

SEA TURTLES - SOCIETY ISLANDS

MORE

G.H. BALAZS

les Nouvelles de Tahiti

EVAHAM

les Nouvelles de Tahiti

Elevage

Vendredi 10 octobre 1991

11

La tortue de lagon au secours de la tortue de mer

Son élevage a commencé et semble promis à un bel avenir

L'élevage des tortues marines ne semble pas poser de difficultés particulières. C'est l'enseignement majeur, et rassurant pour l'avenir de ces espèces en voie de disparition, de la première phase du programme de recherche - élevage - protection des tortues marines conduit par l'Evaam (établissement public pour la valorisation des activités aquacoles et marines) depuis 1980. Ce programme, lié aux études menées internationalement dans tout le Pacifique Sud, vise à rendre possible à la production annuelle d'environ cent tonnes de chair de tortue verte et sésuaire ainsi la demande locale. La chasse à la tortue sauvage, déjà formellement interdite en Polynésie française depuis juillet 1990, serait dès lors sans objet.

La station de l'Evaam à Papeari a organisé un enclos d'environ 6000 m² dans le lagon pour y créer des enceintes d'élevage de superficies variables selon les lots expérimentés. Quelques 320 m² de ces fermes sont aujourd'hui exploitées et devraient voir doubler leur superficie utile d'ici la fin de l'année. Les jeunes se développent bien mieux que dans la lagune où avaient été conduits les premiers essais. Les tortues élevées depuis

Vers une production d'"œufs maison"

En fait, l'opération "tortues sauvages domestiques" s'est avérée décevante en amont des expériences d'élevage proprement dit. Les œufs font défaut, tout simplement. Le projet était de les collecter sur les sites naturels de ponte mais la mission conduite sur dans ce but à Mopelia en décembre 1990 a fait chou



La tortue de lagon va-t-elle remplacer la tortue de mer?

cette pratique et rechercher d'autres sites de ponte plus commodes le temps nécessaire à la mise au point d'une cette pratique et rechercher d'autres sites de ponte plus commodes le temps nécessaire à la mise au point d'une

tion de l'Evaam, des concours financiers sont attendus de l'Etat et du programme régional pour l'environnement du

protégés et ne serait-ce que détenir une carapace peut entraîner sanction. Des dérogations ne peuvent être

deux ans pèsent plus de vingt kilos et le rapport aliment/poids, décisif pour toute exploitation commerciale, est meilleur que pour la chevette, par exemple. Un kilo de chair de tortue demande un peu moins de deux kilos de granulés contre trois pour la chevette. De surcroît, en jouant sur les températures d'incubation les chercheurs de l'Evaam vont vérifier s'il est bien possible de choisir le sexe de la tortue à volonté et sélectionner mâle ou femmes selon leurs vitesses de croissance respectives et leurs plus ou moins bon rendement en chair et écailles.

Obstacle non négligeable, toutefois, à lever pour permettre une exploitation commerciale rentable, le coût de l'aliment expérimental mis au point par l'Ifremer pour le loup tropical et produit par l'Huilerie de Tahiti reste élevé. Il devra pouvoir bénéficier d'économies d'échelle et d'ajustement techniques pour

blanc, ou presque. Elle n'a observé qu'une seule montée de tortue pleine durant une semaine et n'a relevé que deux nids dont l'un vieux de trois semaines alors que le défi normal entre l'éclosion et l'émergence de l'animal est de quelques jours. La "cueillette" naturelle des oeufs, on pouvait le craindre, s'avère par trop aléatoire. Et les trop rares oeufs ne résistent pas au transport par des mers parfois difficiles jusqu'à la station de Papeari. Quand le programme prévoyait d'élever un millier d'oeufs de Mopelia cette année et produire vingt-cinq tonnes de chair en 1984, il devra se contenter d'à peine trois cents et réviser sa production à la baisse d'autant. La solution proposée, et retenue par le conseil des ministres qui a examiné ces premiers résultats mercredi dernier, consistera à produire sur place ces oeufs en maintenant des géniteurs en captivité. L'Evaam va expérimenter

Protéger les tortues marines: une priorité internationale

La protection des tortues marines est une priorité internationale reconnue. En sus de crédits réservés au budget local pour cette opéra-

production satisfaisante d'oeufs maison. Le programme tortues marines de l'Evaam ne se contente pas du seul but, étroitement mercantile, de produire de la chair. Il veut connaître plus précisément les sites de ponte fréquemment en Polynésie, organiser leur surveillance, évaluer les migrations dans le Pacifique en marquant et relâchant toute prise, approfondir notre connaissance génétique des animaux et contribuer à la survie de l'espèce en permettant en liberté une tortue d'élevage sur quatre à proximité de l'île où son oeuf aurait été collecté.

Enfin, cette ambition n'a de sens que si les populations concernées sont elles-mêmes sensibles et attentives à la sauvegarde des tortues marines. Ministères, mairies, associations devraient être prochainement associés à une vaste campagne de sensibilisation. Et d'avertissement. Capturer, tuer, détenir, transporter, dépecer, commercialiser, importer, exporter toute tortue marine est interdit en Polynésie française et passible de sanctions pénales. Les oeufs de même

accordées que pour des besoins alimentaires strictement précisés, des recherches scientifiques, des projets d'élevage ou d'aquariums agréés. Encore la période où ces dérogations peuvent être envisagées pour le premier cas est-elle limitée du 1er février au 30 mai et pour des animaux de bonne taille dont la carapace mesure plus de 85 cm de longueur. Trois espèces de tortues sont ainsi strictement protégées: la tortue verte "honu" (Chelonia mydas), la tortue luth (Dermochelys coriacea) et la tortue bonne écaille "honukea" (aretmocheleys imbricata).

La Polynésie ne fait ainsi que s'inscrire dans une préoccupation mondiale et respectueuse de la convention internationale de Washington pour la protection des espèces menacées d'extinction.

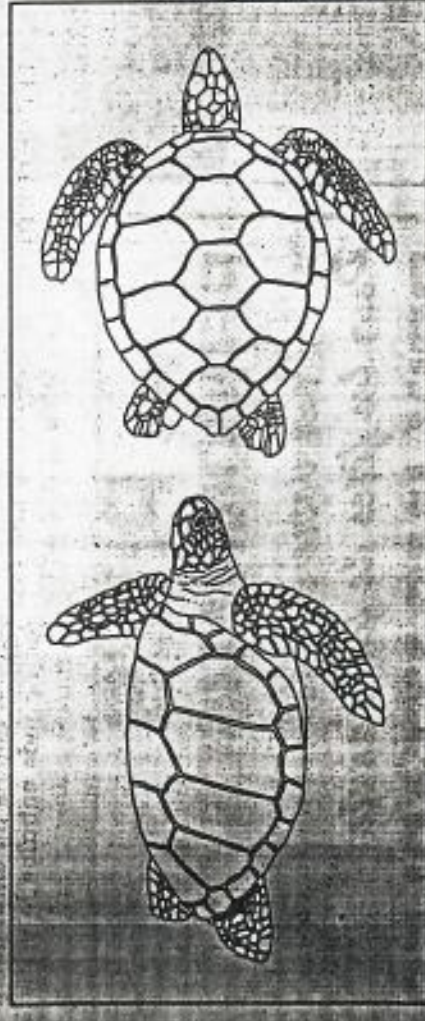
C.G.

Cycle biologique

1. Ponte: 220 à 500 oeufs par femelle tous les 2 ou 3 ans.
2. Incubation: 50 à 60 jours. Les tortues ne couvent pas leurs oeufs. C'est la chaleur du soleil qui favorise l'incubation.
3. Eclosion: Les nouveaux nés mesurent 3 à 4 cm de long. Ils sont carnivores. Ils sont la proie des oiseaux, crabes, bernard-l'hermite et des poissons carnivores. Il y aurait moins de 1% de survie entre l'éclosion et les premières semaines de vie.
4. Accouplement:

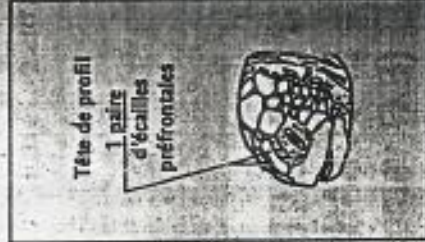
Les tortues mettent 4 à 8 ans avant d'atteindre la maturité

Tortue verte Chelonia mydas (Linné 1758)
Espèce à l'exploitation
Longueur de la carapace : 130 cm



