for making bark cloth, we presume that these remains belonged to such an artefact – for which Lothrop found ample evidence at Sitio Conte.<sup>78</sup> According to conservator Jacinto Almendra, one of the pendants was a conjoined animal figurine similar to the one from Las Huacas (Fig. 8.21).<sup>79</sup> Someone stole it from the Restoration Laboratory of the Anthropology Museum in Panama City before Almendra had begun to clean it! The other artefact represents one half of a very small pendant that depicts twin, conjoined crocodilians (Fig. 8.1j). Organic fibres adhering to this artefact were identified by Emilia Cortés (Metropolitan Museum of Art, New York) as strands of twisted cotton.

The only other metal artefact associated stratigraphically with the second burial phase in Operation 3 is a small chisel (Fig. 8.8c). This was recovered underneath a large Macaracas polychrome urn (Fig. 8.3c) decorated with the frontal version of the plumed crocodilian icon, which will figure prominently in later pages. Inside the urn we found the burnt remains of a baby.

Stratified above these and other burial features is a 0.3 m lens of habitation refuse in which the predominant polychrome style is Parita. Three charcoal fragments scattered throughout this matrix (I-18635, I-18636 and I-18641) have a combined 2σ range of cal AD 905–1400 and an intercept average of cal AD 980. The chisel illustrated in Fig. 8.8c was recovered in this stratum.

A few other gold items turned up in refuse lenses in Operation 3I excavated at the eastern edge of the summit of Cerro Juan Díaz. A ring with a round cross-section (Fig. 8.8s) was stratified within a small shell mound in which the predominant decorative style was Macaracas. A chisel-like artefact (Fig. 8.8a) and another ring with a rectangular cross-section (Fig. 8.8u) were found in refuse lenses that accumulated over the shell mound, in which the majority of painted sherds belong to the Parita style.

#### *Burials in Operation 4*

At the opposite end of the platform at Cerro Juan Díaz project archaeologists investigated a complex series of interlocking burial features.<sup>80</sup> The age-sex profiles of the skeletons and the continual reuse of features (Fig. 8.5c, d1, d2) suggest that we are dealing with a community cemetery. Several skeletons of very young infants have been found, whereas at Sitio Conte Lothrop reported only one 'baby' burial.<sup>81</sup> The dead are treated in



8.9 Macaracas-style vessels from Cerro Juan Díaz and a 'Montijo Transitional Style' jar from Las Huacas: (a) Cerro Juan Díaz, Operation 4, F. 4; (b) Cerro Juan Díaz, Operation 4, F. 51; (c) Cerro Juan Díaz, Operation 4, F. 48; (d) Cerro Juan Díaz, Operation 4, F. 43 (see Fig. 8.5b); (e) Cerro Juan Díaz, Operation 4, F. 44 (see Fig. 8.5a); (f) Las Huacas, Tomb 27.

many different ways and more than one interment mode is frequently evident in the same feature: e.g. primary flexed skeletons (Fig. 8.5a, b), urn burials (Fig. 8.5d1), multiple burials (Fig. 8.5d2), ossuaries with jumbled bones and intentional burials of detached crania with other skeletons (Fig. 8.5d2). Some features are shallow with a single skeleton and others are 1–4 m deep with several bodies (Fig. 8.5c).

To date, the only tri- and polychrome vessels that have been recorded in this mortuary zone represent the stage at which Conte designs are evolving into Macaracas, when one of the commonest and most distinctive icons was a running or standing crocodilian with plumes. The vessels illustrated in Fig. 8.9b, c and e, for example, have close parallels in Sitio Conte graves 5, 6, 24, 25 and 74.<sup>82</sup>

The plate illustrated in Fig. 8.9b was found in F.51,<sup>83</sup> for which three radiocarbon dates are

available. Carbonized (food?) residue adhered to sherds from red-painted urns dated to cal AD 800 [975] 1030 (Beta-121156) and cal AD 785 [895] 1005 (Beta-121157). Charcoal recovered alongside Individual 98 dated to cal AD 640 [780] 990 (Beta-121163). The small jar with the decorated rim (Fig. 8.9e) was recovered in F.44 associated with a charcoal date of cal AD 775 [895] 1015 (Beta-121162). The combined 2σ ranges, then, for F.44 and 51 in Operation 4 span cal AD 640–1030 while the average of the intercepts is cal AD 883. This is remarkably close to the average of the intercepts of the Miraflores tomb fills with the Macaracas sherds (cal AD 886).

A globular vessel, whose rim was removed before burial (Fig. 8.9a), represents the Cuipo variety of Macaracas polychrome.<sup>84</sup> The zoomorphic figure stands out in the pale slip colour highlighted by black. Significantly, we think, no Macaracas vessels with this *en negatif* treatment

of icons were found at Sitio Conte. A charcoal sample from the deep feature in which it was buried (F.4) predictably returned a slightly more recent date: cal AD 985 [1035] 1220 (Beta-121164).

A few small metal items were recovered in burials 43, 44 and 51 in Operation 4: a thin bent object (Fig. 8.8d), overlays (perhaps for subspherical ceramic beads, which are frequent at this site) (Fig. 8.8g, h)<sup>85</sup> and several beads (probably also overlays) (Fig. 8.8i–o). The maximum number of beads in a single context was eleven.

