The Prehistory of Polynesia

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The Marquesas

CHAPTER 5

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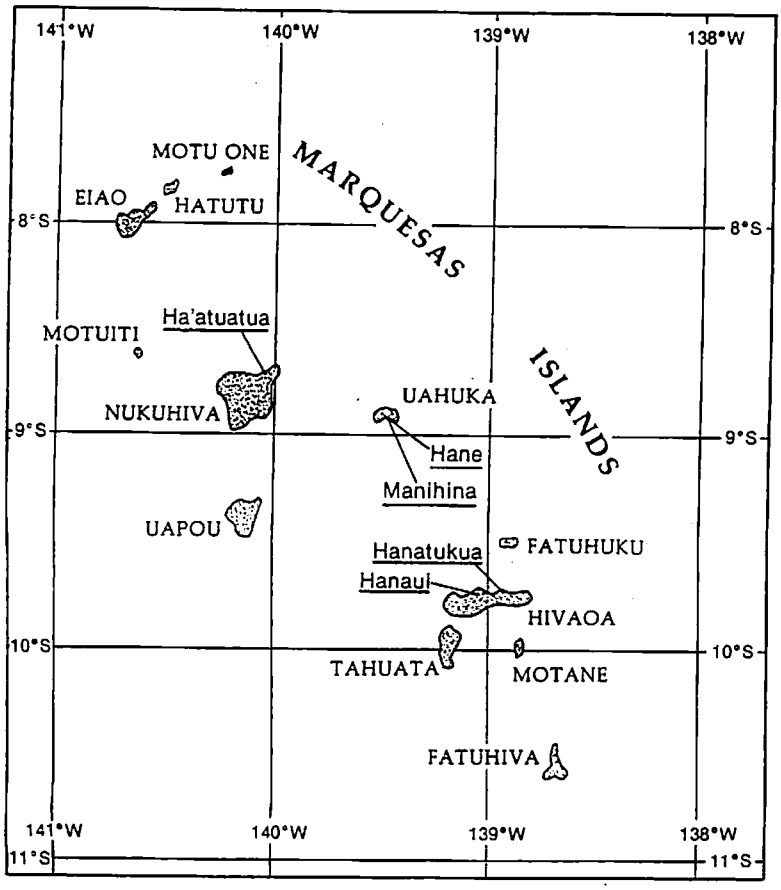
In the original version of this chapter (Sinoto 1970), I presented a hypothesis that proposed the Marquesas Islands as a dispersal center for the rest of East Polynesia. This proposal was based on the material culture sequence of the Hane site on Uahuka Island. Subsequently five monographs and articles relating to Marquesan prehistory have been published by other researchers (Kellum-Ottino 1971; Bellwood 1972; Skjölsvold 1972; Kirch 1973; and Pietrusewsky 1976), and I have reported on my own research on Mangareva, Henderson, and Pitcairn islands (Sinoto 1973, 1976). The recent important discovery of the Vaitootia site, Huahine, Society Islands (Sinoto 1974, 1977; Sinoto and McCoy 1975) further supported the hypothesis. The present chapter incorporates revisions and corrections derived from this more recent research, and includes explanatory descriptions of artifacts for readers who may not be familiar with Polynesian cultural material.

The Marquesas Archipelago in French Polynesia comprises ten islands and is located approximately 800 km northeast of Tahiti, between 8 and 10 degrees south latitude and 138 and 140 degrees west longitude (Fig. 5.1). The islands range in size from 0.8 to 200 km^2 and are divided into a northern and a southern group. The northern group includes the inhabited islands of Nukuhiva, Uahuka, and Uapou, and the southern group includes Hivaoa, Tahuata, and Fatuhiva. The islands are the peaks



5.1 Location of the major archaeological sites in the Marquesas Islands. Site names are underscored.

of a submarine volcano elevated about 1,200 m above sea level. There are no surrounding reefs. Heavy erosion has caused extremely rugged mountains and high cliffs and created some valleys that can be reached only from the sea. The lack of low coastal flatlands confined habitation and agriculture to valley floors, although the larger islands had some usable plateaus, especially in historic times. The archipelago is close to the equator and has persistent trade winds. The mean temperature at sea level is 22°C, with an annual range of only about 4 degrees. The humidity rarely goes below 80 percent. Rainfall ranges from 75 to 250 cm annually; intensive drought, however, sometimes continues for several months, severely affecting the important crop trees of coconuts and breadfruit (Freeman 1951).

The Spanish navigator Alvaro Mendana is credited with being the European discoverer of the southern group of the archipelago, in July 1595. He named the group Las Marquesas de Mendoca after the lady of the Viceroy of Peru. Today the shortened name, Marquesas, applies to the entire archipelago. Though not pleasant, the two-week encounter of the Spanish with the inhabitants of Tahuata and Fatuhiva islands resulted in the first ethnographic description of the Polynesian people (Buck 1953). It was nearly 200 years before the Marquesans saw Europeans again. Cook rediscovered the southern group in 1774, and an American named Joseph Ingraham found the northern group in 1791. Thus the impact of Western culture in the Marquesas dates from the nineteenth century. France annexed the islands in 1842. The pre-Euro-

pean population was estimated as 80,000, with only slight differences in physical and cultural aspects between the island groups. The introduced diseases, constant tribal warfare, and collapse of the old culture reduced the Marquesan population drastically —to a little over 2,000 by 1926. The 1970 census showed a slightly enlarged population of 5,400.

Cultural Sequence

The first framework of a Marquesan cultural history was established by Suggs in 1961. After the excavation of the Hane Dune site on Uahuka Island and the Ha'atuatua site on Nukuhiva, I had problems with some of Suggs's interpretations. The Nukuhiva and Uahuka materials are the principal sources I used in establishing a preliminary cultural sequence (Sinoto 1966), somewhat different from that of Suggs, for the northern Marquesas. In addition, my archaeological investigations on the northern coast of Hivaoa in the southern Marquesas in 1967–68 yielded materials that were comparable to those of the northern islands of Nukuhiva and Uahuka. These, together with Skjölsvold's (1972) results, Figueroa and Sanchez's (1965) materials and radiocarbon dates, and Smith's (1964) radiocarbon dates, have made it possible to establish a preliminary outline of the prehistoric cultural sequence for the southern Marquesas Islands. Despite the earlier postulations of occupational sequence for the Marquesas Islands (Handy 1925), it appears at the moment that the early—if not the first—settlers arrived in the northern group and then moved into the southern group. Both island groups have basically identical material cultures.

Phase I (Initial Settlement), A.D. *300–600*

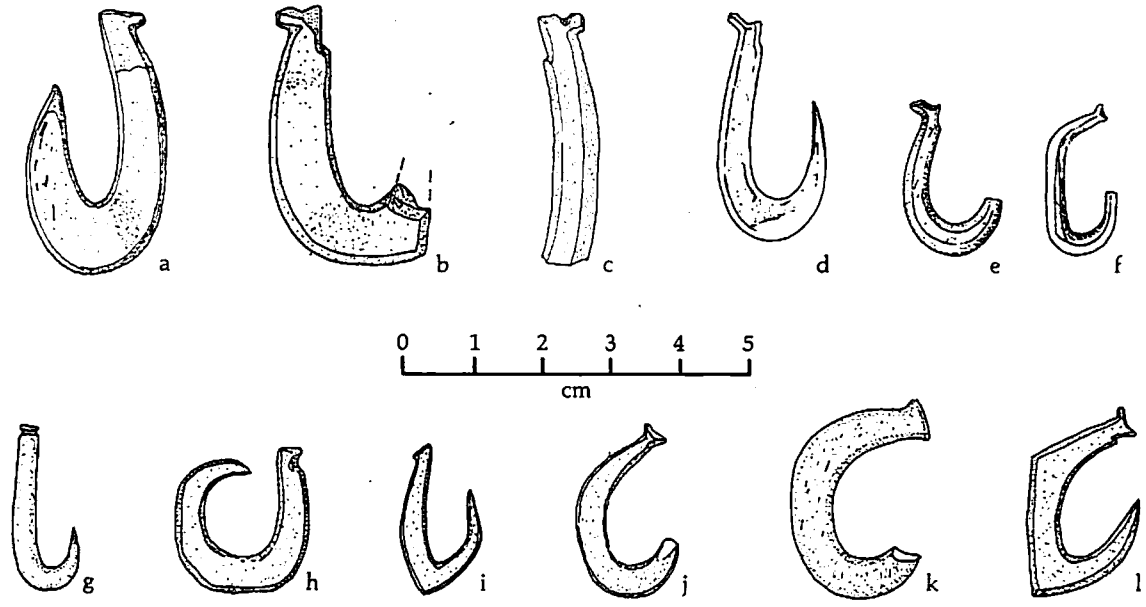
Sites representing phase I are located at Hane, Uahuka, and probably at Ha'atuatua, Nukuhiva, where pinpointing a precise position is difficult.

From the evidence we have at present, the northern Marquesas Islands were occupied initially by people who lived in the coastal areas. The earliest evidence of a habitation area in Hane showed rectangular house foundations with postholes. Some of the postholes had stone braces on the walls of the holes. No evidence has been found of oval thatched houses that had stone braces without holes (Suggs 1961). Later in this same location rectangular, single-stone-thick floor pavements were built. There is substantial evidence that these house floors were rebuilt several times.

A maritime-oriented economy was evidenced by the presence of a large quantity of fishing gear, especially for hook-and-line fishing. One-piece hooks predominated, but trolling hooks, or so-called bonito lures and points, were quite common in this early stage. One-piece hooks were made mainly of pearl shell, but some were made of porpoise bone, a distinguishing feature of this phase (Fig. 5.2). The usual form was the rotating type; either the shank or the point was incurved. Two other forms were significant to this phase. One was a jabbing type of hook with a straight shank and point. The cross sections of the shank and point of this hook were round, that of the shank being much thicker than the point. The line-lashing device was a single, horizontal groove just below the flat, blunt head (Fig. 5.2*g*).