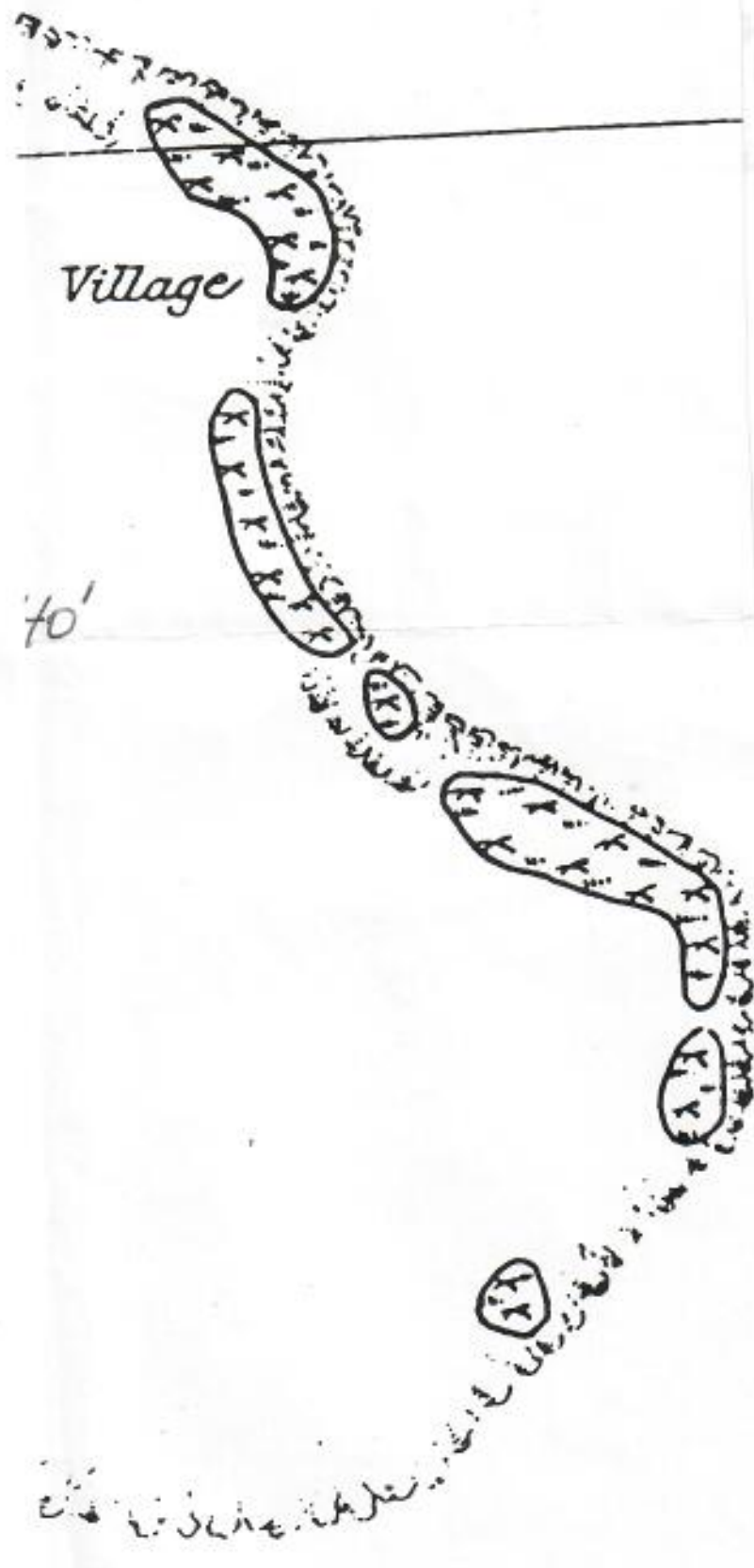
HONU

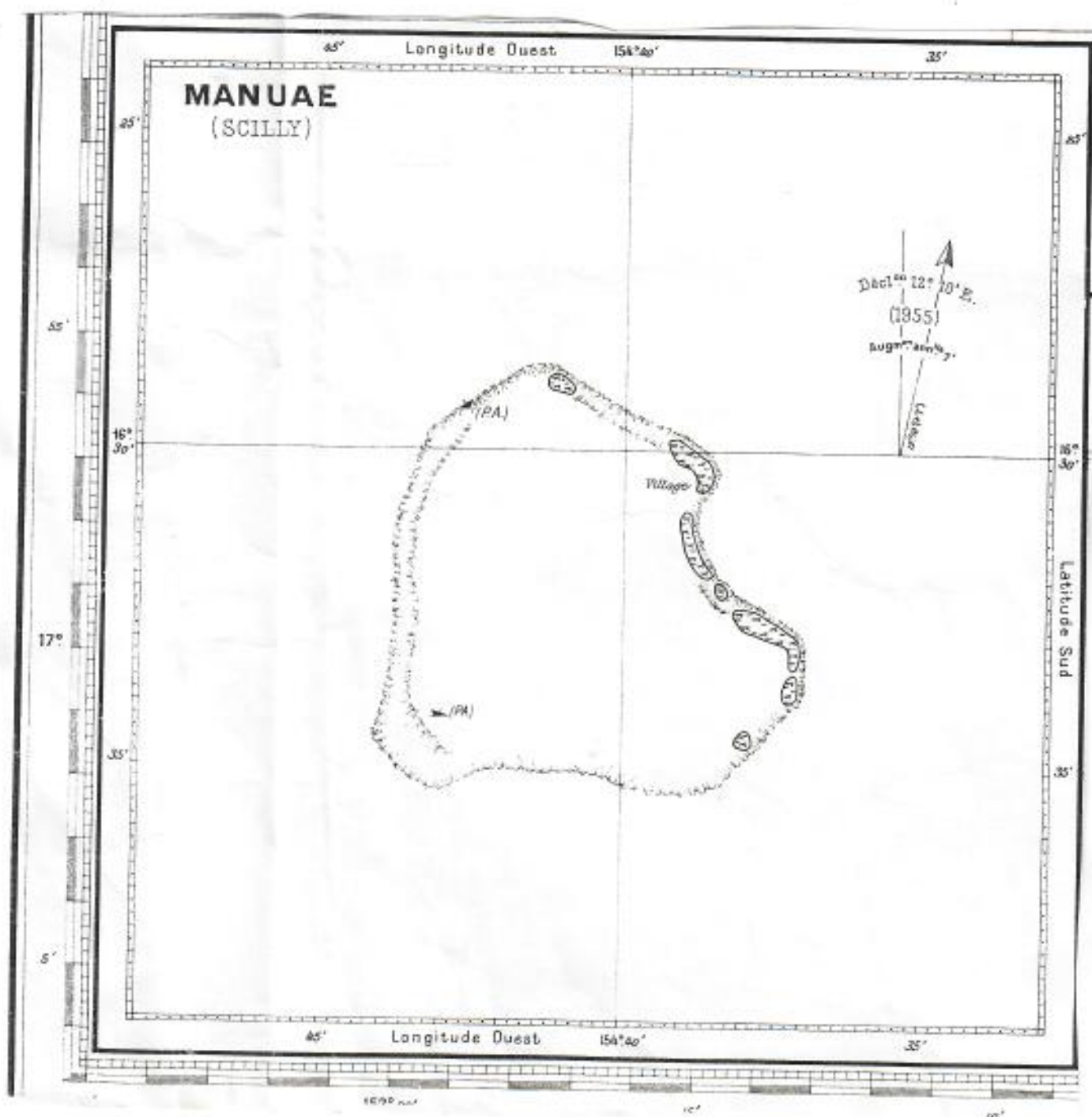
Rahi roa tons rava'a ra'ahia.
Roara'o te pa'itua: 130 cm
Toihahara'a : 200 kilo

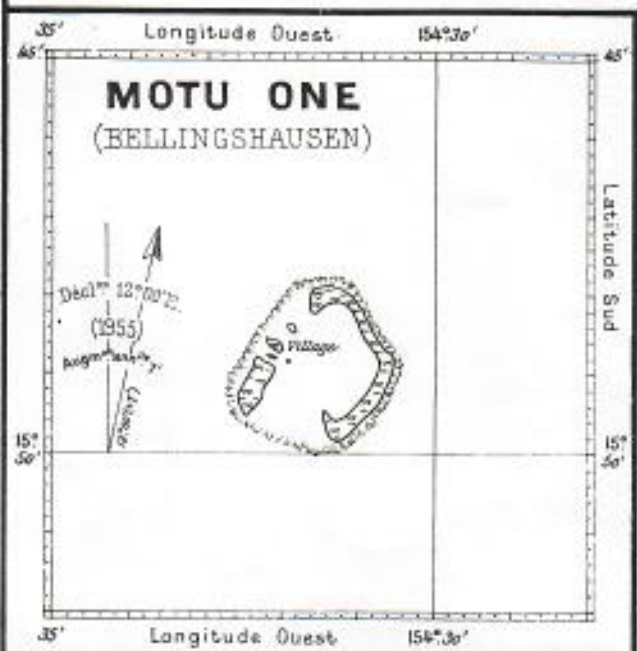


Tête de profil
1 paire d'écailles préfrontales













490

450

A S

434

é

Moorea

Tahiti (Nukunono)

E L

400

Motone

D E L A S O C I E T E

Moro Iti (Tapai)

Bora Bora

Tahaia

Raiatea

S O U S L E V E N T

Taiti

I L E S

E T

A

D U V E N T

Papeete

Moorea

Tahiti

Presqu'île de Tairarapu

Malo (Ivua Mala)

Motone

412

400

400

SPC-NMFS/Turtles/WP.4
25 October 1979

ORIGINAL : FRENCH

SOUTH PACIFIC COMMISSION

JOINT SPC-NMFS WORKSHOP ON MARINE TURTLES
IN THE TROPICAL PACIFIC ISLANDS
(Noumea, New Caledonia, 11 - 14 December 1979)

TAGGING AND REARING OF THE GREEN TURTLE CHELONIA MYDAS
CONDUCTED IN FRENCH POLYNESIA BY THE DEPARTMENT OF FISHERIES

SUMMARY

The following is a preliminary report based on the observations made on Chelonia mydas in 1972, 1973, and 1979 by officers from the Department of Fisheries of French Polynesia. Most tagging was done on adult females on the atoll of Scilly. Rearing trials were run, and observation of eggs and hatchlings brought to light some of the difficulties associated with aquaculture of this species.

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INTRODUCTION

The Department of Fisheries' involvement with protection of the green turtle Chelonia mydas goes back to 1972. Tahitians, like all South Pacific islanders, are extremely fond of this meat from the sea.

The atoll of Scilly or Manuae, longitude 154° 40 W, latitude 16° 40 S (Fig. 1), is one of the favourite nesting areas in French Polynesia for the green turtle, which is why research, and protective operations, were first started on this island. Scilly was declared a "protected area" on 28 July 1971 and the one family living there was appointed to watch over it.

The scientific data recorded since 1972, when the turtle programme began, were unfortunately dispersed, and to reassemble them was a difficult task indeed; much information is therefore missing. A modest study was nevertheless undertaken and comparisons made with other areas in the world where Chelonia mydas is found.

A small-scale green turtle rearing trial was undertaken in Rangiroa. In the absence of marine phanerogamia the hatchlings were experimentally fed on fish scraps and, especially, on Tridacna (Clam) flesh. It very quickly became apparent however that once they had reached a certain size, the young turtles developed deficiency symptoms due to the lack of plant materials in their diet. Attempts to feed them with land plants or algae were unsuccessful. The turtles finally had to be released and the programme remained confined to natural protection measures. This type of protection has proved positive since one of the turtles released from the Rangiroa farm weighing about 6.7 kg was recaptured almost 3,500 miles from the place of release.