Very little metallurgy has been reported from other sites coeval with four-colour polychromes elsewhere in Gran Coclé since the Sitio Conte excavations. Ichon found four metal items in burials of the second mortuary phase at El Indio, which produced several vessels of the Joaquín variant of the Conte and Macaracas styles. A cast quadruped figurine pendant with human features (Fig. 8.2p) and a figurine pendant representing two frogs (Fig. 8.2e) were found in a burial urn. A nose clip (Fig. 8.2m) was found in Grave 7 along with two Joaquín polychrome pedestal plates.<sup>86</sup> A bracelet or nose-ring (Fig. 8.2a) turned up during general digging. A cast frog-effigy figurine (Fig. 8.2c) and a cast spread-eagled bird figurine pendant (Fig. 8.2i) were found by looters but are surely from this site and period. In addition to these illustrated pieces, Ichon records a *tumbaga* pendant and a small plaque.<sup>87</sup>

This paltry inventory of contextualized metallurgy during the period cal AD 700–1000 stands in stark contrast with the lavish late tombs at Sitio Conte. According to Briggs, Grave 74 (excavated by Mason) contained 3,496 beads; 188 ‘ear rods’; ninety-one stone and gold ‘ear rods’; forty-five gold appendages for ‘ear rods’; eighty-seven bells; twenty-nine ‘medallions’ (repoussé discs with geometric designs); seventeen chisels; thirteen plaques (repoussé discs with figurative designs); four cuffs; two pendants; twenty-three overlays for bone, resin and ivory objects; six wristlets or anklets; thirty miscellaneous overlays; four nose ornaments; two nose clips or ear-rings; one bar; and a copper bell.<sup>88</sup>

Grave 74’s metalwork inventory is similar in sheer quantity to that of Grave 32, which should be about 200 years older. But differences between them in icon and artefact popularity are probably significant chronologically and socially. Grave 32’s repoussé discs, for example, exhibit a greater variety of icons – a pair of spotted long-tongued quadrupeds, two pairs of seahorses, a felid face, an abstract human (?) face, a frog with legs shaped like pelicans and a toothed mouth,<sup>89</sup> and a

representation of the standing humanized crocodilian flanked by two laterally depicted brethren.<sup>90</sup> The last-named personage dominates the Grave 74 large repoussé disc assemblage.<sup>91</sup> Some of these grim saurians sport long ear rods. This feature suggests that they were of equivalent rank to the human occupants of this grave, who owned large numbers of these artefacts.

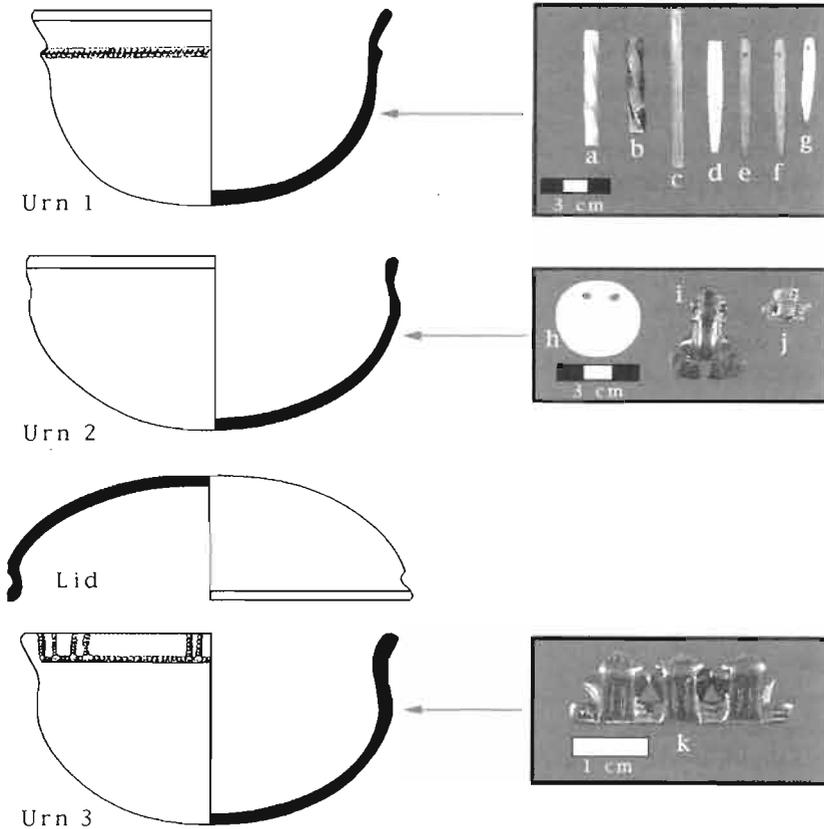
Metalwork, then, exhibits the same trend as painted pottery during the period cal AD 700–1000: the variety of icons diminishes as a humanized crocodilian image with plumed clothes and headdresses and belts that end in *alter egos* becomes ascendant. An enigma is why this particular icon should also prevail in burial grounds reserved for much poorer sectors of Gran Coclé society represented by the people buried in the late mortuary phase in Operations 3 and 4 at Cerro Juan Díaz and in the cemetery excavated by Lleras and Barillas at El Caño.<sup>92</sup> Perhaps the plumed crocodilian *per se* is relevant to social affiliation – tribe, clan, etc. – while sartorial detail – ear-spools, weapons, etc. – identifies rank or status on a real and supernatural plane.

### Contact-period metalwork

Panama was the first region in the New World where the Spanish encountered plentiful gold ornaments. Soldier Espinosa’s 1519 description of the mortuary accoutrements of *cacique* Antatará and two other principals in a house near Cerro Juan Díaz bears witness to the fact that mortuary practices recorded archaeologically at Sitio Conte continued until contact. Stripping off several layers of cordage and cloth to get to the desiccated bodies, Espinosa uncovered a golden casque, four or five necklaces, cuffs, large discs, a belt, bells and greaves.<sup>93</sup>

In 1973 earth-moving operations for a cane field at El Caño eliminated eight mounds and damaged two out of a total of twelve.<sup>94</sup> In one of the damaged mounds (no. 3), four burial urns contained European and Native American artefacts. In Urn 1 the bones of a single adult were associated with two twisted and three elongate glass beads (Fig. 8.10a–c), five elongate pendants of a hard blackish stone (Fig. 8.10d–f), about eight shell beads and pendants shaped like the stone ones (Fig. 8.10g) and the dorsal spine of a marine catfish (Ariidae: *Sciadeichthys dowii*).