Files used in hook manufacturing were made from pieces of *Porites* coral and from spines of the slate-pencil sea urchin, but the latter decreased in number in the later phases. No octopus-lure sinkers of the coffee-bean type (Fig. 5.3*d*) typical of the later phases were found, but a sinker form ancestral to both the conical West Polynesian type (Fig. 5.3*e*) and the coffee-bean type was used in this period. This ancestral sinker had a conical form with one longitudinally flat side (Fig. 5.3*c*).

Adzes were the most common stone artifacts in this phase. The flat quadrangular (Fig. 5.4*a*), the flat reversed-trapezoidal untanged (Fig. 5.4*b*), and the plano-convex types (Fig. 5.4*c*) were most frequently



5.2 Pearl-shell and bone one-piece hooks of phases I and II in the Marquesas Islands. Hooks a, b, d, e, *and* f *are from Hivaoa Island;* c *is from Nukuhiva Island; the rest are from Uahuka Island. The hook in* k *is made of porpoise bone. (After Sinoto 1970.)*

found. Adz forms with the narrow or ridge-front face of the tall trapezoidal and triangular types (Suggs's Koma type) were present in an incipient form, as well as definitely tanged adzes, although these were very rare. Tangs were formed only by the pecking technique (Fig. 5.4*d*, *e*).

Chisels were made only of *Cassis* shell. The lip of the shell, the thickest part, was broken off. The broken edge was ground so that one end was formed into a cutting edge; the other end sometimes retained a curvature somewhat similar to that of an umbrella handle (Fig. 5.5*a*, *b*). Although some of the chisels did not retain this curvature, all had only one cutting edge (Fig. 5.5*c*).

Pounders for taro or breadfruit did not appear in this phase. Two types of graters (probably for coconuts), one hand held and the other made for attachment to a stand, were quite common in this phase (Fig. 5.3*f*), but there were no vegetable-peeling artifacts of any kind.

Pendants made from the teeth of small species of whales and porpoises (Fig. 5.3*g*, *h*) and a thin, round disk of *Conus* shell with a hole in the center (see Fig. 5.11*a*) were the characteristic ornaments of this phase, although a single pendant made from the perforated tooth of a dog was located. Pearl-shell pendants of a type particular to Hane (Fig. 5.3*i*) were also found. The shaped whale-tooth pendants (see Fig. 5.11*i–l*) similar to those from the Maupiti burial site, Society Islands (Emory and Sinoto 1964), and from the Wairau Bar sites, New Zealand (Duff 1956), were significant ornaments, but these were probably made near the end of phase I. No imitation whale-tooth pendants were found. Cloak pins (Fig. 5.3*k*) were made in this phase, however (Sinoto 1968b).

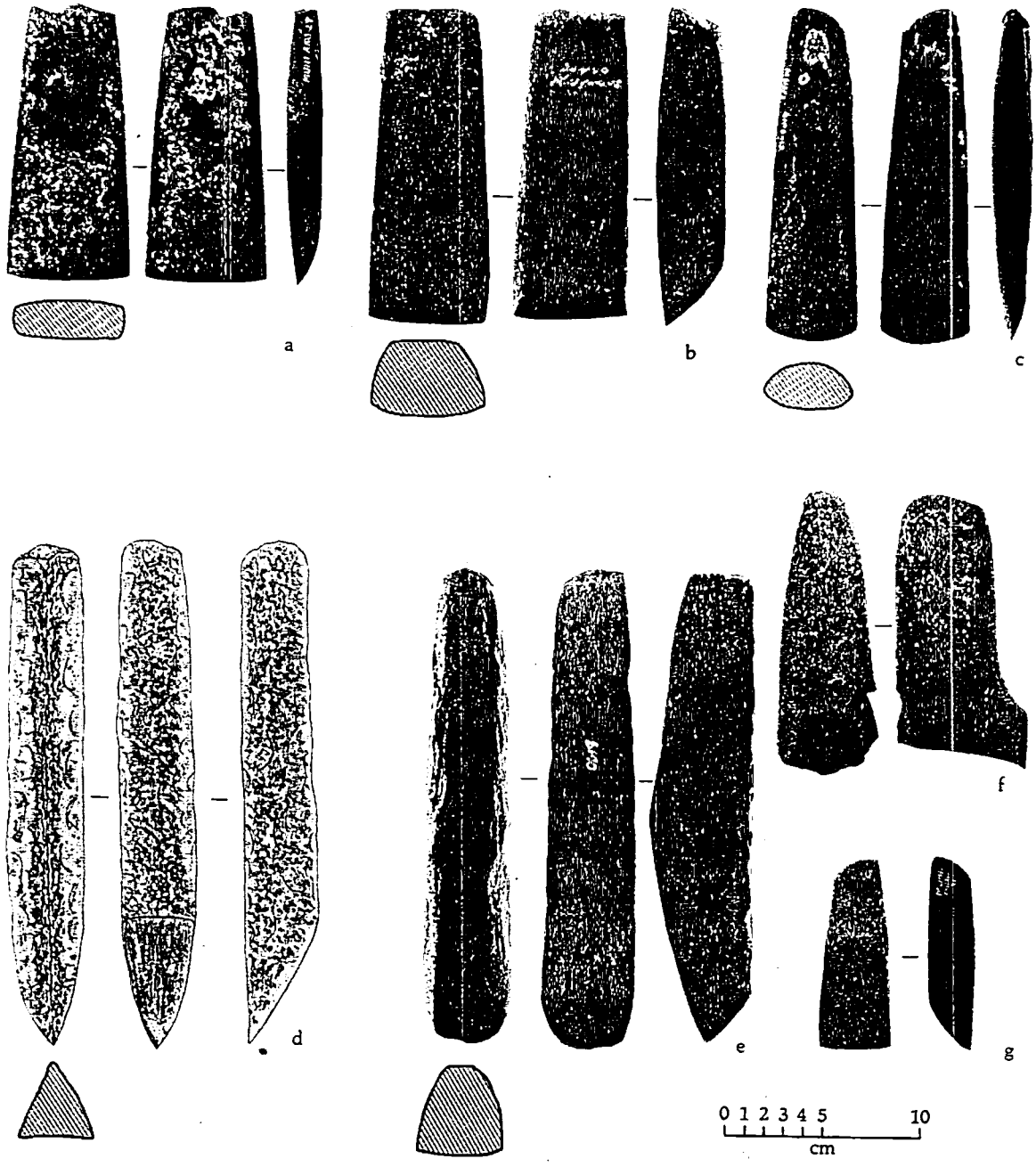
Tattooing needles made of bird bone, pearl shell, and shark tooth (Fig. 5.3*l–n*) were also uncovered from this phase. Although only a small quantity of pottery was found, there is evidence from the materials that it was used and possibly was of local manufacture (Dickinson 1967).

Dogs were present; however, the fact that only dog teeth and no bones were found in

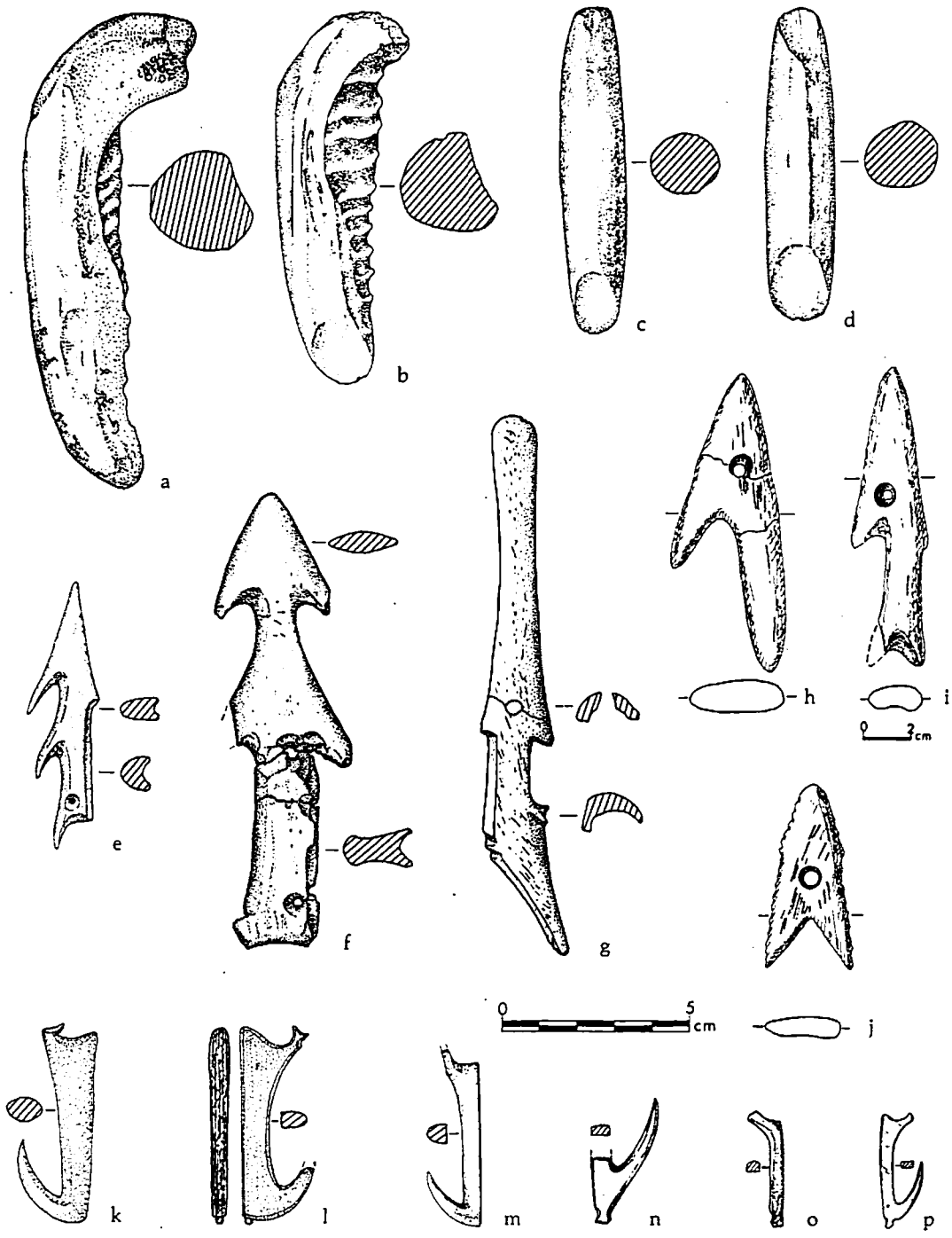
5.3 *Tools, sinkers, ornaments, and trolling-hook points from the Marquesas (except when specified):* a, *sea-urchin-spine file;* b, Porites-*coral file;* c, *conical-shaped octopus sinker;* d, *coffee-bean-type octopus sinker;* e, *Samoan octopus sinker;* f, *pearl-shell grater;* g, *whale-tooth pendant;* h, *porpoise-tooth pendant;* i, *pearl-shell ornament;* j, *pearl-shell ornament from Vaitootia site, Society Islands;* k, *bone cloak pin;* l, *bone tattooing comb;* m, *pearl-shell tattooing comb;* n, *shark-tooth tattooing comb;* o, *West Polynesian-type trolling-hook point;* p, *East Polynesian-type trolling hook point. (From the Bishop Museum collection.)*