I. TAGGING

1) Scilly, privileged nesting area in French Polynesia

Commonly eaten and much likely by the local population, the green turtle is becoming scarcer in French Polynesia, as in the rest of the world. Intensive exploitation has decimated green turtle populations in the Mascarene Islands, the Seychelles, Aldabra,

Chagos and the Maldiva Islands. One commercial fishery is still operating in the Saint Brandon group and supplies around 50 tonnes of turtle meat to Mauritius (Hugues 1972). In French Polynesia, green turtles used to be extremely abundant in the whole of the Tuamotu island group, but due to the presence of man nesting is now restricted to the uninhabited areas, in particular Scilly atoll which is a privileged nesting place in French Polynesia, as are Europa and Tromelin in the Indian Ocean. Tagging was mainly carried out from Scilly, situated on the westernmost boundary of French Polynesia, very difficult of access, and far from any sea route, which is no doubt why it is still regarded as safe for nesting by the green turtle.

2) Tagging operations

The turtles tagged by the Department of Fisheries were thus primarily females that had come to lay their eggs on the beach. After the eggs are laid, the nests are carefully guarded during the period of incubation which can be anywhere from 49 to 65 days long. When the baby turtles hatch, they work their way out of the sand and head for the sea. Some of the hatchlings chose the night to emerge totally from the nest; the officers doing turtle research in French Polynesia were surprised to see the instinct of self-preservation function from the time of hatching. Unfortunately a majority of the hatchlings fall prey, in the daytime, to the frigate bird (Fregata minor) and, at night, to the hermit crab (Coenobita sp.).

Considering that the estimated survival rate is less than 1%, collection of eggs for hatching and rearing of hatchlings in captivity for at least one year may constitute one of the best methods of protection.

There is a very well defined nesting season from September to December, but even in the off-season females regularly land on the beaches to lay their eggs. A major tagging effort was made during the peak season in 1972 (c.f. detailed results in Annex).

3) Methods

Most of the turtles observed were captured on Scilly by the family that lives there. In 1972, 364 females, and very recently 42 more, were observed and tagged. After the females have laid their eggs, which they usually do at night, they are turned over on to their backs and left till the morning, when another team takes their body measurements. Slide calipers and a compass are used for measuring (c.f. length/weight graph in Fig.2).

4) The green turtle *Chelonia mydas* in Scilly

Scilly has probably received more turtle visits than any other atoll in French Polynesia. People who used to live there say that not very long ago (20-30 years) it was not unusual to turn over 100 to 150 turtles in a single night. The population had dwindled considerably, as would seem to be borne out by the small size of the individuals now seen (the largest turtles were about 106 cm long, and a great majority

of females had carapace lengths ranging from 93 to 97 cm), as compared with those found at Aldabra where the majority of females have a carapace length between 100 and 110 cm (Frazier 1971).

Eggs are laid all the year round on the sandy beaches of the atoll, but the largest numbers of females are seen from October till the end of December. During this period, while most of the females are busy nesting, the males stay outside the atoll (c.f. map).

The initial purpose of the studies done at Scilly on Chelonia mydas was to define the sites with the largest number of nests and those where turtles most often landed. Very quickly investigations were focused on the southwesterly portion of the atoll, particularly the islets Motu Rahi, Motu Oia and Motu Honu.

Measurements taken on more than 90 young turtles on Scilly will permit very interesting comparisons to be made with other young turtles studied by the Department of Fisheries, in particular on Rangiroa (studies in progress). Observation of the feeding patterns of young turtles on Scilly will improve our knowledge of food conversion ratios.

In addition, nearly 70 adult females were caught and observed during night outings and their meristic characters determined. Preliminary results showed that the very large turtle specimens (200 kg and over) that were still seen a few years ago have become virtually extinct, since the largest on record weighed only 175 kilos. On the first few evenings of our visit we saw large numbers of females crawling along the beach to lay their eggs, but subsequently they became more suspicious, especially those that were in the lagoon. The presence of man appears to greatly influence the turtles' choice of a nesting beach, where alternative beaches are available. The females have to swim over the outer reefs for a long distance (200-300 metres) under conditions that are always extremely difficult on account of the breakers and the undertow. When they get to the beach, they reach a stage where the nesting instinct overcomes their fear and they start digging in spite of the light from the torches. They usually come up from the sea in a straight line, but occasionally a female will cover more than 100 metres in her search for a suitable nesting place. After measurements had been taken, all the turtles were tagged and released. Two recaptures were made of females that had come in to lay for a second time, 9 days after the first, on the very same beach, only a few dozen metres from their first nest.

During each nocturnal search for females, the tracks made the previous night were measured and recorded. They showed that the most frequently visited site was the east coast beach on the ocean side of the atoll, where up to 14 tracks a night were counted.

About 10 nests were found, 5 of which were examined to establish the relationship between size and number of eggs laid and body weight of the female.

From Motu Rahi to Motu Oia on the ocean side (over a distance of 3-3.5 km), the number of tracks counted on the beach did not significantly vary during our visit (8-13 tracks/night).

At Motu Honu, the sandy lagoon beach was much favoured at the beginning of our stay (8-10 tracks/night), but gradually fell into disuse (1-3 tracks/night) because of our too frequent visits there.

The size of the females has appreciably declined in the last 10 years, evidence that man's predatory action has been too strong.

Rate of growth appears to be quite as high as in Rangiroa turtles, since the mean weight of Scilly turtles was 150 grams at 8 months.

Because of its scientific usefulness, particularly as regards observation of Chelonia mydas, the atoll of Scilly was scheduled as a protected area on 28 July 1971.

II. REARING

1) Turtle rearing on Scilly

The family living on the atoll started a very small-scale rearing operation in floating cages. Each cage is 2 x 1.5 m. in size and attached to a post standing in 50 cm of water. Being made entirely of wood the cage floats, half of it immersed and the other half constantly exposed to sunlight.

The eggs collected are buried and, on hatching, the baby turtles are put into a cage and left without food of any kind for three days. Subsequently they are fed mainly on clam and fresh fish.

This rearing experiment, though very small, has nevertheless enabled hundreds of releases to be made, when, 9 to 12 months after hatching, the little turtles were strong enough to survive. However, since this trial, which is still continuing, was not conducted on a scientific basis, it has not yielded much information.

2) Rearing on Rangiroa

Rearing of Chelonia mydas was conducted by the Fisheries Department on scientific lines from 1971 to 1972.

It involved about 50 turtles and yielded data on food consumption, rate of growth in first year, and food conversion ratio.

Growth studies showed that over the first 12 months, consumption of food (mainly clam and fresh fish) increased rapidly and irregularly.

Table 1 - Average quantity of food absorbed by a turtle during the first 12 months of life

<u>Month</u>	<u>Average daily quantity</u>	<u>Average monthly quantity</u>
1	25 g/day	775 g/month
2	50 g	1,400 g
3	65 g	2,015 g
4	65 g	1,950 g
5	70 g	2,170 g
6	70 g	2,100 g
7	75 g	2,225 g
8	80 g	2,480 g
9	100 g	3,000 g
10	120 g	4,720 g
11	120 g	3,600 g
12	150 g	4,650 g
		31,085 g/year

At birth, average weight of the hatchling was 19 grams, average carapace length 4.0 cm and average carapace width 2.9 cm.

Average weight gain after one year was slightly over 5,600 grams (5.6 kilos), at which time the carapace length was 33.6 cm and its width 28.6 cm.

Figures 3 and 4 show how the meristic characters of a turtle vary from birth to the age of 12 months.

CONCLUSION

The protection of the endangered turtle species Chelonia mydas can no longer remain the concern of one country or territory, but requires the cooperation of all the countries in the Pacific. In addition, rearing of this species in captivity appears to be an efficient and not very costly method of conservation.

To sum up:

average weight of a turtle reared in captivity after one year	5,620 g
average length of shell (carapace)	33.6 cm
average width of shell (carapace)	28.8 cm
total food consumption of a turtle during the first 12 months of life	31 kg.

