

A Preliminary Report of Archaeological Explorations in the Southern New Hebrides

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Introduction

DELEGATES to the Tenth Pacific Science Congress in 1961 recommended that a Pacific Archaeological Program be initiated to coordinate archaeological research in Oceania. To this end, work was undertaken in certain key areas. One of these areas was the New Hebrides in Melanesia, heretofore archaeologically unknown. M. José Garanger of the French Centre National de Recherche Scientifique went to the central islands of the chain. Supported by a National Science Foundation Grant (GS-293) and sponsored by the B.P. Bishop Museum, Richard Shutler, Jr. and Mary Elizabeth Shutler undertook work in the southern islands. Surveys and excavations were carried out in order to assess the archaeological potential of these islands, to obtain a fuller inventory of the prehistoric material culture of southern Melanesia, and to permit a tentative time placement of New Hebridean culture. Such information was expected to contribute to a greater understanding of the origins and dispersal of the Melanesian people and their relationship to the Polynesians.

This report is intended only to indicate in a general way the course of our research in the southern New Hebrides and the types of artifactual material recovered. The artifacts, pottery, and human skeletal material await more detailed laboratory analysis before conclusions can be drawn. Nearly 1,000 bags of material are currently being processed by a number of extra-disciplinary specialists: among them are a vertebrate zoologist for the faunal remains, a geologist for the rock types encountered, a botanist for the flora. The large number of important molluscan remains are being identified (the identifications annotated for future use by other archaeologists and malacologists) and analyzed for their utilization in time and space. Also, several hundred soil samples were collected for such data as can be determined from both mechanical and chemical analysis, in addition to charcoal samples for radiocarbon dating, and samples for palynological processing. In the process of acquiring the information from all these interdisciplinary analyses we hope to learn what additional categories of data we can collect in future excavations. Already we have become aware of several valuable orders of information for cultural interpretation where data are scarce and artifactual remains sparse.

The work of Dr. Jean Guiart in southern Melanesia has largely inspired this project and we have benefited greatly from conferences with him and with M. José Garanger. We wish to express our thanks to both. The personnel of the British and French governments of the Anglo-French Condominium of the New Hebrides gave permission for our work, cooperated with us fully, and extended to us innumerable courtesies. The staff of the Bernice P. Bishop Museum gave generously of their time to help us. Finally we wish to express our gratitude to the National Science Foundation, whose financial support made this work possible.

Surveys and Excavations

NOTE: In the system of site designation used, At indicates Aneityum; An, Aniwa; Fu, Futuna; Er, Erromango; and Ef, Efate. The sites were numbered in the order found. Rockshelters and caves were numbered separately and bear the added letters RS after the letters designating the island.

Aneityum

Aneityum is the most southern of the New Hebrides Islands. Survey and excavations were carried on here during November and December 1963 and January 1964. The island is roughly rectangular in shape, about 17 × 10 miles square. The interior is mountainous. As on almost all of the islands of the New Hebrides, the extremely dense vegetation makes travel on the island and location of archaeological sites difficult. The mountains of the interior are particularly difficult of access. We recorded 20 archaeological sites on Aneityum, 17 of them on the coastal plain and three in the interior. Eleven of the sites are caves or rockshelters and seven are old village sites. In addition there are two areas of basaltic boulders covered with petroglyphs. These represent probably only a part of the sites yet to be recorded on Aneityum.

The village sites have a very shallow deposit. In test excavations usually no natural or cultural stratigraphy was apparent and the midden appeared to be much mixed and churned. The Melanesian villages are small today and are said to have been even smaller in the past and their location shifted frequently. Turner said of Aneityum in 1845: 'Saw nothing like a decent village. Two or three huts are put up in a plantation, and when the food is consumed there another spot is selected, and there they plant and build again; and thus migrate from place to place within a certain division of the island' (Turner 1861: 371). For this reason and because of our severely limited time, our efforts were directed mainly towards the excavation of caves and rockshelters. These have been used throughout the human occupation of the island as temporary camps, for fishing parties, for people traveling from one part of the island to another, and as places of refuge in time of war. Because the area suitable for use is strictly circumscribed, there has been a vertical accumulation of midden. Examination of these middens seemed to offer the quickest means of determining the duration and character of prehistoric New Hebridean culture. Test excavations were made in five sites: three village sites, At1, 4, and 7, and two rockshelters AtRS1 and 3.