the midden materials suggests that they were scarce. No clearly identifiable pig bones were found. This is interpreted to mean that if there were pigs, they were extremely few in number. No chicken skeletal materials have been identified, leaving their presence uncertain. Seabird bones, shearwater, petrel, and booby (Kirch 1973) were plentiful, especially at the beginning of phase I. There is some evidence that rats existed.

Based on the artifacts, it is difficult to determine whether or not breadfruit and taro were cultivated at this time. If the presence of cone-shaped stone pounders and vegetable peelers would imply the existence of these food plants, the evidence is negative. However, the presence of graters suggests that there was coconut. Midden-material analysis shows that fish, turtle, and seabird were the main sources of protein. Shellfish remains were unexpectedly negligible in



5.4 Basalt untanged adzes from phases I and II, Marquesas Islands; a, *flat quadrangular;* b, *flat trapezoidal;* c, *plano-convex;* d, *triangular beaked;* e, *high trapezoidal;* f *and* g, *pecked tanged. The inserts are cross sections taken at the midpoints and show characteristics of the particular adz type. (From the Bishop Museum collection.)*



5.5 Cassis-*shell chisels, pearl-shell and bone harpoons, and pearl-shell compound-shank fishhooks. All except* h–j *are from the Marquesas Islands:* a–c, Cassis-*shell chisels, phase I, and* d, *phase II;* e, *pearl-shell, and* f, *bone harpoon heads, variety 2, both from phase I;* g, *bone harpoon heads, variety 1, phase IV;* h–j, *bone harpoon heads from New Zealand, varieties 3–5 (after Skinner 1937);* k–m, *pearl-shell compound-shank fishhooks, phases I and II, and* n–p, *phases III and IV. (After Sinoto 1970.)*

quantity. Of course, the bones of turtles and birds weigh more and are more bulky than most shellfish remains, so probably it takes several years of shellfish midden deposits to weigh as much as the remains of one turtle.

Phase II (Developmental Stage), A.D. *600–1300*

Sites representing this phase were located at Hane and Manihina (Sinoto and Kellum 1965) on Uahuka Island and at Ha'atuatua on Nukuhiva Island in the northern group, and at Hanatukua and Hanaui on Hivaoa Island in the southern group. By this phase people already had started to spread out, not only along the coastal areas, but also into the valleys and plateaus.

While the material culture of this phase did not vary greatly from that of the earlier phase, there were some changes. Fishhooks became larger, and there was an increase in the relative number of the jabbing type (see Fig. 5.2*a–d*). In the northern group in phase II only pearl shell was used to make fishhooks. In the southern group bone was used also, but in small quantity. The bone hooks were very seldom made with shank barbs (Fig. 5.10*d*). Sea-urchin files were scarce.

In phase II the number of trolling hooks decreased, as did the size of the shanks. The proximal end of the base on trolling-hook points extended upward, and there were two holes for lashing the point to the shank (Fig. 5.3*o*). In the later portion of phase II, the proximal extension of the base became reduced in size and some points evidenced an extension of the distal end (Fig. 5.3*p*).

At this time appears, in incipient form, the typical Marquesan compound-shank hook, which later developed into a double-shank fishhook. There are two parent forms: on one the single shank has a rounded stem (Fig. 5.5*k–m*), which does not provide for the fastening of a second shank stem; on the other the back of the shank is flat (Fig. 5.5*m–p*). These unique Marquesan compound-shank hooks of early type have been uncovered recently at the Vaitootia site, Huahine (Sinoto 1976). The coffee-bean type of octopus-lure sinker appears in this phase (Fig. 5.3*d*).

Adz types did not change much between phases I and II. The narrow and high trapezoidal, incipient Koma type and incipiently tanged adzes increased in numbers. *Cassis*-shell chisels were also present, but they were in a straight, cylindrical form; some had cutting edges at both ends (Fig. 5.5*d*).

Although conical stone pounders (Fig. 5.6*d*) still were not in evidence in phase II, a type of pounder was found that was gripped with both hands. It appears to be an incipient form of the Hawaiian stirrup pounder (Buck 1957) (Fig. 5.6*a, b*).

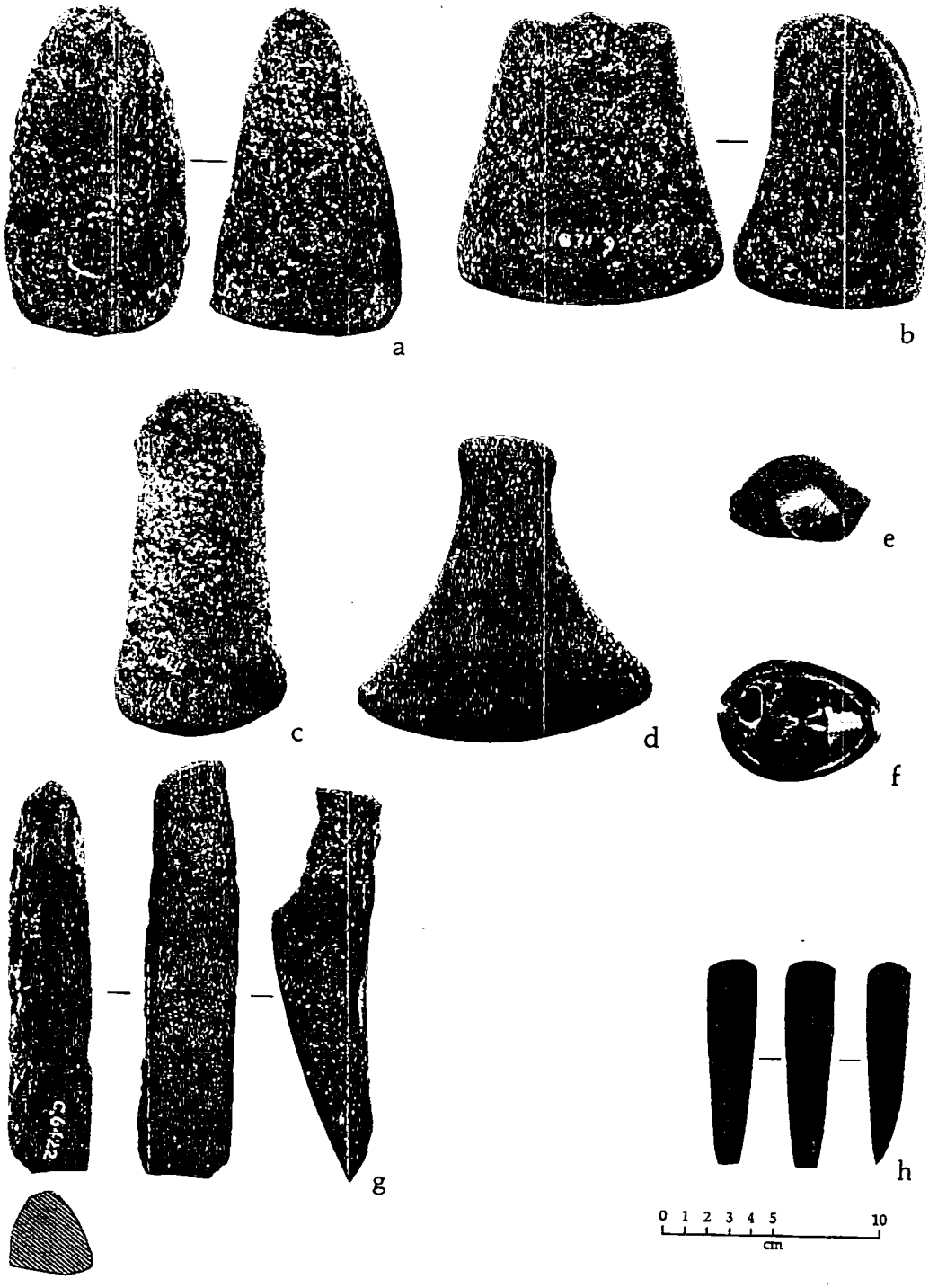
Peelers made of *Purpura persica* shells appeared in this phase in both the northern and southern island groups (Fig. 5.6*e*). Vegetable scrapers made from *Tonna* shells have been reported by Suggs (1961) and by me (1966); however, mine were incorrectly identified. The correct identification of the shell is *Purpura persica* (Linnaeus). If Suggs's illustrated scraper (see his fig. 29*g*) is representative of the eight vegetable scrapers from Ha'atuatua, it appears that his scrapers also were made from *P. persica* rather than *Tonna*.

Pottery apparently was still used in phase II, but so far the slim evidence shows up only in the northern group (Suggs 1961).