Inside Urn 2 were the remains of an adolescent and a child, fragments of shell beads, a perforated gold disc (Fig. 8.10h), a cast frog-effigy pendant (Fig. 8.10i) and a miniature cast human effigy pendant (Fig. 8.10j).



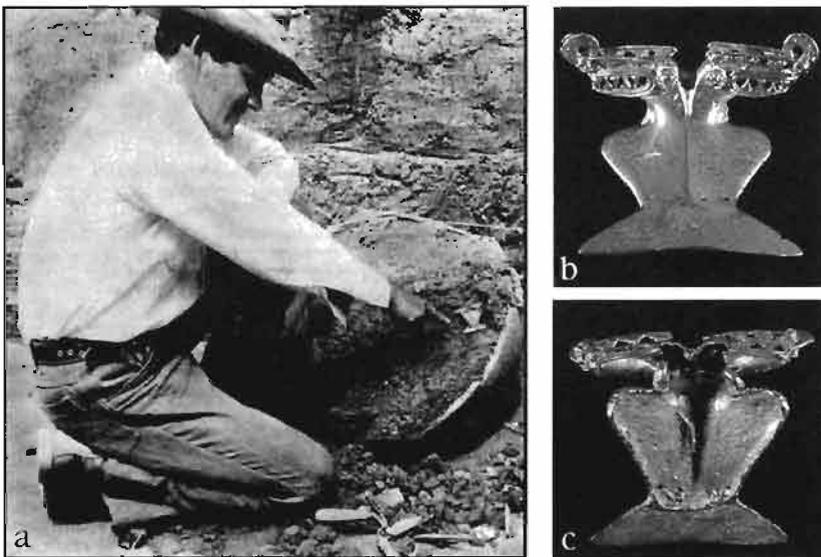
8.10 Burial urns from Mound 3 at El Caño, which contained small ornaments of European and Native American manufacture: (a–c) glass beads; (d–f) elongate pendants of an igneous stone; (g) elongate pendant of *Anadara grandis* shell; (h) gold disc with perforations; (i) gold frog; (j) gold human effigy; (k) three conjoined frogs.

Urn 3, whose skeletal remains were probably removed by the bulldozer, contained a cast effigy pendant of three conjoined frogs (Fig. 8.10k). It was capped by a shallow bowl. The fourth urn did not contain funerary remains.<sup>95</sup>

The ethnohistoric environment of these urn burials is intriguing. At the end of 1502 and beginning of 1503 Columbus founded an ephemeral settlement at the mouth of the Belén river on the windswept Caribbean coast, whence he sallied in search of a probably mythical 'king' (the Quibián). Spanish penetration of the Pacific slopes opposite Santa María de Belén began in 1515. Espinosa established a provisioning centre at Natá – a few kilometres from El Caño – in 1516. This town became the operational base for the conquest of Veragua to the west. It received its charter in 1522. Since it is unlikely that native people would have practised traditional funerary rites after Spanish priests were in residence at Natá, we assume that these urns were deposited between late 1502 and 1516–22.

Soon after these fortuitous finds in 1973 the National Institute of Culture conducted larger excavations in three altered mounds.<sup>96</sup> These were not directed by professionals. Although stratigraphy was very complex, strata were removed by horizontal 10–20 cm layers. Underneath the fill of Mound 2 the incisors, molars and partial post-cranial of a horse were found near twelve monochrome pots. (These were originally identified as *Equus caballus* by A.S. Rand [STRI, Panama]; the identification of the teeth was confirmed in 1999 by M. Jiménez.) Two undescribed *tumbaga* fragments were found in this excavation.

In Mound 3 nine funerary features were located in strata accumulated underneath the four urns salvaged by Cooke. One burial at 2.1–2.2 m depth was associated with a miniature human-effigy figurine (Fig. 8.1i).<sup>97</sup> One metre below this, a monochrome burial urn (Fig. 8.11a) contained a miniature gold *vasija* (ceramic pot) and an open-backed effigy of the crocodilian creature with two heads (Fig. 8.11b–c).<sup>98</sup> We could not find the urn to determine its typological affiliations. A small gold bead and a thin *tumbaga* plaque were associ-



8.11 El Caño, Mound 3: (a) Jacinto Almendra points to the bicephalous gold figurine illustrated in (b) and (c).

8.12 Bajo Chitra (CL-4), Veraguas: (a) hammered gold plate with circumferential embossments; (b) find spot of (a); (c) rim sherds of panelled red plates.

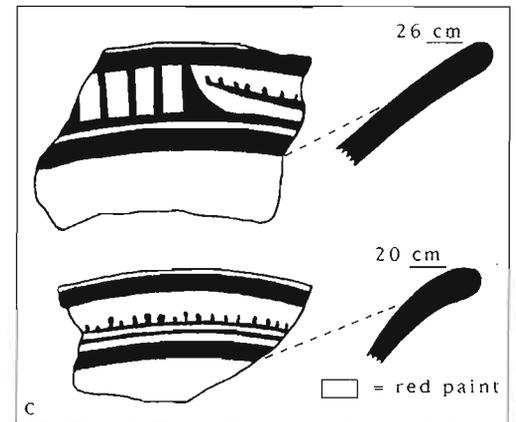
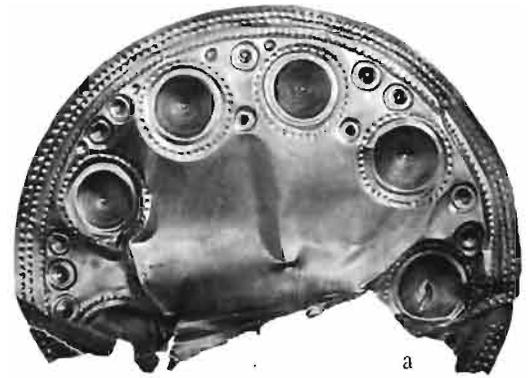
ated with an extended supine burial at unspecified depth. A small rectangular plaque<sup>99</sup> was found at 1.9–2.0 m below surface, a tiny cast effigy pendant shaped like two armadillos (Fig. 8.1g) at 2.9–3 m and a 5 cm-long chisel at 3.0–3.1 m.