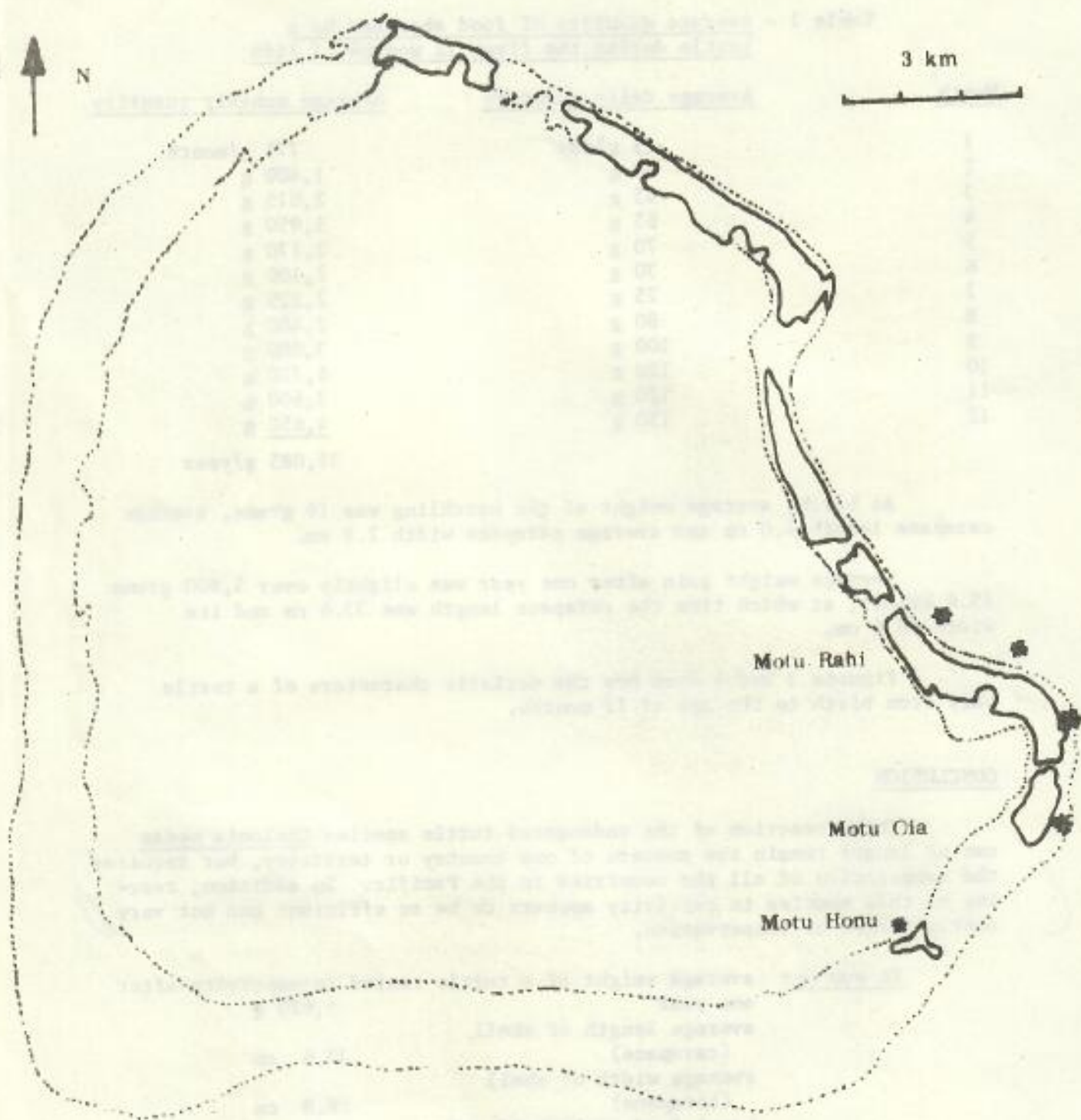


Fig.1 : Scilly Atoll

* High concentrations of green turtle nesting.

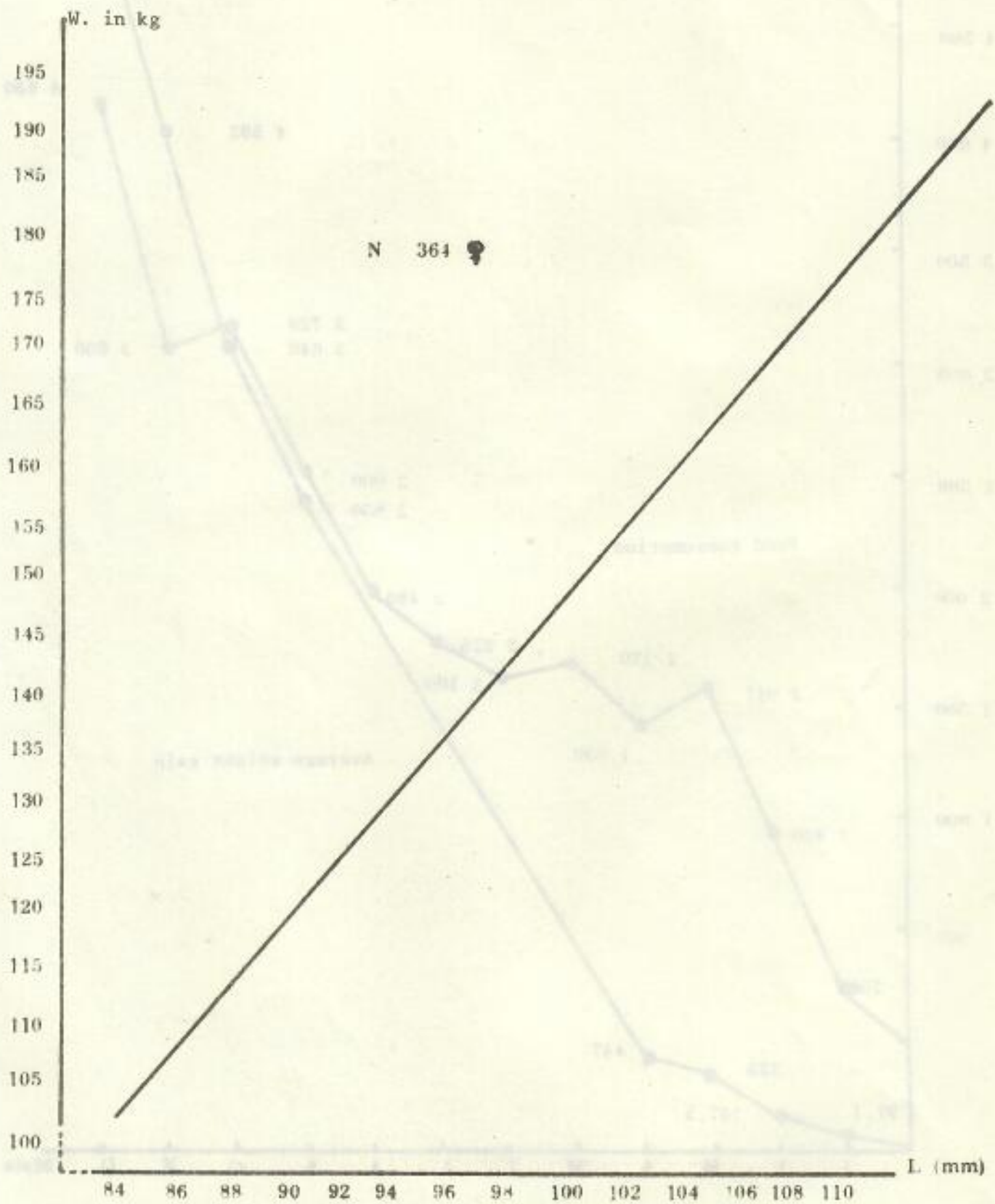


Fig.2 : Length/Weight ratio for 364 females
(Scilly Atoll)

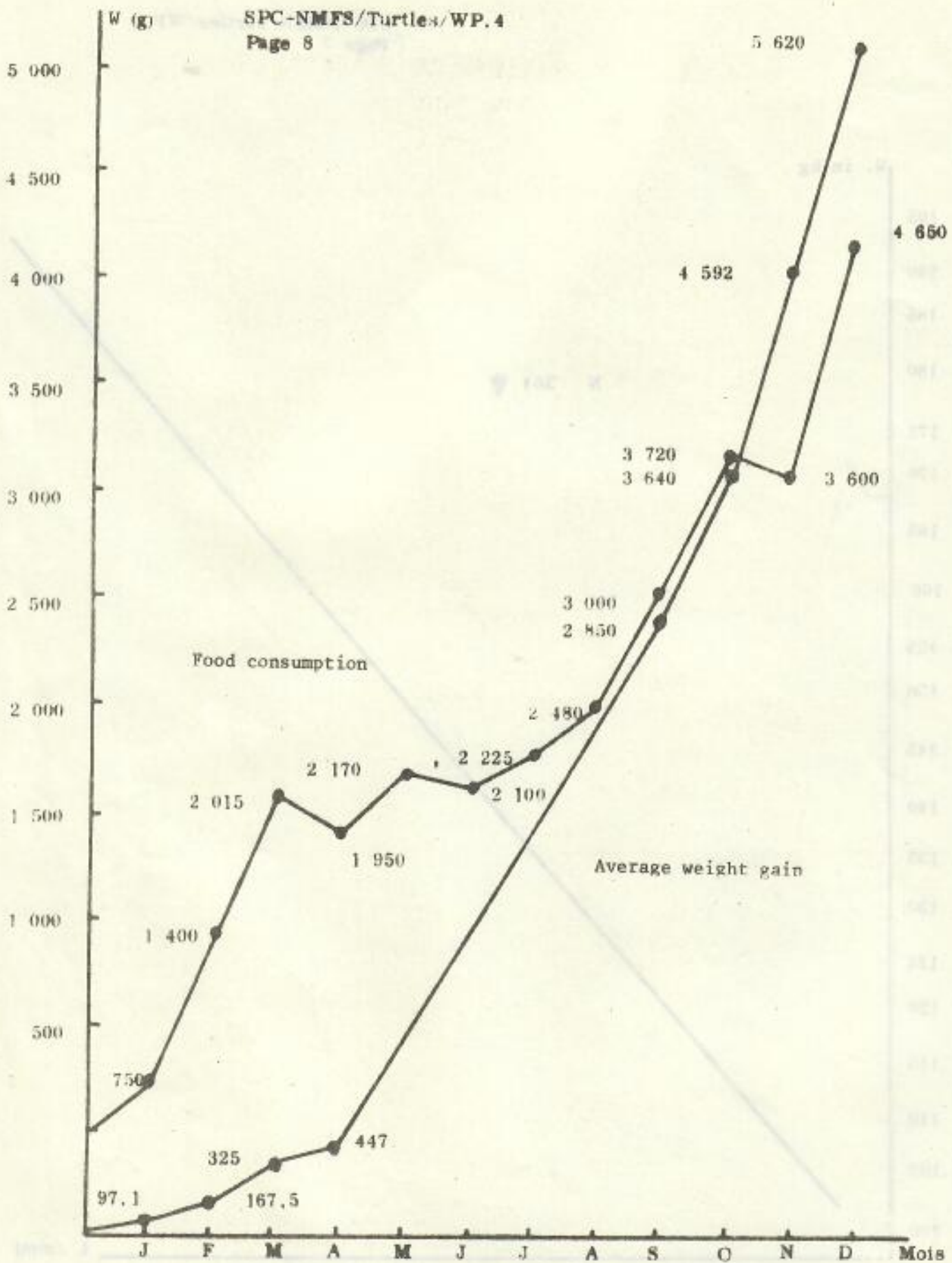


Fig. 3 : Growth over 12 months (16/12/71-16/12/72)

(Avatoru, Rangiroa, Tuamotu)