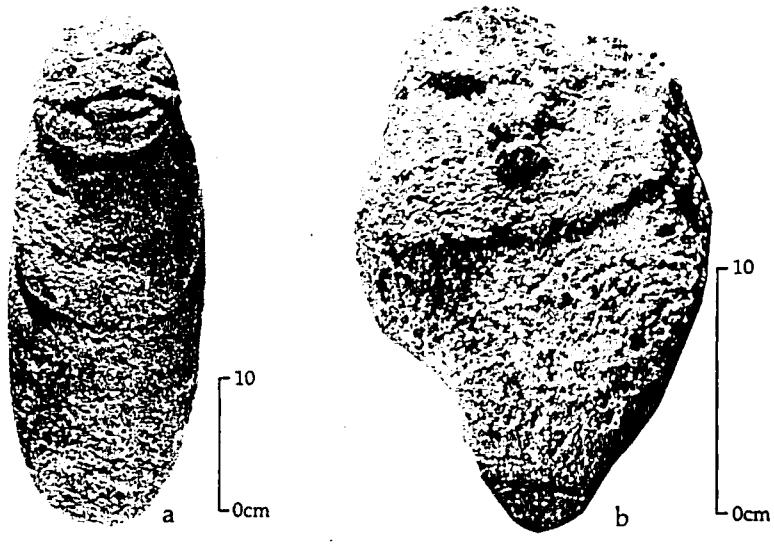
Shaped whale-tooth pendants still survive, but so far have not been found from the southern group. Shell imitations of whale-tooth pendants were also being made, as were pearl-shell disks with one center hole and serrations around the outer edge (Fig. 5.11*b–d*). In addition a carved stone image of simple design, unlike the typical late Marquesan design of Fig. 5.7*b*, was found.

Rectangular house foundations, paved with a single course of stones, were still being used.

Pigs were definitely in the Marquesas in this phase, although still scarce. A pig burial and a few pig bones were found in the



5.6 *Pounders, peelers, basalt adz, and basalt chisel from the Marquesas Islands and Hawaii:* a, *incipient stirrup pounder from Uahuka;* b, *stirrup pounder from Kauai, Hawaii;* c, *incipient pounder from Uahuka;* d, *conical knob-head pounder from Uahuka;* e, Purpura persica *shell peeler;* f, *cowrie-shell peeler;* g, *Koma-type adz;* h, *basalt chisel.* (*From the Bishop Museum collection.*)



5.7 Stone images of Hane Valley, Uahuka: a, *front view of image found on platform of inland religious site (see Fig. 5.13);* b, *front view of image found used as paving stone in phase II pavement, Hane Dune site. (After Sinoto 1970.)*

midden materials. Evidence of dog burials were found, which suggests that they were man's companion rather than his food.

Phase III (Expansion Stage),
A.D. *1300–1600*

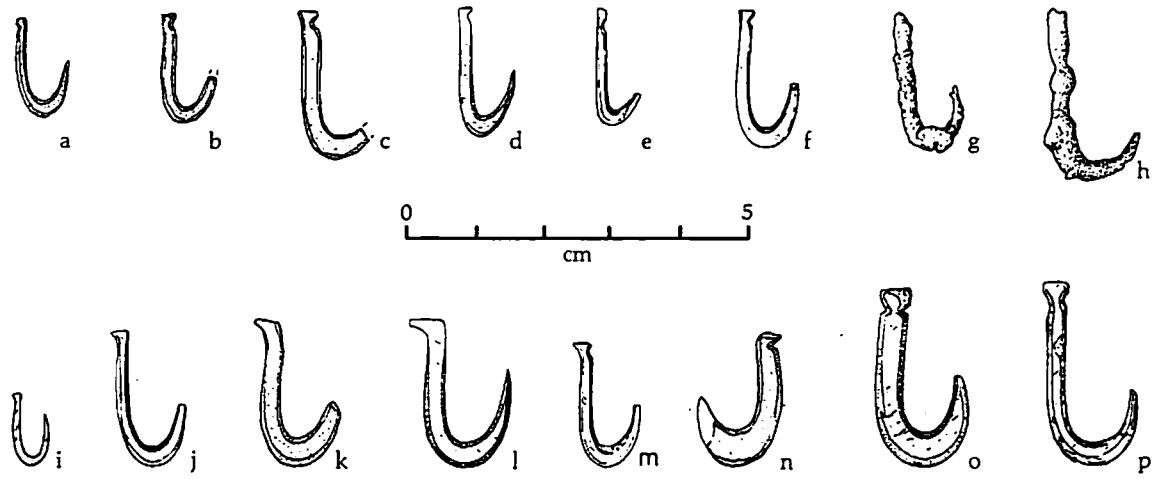
It is likely that with the expansion of the population during this phase and into the beginning of phase IV, people settled throughout all inhabitable areas, mainly in valleys, on all the islands. Some significant artifacts, such as shaped whale-tooth pendants and *Conus*-shell disks, drop out of the cultural inventory and new artifacts appear. The population spread into inland areas coincides with structural changes in housing during this period. There is evidence that house foundations of the low-platform type with divided sleeping quarters and a front terrace were used (Suggs 1961).

A number of sites surveyed for this phase were found on Uahuka, Nukuhiva, and Hivaoa Islands, and were quite widely spread along the coastal and inland areas. Use of rock shelters was common.

Adzes, except for the smaller ones, showed a marked change and stabilization of forms. The earlier, incipient Koma-type adzes had developed into a unique form with a high trapezoidal cross section and a definite tang (Fig. 5.6*g*). The pecking technique was no longer evident; only the chipping and grinding technique had survived. *Cassis*-shell chisels were not popular; instead, stone chisels appeared (Fig. 5.6*h*). Conical-type pounders were found in this phase, but still with plain heads.

Fishhooks were smaller in size and less varied in form. In general, they tended to be of the jabbing-hook type with heads like those in Fig. 5.8. These were the most popular features of fishhooks in this phase, and the ones by which they can be recognized. The compound-shank hooks have a flat shank to which a flat reinforcing stem is fastened. They appear to be less well formed and finished from this phase on into historic times (Linton 1923). Trolling hooks were extremely scarce everywhere. The dearth of both large one-piece hooks and trolling hooks seems to indicate that fishing was confined for the most part to inshore efforts. Octopus fishing was still practiced, and the stone sinkers of the coffee-bean type were narrower and higher than their predecessors. What was formerly a longitudinal groove on the bottom was expanded, and the whole bottom became convex.

Cowrie-shell vegetable peelers completely replaced *Purpura*-shell peelers in this phase



5.8 Pearl-shell and metal hooks of phases III and IV from the Marquesas Islands: a–f *and* i–p, *pearl shell;* g *and* h, *metal. (After Sinoto 1970.)*

(Fig. 5.6*f*). Pottery dropped out of the inventory.

Shellfish and human bone dominate the midden. Pieces of human bone with charring were found quite often in this phase and suggest cannibalism. The ratio of fish bones to other midden materials is not so high as it appeared to be in phase II, but judging from the quantity of fishhooks, a great many fish were caught. One small shelter in Hanaui yielded over 500 fishhooks. When we consider the numbers of small, inshore fish that were eaten whole, and the reluctance of the occupants to drop fish bones with sharp spines onto the house floor, recovery of skeletal remains of most of the eaten fish is impossible.

No dog bones were identified in this phase; they might have been near extinction. Pigs, on the other hand, were increasing steadily from this phase to the next (Kirch 1973).

Phase IV (Classic Stage), A.D. *1600–1800*

No significant change in artifacts from the expansion to the classic period is seen in the material culture excavated from subsurface deposits. However, certain structural developments, especially of religious and ceremonial structures, occurred during this time. Also, by the evidence of grave goods found in caves and crevices in late historic time, perishable materials flourished. However, their placement in the cultural sequence will have to wait for further investigations in the Marquesas.

Artifacts in Space and Time

Pottery

A total of only twelve small potsherds have been found thus far in the Marquesas Islands: nine from Ha'atuatua, one from Ho'oumi, and two from Hane, Uahuka. Because of the scarcity of sherds, my initial assumption was that they had been imported by the first settlers. However, petrographic analysis by Dickinson (1967) revealed otherwise. He examined one sherd and three pieces of baked clay from the Hane site. The temper sand of all the specimens is virtually identical, and Dickinson unequivocally stated that "there is no reason to doubt that the sherd is indigenous and was made locally." Similar results were arrived at by x-ray diffraction-pattern studies of pottery and clay samples from Hane (Sinoto 1968a). However, Dickinson recently altered his interpretation; because of finding quartz mineral among the temper of the same sherds

examined previously, he felt that the sherds could have been imported from Fiji, the nearest quartz resource area, or via Tonga (Dickinson and Shutler 1974).

Adzes

Studies of Polynesian adzes, especially those with archaeological contexts, have been made by Emory (1968) and Green and Davidson (1969). Green (1968) summarized the distribution of adzes in East Melanesia, West Polynesia, and East Polynesia in the initial stages. It is not necessary to repeat his conclusions here, but the adz complex of the Marquesan phases I and II most closely relates to that of Samoa.

One point which should be mentioned is that the grip or tang, which is an East Polynesia characteristic, now appears to be found in incipient form among the adzes of Samoa (Kikuchi 1963) and Tonga (Poulsen 1968); in East Polynesia it flourished.

Over a hundred classifiable adzes of phases I and II from Hane demonstrate two predominant manufacturing techniques—chipping and grinding. On the others, the surface was completely pecked. Tanged adzes are few, but were formed by the pecking technique.

Similarly, in the adz collection from the Maupiti burial sites (Emory and Sinoto 1964) in the Society Islands, either the whole surface or a portion of the tang is pecked on one-third of the adzes. A careful look at both Hane and Maupiti adzes made by the pecking technique reveals that they have thick oval or quadrangular cross sections with rounded corners. Controlling such curvatures by pecking would seem much easier than by chipping. The object was to achieve the rounded corners. On Easter Island the pecking technique continued in use and survived (Figueroa and Sanchez 1965). Not only adzes, but fishhooks and even *ahu* (religious structure) segments persist in their original forms or types there. One factor may be the geographic isolation of Easter Island. The pecking technique, a method that definitely existed early in the Marquesas, and the adz types retained, which were particularly easily formed by the pecking technique, are interacting factors.