At1 is located on the site of a modern village on Anelgauhau Bay on the south coast of the island. A mission was established here during the nineteenth century and people moved here from other locations. A very extensive but shallow midden extends along the coast. Ten 3 × 6 ft. pits were sunk in various places in the midden. In each case sterile beach sand was struck at a depth of about 18 in. An area 16 ft. 4 in. long and 8 ft. 9 in. wide was excavated at a spot where

pottery was found on the surface. The upper 6 in. was composed of a black midden rich in broken shell, objects of European manufacture and two types of pottery, one thin-walled, and the other a thick biscuit ware. Underlying this stratum was a grey midden 2 to 6 in. thick, containing broken shell but no European objects and no pottery. This location was the only place where pottery was found on Aneityum.

Five shell artifacts were found in the midden of *At1*: a small tridacna chopper or scraper of rectangular shape trimmed by flaking on the interior face of three edges; the ground top of a conus shell perforated in the center by a drilled hole and retaining some of the side wall (possibly an unfinished pendant or drill weight); a small rectangular piece of cut shell; an olive shell with spire ground off, identical to those shown by Gifford and Shutler from New Caledonia and the Solomons (1956: 84, Pl. VIII *a-b*, Pl. XX *a*); and a rectangular piece of cut pearl shell with an irregular central perforation similar to fishhook blanks from Hawaii (Emory and Sinoto 1961: 52, Fig. 45) and Nuku Hiva (Suggs 1961: 85, Fig. 26d).

At4 is located in the bush away from the seashore on Anelgauhut Bay. There is a small, shallow midden area about 60×75 ft. in extent. Five pits, 6×3 ft. in size, were dug into the midden. It was found to be unstratified, having an average depth of 18 in. A few objects of European manufacture were found throughout the midden. A small unfinished shell adz lay at the bottom. It was cut from the side of a large conus.

At7 is the site of a pre-missionary village near Aneityum on the south coast. One 3×6 ft. pit was dug. The midden was found to be as much as 42 in. deep. A shell with an artificial perforation was found at the base of the midden.

AtRS1 is a rockshelter located at a place called Anuonupul on the west coast. An overhang in a cliff of consolidated volcanic material forms a rockshelter 42 ft. wide across the mouth and extending back into the cliff as much as 24 ft. Five 3×6 ft. pits were excavated to bedrock. The maximum depth of the midden was 60 in. Low walls were noted running in all directions throughout the midden. Those on the surface demarcated four rooms or living areas. The shelter had been differently divided into rooms at various times in the past. The walls were composed of two or three courses of dry-laid unshaped boulders from the beach. Objects of European manufacture were found in the top six in. of deposit in some pits.

Seven large pieces of cut trochus shell and one piece of cut tridacna, probably debris from the manufacture of shell implements, were found. In addition were found a rectangular tridacna scraper, bifacially trimmed on all four edges, similar to the one from *At1*; a sea urchin spine bearing a deep cut; an unfinished conus adz; a large limpet shell with a hole punched in the side, resembling the net sinkers from New Caledonia (Gifford and Shutler 1956: 63, Pl. III *a*, Pl. VII *g*) and Yap (Gifford and Gifford 1959: 192, Pl. XLI *e-f*); a piece of cut pig rib; and the burned tip of a ground and polished bird bone. A radiocarbon sample of charcoal taken from the bottom of the midden gave a date of A.D. 1480 [UCLA-693:470±80 (1964)].

AtRS3 is a rockshelter located at Inmanhat on the west coast of the island. An overhang in the volcanic rock forms a shelter about 87 ft. wide that extends back as much as 16 ft. into the cliff face. Here two pits, 3×6 ft., were dug to sterile beach sand. The maximum depth of the midden was 90 in. Artifacts found in the shelter include a large operculum, flaked on the interior face along three-quarters of the perimeter to form a small chopper; a piece of trochus shell cut into an oval shape, possibly a spoon; and bits of shell-flaking debris, turbo, trochus, and conus. A radiocarbon sample of charcoal taken from the bottom of the midden gave a date of A.D. 1100 [WSU-140:850±120 (1964)].