In Mound 4, where Arosemena and González reported eight burials, a small gold plaque with a hole and a 4 × 0.4 cm chisel were found unassociated with burials (see note 92).

The co-occurrence of European and native artefacts in the salvaged urns and the horse remains should not be taken as evidence that the submound gold artefacts at El Caño are necessarily coeval with contact. We have not encountered field drawings or catalogues of artefact-burial associations for the 1974–6 excavations. The 1983–5 excavations directed by Lleras and Barillas in deposits stratified underneath Mound 4 unearthed several Macaracas style vessels (see note 92). A temperate inference, therefore, is that the El Caño double-headed crocodile dates somewhere between cal AD 850 and AD 1502 rather than to AD 1300–Conquest as proposed by Bray (1992). Iconographically, it exhibits parallels with a cast bell found in Grave 74 at Sitio Conte<sup>100</sup> and with the ‘Parita Assemblage’.<sup>101</sup> The ‘Parita Assemblage’ is a group of uncontextualized hammered plaques and cast figurines, which includes 30-odd artefacts discovered in a hoard at El Hatillo or Finca Calderón by a looter who ‘leased the site’ from the owner in 1962.<sup>102</sup> Mortuary pottery found at El Hatillo during the Smithsonian-National Geographic excavations of 1948 belongs to the Macaracas, Parita and El Hatillo styles.<sup>103</sup> Bray mentions that an ‘eagle in Veraguas style’ was found by Stirling and Willey who directed these excavations.<sup>104</sup> But it is not mentioned in Ladd’s (1964) monograph and we have never seen it.<sup>105</sup>

Several sites near Natá and El Caño have produced sherds of trichrome pedestal plates, which are decorated with designs painted in black or black-and-red on a white ground. These are arranged either in a circumferential panel just below the interior rim or are spread over the entire interior surface.<sup>106</sup> Some designs emphasize a stylized and rectilinear form of the humanized crocodilian icon.<sup>107</sup> A sherd of this kind of pottery was found at Belén (where Columbus founded his ill-fated settlement),<sup>108</sup> and a complete vessel was excavated in 1998 at Spanish Panamá La Vieja.<sup>109</sup> The stylized crocodilian is one of the design elements of the last of the Gran Coclé polychrome styles, El Hatillo.<sup>110</sup>

Plate sherds like those we have just described represent the only polychrome pottery found at CL-4 (Bajo Chitra), a nucleated village located in



the mountains of eastern Veraguas. Surveys and test excavations conducted in 1985 found no sign of earlier occupations. Cooke (1993) equates Bajo Chitra with the contact-period chieftain Esqueva or Esquegua, who defeated one of Espinosa’s captains in 1517. In 1987 he recovered a damaged embossed gold plaque in a vertical exposure in front of a private house (Fig. 8.12a, b).<sup>111</sup> Although it lay in a redeposited stratum, we presume it is synchronous with panelled plates (Fig. 8.12c). It also suggests that somewhere at this site there are burials of high-rank personages who resisted the Spanish – maybe even Esquegua himself!

This repoussé plaque was stolen from the Anthropology Museum on the night of the US invasion of Panama (19 December 1989).

## Conclusion

Many paradoxes surround the study of Native American metallurgy. With modern techniques it is possible to date metal pieces sitting in museums using charcoal in clay cores or fibres preserved by copper salts. Such radiometric sophistication gives a much-needed temporal context to this technology and its semiotic content, but it tells us nothing about its social dimension. This can only be reconstructed by the careful excavation of intact archaeological features. Museums all over the world are full of Precolumbian gold artefacts, but only a minute percentage of these was found in controlled excavations.

When the Harvard and Pennsylvania teams excavated at the famous Sitio Conte in the 1930s and 1940s, they found most of the grave features intact. Replication and re-analysis are essential features of archaeology as they are of any investigative endeavour. The context of Sitio Conte metalwork was recorded with enviable detail and precision by Lothrop (1937). But once studied, the collections were split up: some were sent back to the landowners and some were dispatched to other museums. Woe betide the researcher who wishes to re-study everything that came out of a particular feature at this important site.

Since the Sitio Conte excavations, few academic archaeological projects in Gran Coclé have concentrated on recovering material culture from mortuary sites synchronous with metalwork. In those instances where excavations have been undertaken at village-cum-cemetery sites these have generally focused on time periods that pre-date the degree of wealth differentiation that is evident at Sitio Conte. The record, though, would be much more complete were it not for illicit excavations. A perusal of items exhibited in foreign museums or at international exhibitions underlines the fact that looting and collecting continue unabated. Two very important sites, Playa Venado and El Hatillo (or Finca Calderón), were systematically exploited by people covering as archaeologists. They paid lip-service to the requisites of modern fieldwork, but kept for themselves the proceeds of sale abroad, cynically using the export opportunities provided by the existence of the US-administered Canal Zone. Recent confiscations of archaeological material by Panamanian Institute of Culture officials indicate that this cynicism is still rife. Our excavations at Cerro Juan Díaz have determined empirically that about 60% of the site has been damaged by looting.<sup>112</sup>

In spite of these sampling difficulties, our inventory of contextualized gold artefacts found

in Gran Coclé (Panama) since the Second World War demonstrates that the earliest-known metal artefacts are associated with a distinctive trichrome style of pottery (Tonosí). We strongly doubt that this style materialized as early as cal 350 BC–cal AD 50,<sup>113</sup> because a different and ancestral style (La Mula) was at its apogee about then. A more temperate estimation is cal AD 200/300–cal AD 500/600. Some aspects of pottery distribution suggest that the introduction of gold artefacts occurred during this period and not at the beginning, i.e. about cal AD 300–400. But the nature of the radiocarbon-date record makes this a weak inference, which requires substantiation.