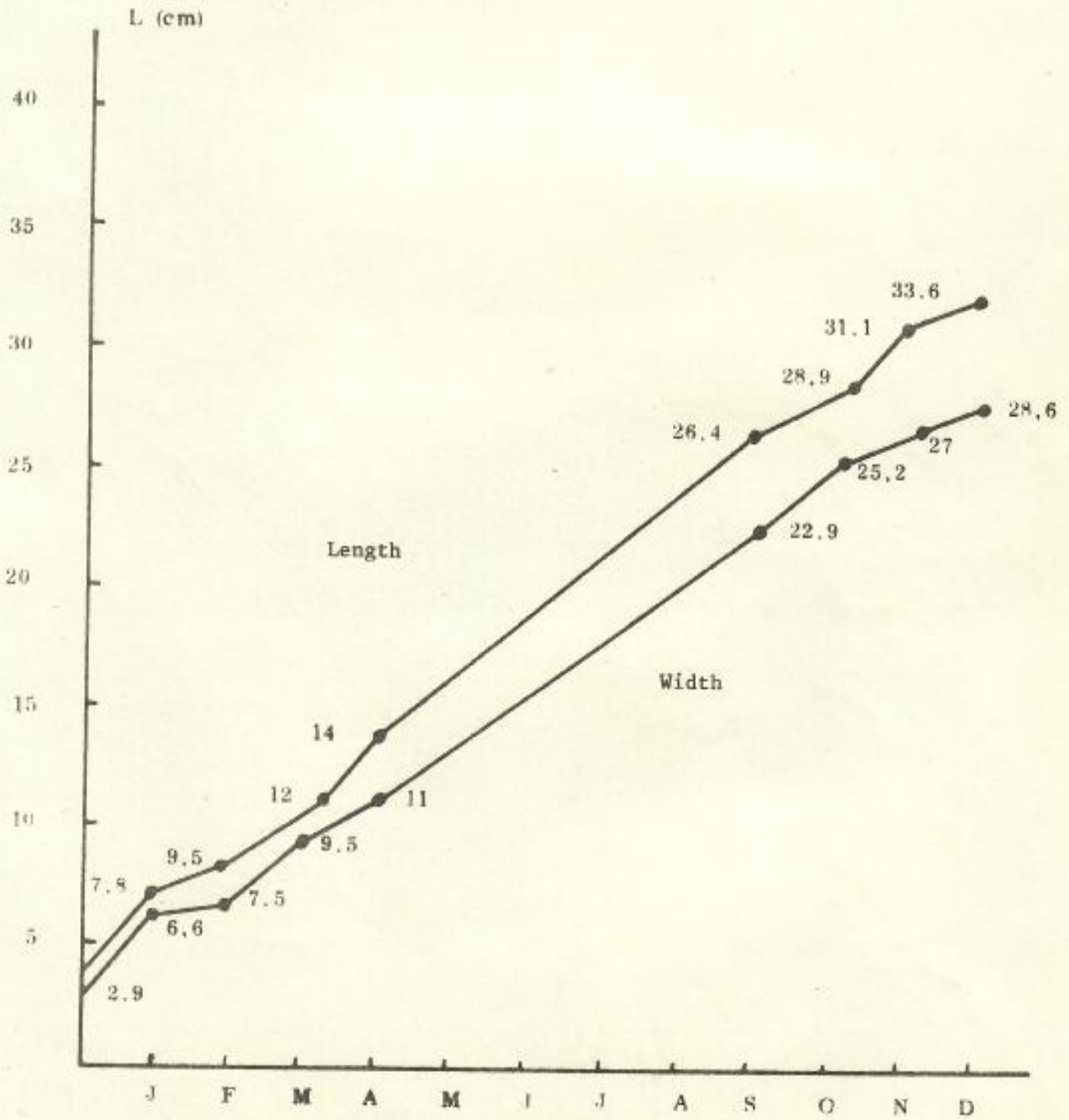


Fig.4 : Growth of shell over 12 months
(Avatoru, Rangiroa, Tuamotu)

ANNEX : TURTLE TAGGING

DATE : 30/04/72

No.	Sex	Carapace		Plastron	Head	Weight	Tagging	Comments
		length	width	length	width	kg	place	
13	F	98	69	76	15		SCILLY	
14	F	98	70	77	14		"	
15	F	99	75	79	13		"	
16	F	102	78	85	15		"	
17	F	92	74	79	11		"	
18	F	101	77	84	14		"	* ₁
19	F	101	72	78	12		"	
20	F	97	68	74	11		"	
21	F	96	72	77	12		"	
22	F	93	70	74	12		"	
23	F	99	75	82	12		"	
24	F	97	72	76	12		"	
25	F	106	82	82	12		"	
26	F	102	71	77	14		"	* ₂
27	F	101	74	74	12		"	
28	F	94	69	78	12		"	
29	F	101	73	77	12		"	
30	F	98	79	82	11		"	
31	F	92	74	73	13		"	
32	F	104	73	82	12		"	
33	F	103	85	85	13		"	
34	F	102	80	75	14		"	
35	F	98	72	73	13		"	
36	F	93	80	74	12		"	
37	F	101	77	82	11		"	
38	F	94	73	75	12		"	
39	F	93	72	79	12		"	* ₃

*₁ - Captured in Tonga on 9/08/72 - Vavau Islands (2,760 km - Weight 127 kg).

*₂ - Captured at Rabi (Fiji) on 26/07/72 (2,091 km - Weight 114 kg).

*₃ - Captured Maskeline Islands (New Hebrides) on 14/09/73 (length 140 cm).

No.	Sex	Carapace		Plastron		Head	Weight	Tagging	Comments
		length	width	length	width	length	kg	place	
40	F	97	79	74	12			SCILLY	
41	F	98	74	79	12			"	
42	F	93	72	72	12			"	
43	F	104	73	77	12			"	
44	F	96	70	75	13			"	
45	F	94	74	80	13			"	
46	F	100	80	78	11			"	
47	F	105	74	83	12			"	
48	F	101	77	80	13			"	
49	F	94	76	78	11			"	
50	F	105	82	86	13			"	*4
51	F	101	69	79	13			"	
52	F	89	69	77	13			"	
53	F	92	76	79	13			"	
54	F	98	75	79	14			"	
55	F	95	78	80	13			"	
56	F	101	78	82	14			"	
57	F	101	84	86	11			"	
58	F	94	79	74	13			"	
59	F	99	75	80	13			"	
60	F	104	72	79	11			"	
61	F	92	72	70	11			"	
62	F	93	71	82	12			"	
63	F	99	75	73	13			"	
64	F	99	74	82	13			"	
65	F	102	79	77	13			"	
66	F	95	71	76	10			"	
67	F	102	72	76	12			"	
68	F	103	74	81	11			"	
69	F	102	76	77	12			"	
70	F	94	72	76	10			"	
71	F	96	73	75	12			"	
72	F	104	78	79	11			"	
73	F	94	76	78	13			"	

*4 - Carapace broken; had knit again.

No.	Sex	Carapace		Plastron	Head	Weight	Tagging	Comments
		length	width	length	width	kg	place	
74	F	97	74	78	12		SCILLY	
75	F	98	69	75	12		"	
76	F	88	72	75	13		"	
77	F	100	78	82	14		"	
78	F	94	74	76	12		"	
98	F	95	73	77	12		"	
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All these turtles, from number 13 to number 98, are females captures on the beach in the previous 4 months. During their captivity they were fed on green leafy plants. After tagging, they were all released in the lagoon. A few of the turtles attempted to reach the open sea by crawling right across the coconut plantation.

DATE : 5/12/72

No.	Sex	Carapace		Plastron	Head	Weight	Tagging	Comments
		length	width	length	width	kg	place	
101	F	102	79	85	13	132	SCILLY	
102	F	92	69	70	12	75	"	
103	F	99	76	81	12	129	"	*5
104	F	100	73	77	13	134	"	
105	F	107	74	78	13	135	"	
106	F	97	73	83	12	123	"	
107	F	103	76	82	13	129	"	
108	F	103	71	83	12	139	"	
109	F	98	73	78	13	127	"	
110	F	104	74	79	12	123	"	
111	F	100	74	80	13	117	"	
112	F	96	67	69	11	95	"	
113	F	108	82	90	13	160	"	
114	F	84	64	74	11	94	"	Cut to the bone
115	F	97	66	77	12	116	"	
116	F	104	82	86	12	147	"	
117	F	94	74	78	13	142	"	
118	F	88	70	72	10	92	"	
119	F	93	64	69	12	90	"	
120	F	98	75	79	12	128	"	
121	F	92	69	75	11	98	"	
122	F	82	65	72	12	84	"	
123	F	96	72	81	12	120	"	
124	F	100	74	80	13	124	"	
125	F	98	73	77	12	108	"	
126	F	101	77	84	12	140	"	
127	F	99	75	78	13	136	"	
128	F	96	75	80	13	132	"	
129	F	102	86	88	13	135	"	
130	F	100	76	80	13	120	"	
131	F	97	77	83	13	130	"	
132	F	100	76	82	12	134	"	
133	F	92	65	72	12	95	"	
134	F	97	72	75	12	113	"	

*5 - New Caledonia, 15/01/75

No.	Sex	Carapace length width		Plastron length	Head width	Weight kg	Tagging place	Comments
135	F	93	72	76	12	115	SCILLY	
136	F	103	83	86	13	141	"	
137	F	98	82	81	13	147	"	
138	F	88	67	73	12	106	"	*6
139	F	93	72	78	12	110	"	
140	F	89	72	76	12	110	"	
141	F	102	76	84	12	150	"	
142	F	108	84	94	14	200	"	
143	F	83	69	76	11	95	"	
144	F	90	67	72	11	94	"	
145	F	102	73	81	13	130	"	
146	F	101	86	82	12	136	"	
147	F	98	75	78	13	147	"	
148	F	98	74	80	12	116	"	
149	F	100	76	83	13	135	"	
150	F	92	69	76	11	94	"	
151	F	86	68	75	12	104	"	*7
152	F	90	68	66	12	98	"	
153	F	98	76	80	13	130	"	
154	F	84	65	68	12	95	"	
155	F	95	74	77	12	124	"	
156	F	103	77	82	13	145	"	
157	F	98	75	81	13	135	"	
158	F	92	70	73	12	105	"	
159	F	96	78	76	12	105	"	
160	F	97	75	78	12	116	"	
161	F	90	70	72	12	100	"	
162	F	101	79	83	13	152	"	
163	F	106	82	88	13	153	"	
164	F	85	69	72	11	93	"	
165	F	100	81	86	12	158	"	
166	F	102	77	85	12	161	"	

*6 - July 1974, captured in the New Hebrides, Malekula.