One of the two petrogllyph sites is located near Port Patrick on the north coast. Here a large

basalt boulder approximately 30 ft. long, 15 ft. wide, and 12 ft. high is covered with line designs pecked into the rock. They depict anthropomorphic, theriomorphic and geometric elements. The other petroglyph area is located on a hillside above the Umej River on the south coast. Scattered basaltic boulders bear one or more designs similar to those pecked into the rock at Port Patrick. Very extensive abandoned agricultural terraces were observed on hillsides all over the island.

No stone artifacts were found in excavations or on the surface of any of our recorded sites. Two ground and polished basalt axes were purchased from Aneityumese. The larger one is of oval outline 131 mm long, 59 mm wide, and 32 mm thick. The cross-section is subrectangular. The smaller one is almost triangular in outline, 84 mm long, 57 mm wide across the cutting edge, and 26 mm thick. It has a similar cross-section. The cutting edge has been resharpened by flaking along one face.

Tanna

Survey and excavation were undertaken on Tanna during February and March and part of April 1964. Tanna lies north of Aneityum. It is roughly crescent-shaped, approximately 21 by 11 mi. in size. The interior is mountainous. There is an active volcano on Tanna whose ash was noted in archaeological deposits. We were able to obtain permission from the Tannese to work only in the southern part of the island. Along that coast we recorded five rockshelters, a large village site, and numerous small midden areas. They represent, of course, only a small fraction of the probably very great archaeological resources of the island. As on Aneityum the open sites are generally unstratified and shallow. The population, at least along the south coast, was evidently small and scattered. The villages appear to have been tiny hamlets which were frequently moved. Caves and rockshelters were used as fishing camps, refuges, and occasionally burial places.

TaRS1 is a rockshelter and cave penetrating into a raised reef near the modern village of Bethel on the south coast. The mouth of the shelter is 24 ft. across. The shelter extends 54 ft. back into the reef to form an outer room. This outer room is connected to a narrow passage 12 ft. long which leads to an unlighted inner room approximately 60 × 20 ft. in extent. The outer room was completely excavated to bedrock. The maximum depth of the midden was 126 in. Three pits dug in the inner room revealed it to have a shallow, completely sterile deposit of dust, clay, and rock fall. Objects of European manufacture were found in the top 18 in. of deposit. In one area, which seems to have suffered some disturbance, they appeared as deep as 72 in.

An extended burial in a prone position, the hands under the pelvis, the skull oriented towards the southwest, lay 5 ft. beneath the surface. A worked stone disc was buried with the body near the cranium. Other stone artifacts from the cave include three very small fragments of polished stone tool, possibly axes; an ax fragment reused as a scraper; and a disc bead with a biconically drilled perforation in the center rather similar to the one described from Yap (Gifford and Gifford 1959: 194, Pl. XXXVIII *y*). Seven pieces of tridacna-flaking debris were found. Other shell artifacts included two turbo scrapers like those found on Saipan (Spoehr 1957: 157, Fig. 83); a piece of cut conus shell; a fragment of a conus adz; and a conus shell with spire chipped off like the one from At1. Three beads made from the tops of conus shells were found. One is ground to a cup shape with a small central perforation similar to those described from Saipan (Spoehr 1957: 154, Fig. 86, top row) and Yap (Gifford and Gifford 1959: 191-2, Pl. XXXVIII *m-v*). Another is a tiny disc which retains some of the side walls of the shell and

has a small central perforation. The third is a small flat disc. All of the side wall is ground away and the perforation is large so that the bead resembles a flat ring. There are two sea urchin spines whose tips bear traces of grinding (Emory and Sinoto 1961: Fig. 48b); a 'stick' of coral cut off at one end; and a bi-pointed ground piece of coral, perhaps a gorge fishhook (ibid.: 53, Fig. 47). Four bone tools were found: a spatulate object made of ground pig clavicle; a large bone cut to form an awl (Emory and Sinoto 1961: 40, Fig. 32h), the tip of which appears to be a polished bone awl; and a small bird bone drilled at one end and polished to a point at the other (the piece of burned and polished bird bone from AtRS1 would seem to be a fragment of this kind of artifact). Finally there is a small nasal ornament in the shape of a truncated cone made of baked clay. A radiocarbon sample of charcoal collected at a depth of 126 in. at the bottom of the midden gave a date of 420 B.C. [UCLA-734:2370±90 (1964)].