The artefact inventory associated with Tonosí pottery and its stylistic successor, Cubitá (probably manufactured between cal AD 500/600 and 700) comprises cast figurine pendants shaped like birds and animals, solid and overlay beads, overlays on top of clay cores, rings, nose clips, small hammered discs and hammered plaques with divergent raised spirals. Finds of pendants of spread-eagled birds on top of legged *metates* point towards a symbolic relationship between these icons and agriculture, fertility or similar concepts. Several authors have remarked that the hammered plaques with spirals are very similar to uncontextualized examples found in the vicinity of San Pedro de Urabá in northern Colombia<sup>114</sup> and at Guácimo in Atlantic Costa Rica.<sup>115</sup>

The former region probably is the *fons et origo* of the Initial Group metallurgy. However, it is clear from the record of contextualized artefacts that, soon after the introduction of metallurgy, very close correspondences developed among the geometric and naturalistic icons, which are utilized on much of the metalwork from Lower Central America and also on Gran Coclé painted pottery. These are not limited to the humanized crocodilian with its plumes and belts. Frogs, turtles, curly-tailed creatures, crocodilians, double-headed birds, spread-eagled birds and double spirals figure prominently on the Tonosí and Cubitá styles of pottery and also on coeval artefacts made of *Spondylus* and pearl oyster (*Pinctada*) shell.<sup>116</sup> Many of these icons continue to be painted in different guises for the rest of the Precolumbian period. We do not believe that such close iconographic parallels among the different media used to display a symbolic system can be demonstrated for other culture areas in the 'Chibchan realm'. In other words, Gran Coclé was in some way intellectually nuclear.

We intentionally refrained from discussing Playa Venado because we do not have enough data on metal-pottery associations at this impor-

tant site. We will present some bona fide data on metal-pottery associations in a future publication. We exhort museum curators to verify whether cast pieces from Playa Venado and other important looted sites contain residues of clay cores whose charcoal could be AMS-dated.<sup>117</sup>

The four-colour polychromes of the Conte and Macaracas styles, which were found by Lothrop and Mason in the Sitio Conte graves with abundant and heterogeneous gold artefacts, do not seem to have materialized until cal AD 700 at the earliest. New radiocarbon dates for the Cubitá style (of which only one vessel was present in Sitio Conte graves) and for the Macaracas and later Parita styles suggest, in fact, that the graves excavated by these two researchers span the period cal AD 750–950. These dates, then, seem to signal diversification of artefact types, increasing size of individual pieces (especially embossed plaques) and much larger numbers of metal items in individual graves. Some people during this time period were able to amass and show off a lot of wealth. The ascendancy of a particular icon – a humanized crocodilian – is evident on both metalwork and painted pottery. This obviously has very interesting implications for the study of the relationship between imagery and social organization. We pointed out, on the one hand, that this personage is not restricted to rich folks' graves and, on the other hand, that some representations depict it with symbols of high social rank such as long ear rods.

Was Sitio Conte the burial ground of important people from a small 'chiefdom' like that of the contact-period chieftain Natá? Or was it the central necropolis of Gran Coclé, to which certain dignitaries from a number of socioculturally related territories were taken? As far as we know, only at the contiguous archaeological site of El Caño has evidence been found for some kind of ritual space in Gran Coclé – lines of columns with carved and plain statues and other monoliths.<sup>118</sup> So it could be true that the territories that the

archaeologists and ethnohistorians are wont to call 'chiefdoms' – Natá, Parita, Escoria and the like – were just groups of villages within the Gran Coclé macroterritory, sometimes in alliance with each other and sometimes at each others' throats.

Finds made by looters of spectacular gold figurines and embossed plaques at the El Hatillo or Finca Calderón site (the Parita Assemblage) suggest that here – as at Sitio Conte – the very influential and very wealthy were laid to rest, but only during the last six or seven centuries of the Pre-columbian era. Colonial documents suggest that chief Antatará, or París, who may well have resided here,<sup>119</sup> was, in regional terms, a particularly influential and respected person – a paramount chief or *Dux Bellorum*. In the context of the macroterritory hypothesis, did El Hatillo replace Sitio Conte as the top-rank necropolis for Gran Coclé (because its headmen became more influential than Sitio Conte's)? In the context of the alternative small chiefdom hypothesis, have the vagaries of archaeological sampling prevented us from finding a site synchronous with Sitio Conte in the neighbouring 'chiefdom' of Parita? These are interesting questions for future research projects.

Finds of metal artefacts at El Caño and, with less temporal precision, Bajo Chitra in the Veraguán cordillera, provide archaeological corroboration for Spanish soldiers' observations of contact-period metallurgy. Chitra lies on the other side of the cordillera from the Belén valley where Griggs has found good evidence for a large Native American population at and probably after contact.<sup>120</sup> It took the Spanish nearly forty years to establish themselves in this inhospitable and defensible part of Panama. We assumed that native goldwork was stifled in the Pacific lowlands by AD 1522. An interesting research project would be to determine whether and for how long Precolumbian traditions of figurative polychromy and metallurgy continued in areas that remained outside colonial military and political control.