Hawaiian adzes were also studied and summarized by Emory. He states (1968:162) that "no place in Eastern Polynesia is there exhibited such a steadfast adherence to one form of adz as . . . in Hawaii." Until recently Hawaiian archaeology has concentrated on coastal sites, and finding adzes in fishing-oriented sites was an extremely rare occurrence. However, adzes from three major South Point sites (on the island of Hawaii) show the ratio of the quadrangular adzes to both reversed triangular and trapezoidal adzes to be 41 (87 percent) to 6 (13 percent) in the Sand Dune site, 16 (89 percent) to 2 (11 percent) in the Waiahukini site, and 9 (90 percent) to 1 (10 percent) in the Makalei site (Sinoto 1978). These ratios suggest that at least 10 percent of the Hawaiian adzes found in these archaeological sites do not have a quadrangular cross section, and the ratio is slightly higher in the earlier sites. Quadrangular adzes found in the Sand Dune site are tanged, but not markedly bent at the shoulder. Reversed trapezoidal and reversed triangular adzes are small in size and number and have an incipient tang. These types were also located in museum collections without provenience, but they are rare.

In the early Marquesan assemblages, were adzes ranging from similar to identical to the early Hawaiian types. However, from present evidence it seems that the differences between Hawaiian and Marquesan adzes are greater than between the adzes of Easter Island and the Marquesas, or those of the Societies and the Marquesas. In Hawaii the manufacturing method used was exclusively chipping and grinding. An obvious question is, why the pecking technique was not used in Hawaiian adz making. Although we do not know when stone pounders appeared in the Hawaiian cultural inventory, they were made by the pecking technique. Hawaiians knew and used this technique on pounders and other

stone objects, but not on adzes. When pounders came into the archaeological sequence, chipped and ground adzes continued to exist. This is an evidence of preferred technique for certain types of artifacts. A quadrangular cross section and the chipping method seem to have a close relation. Hawaiians apparently selected the technique of chipping and grinding to make adzes, and its use may predetermine the adz form. The reverse may be equally true, that the preferred adz form may require chipping and grinding as a manufacturing technique. Elsewhere I have questioned whether the bottom layers of the South Point and Waiahukini sites really represent the initial stage of Hawaiian culture. The presence of well-developed two-piece hooks (shanks and points made separately and lashed together to form hooks) implies that there must be still older sites in the Hawaiian Islands (Sinoto 1967). If so, some pecked adzes may well show up among the nonquadrangular adz types.

Turning to the Society Islands, we are able to add the excellent collection of adzes from the Vaitootia site (Sinoto and McCoy 1975; Sinoto, 1977) to those from the Maupiti burial sites for the earliest adz assemblage in the islands. All the adzes from these sites had counterparts in the early Marquesan adzes and also in some lenticular, plano-convex, and trapezoidal adzes in Samoa (Green and Davidson 1969), Tonga (Poulson 1968), and Fiji (Gifford 1951). The adz assemblage from the Vaitootia site is more closely related to the Marquesan phase I and II assemblages than to that of the Maupiti burials in terms of form and frequency of incipiently tanged adzes. The dominant form of reverse triangular, or so-called Tahitian triangular, adzes (see Fig. 8.2) in the later period was not found in the above sites. How and when this form of adz appeared in the Society Islands is still a question, but it was probably during the 200-year period before A.D. 1350. Suggs (1961) thinks the simultaneous appearance of the Koma-type adz in the Marquesas in the expansion period and in New Zealand after Wairau Bar may be the result of contact from Tahiti. The Koma-type adz could have developed in both places from a triangular adz, with or without a tang. It did not have a horizontal cutting edge, only a beaked triangular cutting point (Fig. 5.4*d*). If the straight ridge, which is the apex of its triangular cross section, were ground down to any degree, it would become the high trapezoidal, Koma-type adz (Fig. 5.4*e* or Fig. 5.6*g*). A good example of this was reported from Samoa (Green and Davidson 1969).

Stone Pounders

Polynesian pounders in general have a round grip with a flared base, the diameter of which is much larger than the grip (Fig. 5.6*d*). They are usually described as taro or breadfruit pounders. Although the grip and base have a uniform shape, the head portion of the grip differs through time from island group to island group and among islands within a group.

Marquesan pounders are of the conical or knobbed type (Buck 1957), originally with a head that was simply a rounded knob, and later with a more elaborate head carved with an image. In the archaeological context, such plain, conical, knob-headed pounders began to appear in the later part of phase III. One specimen from level 3 of the Hane site is an unfinished pounder. Its overall form is much like a pestle with a base that is slightly larger than the grip, but the reduction of the grip was quite evident. Two pounders found in Manihina Dune site, from the beginning of phase IV (Sinoto and Kellum, 1965), are plain, conical, knob-headed pounders.

Whether the pounders were an innovation of the Marquesans or an intrusion is still a question. Suggs (1961) raised similar problems, but he put the emphasis on Tahitian influence in the Marquesas. The difficulty again is a lack of information on Tahitian pounders. We have no evidence to

tell us when such pounders appeared in the Society Islands. The Maupiti and Vaitootia sites did not yield pounders.

If the pestle form of the unfinished pounder from Hane is evidence of an incipient pounder that was to develop into the typical later item, it would seem to be too late to have moved to islands beyond the Marquesas. However, if we adopt Suggs's view, the Hane pounder would be interpreted as evidence of a possible Tahitian contact during phase III, the expansion period, or of independent development in both places.

Pounders in Tahiti developed a very elaborate head form with an eared bar on top of the grip (Fig. 5.9*a*). The existence there also of knob-headed pounders suggests that they are the predecessors of the eared-bar type. However, because of the lack of evidence of pounders in New Zealand, Groube (1968) implies that they were not developed in Tahiti before A.D. 800—in other words, not before the settlers of New Zealand left Tahiti.

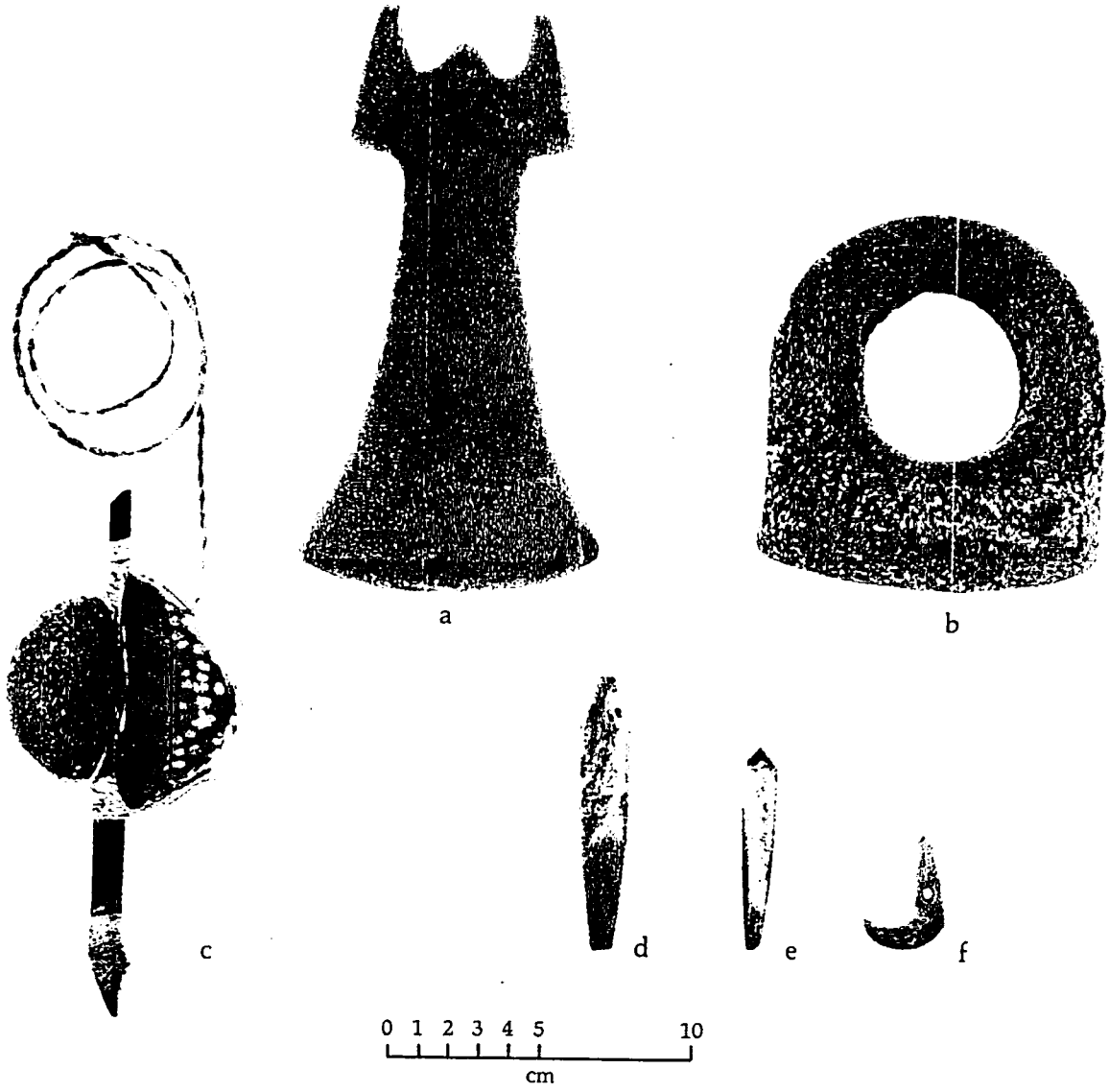
In Hawaii the appearance of the pounder is rather late. This may be because of the concentration on excavation of sites in the coastal areas. Here the Hawaiians again persistently continued one form—that of the plain, conical pounder—with no elaboration or modification. If the pounders were the result of Tahitian influence, the Tahitians who went to Hawaii would have left their homeland before any elaboration of pounders took place there.