TaRS3 is located nearby in the same raised reef. The mouth of the shelter is 90 ft. wide. Additionally at one point there is a room about 20 ft. wide running back about 40 ft. into the cliff. This room was completely excavated and twenty-three 3×6 ft. pits were dug to bedrock in the shelter area. The maximum depth of the deposit was 60 in. A few objects of European manufacture were found in the top 12 in. of deposit. The skeleton of an adult male was found, loosely flexed, lying on the right side, the skull oriented to the southeast, in an oval grave of 50×27 in. The grave pits was dug down from 36 in. to 42 in. No artifacts were associated with the burial. The fragment of a large ground conus top with a central perforation like the one from At1 was found, as well as part of a small 'star'-shaped pendant. Stone artifacts included a basalt sphere with a pecked area showing its use as a hammerstone and a fragment of an oval plano-convex pumice abrading stone.

Several stone artifacts were purchased from the Tannese or given to us. These include three fragments of the long cylindrical Tannese 'war clubs' and eight polished stone axes. The axes are all oval or roughly triangular in outline and elliptical or subrectangular in cross-section. The longest is 193 mm long and the shortest 73 mm. The latter is of triangular outline and elliptical cross-section. It is the only one whose cutting edge bevel makes probable its function as an adz.

Aniwa

Aniwa is a small flat coral island off the east coast of Tanna. It is approximately 4 mi. long and three-quarters of a mile to a mile and a half wide. A number of archaeological sites were recorded there, but no excavations were made on the island, since our return was prevented by bad weather. Sixteen archaeological sites, 15 village sites and one cave were recorded. Again the open sites were observed to be small areas of shallow midden deposit. The list probably represents the greater part of the archaeological remains on the island. The Aniwa knew the locations and names of old villages and were able to recount traditions concerning the sequence and circumstances of their founding. Aniwa, like its neighbor Futuna, is a Polynesian outlier. The inhabitants of these two islands speak closely related varieties of the same Polynesian language. One stone ax was purchased on Aniwa. It is roughly triangular in outline with an elliptical cross-section, 124 mm long, 69 mm wide across the cutting edge, and 33 mm thick.

Futuna

Futuna is a small volcanic island about 2 mi.² lying directly east of Tanna. Like Aniwa, Futuna is a Polynesian outlier. Its mountainous central plateau rises abruptly from the sea.

Since suitable lands for villages and fields are severely limited, the modern population and the archaeological sites are concentrated in a few areas. A site survey and excavations were made on Futuna during part of April and May 1964. The inhabitants knew the names and locations of old villages. We recorded 38 sites on the island, 19 rockshelters and 19 open middens. This probably represents nearly the total inventory of archaeological sites on Futuna. We excavated in one open village site and in seven rockshelters. All of the excavated sites are in the northeastern part of the island.

Fu1 is an old village site. It is an area of very shallow midden, approximately 90×45 ft². The unstratified deposit reached a maximum depth of 12 in., although over most of the area the midden layer was only about 6 in. thick. From this midden we collected two coral files (Emory, Bonk, and Sinoto 1959: Pl. VI (4-5); Suggs 1961: 117-8, Fig. 32a-b, e, g); a fragment of some kind of ground limestone artifact, possibly a file; a small oval pumice abrading stone with a plano-convex cross-section; a fragment of a larger abrading stone of similar shape, one end of which was used as a hammerstone; and another piece of a still larger abrading stone of the same shape; the short piece of a Tannese war club identical to those collected on Tanna; and a tridacna shell adz (Emory 1934: 21, Fig. 10b; Gifford and Gifford 1959: 185-6, Pl. XXXVIIb; Spoehr 1957: 151, Fig. 81, top row).