## Notes

- 1 Lothrop 1937, 1942.
- 2 Lothrop 1942: 198.
- 3 Briggs 1989; Heame and Sharer 1992; Mason 1941, 1942.
- 4 Baudex 1963; Ladd 1957, 1964; Lothrop 1959; Willey and Stoddard 1954.
- 5 Cooke 1972; Hansell 1988; Ichon 1980; Isaza 1993; Sánchez 1995.
- 6 Cooke 1985; Labbé 1995.
- 7 Lothrop 1942: fig. 486.
- 8 Cooke 1993; Helms 1979; Linares 1977.
- 9 Cooke 1976b, 1984.
- 10 Bray 1984; Cooke 1998a; Cooke and Ranere 1992.
- 11 Cooke 1998a; Cooke and Sánchez 1998.
- 12 Haberland 1976, 1984.
- 13 Cooke 1984, 1998c; Cooke *et al.* 1996; Cooke and Ranere 1992; Piperno and Pearsall 1998; Ranere and Cooke 1995, 1996; Willey and McGimsey 1954.
- 14 'Contextualized': recovered in a stratum or feature that permits association with other artefacts and/or datable organic materials. During the 1950s and 1960s the local Archaeological Society of Panama conducted excavations at many metal-bearing sites, authorized by the director of the National Museum of Panama. Some of the mostly foreign members of this society were honest and did their best to record and publish their finds. Others were not: they did not mention the most complete metal objects in their reports and sold some to local and foreign collectors and museums (the double bird pendant from La India-1 [Fig. 8.2f] ended up in a German museum!). Gladys de Brizuela told Cooke [1998] that Neville Harte requested a painted vessel (de Brizuela 1972: fig. 12) as 'payment' for his assistance. This double standard is not only socially reprehensible, it has also been a tragedy for scholarship. For example, Archaeological Society members worked at El Hatillo or Finca Calderón (He-4) (Ladd 1964), arguably one of the principal villages of the contact-period chieftain Paris or Antatara (Cooke 1993). They found a remarkable collection of cast figurines (Biese 1967), which Bray (1992: 45) groups in the 'Parita Assemblage'. Their reports on this site only mention two metal plaques (Bull 1965). Another site that produced goldwork of remarkable quality is Playa Venado where Lothrop worked at the invitation of the Archaeological Society. Once again, finds were selectively published and most of the metalwork ended up in foreign museums. In 1996 Luis Alberto Sánchez studied the collections from Playa Venado at Harvard and Dumbarton Oaks. He determined that most of the painted pottery unearthed here belongs to the Cubitá and Conte styles. At a later date he will report on his findings in the light of the Cerro Juan Díaz excavations. We have excluded Playa Venado metalwork from this paper in the belief that unsubstantiated remarks would confuse an already complicated chrono-spatial situation.
- 15 Bray 1996; Cooke and Bray 1985; Ichon 1980: 176–8.
- 16 Cooke and Sánchez 1998; Cooke *et al.* 1998; Sánchez 1995.
- 17 Bray 1992; Isaza 1993; Labbé 1995; Sánchez 1995.
- 18 Cooke 1998a.
- 19 E.g. Cooke 1976c, 1993.
- 20 Ichon 1970, 1975, 1980.
- 21 This is not the place to discuss minutiae of ceramic classification. Suffice the comment that we are unsatisfied with current treatments and we are revising concepts and categories. The seven tri- and polychrome Gran Coclé 'styles' – La Mula, Tonosí, Cubitá, Conte, Macaracas, Parita and El Hatillo – were described on the basis of grave groups and/or sherd collections from stratified middens (Cooke 1972; Hansell 1988; Ichon 1980; Isaza 1993; Ladd 1964; Lothrop 1942; Sánchez 1995). The radiocarbon dates summarized in Table 8.1 confirm that they represent a progression. This contemplates intermediate stages that have not yet been isolated stratigraphically, such as the Zahina and Montevideo polychromes (Ichon 1980: 212–30), the 'Montijo Transitional Style' (Labbé 1995) and vessels from the latest graves at Sitio Conte, which represent the transition from Conte into Macaracas. Some regional variation is also apparent. Joaquín polychromes appear to be a variant of the Conte and Macaracas styles, which was manufactured in the southern half of the Azuero Peninsula (Ichon 1980: 230–68). The status of the bichrome Aristide 'style' is uncertain. It comprises a large number of vessel forms and decoration modes. Some of these are synchronous with the La Mula and Tonosí styles. At Cerro Juan Díaz, Tonosí-style sherds co-occur in Macrostratum C (see p. 164) with two types of black-on-red plates – Cocobó (Cooke 1985) and Jagua (cf. Lothrop 1942: fig. 470) – while Cubitá trichromes are associated in Feature 1 of Operation 1 with the Ciruelo type.
- 22 Briggs 1989: 24; Ichon 1980: 467–9.
- 23 Ichon 1975: figs 6, 8b, 10b, 10d, 11, 12c, 13, 15d; 1980: pls 16, 19b, 21a; Labbé 1995: figs 17, 22, 127.
- 24 González 1971: 165–7, 171; Ichon 1980: 176.
- 25 Cf. Ichon 1980: pl. 36a.
- 26 Cf. Ichon 1980: fig. 23e.
- 27 González 1971: fig. 14; cf. Ichon 1980: fig. 49 a, pl. 36 a.
- 28 Mitchell and Heidenreich (1965) referred this object to Lothrop 1937: fig. 40. This plate illustrates about forty metal items from Tolita Island, Esmeraldas, Ecuador. Eight of these are spiral nose-rings shaped like springs. If the La India-1 example really were like them, it would be unique in Panama. But perhaps it is the broken spiral of a hammered plaque like Fig. 8.11–m.
- 29 Cooke and Bray 1985: 41.
- 30 Cf. Ichon 1980: 88–92.
- 31 *Ibid.*: 200–203.
- 32 *Ibid.*: fig. 21.
- 33 *I.e.* Ichon 1980: fig. 3a and pl. 20b.
- 34 Ichon 1980: 200.
- 35 We report radiocarbon dates in calibrated form (using the convention: lower 2 $\sigma$  value [intercept] upper 2 $\sigma$  value, followed by the lab. no.). We do this for two reasons. Firstly, when marine-shell dates are calibrated, they approximate charcoal dates obtained for similar cultural materials. This particularly affects the chronological position of the La Mula painting style, whose dating is important for understanding when metallurgy appeared in Panama. Secondly, some Gran Coclé metalwork has been associated with European artefacts, which can be related to historical events. The calibrations were provided by Darden Hood and Ron Hatfield of Beta Analytic in November 1998, and are based on the Pretoria Calibration Procedure programme. Marine carbonates that were not corrected for have been adjusted by an assumed  $\delta^{13}\text{C}$  value of 0‰. A local marine reservoir effect was not calculated. Where  $\delta^{13}\text{C}$  was not determined empirically for terrestrial carbonates a value of –25.0 was assumed unless otherwise stated in the text. The calibrated 2 $\sigma$  ranges and intercepts of all dates have been arranged in Table 8.1 along with their uncalibrated 2 $\sigma$  ranges.
- 36 De Brizuela 1972: 134, fig. 14.
- 37 Cf. Ichon 1980: pl. 28; Labbé 1995: 29, fig. 17.
- 38 E.g. Ladd 1964: fig. 26 g, pl. 5a.
- 39 The following dates in the Appendix are associated stratigraphically with Parita polychromes and coeval red wares at Cerro Juan Díaz and Sitio Sierra: I-18635, I-18636, I-18681, I-18682, Beta-121158, I-8381. Taken as a group, their 2 $\sigma$  range is cal AD 985–1450 and the average of their intercepts: cal AD 1150.
- 40 Lothrop 1942: 74, fig. 132.
- 41 Cooke 1976d: pls 12, 13; Labbé 1995: 34, fig. 26.
- 42 Contra Bray 1992; Cooke and Bray 1985.
- 43 Labbé 1995: 31, fig. 22.
- 44 Cf. Dade 1960: fig. 19c (left) with Lothrop 1942: fig. 226g.
- 45 For additional details consult Cooke *et al.* 1998; Cooke and Sánchez 1998; and Sánchez 1995.
- 46 Cooke 1997.
- 47 Sánchez 1995.
- 48 Cooke 1998b: fig. 4.8.
- 49 *Ibid.*
- 50 Perhaps it is a fragment of a wire nose ornament (cf. Lothrop 1937: fig. 117e, from Sitio Conte grave 16).
- 51 Cooke and Piperno 1993: fig. 4.1.
- 52 Cooke *et al.* 1998; Sánchez 1995.
- 53 Cooke and Sánchez 1998: fig. 10.
- 54 The contents of F.17 and 21 were removed by the activities responsible for the ovens and/or by looters.
- 55 Ichon 1980: fig. 23e.
- 56 Tschopik 1942.
- 57 Sánchez 1995.
- 58 An attempt was made to AMS-date human bone fragments from F.1 and F.2. The results are equivocal. The only sample that had acceptable proportions of purified collagen (0.5%) (TO-4078) gave the only date that is consistent statistically with stratigraphy and artefact distribution. The Toronto AMS facility used a  $\delta^{13}\text{C}$  value of –25, which is unrealistic for human bone from a maize-consuming coastal population such as this. If a  $\delta^{13}\text{C}$  value of 19 is used, this sample calibrates to cal AD 135 [370] 435 and, if a  $\delta^{13}\text{C}$  value of 12 is preferred, to cal AD 85 [225] 345. Technically, we advocate the latter calibration because  $\delta^{13}\text{C} = 12$  approximates the values that Norr (1990) determined empirically for human bones from Parita Bay coastal agricultural sites of similar age. Nevertheless, since F.1's fill contained Ciruelo Black-on-Red sherds, we believe the human bone date overestimates the real antiquity of this feature.
- 59 Summarized in Cooke and Sánchez 1998: fig. 10.
- 60 Cooke 1985; Cooke and Bray 1985: table 2.
- 61 Hansell 1988; Isaza 1993.
- 62 Cooke 1976: pl. 14; Ichon 1980: fig. 13d; Isaza 1993: figs 17–21; Labbé 1995: 26, fig. 10.
- 63 Hansell 1988.
- 64 Lothrop (1937: fig. 174a) illustrates an unprovenanced piece from Sitio Conte, which depicts