*7 - Captured on 15/05/75 in New Caledonia, Baie de Gomen.

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
167	F	103	80	86	13	138	SCILLY	
168	F	106	78	85	13	178	"	
169	F	93	67	72	11	108	"	
170	F	97	72	75	12	131	"	
171	F	92	65	84	11	101	"	
172	F	98	74	78	12	116	"	*8
173	F	98	74	80	12	121	"	*9
174	M	88	66	70	10	85	"	
175	F	78	68	70	11	100	"	
176	F	90	75	79	12	115	"	
177	F	101	69	78	13	145	"	*10
178	F	95	75	77	12	137	"	
179	M	95	69	72	12	110	"	
180	M	183	72	73	12	105	"	*11
181	F	102	80	81	13	155	"	*12
182	F	100	79	78	12	140	"	
183	F	92	72	81	12	115	"	
184	F	93	68	78	11	110	"	
185	F	99	70	82	12	120	"	
187	F	93	72	81	12	140	"	
188	M	96	71	74	11	120	"	*13
189	F	97	74	80	12	135	"	*14
190	F	91	69	72	12	110	"	
191	F	90	69	72	12	105	"	
192	F	102	77	81	13	150	"	
193	F	96	77	80	12	125	"	
194	F	92	78	70	12	117	"	
195	F	100	75	78	12	145	"	*15

* 8 - Bite scar on both front flippers

* 9 - Captured in the New Hebrides, Anatom, in October 1973

* 10 - Plastron misshapen

* 11 - Captured on 3/10/74, in Fiji, Kandavu Island

* 12 - Captured on 15/10/74, " " "

* 13 - Plastron misshapen

* 14 - Right front flipper missing

* 15 - Plastron injured

No.	Sex	Carapace length width		Plastron length	Head width	Weight kg	Tagging place	Comments
196	F	93	72	74	12	120	SCILLY	
197	F	100	75	78	12	137	"	
198	F	98	71	77	12	155	"	
199	F	86	63	71	12	105	"	
200	F	105	79	82	13	143	"	
201	F	97	75	81	12	118	"	
202	F	92	74	79	12	115	"	
203	F	89	69	74	12	120	"	
204	F	98	69	80	12	140	"	*16
205	M	85	63	66	11	95	"	
206	F	94	71	75	12	110	"	*17
208	F	90	63	70	12	107	"	
209	F	93	71	75	12	125	"	
210	F	97	75	79	13	145	"	
211	F	93	73	81	13	135	"	
212	F	95	72	76	12	142	"	
1301	F	102	69	77	12	130	"	
1302	F	92	75	79	12	142	"	
1303	F	94	74	76	12	140	"	
1304	F	93	69	73	11	120	"	*18
1305	F	108	81	86	13	183	"	
1306	F	97	76	80	12	155	"	
1307	F	86	70	76	11	105	"	
1308	M	91	65	66	11	90	"	
1309	M	90	66	74	11	105	"	
1310	F	102	83	84	13	140	"	*19
1311	F	103	79	83	13	150	"	
1312	F	89	63	72	10	90	"	
1313	F	98	77	83	13	139	"	
1314	F	96	75	77	12	125	"	

*16 - Right front flipper missing

*17 - Plastron misshapen, scar

*18 - Left front flipper missing

*19 - Carapace split, right front flipper missing

No.	Sex	Carapace		Plastron	Head	Weight	Tagging	Comments
		length	width	length	width	kg	place	
1315	F	91	68	72	12	110	SCILLY	
1316	F	94	94	76	12	123	"	
1317	F	100	79	80	12	140	"	
1318	F	101	80	84	13	145	"	
1319	F	97	77	82	12	140	"	*20
1320	F	100	88	88	12	140	"	
1321	F	91	70	72	11	110	"	
1322	F	93	76	82	12	140	"	
1323	F	93	75	76	12		"	
1324	F	94	72	76	11		"	
1325	F	92	70	75	12		"	
68	F	109	84	92	13		"	
69	F	94	71	80	11		"	
70	F	98	75	78	12		"	
71	M	86	68	70	11		"	
72	F	92	69	74	11		"	
73	M	90	67	70	11		"	
74	F	95	75	74	11		"	
75	F	96	75	78	11		"	
1326	F	100	80	85	12		"	
1327	F	106	78	85	13		"	
1328	F	95	93	80	12		"	
1329	M	87	68	70	11		"	
1330	M	102	79	78	12		"	*21
1331	M	90	69	75	11		"	
1332	M	95	71	72	12		"	
1333	F	105	81	85	12		"	
1334	F	101	80	81	12	160	"	
1335	F	92	72	74	12	110	"	
1336	F	94	74	83	12	140	"	
1337	F	105	76	84	14	165	"	
1338	F	93	69	76	11	103	"	
1339	F	96	74	78	11		"	
1340	F	97	69	76	12		"	

*20 - Plastron abraded

*21 - Captured on 1/08/74 in Fiji, Druadrua Island.

No.	Sex	Carapace		Plastron	Head	Weight	Tagging	Comments
		length	width	length	width	kg	place	
1341	F	90	65	66	11		SCILLY	
1342	F	95	75	90	13		"	
1343	F	94	75	77	13		"	
1344	F	99	72	79	13	137		
1345	F	98	77	81	12	140	"	
1346	F	96	73	77	13	145	"	
1347	F	91	71	76	11	105	"	
1348	F	95	72	77	12	110	"	
1349	F	102	83	95	13	140	"	
1350	F	92	70	74	12	135	"	
1351	F	98	76	78	12	145	"	
1352	F	98	76	77	13	150	"	
1353	F	101	76	80	12	125	"	
1354	F	91	73	82	12	115	"	
1355	F	90	81	78	12	123	"	
1356	F	80	75	78	11	101	"	
1375	F	100	72	75	12	128	"	
1357	F							
1358	F	104	79	82	13	170	"	
1359	F	90	72	73	11	110	"	
1360	F	93	71	73	11	105	"	
1361	F	87	68	75	12	95	"	
1362	F	104	75	83	13	140	"	

DATE : 19/2/73

No.	Sex	Carapace		Plastron	Head	Weight	Tagging	Comments
		length	width	length	width	kg	place	
1363	F	103	74	85	13	143	SCILLY	
1364	F	104	73	81	13	125	"	
1365	F	85	68	72	11	103	"	
1366	F	97	74	80	14	105	"	
1367	F	102	78	81	13	140	"	
1368	F	91	71	74	12	115	"	
1369	F	94	72	78	12	120	"	
1370	F	86	68	70	11	86	"	
1371	F	88	61	64	11	105	"	
1372	F	95	75	74	12	110	"	
1373	F	105	89	99	13	150	"	
1374	F	98	75	93	12	120	"	
1375	F	93	74	81	12	108	"	
1376	F	98	74	92	12	140	"	
1377	F	99	79	81	12	132	"	
1378	F	92	72	77	12	120	"	
1379	F	95	73	78	12	131	"	
1380	F	80	65	69	11	85	"	
1381	F	93	73	81	12	110	"	
1382	F	96	73	76	10	105	"	
1383	F	100	83	78	14	145	"	
1384	F	101	74	80	12	130	"	
1385	F	94	72	75	12	120	"	
1386	F	99	81	87	12	140	"	
1387	F	97	74	78	12	130	"	
1388	F	98	79	80	12	110	"	

DATE : Février 1973

No.	Sex	Carapace		Plastron length	Head width	Weight kg	Tagging place	Comments
		length	width					
1437	F	100	79	85	13	160	SCILLY	
1438	F	93	74	74	11	102	"	
1439	F	92	74	77	12	103	"	
1440	F	90	75	77	12	112	"	
1441	F	95	72	77	12	122	"	
1442	F	97	74	80	13	125	"	
1443	F	97	81	80	13	135	"	
1444	F	97	75	77	13	125	"	
1445	F	88	65	73	10	96	"	
1446	F	97	75	77	12	120	"	
1447	F	89	68	78	11	102	"	
1448	F	102	78	86	13	130	"	
1449	F	104	78	89	13	150	"	
1450	F	104	78	82	13	150	"	
1451	F	80	69	74	11	99	"	
1452	F	90	72	73	11	105	"	
1453	F	98	75	82	12	125	"	
1454	F	80	65	67	11	80	"	
1455	F	90	67	70	11	97	"	
1456	F	89	64	69	12	110	"	
1457	F	100	78	84	13	145	"	
1458	F	102	82	89	13	170	"	
1459	F	99	77	79	14	135	"	
1460	F	87	70	72	10	110	"	
1461	F	94	74	77	12	118	"	
1462	F	98	74	77	13	150	"	
1463	F	96	67	75	12	110	"	
1464	F	90	68	74	10	96	"	
1465	F	95	74	76	11	130	"	
1466	F	88	69	72	12	105	"	
1467	F	86	65	72	11	90	"	
1468	F	100	78	82	12	117	"	

DATE : 7/12/74

No.	Sex	Carapace		Plastron	Head	Weight	Tagging	Comments
		length	width	length	width	kg	place	
1502	F	102	78	80	12	130	SCILLY	*22
1503	F	86	75	76	12	115	"	*23
1504	F	97	71	81	11.5	115	"	*24
1505	F	94	67	72	11	120	MOTU ONE	
1506	F	95	70	75	11	106	"	
1507	F	95	72	78	11.5	105	"	
1508	F	96	75	77	12.5	125	"	*25
1509	F	97	76	77	11	110	"	*26
1510	F	94	75	78	12	115	"	*27
1511	F	105	83	84	16	167	"	
1512	F	102	78	85	12	142	SCILLY	
1513	F	89	68	76	11	102	"	
1514	F	95	73	78	11.5	120	"	*28
1515	F	93	72	74	11	110	"	
1517	F	99	72	79	12	125	"	
1518	F	102	75	80	11	120	"	
1519	F	95	77	80	11.5	140	"	
1520	F	94	70	76	11	110	"	
1521	F	99	79	82	12	145	"	
1522	F	101	77	79	11.5	155	"	*29
1523	F	90	70	74	11	100	"	*30
1524	F	90	72	75	12	90	"	
1525	F	90	72	73	11.5	100	"	
1526	F	100	80	85	12	110	"	