Fu14 is an old village area from whose surface we collected a number of artifacts. Among these were three polished stone ax fragments with oval outlines, of which two have elliptical cross-sections and the other a subrectangular cross-section; a polished stone adz resharpened to a rectangular outline by flaking, with cutting edge beveled and a similar bevel formed by flaking at the opposite end; and a Tannese war club fragment.

Fu15 is another midden area located near *Fu14*. A curved, trimmed stone slab said to be a club was found on its surface.

FuRS1 is a rockshelter formed by an overhang in a raised reef. The mouth is 40 ft. wide and the shelter extends back 10 ft. into the reef. An area 7×9 ft. was excavated to bedrock. The maximum depth of the midden was 24 in. An adjacent shelter measuring 40×20 ft., called *FuRS1a* was completely excavated. Here the midden reaches a thickness of 36 in. This shelter was roughly divided into three rooms by low walls of piled-up limestone boulders. Parts of two skeletons were found in this shelter, representing a secondary burial. Two pieces of bone from this burial had been cut. A piece of tridacna-flaking debris and a tridacna shell adz like the one described from *Fu1* came from *FuRS1*. A piece of polished stone adz, a large worked flake of basalt, a fragment of an oval sandstone abrading stone with a plano-convex cross-sections, and a piece of a coconut shell cup were found in *FuRS1a*.

FuRS2 is a small shelter in a raised reef. A trench 12 ft. long and 6 ft. wide was excavated to bedrock. The maximum depth of the midden in this shelter was 36 in. A large earth oven was uncovered here.

FuRS3 is a very small shelter, about 10 ft. wide and 3 ft. deep. The mouth of the shelter was sealed by a crudely constructed wall of piled-up boulders. Other boulders were placed on the floor of the shelter covering the scattered bones of at least six individuals. None of the skeletons was complete and they had been much disturbed by rodents. Found among the bones were a white cowrie with a perforation which indicates use as a scraper; a small flat conus ring-pendant (its diameter is too small to permit use as a bracelet even by a child); a piece of cut turbo shell, a small leaf-shaped 'point' ground from a bit of coral; the fragment of a basalt cobble, one end of which was used as a pestle or hammerstone (Bennett 1931: 65; Suggs 1961: 103); and an assortment of small cut and split mammal bones.

FuRS4 and 5 are two large shelters from which excavation did not yield any artifacts. A firehearth was uncovered in *FuRS4*. Low rock walls divided both of these shelters into rooms.

In *FuRS9*, a small shelter, were the bones of several individuals lying on the surface. There was no midden deposit. Several artifacts were mixed with the bones, which were scattered by rodent activity: a spiral conus bracelet (Gifford 1951: 220, Fig. 11; Gifford 1959: 191, Fig. 38i-1; Gifford and Shutler 1956: 64, Pl. VIa-e); a short bead made of a polished segment of pig tusk (Suggs 1961: 138); and an assortment of small unmodified bird bones.

FuRS12 is a shelter 45 ft. wide and 12 ft. deep formed in a cliff of consolidated volcanic rock. It was completely excavated to bedrock. The greatest depth of the midden was 48 in. A large earth oven containing fractured rock and charred leaves was discovered. Fifteen burials, representing men, women, and children, were uncovered here. There was no consistent position or orientation of the skeletons. The graves were dug through the shallow midden along the back of the shelter and lay on bedrock. In many graves unshaped boulders lay along one or both sides of the skeleton, lining the grave pit, or covered the bones. Several of the burials were accompanied by grave goods, which are described below under their respective burials.

The group of bones called *Burial 1* included the scattered skeleton of a child disturbed when a later pit was dug in the same location. The later pit contained the secondary burial of an adult. The ornaments found seem to have been placed with the child. These include two half pearl shells (Emory and Sinoto 1964: 147; Gifford and Gifford 1959: Pl. XXXV). The shells were very badly decayed. They originally had at least two perforations along the edge. Three triangular pearl shell pendants, two of them perforated at the apex; a spiral conus bracelet (like the one from *FuRS9*); two small conus top disc beads with some of the side wall remaining, and a conus top cup bead (like the ones from *TaRS1*) were found.