There are two outstanding examples in the Hawaiian Islands of nonconical pounders: ring (Fig. 5.9*b*) and stirrup (Fig. 5.6*b*) pounders, restricted for the most part to the island of Kauai. Although they were used to pound taro, Emory (1975) has suggested that the original function of these artifacts may have been different. He based his theory of another use on his observations in the Tuamotus of a pandanus-key cracker, which was held in both hands in much the same way a Hawaiian stirrup pounder was gripped. In the case of the Tuamotuan pounder, a simple, roughly shaped coral slab was used instead of a more deliberately formed stone. The ring and particularly the stirrup pounder, because of their forms, are difficult to hold in one hand. When poi is made with a conical pounder, one hand adds water while the other operates the pounder. If the pounder had to be gripped with both hands, like the Tuamotuan pandanus-key pounder, the material being pounded might have been something other than taro. Even though we have only a surface collection of pounders from Kauai, there is a strong indication that they went through typological changes from the stirrup form to the ring form.

Two stone objects from phase II at the Hane site (Fig. 5.6*a*) strongly suggest an incipient stirrup-pounder form. Although similar objects were not found in subsequent levels, or in ethnologic collections, they evidence a strong morphological relation to the Kauai stirrup pounders.

Harpoon Heads

Outside of the Marquesas, bone, whale-tooth, and pearl-shell harpoon heads have been reported from Mangareva (Green 1960), the Vaitootia site, Society Islands (Sinoto and McCoy 1975), and New Zealand Archaic culture. Skinner (1937) classified New Zealand harpoon heads into five varieties. However, since there are two basic techniques for securing the harpoon shaft to the head, I have arbitrarily classified them into two types: type A combines Skinner's variety 1 and variety 2 (Fig. 5.5*e*, *g*). Harpoons of this type are flat or rounded (variety 1), or grooved (variety 2) along one side (opposite a distal foot) where the shaft is placed. There is a hole in the midsection for tying a long line. Type B includes Skinner's varieties 3 to 5 (Fig. 5.5*h*–*j*). These harpoons have a bifurcate base. The shaft for type A can be a plain, long pointed stick, but for type B the tip of the shaft must be split to hold the harpoon head. Type A harpoons are found



5.9 Artifacts from the Society and Hawaiian islands: a, *eared-bar pounder from Society;* b, *ring pounder from Kauai, Hawaii;* c, *octopus lure from Hawaii;* d, *pearl-shell trolling-hook shank, archaic type, from Marquesas;* e, *pearl-shell ventrodorsal perforated trolling-hook shank from Marquesas;* f, *whale-tooth pendant from Hawaii. (From the Bishop Museum collection.)*

in all three areas (the Vaitootia specimen is too fragmental to classify), but type B is found only in New Zealand. There are no adequate stratigraphic records of harpoons in New Zealand that enable us to place them in typological sequence and chronology, but there is no doubt of their antiquity there (Skinner 1937; Duff 1956). Three variety 2 harpoons from Wairau Bar are recorded by Duff. Distribution in the three areas suggests that type A is older than type B. In the Marquesas, the harpoons of type A are found in two different phases—variety 2 in phase II, and variety 1 in phase IV—and continue to be evident into historic times. Although there is some evi-

dence of local variation, it does not seem feasible to view these three places—the Marquesas, Mangareva, and New Zealand—as having independently developed harpoons of basically the same type. What is more likely is that they are derived from one source, probably the Marquesas. Amazingly similar harpoons are distributed in the areas along the northern Pacific coast (Leroi-Gourhan 1946; Watanabe 1964). Although the outline of these harpoons is identical, the technique of securing a shaft is different: in the northern Pacific coastal sites the shaft is placed into a socket at the base of the harpoon (closed socket), instead of along the side of the harpoon shaft (open socket). Despite such differences, we cannot simply ignore their occurrence both in the middle of the Pacific and in the northern Pacific coastal areas.

Fishhooks

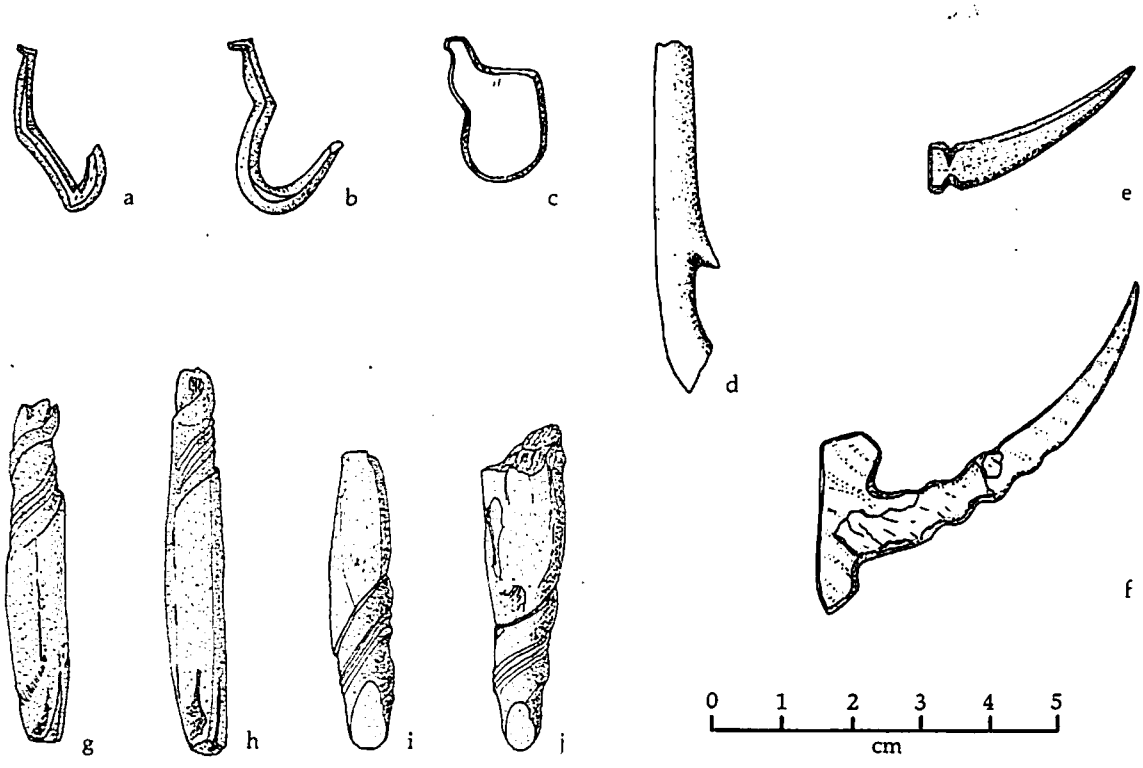
Fishhooks have been used as a diagnostic device for establishing chronology within an area (Emory et al. 1968) and for comparative studies among island groups. I have discussed this subject elsewhere, particularly with regard to the relations of the Hawaiian, Society, and Marquesas islands (Sinoto 1967). The head forms of one-piece hooks, the materials, the ratio between the length of the shank and the point, manufacturing methods, and tools are the main criteria for judging relations between early Marquesan fishhooks and early Hawaiian, Tahitian, and New Zealand fishhooks. Although only one hook was found in the Maupiti burials, the same type of hook has been found on the main island of Maupiti and recently was among a few hundred fishhooks collected at the surface in the rest of the Society Islands. Two phase II bonehook fragments from the Hanatukua shelter (Bellwood 1972) represent the first discovery of a barbed-shank fishhook in central Polynesia. The additional discovery of a drill head (Fig. 5.10*g*) and chisels (Fig. 5.10*i*) made from spindle shells was made at the same site. The drill head was identical to those found at the South Point and Waiahukini sites (Fig. 5.10*h*) in Hawaii (Emory et al. 1968), and the chisels (Fig. 5.10*j*) were identical to those uncovered in Hawaii (Tuohy 1965), which were mistakenly classified as drill heads.

A very sensible interpretation of the Easter Island fishhooks was made by Golson (1965). Although we do not know much about the hook assemblage of the early period, the general characteristics of the head types of the middle and late periods show a similarity to those of the Marquesan hooks of phase I and phase II. As Easter Islanders retained the earlier adz types, they seem also to have retained the earlier fishhook forms.

Mangarevan archaeological fishhooks excavated and studied by Green (1960) are similar to the early Marquesan hook types, except for one type that was a later, local development. Even the wiggly-shank hook was found in the southern Marquesas in phase II (Fig. 5.10*a–c*).

Two-piece hooks are characteristic of the fringe areas of Polynesia, and no similar hooks are found in central Polynesia. They were apparently developed independently in three areas: Hawaii, Easter, and New Zealand. Their development was probably triggered by a limited supply, or a complete lack, of pearl shell. The elements of trolling-hook structure on which the two-piece fishhook is based were already possessed by the people in these areas.

Biflanged and inset fishhook points were reported from Ha'atuatua and Nahotoa cave (Suggs 1961). The latter site is classified as dating from the expansion through the classic periods. Both types of points are also found in Hanatukua shelter on Hivaoa (Fig. 5.10*e*, *f*) from phase II layers. The biflanged point from Hanatukua is disproportionally long and has notches near its midpoint that would render it too weak to use for a trolling hook point. It may have been used as a point on the octopus lure of the Hawaiian type (Fig. 5.9*c*), since a sinker of the coffee-bean type and some cowrie lures were found in the same layer. The inset-type



5.10 Fishhooks, drill heads, and chisels from the Marquesas and Hawaiian islands: a, b, *wiggly-shank hooks, and* c, *their blank;* d, *bone one-piece fishhook shank with barb;* e, *pearl-shell inset point;* f, *pearl-shell biflanged point;* g, *Marquesan, and* h, *Hawaiian, spindle-shell drill heads;* i, *Marquesan, and* j, *Hawaiian, spindle-shell chisels. (After Sinoto 1970.)*

point of pearl shell found at Hanatukua shelter is the same shape as the one illustrated by Suggs (1961), but is shorter and has a notch on both sides near the end of its blunt base. Both biflanged and inset points could be inserted into shanks in a fashion similar to the barracuda hooks of the classic Maori New Zealand assemblage (Buck 1949; Golson 1959).