*22 - Carapace split; left rear flipper missing

*23 - Carapace split, right rear flipper missing

*24 - Left side broken

*25 - Right rear flipper missing

*26 - Right rear flipper missing

*27 - Parasite on plastron, scar tissue on left side of carapace

*28 - Injury on left side of carapace

*29 - Enclosure

*30 - Right front flipper missing



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center Honolulu Laboratory
2570 Dole St. • Honolulu, Hawaii 96822-2396

October 16, 1990

F/SWC2:GHB
EVAAM-7L.GHB

Mr. Jean-Pierre Landret
EVAAM
B.P. 20
Papeete, Tahiti

Dear Jean-Pierre:

I am pleased to be able to send you tags and applicators for use on nesting sea turtles in French Polynesia. The enclosed tags carry the identification numbers X555-X575; X601-X750; and X776-X800 (196 tags total). Full tagging instructions with photos, a metric measuring tape, and tagging forms to record data have also been enclosed. We would very much appreciate receiving copies of the completed tagging forms to ensure that there will be back-up copies here in Hawaii.

If you have not already used the 48 tags (X803-X850) that I sent last April, please feel free to also use them on nesting turtles.

Best regards.

Sincerely,

George H. Balazs
Zoologist and Leader,
Marine Turtle Research

Enclosures



George,

A '20 meter Yanmar' is a rather large fiberglass Japanese inshore fishing vessel. These are the standard 'gift' of the Japanese to most fisheries departments in the Pacific. The only thing is they have a narrow beam (relative to western style fishing vessels) & the quarters are usually very cramped. If you're going to be transported (for less than a week) ~~it's~~ you will be fine.

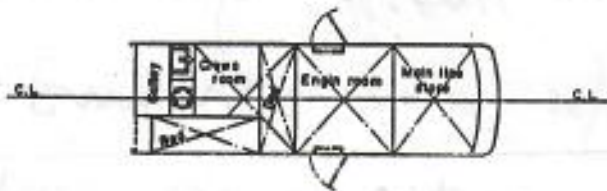
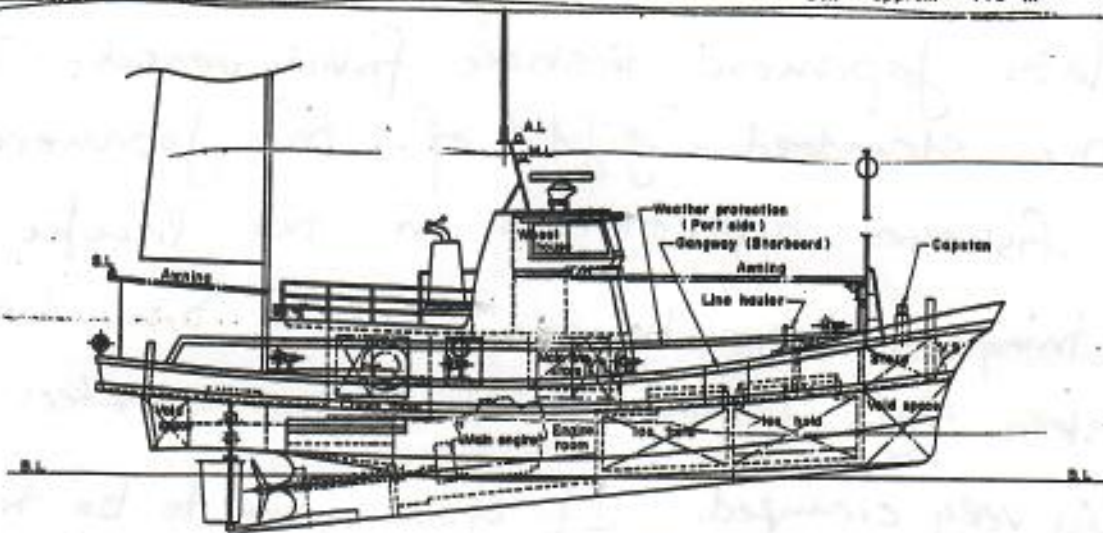
To be on one for a month might get old. The vessels shown on the reverse side is a 15m vessel (52 ft). The vessels are normally diesel powered and work well inshore. Good luck - keep an eye out for surf spots - (I may be going there next year)

Ray C.

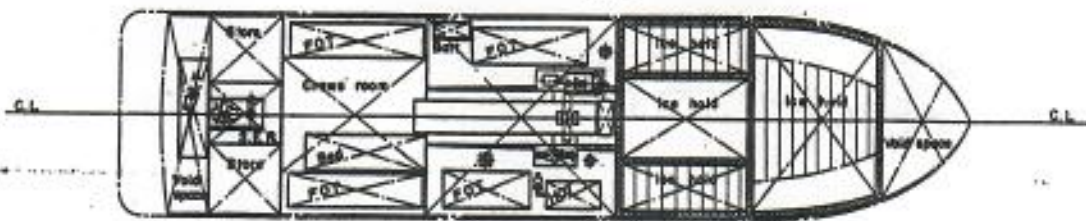
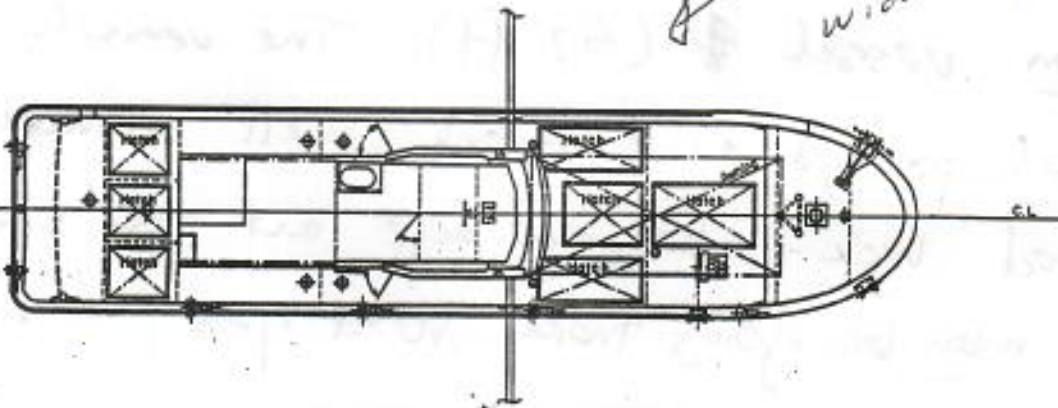
LOA approx. 15.0 m

BoA approx. 3.4 m

CoA approx. 1.9 m



note narrow width



alala!

Wait - Sometime, when
you have the time, would
you please give me a
thumb-nail sketch
of this?

Mahalo -
Georg

Voila,

Blah, Walt.

LES REPTILES

Ils ne sont représentés dans les E.F.O. que par deux tortues marines et par trois ou quatre lézards.

1° Reptiles marins :

Tortues, ordre des CHELONIENS.

Famille des Chéloniides.

- A) Tortue comestible « honu » *Chelonia mydas* (Linné) (voir fig.). Tortue marine, elle vient pondre de 350 à 500 œufs sur les plages de quelques atolls (Puka-Puka aux Tuamotu, Scilly, Bellinghausen, Mopelia, aux îles Sous-le-Vent).

On la distingue des autres tortues marines par ses plaques dorsales juxtaposées* rangées en trois lignes : cinq plaques sur la ligne centrale, quatre plaques sur les lignes latérales. Elle se nourrit d'algues marines, de poissons et de crustacés.

Sa chair est comestible et très recherchée. On ne consomme que les grosses tortues (à partir de 30 kg) et les morceaux qu'on y trouve rappellent le goût du foie de veau ou du bœuf.

Elle est pêchée au harpon quand elle est en surface, au filet, ou simplement capturée à terre, en la retournant ventre en l'air, quand elle vient de pondre.

- B) Tortue imbriquée « honu » *Eretmochelys imbricata* (Linné). Même nombre de plaques, disposées de la même façon, mais ces plaques, au lieu d'être juxtaposées, se recouvrent en partie ; les plaques de la rangée centrale sont allongées en pointe vers l'arrière.

Elle est plus rare que *Chelonia mydas*, en Océanie. Les Pomotu la recherchaient pour son écaille (écaille véritable) avec laquelle ils confectionnaient des hameçons. Chair non comestible.