Burial 2 is the tightly flexed primary inhumation of an adult lying on the right side, the skull oriented to the west. Large rocks lined the grave. A rectangular perforated shell pendant lay on the pelvis; a perforated red pecten shell (Suggs 1961: 129), the fragment of an oval pearl shell pendant, and a small rectangular pearl shell plaque (Suggs 1961: 134, Fig. 35c) were found among the ribs.

Burial 4 is the skeleton of an old male, which lay tightly flexed on the right side, the skull face down, oriented to the east. Rocks lined the grave of the primary inhumation and lay over the skeleton. Associated with this burial were three half pearl shells, with holes along the edges, badly decayed (see *Burial 1* above); and 14 small conus disc beads like those from *TaRS1* and *Burial 1* above.

Burials 8 and 9 are badly scattered. It would appear that the group of bones called *Burial 9* contained first the secondary inhumation of an adult. One of the bones shows signs of cutting. This burial was then disturbed by the intrusion of a child's grave. This was a primary inhumation and associated with it were three half pearl shells (like *Burials 1* and 4). One or the other of these graves once had a rock cover. *Burial 8* is the loosely flexed primary inhumation of an adult lying on the left side, the skull oriented to the west. The legs intruded into and further disturbed *Burial 9*. About the neck of this skeleton over 450 small conus disc beads (like those from *TaRS1*, and *Burials 1* and 4 above) were found lying in order, showing that they formed a single strand necklace tied about the neck. A cylindrical, biconically drilled yellow stone bead similar to the one illustrated by Gifford and Shutler (1956: 69, Fig. 3c), although made of a different material, was found in such a position that it was impossible to say to which individual it had originally belonged.

The designation *Burial 11* applies to a small cluster of bones from Burial 9, gathered up and reburied when Burial 9 was disturbed by the intrusion of Burial 8. With these bones was found a large flake of tridacna shell, possibly an adz blank.

Burial 12 is the scattered remnants of what appears to have been the flexed primary inhumation of an adult. A worked flake of limestone was found at the distal end of the right tibia, and a flat, ground conus top ring-pendant (like that from FuRS3) lay on top of the proximal end of the left tibia. A small shell adz with round outline and elliptical cross-section lay under these bones.

Burial 14 is the semi-extended burial of an adult lying on the right side, the skull oriented to the west. A flat conus ring-pendant (FuRS3 and Burial 12 above) was found on the thoracic vertebrae. A small fire had been lit on the rib cage of the skeleton. The tops and sides of these bones had been burned.

Burial 15 is a rock-covered secondary burial. One of the bones had been cut.

One unfinished conus cup bead (TaRS1 and Burial 1 above) was found in the midden.

A radiocarbon date of A.D. 1045 [WSU-184:905±190 (1964)] was derived from a sample of the charred leaves from the earth oven. Another sample of charcoal from a depth of 36 to 42 in. at the front of the shelter dated A.D. 1750 [WSU-196:200±190 (1964)]. One polished stone ax was purchased from the Futunese. It is 180 mm long, 81 mm wide at the cutting edge and 32 mm thick. Its outline is triangular, with elliptical cross-section.

Erromango

Erromango is a very large volcanic island situated between Tanna and Efate. Bad weather prevented our making more than a brief visit. Six caves bearing cultural deposit were noted there. One of them is a burial cave. The only artifact we have from the island is a large 'boat'-shaped ground piece of tridacna shell. It is 401 mm long, 80 mm wide, and 91 mm thick. It was said to be shell money and is very similar to a piece of shell money collected on Yap (Gifford and Gifford 1959: 192, Pl. XXXIV *d*).

Efate

Efate is a large volcanic island north of Erromango. We worked on Efate during June 1964 only in the area around Vila Harbor. Four village sites and eight rockshelters were found in this area. Two small sand islands in the harbor, Mele and Fila, are covered with midden deposit and are inhabited today. Excavations were made in two village sites and three of the rockshelters.