four conjoined monocephalous animals with similar characteristics.

65 Briggs 1989, 1993.

66 Lothrop 1942: 289.

67 Ibid: figs 1\*, 16, 30a, 32\*, 33\*, 58a\*, 59, 64, 85, 88, 94d, 95, 97a, 106a\*, d, f, 109a\*, b, c, d\*, e\*, f, g, h, i\*, 277c, 311a-c, f\*, g, i, 377, 382a\* (asterisks indicate vessels with the snail-shell scroll).

68 Ibid: fig. 122.

69 Ibid: 227b.

70 Ibid: 283-9.

71 The only two 'eagle' figurine fragments from Sitio Conte were found digging trenches (Lothrop 1937: fig. 176).

72 Lothrop 1954.

73 Cooke and Bray 1985: fig. 15.

74 Bray 1992: fig. 3.7, top; Emmerich 1977: fig. 108 and Emmerich 1965; Helms 1979: fig. 12 b; Lothrop 1956: figs 5-7; Lothrop *et al.* 1957: no. 266; Museum of Primitive Art 1958: fig. 30; Wardwell 1969: 103.

75 Cooke 1998a: fig. 8.7.

76 Ibid: fig. 8.8.

77 Ibid: fig. 8.9.

78 Lothrop 1937: 108-9.

79 Almendra, pers. comm. to Cooke, 1995.

80 These excavations were directed by Koichi Udagawa and Claudia Espejel, assisted by Diana Carvajal, Eric Fournier and Benoit Desjardins.

81 Lothrop 1937: 24.

82 E.g. Lothrop 1942: figs 148, 192c, 225d, pl. 2b.

83 A plate very similar to the one in Fig. 8.9b was excavated by Neville Harte at Río de Jesús, Golfo de Montijo, Veraguas and sold to the Museum of the American Indian (Metropolitan Museum of Art 1973: 20, fig. 85). Another similar example in the British Museum is illustrated by Bushnell (1965: fig. 226).