Present evidence of the distribution of trolling-hook types in East Polynesia rather clearly indicates a Marquesan dispersal. The pearl-shell lure shank of wide, triangular form with a blunt, proximal end and a perforation for a line attachment (Fig. 5.9*d*) is found in phases I and II in the Marquesas, at Vaitootia, and at Maupiti. The point with a proximal base extension and with two lashing holes is also in these areas, at South Point sites in Hawaii, on Moorea (Green et al. 1967), and at Archaic sites in New Zealand. The lure shank with the flat form or a triangular proximal end and a ventrodorsal perforation for line attachment is found in phase II in Hane and in Archaic New Zealand sites. In this case a pearl-shell specimen was uncovered in New Zealand (Green 1967). Examples are still rare, but barracuda-hook points might have followed the same path from the Marquesas.

Ornaments

Among the ornaments in phase I are two *Conus*-shell disks, each with a hole in the center. The apex end of the shell in each instance was carefully ground flat to a thickness of 1.5 to 2.0 mm and made into an almost perfect round disk about 25 mm in diameter (Fig. 5.7*a*). These are among the most beautifully made artifacts from the

Hane site. Suggs (1961) found pearl-shell disks from Ha'atuatua and related them to *kapkap* ornaments of Melanesia. While it seems to me that his pearl-shell disks may eventually relate to kapkap ornaments, it is difficult to see any direct morphological connection between them. The Ha'atuatua disks (Fig. 5.11*e*) have two holes in the center, and grooves are cut radially around the edge on one surface but are not visible on the other side. Kapkap mounts in Melanesia are round, plain *Conus*-shell disks with only one perforation in the center (Reichard 1933).

In phases II and IV at Hane site, pearl-shell disks appeared with serrated edges and a single hole in the center. Phase IV disks (Fig. 5.11*c*, *d*) are thicker and more crudely made than the phase II disks. Some of the latter are almost paper thin, and the two holes are as small as the eye of a metal needle (Fig. 5.11*b*, *g*, *h*). These serrated disks might have been used for the Marquesan headband, although I have not seen this in the ethnologic collections.

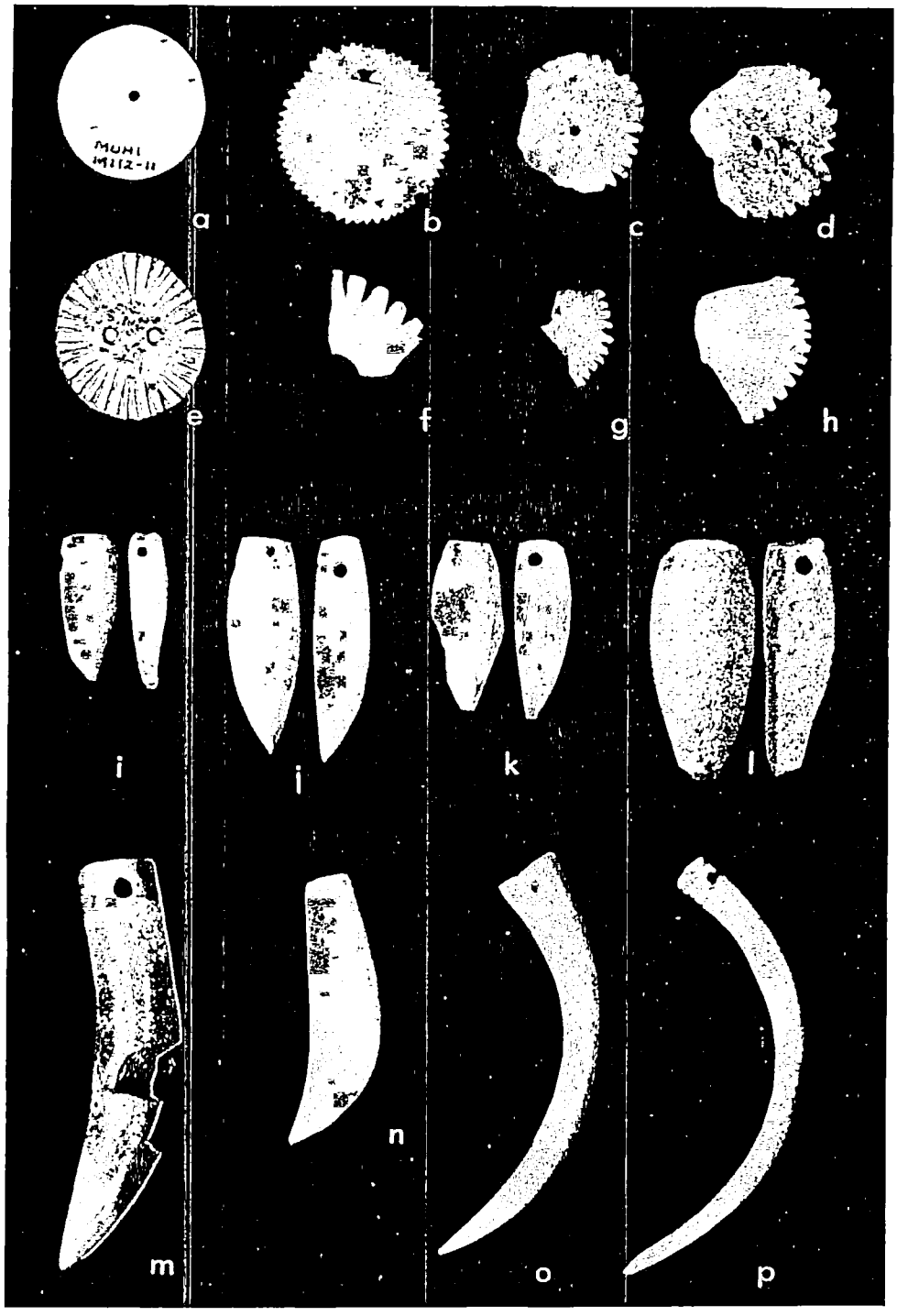
Pearl-shell breast ornaments and pearl-shell scrapers or spoons were discovered with the Maupiti burials (Emory and Sinoto 1964). The breast ornaments are whole pearl shells on which the rough exterior surface had been ground smooth and the iridescent inner shell revealed. The circumference edge was also ground smooth. A small perforation at the beak was made for suspension. The scrapers or spoons were taken from a center section of the pearl shell that extended from the beak to the ventral margin. They were also well polished, with the convex edge ground to a sharp edge. Specimens identical to these plates and scrapers were found in Hane phase I (Fig. 5.12*a*, *b*). At Hane they are not from burials, but from the cultural deposits, as were the shaped whale-tooth pendants. This marked resemblance seems to provide additional data to suggest a link between the Marquesas and the Society islands.

Shaped whale-tooth pendants were found at Hane (Fig. 5.11*i*, *j*), Maupiti (Fig. 5.11*l*) and in Archaic New Zealand sites (Golson 1959). In 1965 Emory found a small, shaped whale-tooth pendant on a coral islet called Iriru off the coast of Avera, Raiatea (Fig. 5.11*k*). Preliminary test excavations did not yield further information, but I believe that a thorough investigation of the islet might uncover burials similar to those of Maupiti. In 1973 the Vaitootia site was uncovered, and three excavation sessions recovered five shaped whale-tooth pendants.

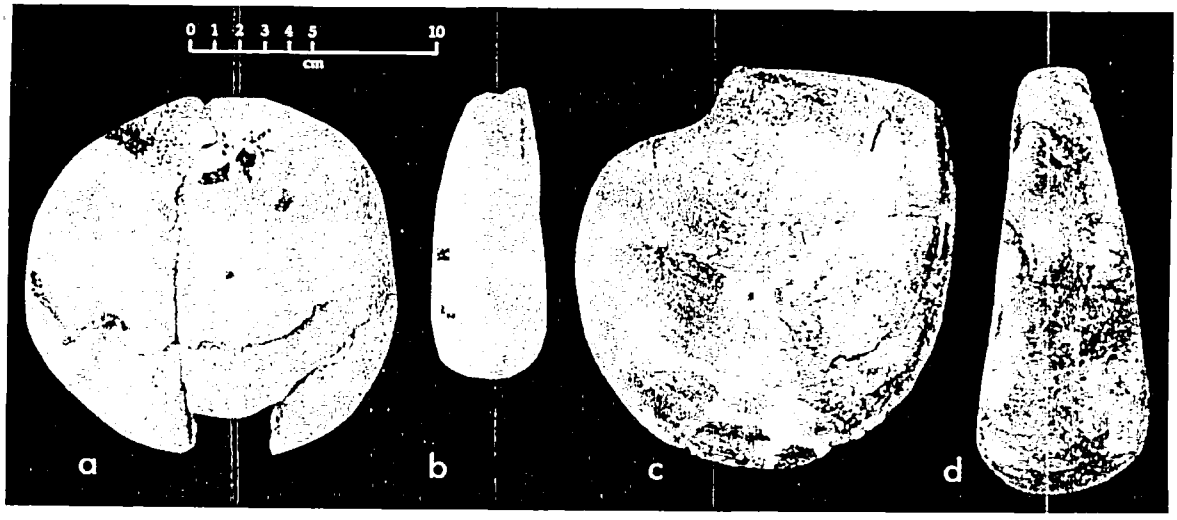
Except for shaped varieties, whale-tooth pendants are spread widely throughout Polynesia. These pendants have three major variations: variety 1—unmodified whale tooth, or simulated whale-tooth form made of other material with a suspension hole; variety 2—whale-tooth, or other material, with a long, rounded stem and a pointed, outward-protruding distal end (good examples of this variety are from Samoa and Tonga); variety 3—usually made of shell, but also of whale tooth, with the whale-tooth profile, but flattened and with side perforations near the top. Variety 1 is found in Hawaii, Mangareva, the Marquesas, Easter Island, Samoa, and Tonga. Variety 2 is from Hawaii (Fig. 5.11*o*, *p*), the Marquesas (Fig. 5.11*m*, *n*), New Zealand (Duff 1956), Samoa, and Tonga. In the Marquesas shaped whale-tooth pendants seem to have appeared first in phase I. Then, in phase II, variety 2 appeared, but the shaped whale-tooth pendant was still used. Varieties 1 and 3 probably soon replaced the shaped pendant and variety 2, and both continued into historic times.