Ef1 is a large area of midden on Efate directly facing Fila Island. Twelve pits 3×6 ft.² were excavated to sterile beach sand. The maximum depth of the midden was 18 in. Artifacts from the midden are as follows: a tridacna adz (like those from Fu1 and FuRS1); and several perforated shells, a terebra shell like the one described by Emory and Sinoto as a stopper for a gourd bottle (1961: 47-8, Fig. 37), a diadora shell whose natural hole had been enlarged, a small conus perforated on the side, and three drilled circe shells. No pottery was found on this site.

Ef2 is also located on the main island of Efate and is an area of shallow midden deposit. Here, seventeen 3×6 ft. pits were dug to bedrock. The greatest depth of the midden was 24 in. The midden lacked bone, and broken shell was rare. A small section of cut conus shell and seven potsherds, one decorated, were recovered.

Ef3 is the site designation given Fila Island. Sixty-three pits, 6×3 ft.² were dug in three

different locations on the island. The maximum depth of the midden in any location was 36 in. European objects were found as deep as 12 in. Two tightly flexed burials of adults were found. Burial 2 was that of a female accompanied by a necklace of over 800 small flat conus top disc beads (not like those from Tanna and Futuna), a flat ground conus top pendant with a central perforation like those from At1 and TaRS3, and two triangular pearl shell pendants like those from FuRS12, Burial 1. Other ornaments were found in the midden: a second flat disc conus pendant; a round pearl shell pendant, possibly unfinished, with a hole drilled in the side and another drilled partly through the center; and a conus cup bead like those from Tanna and Futuna. Ten shell adzes were found: six of tridacna shell (Fu1, FuRS1, and Ef1), three of terebra shell (Gifford and Gifford 1959: 185-6, Pl. XXXVII *b*), and one of conus (At4, TaRS1). There is another shell adz of oval outline 73 mm long, 53 mm wide, and 37 mm thick; and a rectangular tridacna scraper or chopper, flaked on all four sides like those from At1 and AtRS1. There is a round piece cut from the side of a cowrie; a conus shell perforated on the side like the one from Ef1; two top sections cut from conus shells, one drilled through the center and one not, like the piece from At1; three operculum scrapers identical to the one from AtRS3; two perforated arca shells (Gifford and Gifford 1959: 192, Pl. XLI *c-d*; Gifford and Shutler 1956: 63, Pl. III *a*, Pl. VII *g-h*); and a coral 'stick' with a ground facet, probably a file. There are also several unshaped flakes of shell (tridacna, oyster, conus, and pearl shell) showing signs of cutting or wearing from use. Two pieces of pig bone were found, one cut to a point and the other ground to form a small spatula. A considerable collection of potsherds was made at Ef3. The design elements, formed by relief, appliqué, and incising, are similar to elements found on modern pottery from Santo and on archaeological sherds from Fiji and New Caledonia (Gifford 1951: Pl. XXI, XXIV; Gifford and Shutler 1956: Pl. XII *r-x*, Pl. XIII-XV).

Three radiocarbon samples have been assayed from Ef3. One taken from a depth of 30 to 36 in. gave a date of A.D. 1135 [WSU-200:815±180 (1964)]. The second was taken from a different location at a depth of 18 in. and yielded a date of A.D. 930 [WSU-199:1020±130 (1964)]. The last came from yet another location at a depth of 6 to 12 in. and yielded a date of A.D. 860 [WSU-198:1090±140 (1964)].

EfRS6 is a small shelter on the main island of Efate formed by an overhang in a raised reef. A large trench was excavated to bedrock. The greatest depth of the midden was 36 in. No artifacts were found.

EfRS7 is also a small shelter on Efate. A trench 5×10 ft. was excavated to bedrock reached at a depth of 48 in. One small bipointed piece of ground coral like the one from TaRS1 and a firehearth were uncovered. A radiocarbon sample of charcoal from 36 to 42 in. gave a date of A.D. 725 [WSU-197:1225±175 (1964)]. No pottery was found here.

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