84 Ladd 1964: 113-120; cf. Labbé 1995: 43, fig. 45.

85 Cf. Lothrop 1937: fig. 135a (Grave 26).

86 Cf. Ichon 1980: pl. 43a.

87 Ichon 1980: 470, 472.

88 Briggs 1989: 201-2. Some of these objects are illustrated in Hearne and Sharer 1992: 69-121.

89 Lothrop 1937: figs 84, 88, 96e, f, 99a, b.

90 Ibid: fig. 95.

91 Hearne and Sharer 1992: pls 1-6, 9.

92 At El Caño near Sitio Conte, to which we will refer shortly, Lleras and Barillas (1985) excavated sixteen graves. They contained but one metal item (an animal pendant which we have not been able to locate in the Institute of Culture). Four of the seven illustrated Macaracas vessels that have zoomorphic icons represent the anthropomorphic crocodilian.

93 Lothrop 1937: 46.

94 Lleras and Barillas 1985: 16.

95 Cooke 1976c.

96 Arosemena and González, n.d.

97 Arosemena and González (n.d.) record a second human figurine, which measured 4 x 4.5 cm, at an unspecified depth. We have not been able to find it. A cast frog effigy with spirals on the back (Fig. 8.1a) and a tiny frog effigy (Fig. 8.1h) were found in the mound area, but there are no field data for them.

98 See also Bray 1992: fig. 3.12; Cooke 1998b: fig.

4.5c.

99 Illustrated in Cooke and Bray 1985: fig. 18.

100 Hearne and Sharer 1992: pl. 43.

101 Cooke and Bray 1985: 44.

102 Biese 1967: 207; cf. Easby and Scott 1970: fig. 230; Galerie Mermoz 1986: item 36.

103 Ladd 1964: 243-55.

104 Bray 1992: 30.

105 According to the artefact inventory from El Hatillo (He-4) (Ladd 1964: 243-55), the following metal items were identified in these excavations: (1) Find 346 - nine gold beads associated with a Macaracas (Pica-Pica) vessel; (2) Find 361 - several pieces of copper without ceramic associations; (3) Find 381 - a few fragments of 'gold-plated copper' and 'gold disks with perforations'; (4) Find 358 - fragments of 'gold-plated copper'; (5) a small fragment of 'gilded copper'; and (6) Find 376 - two 'copper fragments'.

106 Cooke 1976d: figs 1-7; Cooke 1993: 19; Labbé 1995: 48, fig. 51.

107 Cf. Cooke 1985; Cooke 1998c: fig. 4.5e.

108 Griggs 1993: 53.

109 Jacinto Almendra, personal information.

110 Cf. Ladd 1964: figs 9a and 13.

111 Cf. Galerie Mermoz 1986: item 40.

112 Cooke 1997.

113 Cooke and Bray 1985

114 Falchetti 1995; Uribe 1988.

115 Stone and Balsler 1965: fig. 23a.

116 Sánchez and Cooke 1998.

117 Bray (1992: 42) illustrates an unprovenanced cast double-headed crocodile with spiral designs down the spinal chord. Charcoal from the casting core inside the body gave a radiocarbon date of 1540 BP ± 90 (OxA-1530), which calibrates at cal AD 350 [550] 665 with an assumed  $\delta^{13}C$  value of -25. This date places this item chronologically in the Initial Group.

118 Cooke 1976c; Torres and Velarde 1980.

119 Cooke 1993.

120 Griggs, pers. comm., 1998-9.

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## Acknowledgements

The authors wish to thank the following persons for helping us locate metal artefacts in various Panamanian institutions and for giving us unpublished details about them: Gladys de Brizuela, Jorge Schmidt, Arsenio González and Jacinto Almendra. J. Almendra and Aureliano Valencia were responsible for cleaning and restoring many of the illustrated artefacts. The fieldwork at Cerro Juan Díaz was funded by two Smithsonian Institution 'Scholarly Studies' grants, two National Geographic research grants, a National Geographic contingency grant and a personal subvention provided by Sr. Ronaldo Pérez. The Panamanian National Institute of Culture provides funds for security guards and a housekeeper. Other institutions and organizations who have provided welcome assistance are: Universidad Autónoma de Chiriquí, Centro Regional Universitario de Azuero, Instituto Enrico Fermi, Universidad de Costa Rica, London Institute of Archaeology, Université de Montréal and Arcillas de Chitré. In addition to the authors, the following persons worked as project archaeologists during the 1992–8 seasons: Adrián Badilla, Aguilaro Pérez, Ilean Isaza, Olman Solís, Claudia Espejel, Claudia Díaz, Diana Carvajal, Benoit Desjardins, Eric Fournier, Aline Magnoni, Isabel Anderton, Clara Bezanilla and John Griggs. Special thanks are due to our long-time field assistants Luís Barría C. and Luís Barría Q.

THE TRUSTEES OF THE BRITISH MUSEUM  
GRATEFULLY ACKNOWLEDGE GENEROUS  
ASSISTANCE TOWARDS THE PRODUCTION  
OF THIS BOOK FROM BP AMOCO.

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Published by British Museum Press  
A division of The British Museum Company Ltd  
46 Bloomsbury Street, London WC1B 3QQ

A catalogue record for this book is available  
from the British Library

ISBN 0 7141 2534 2

Designed by Harry Green  
Printed in Singapore

FRONTISPIECE

Hammered and embossed sheet *tumbaga* (gold-copper alloy) ornament with depletion-gilt surface, Manteño, Ecuador, AD 800–1500. The inset shows a false-colour SEM image of a magnified cross-section through the thin sheet of the object, which has been depletion gilt on both sides and the outer surface then burnished. The sheet (false blue) is 0.15 mm thick and the gilding (false yellow) is 10–15 microns thick. The stripes in the sheet metal indicate elongation of the grain structure produced by hammering.