Hanatukua Dune site on Hivaoa yielded artifacts of fishhooks and adzes contemporary with phase II. In a cache containing adz blanks was found a shell imitation of a whale-tooth pendant. Although it is unfinished and without perforations, its form belongs to variety 2 (Fig. 5.11*n*). So far, there is no evidence of shaped, variety 1 whale-tooth pendants in the southern Marquesas Islands.

Hawaii has not yielded shaped whale-tooth pendants of the Maupiti and Wairau Bar type. Only variety 2 pendants were



5.11 Shell, whale-tooth, and pig-tusk ornaments from the Marquesas (a–j, m *and* n), *Society* (k *and* l), *and Hawaiian islands* (o *and* p): a, Conus-*shell disk;* b–d, g, h, *pearl-shell serrated disks;* e, f, *pearl-shell grooved disks* (e, *after Suggs 1961*); i–l, *shaped whale-tooth pendants;* m–p, *whale-tooth pendants, variety 2* (m, *whale tooth;* n, *shell;* o, p, *pig tusks*). (*After Sinoto 1970.*)



5.12 Pearl-shell breastplates and scrapers; a, b, *from the Hane Dune site;* c, d, *from burial site 1, Maupiti, Society Islands. (After Sinoto 1970.)*

found at the very bottom of the Waiahukini site, one of the oldest cultural deposits in Hawaii. Variety 3 pendants appeared later, but no contexual data are available. Meanwhile, the historically well-known typical Hawaiian whale-tooth pendant (*niho palaoa*) (Fig. 5.9*f*) developed locally (Sinoto 1963). The distribution of whale-tooth pendants in East Polynesia suggests dispersal from the Marquesas. Here again the time depth of variety 2 in West Polynesia is still in question.

Religious Structures

The religious structures in the Marquesas are very complicated in physical layout and in function (Linton 1925). Very few detailed studies have been made using modern archaeological methods. A religious site *me'ae* with elaborated architectural features could have existed in phase III. Smith (1964) surveyed and excavated the Pekia me'ae at Atuona, Hivaoa. Radiocarbon dates of the samples collected are A.D. 1300 ± 200, A.D. 1390 ± 100, A.D. 1720 ± 80, and A.D. 1730 ± 80. These dates fit well into phases III and IV. Smith, in a personal communication, wrote: "I interpret the useful dates as follows: The oldest datable construction occurred in the 14th century. Construction was also carried out in the 15th century. Major expansion and rebuilding occurred about 1700."

A structure found deep in Hane Valley, Uahuka, was the one farthest inland, and its elevation was the highest in the valley. Although there were some terraces and retaining walls across the axis of the slope, at the back end of this structure, in the center of the court, was a low rectangular platform that was incorporated into the upward sloping ground. On top of this platform, in the middle, was an image of dark, reddish-tuff stone. This 39-cm-high oblong stone image has eyes, and open mouth, and both arms resting on the stomach. Although it was found lying down, most likely the image originally stood on the platform (Figs. 5.13 and 5.7*a*). Unlike most Marquesan images, it is similar to typical Tahitian in style. While the emphasis has been put on the discovery of this image on the platform, the platform itself, without the upright stones, has features reminiscent of the Necker Island, Hawaii, religious structures

5.13 Stone image found in the Hane inland religious site. Although in the photograph it is standing, the image was found lying on the platform. (After Sinoto 1970.)

(Emory 1928) and also of those of Easter Island. The earlier form of Society Island religious structure was discovered inland, where there was less destruction caused by later rebuilding or stylistic changes. If this is extrapolated to the Marquesan case, the Hane inland structure could represent the survival of an earlier form, a variation of which is found on Necker and Easter islands. Should this be so, religious structures—or more precisely the relative position of the principal platform and image—found in the Marquesas could be related to those found in other parts of East Polynesia. This Hane me'ae structure then could be placed in phase III and later, because of the unusually large pig skulls. More than ten of them were excavated from under the surface deposit at the foot of the platform, where they were probably placed as offerings. With these skulls was an unfinished, small image with a squarish body.

Concluding Remarks

On balance, there is fairly good evidence with which to evaluate the role of the Marquesas in early East Polynesian prehistory. The discovery of the Vaitootia site, Huahine Island, throws light on the cultural assemblage of the Society Islands at the time of the settlement period and is the beginning of our knowledge to fill the archaeological blank of this important island group (Sinoto 1976). The Vaitootia cultural assemblage is remarkably similar to those of phases I and II of the Marquesas Islands, except for the perishable artifacts from Vaitootia—a canoe paddle, a bow, adz handles, a ceremonial spear, hand clubs similar to the Maori *patu*, the structural remains of storage houses, and the kava plant (*Piper methysticum*) (Sinoto and McCoy 1975; Sinoto, 1977). The inference is that such wooden artifacts probably existed in the Marquesas. Compound-shank fish-

hooks and pearl-shell pendants, previously thought to be unique to the Marquesas, were also found at Vaitootia.

Pearl-shell one-piece fishhooks, found from the lowest layer of the Henderson Island cave shelter (about 160 km northwest of Pitcairn Island), are Marquesan phase II types (Sinoto 1976). *Porites*-coral files (Suggs 1961; Emory et al. 1968) are of the Hawaiian-Marquesan type and, like the basalt adzes associated with the pearl-shell hooks from Henderson, these materials are not indigenous. After these imported materials had been used up, the locally available resources—fossilized *Tridacna* shells and hammer-oyster shells—were utilized. The early Henderson material culture had a close affiliation with the early Marquesan culture, although personal ornaments were not found from Henderson. Charcoal at the bottom of the site yielded a radiocarbon date of A.D. 1160 ± 110.

The occupation of Pitcairn Island might be a similar case, based on its date and possible material linked with Henderson (Sinoto 1973). As far as we know today, the history of human occupation in East Polynesia goes back approximately 2,000 years. The Marquesas Islands yielded the earliest date, along with material cultural assemblages that establish a fairly solid cultural sequence from the settlement period to the historic period. It is also possible to see a cultural progression from the Marquesas to the Societies to New Zealand.

Problems still remain in interpreting the settlement of the Hawaiian Islands. The South Point sites and two others, one on Oahu (Pearson et al. 1971) and one on Molokai (Kirch and Kelly 1975), dated respectively at the sixth and seventh centuries A.D., have not yielded any diagnostic early Marquesan material culture such as shaped whale-tooth pendants, harpoons, or adzes, except for some one-piece hooks from the South Point sites. This situation weakens the argument for the Marquesas Islands as the primary homeland for the ancestors of the Hawaiians, since the Society Islands did have these diagnostic materials. More survey in the southern Marquesas group is required.

However, there is one point that may be important to consider. The southern Marquesas also lacked the shaped whale-tooth pendants and harpoons and may have been occupied later than the north, beginning in phase II. The southern group accordingly may have been settled from the north. If the hypothesis is valid that this diagnostic material culture, which substantiates the link between the Marquesas, the Societies, and New Zealand, was not in the southern group, then the impact moved from the northern group to the Societies, and then to New Zealand.

Hawaii, on the other hand, had an impact from the southern group. Some of the southern Marquesas material culture indicates a closer link to that of Hawaii; Mangareva, Henderson, and Pitcairn may be in a similar situation. If the evidence presented here is reliable, despite the many unsolved problems, dispersal from the Marquesas to other island groups probably took place initially early in phase II, with no significant movements in subsequent phases, except for the possibility of a later movement to New Zealand (Emory and Sinoto 1965; Green 1967).

There is good evidence of occupation of almost every valley in the Marquesas, and the population density might have been higher than we estimate. The ruins in the valleys belong mostly to phase III and later. The population probably reached its climax in the early part of phase IV. If the islands could support such a large population, why was it that the people who settled there for a short while moved out again? There should be reasons other than those connected with the limited economic potential of the islands. Early dispersal to the Society Islands, Hawaii, and Easter Island probably took place between A.D. 650 and 800 (Emory and Sinoto 1965; Golson 1965; Emory and Sinoto 1969; Sinoto 1976) and to Mangareva about A.D. 1200 (Suggs 1962).

Finally, there are problems in determin-

ing the land of origin of the Marquesas Islands. There is still the question of line-fishing gear, which does not have clear connection with West Polynesia. However, archaeological shell hooks from Tonga (Poulsen 1968) and a surface hook found there by Golson (personal communication), plus one example of an unfinished *Turbo*-shell hook (Davidson 1969) and five specimens made of pearl shell (Jennings 1976) from Samoa are encouraging discoveries.

In any case, so far there is little evidence to connect the Marquesas and West Polynesia as far as line-fishing gear is concerned. The situation with respect to trolling hooks is somewhat odd. The Hane site clearly shows a typological change from so-called West Polynesian–type trolling points (Fig. 5.3*o*) to the East Polynesian type (Fig. 5.3*p*). The former was found chronologically early from Hawaii, the Societies, and New Zealand. Excavations in West Polynesia have not yielded a single example of trolling-hook points, although there are many trolling hooks in the ethnologic collections from Samoa and Tonga. The development of trolling hooks in Oceania poses an important and interesting research topic. There are two possibilities: either this fishing gear developed in the Marquesas or it was intrusive from unknown islands in West Polynesia or Micronesia. If the first, there must be an earlier site than Hane to allow the time needed for the form to develop within the islands.

The adz assemblage of the early Marquesas demonstrates a strong tie with Samoa. But some items in the Marquesan inventory—kapkap-type ornaments, whale-tooth pendants, bows, hand clubs, and even use of kava plants—are still unknown in archaeological contexts in West Polynesia, Melanesia, and Micronesia. Despite these unsolved problems, we have archaeological, anthropological, and linguistic evidence that indicates a strong link between West Polynesia and East Polynesia. More work must be done before we can proceed to speculate.

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