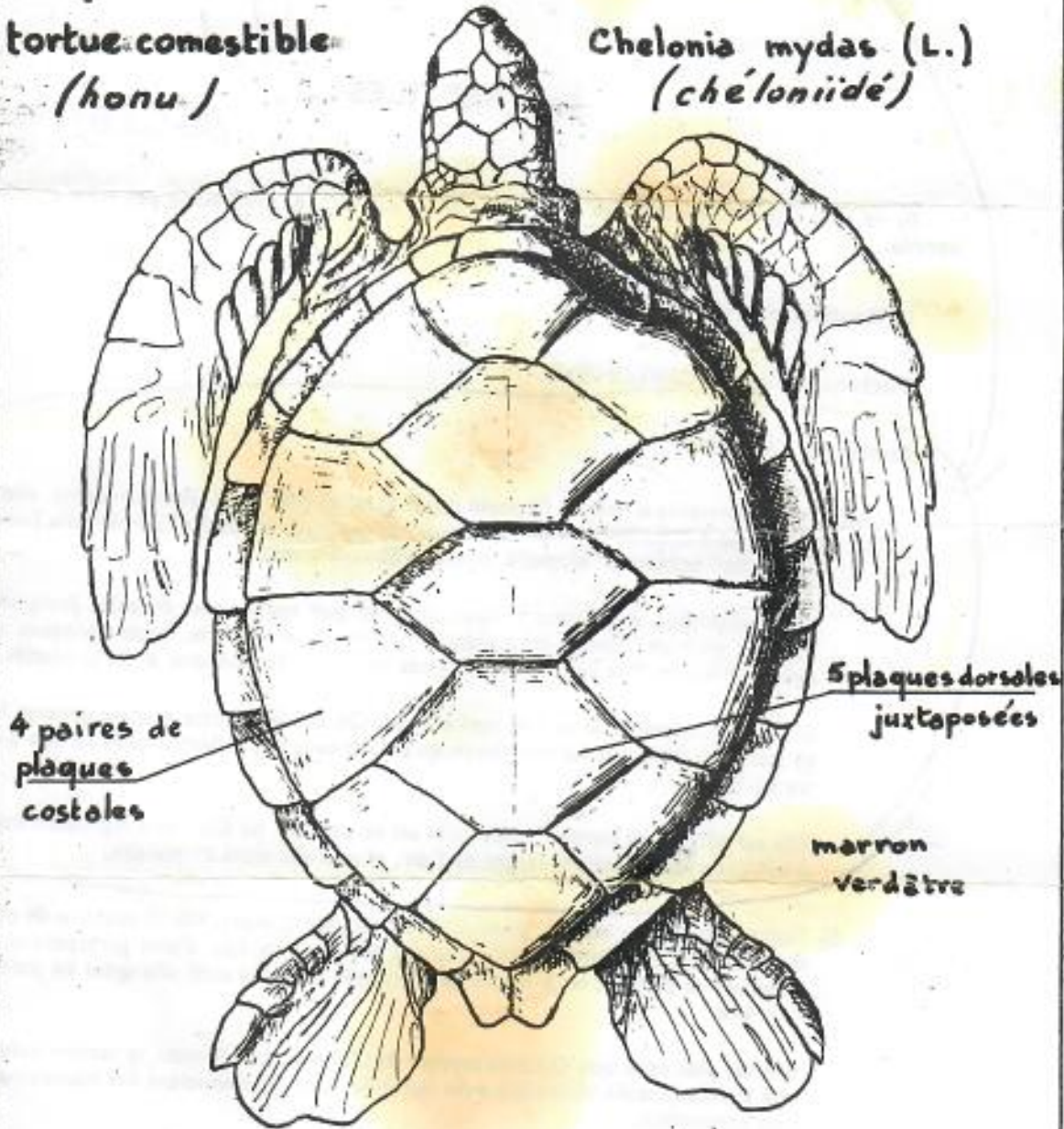
A part ces deux tortues, on trouve, rarement d'ailleurs, des *Ophidiens marins* ou serpents marins comme le « tunatore » *Hydrus platurus* (Linné), cité par Seurat (1). Ces serpents sont venimeux. Ne pas les confondre avec les murènes (voir poissons).

(1) Nous n'en avons jamais capturé.

Reptiles

tortue comestible
(honu)

Chelonia mydas (L.)
(chéloniidé)



4 paires de
plaques
costales

5 plaques dorsales
juxtaposées

marron
verdâtre

peut atteindre 1,20 m et 180 kg

Edible turtle "honu" *Chelonia mydas* (Linné) (see fig 1). Marine turtle, females comes to lay 350 to 500 eggs on a few atoll beaches (Puka-Puka in the Tuamotus, Scilly, Bellinghausen, Mopelia, and the Leeward Islands).

It is distinguished from the other marine turtles by its juxtaposed dorsal patches arranged in 3 rows: five patches on the central line (row), four on the lateral lines. It eats seaweeds, fish and crustaceans.

Its flesh is edible and in great demand. One eats only the big turtles (from thirty kilos on up) and the taste of the flesh recalls the taste of calf or beef liver.

It is hunted with spears when on the surface and with nets or simply captured on the ground and turned on its back when females comes to lay eggs.

CITED By HIRTH 1971

Chabouis
L. et F. CHABOUIS

Professeurs au Collège Paul-Gauguin à Papeete (Ile de Tahiti)

PETITE HISTOIRE NATURELLE

**DES ÉTABLISSEMENTS FRANÇAIS
DE L'OCÉANIE**

**IMPRIMERIE BUSSIÈRE
SAINT-AMAND-MONTROND - CHER**

PETITE
HISTOIRE NATURELLE
DES EFO



ZOOLOGIE

Paul LECHEVALIER :: EDITEUR
Libraire pour les Sciences Naturelles
17, Rue de Tournon, 12
— PARIS (VI) —

P.c.
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v.2

CARACTÈRES GÉNÉRAUX DES REPTILES

C'est à l'ère secondaire que les reptiles eurent leur plein essor. On a retrouvé des fossiles en de nombreux points du globe. Certains étaient terrestres, d'autres aquatiques et d'autres volants. Plusieurs avaient des tailles considérables que leurs descendants ont perdues aujourd'hui : le brachiosaure atteignait 30 m de long, le brontosauve 18 m, l'atlantosaure 34 m, le diplodocus 24 m. Ces géants disparurent peu à peu, en même temps qu'apparaissaient d'autres reptiles qui ont subsisté jusqu'à nous.

Les reptiles actuels sont des vertébrés dont les caractères généraux sont les suivants :

- animaux à température variable (appelés improprement à sang froid),
- à respiration pulmonaire toute leur existence,
- au corps couvert d'écailles ou de plaques cornées,
- généralement ovipares.

Ils ne se déplacent plus dans l'air, sauf les Draco volants qui possèdent une peau formant parachute.

Ils abondent dans les régions tropicales et subtropicales et se rencontrent sur toutes les sortes de terrains.

Ils sont diurnes pour la plupart (sauf les Gekko).

Ils sont presque tous carnivores. Ils peuvent jeûner très longtemps sans inconvénient (pour certains, plusieurs années).

Ils sont généralement ovipares et abandonnent leurs œufs au soleil pendant l'incubation. Certains lézards et serpents sont vivipares.

Chez les ovipares, l'embryon est muni d'une dent calcaire lui servant à briser sa coquille pour en sortir ; puis cette dent tombe.

On compte de nos jours une vingtaine d'espèces de crocodiles, environ 225 tortues, 2.500 lézards, 2.300 serpents.

Dans les E.F.O. heureusement, les reptiles sont très mal représentés, on n'y rencontre que quelques lézards et tortues.

CLASSIFICATION DES REPTILES

- 1° Les cheloniens (tortues) ;
- 2° Les crocodiliens (crocodiles) ;
- 3° Les sauriens (lézards) ;
- 4° Les ophidiens (serpents).

l'estomac allongé et bosselé,

l'intestin grêle sinueux, aboutissant au cæcum et au rectum, plus larges, se terminant au cloaque,

le foie se trouve au-dessus de l'estomac, avant qu'on ne déplace celui-ci,

la rate normalement cachée par l'estomac,

un rein développé près du cæcum et un petit rein secondaire au niveau de la rate.

NATURALISATION D'UNE TORTUE

On peut facilement conserver une petite tortue entière en la naturalisant, sans la vider, et en procédant de la façon suivante :

- On fait des piqûres de formol du commerce, en plusieurs endroits : base des pattes et du cou, pourtour de la carapace (face ventrale).
- On introduit par l'anus et la bouche des petites boules de coton imbibées de formol en les poussant le plus loin possible vers l'intérieur, à l'aide d'une sonde ou d'une aiguille à tricoter par exemple.
- On recommence ces diverses opérations 2 ou 3 fois à quelques jours d'intervalle, en surveillant l'état de la tortue ainsi traitée.
- Eviter que la fermentation putride ne commence, ce qui provoquerait le gonflement exagéré de l'animal et le décollement des plaques. Si cela se produisait, retirer les tampons de coton, piquer profondément pour faire évacuer les gaz, compresser la tortue pour lui faire reprendre son aspect habituel, et reprendre les piqûres de formol comme précédemment.
- Lorsque la tortue est convenablement naturalisée, on peut la passer entièrement au vernis incolore.
- Si l'on veut conserver une grande carapace de tortue, il faut la débarrasser entièrement des débris de chair qui y adhèrent, en la grattant soigneusement; la passer entièrement au formol, la laisser sécher à l'ombre, puis faire briller l'extérieur à l'huile de coco en frottant avec de la bourre de coco. On peut aussi passer du vernis incolore, ce qui est moins joli.

LES REPTILES

Ils ne sont représentés dans les E.F.O. que par deux tortues marines et par trois ou quatre lézards.

1° Reptiles marins :

Tortues, ordre des CHELONIENS.

Famille des Chéloniides.

- A) *Tortue comestible « honu » Chelonia mydas* (Linné) (voir fig.). Tortue marine, elle vient pondre de 350 à 500 œufs sur les plages de quelques atolls (Puka-Puka aux Tuamotu, Scilly, Bellinghausen, Mopelia, aux îles Sous-le-Vent).

On la distingue des autres tortues marines par ses plaques dorsales juxtaposées* rangées en trois lignes : cinq plaques sur la ligne centrale, quatre plaques sur les lignes latérales. Elle se nourrit d'algues marines, de poissons et de crustacés.

Sa chair est comestible et très recherchée. On ne consomme que les grosses tortues (à partir de 30 kg) et les morceaux qu'on y trouve rappellent le goût du foie de veau ou du bœuf.

Elle est pêchée au harpon quand elle est en surface, au filet, ou simplement capturée à terre, en la retournant ventre en l'air, quand elle vient de pondre.

- B) *Tortue imbriquée « honu » Eretmochelys imbricata* (Linné). Même nombre de plaques, disposées de la même façon, mais ces plaques, au lieu d'être juxtaposées, se recouvrent en partie ; les plaques de la rangée centrale sont allongées en pointe vers l'arrière.

Elle est plus rare que *Chelonia mydas*, en Océanie. Les Pomotu la recherchaient pour son écaille (écaille véritable) avec laquelle ils confectionnaient des hameçons. Chair non comestible.

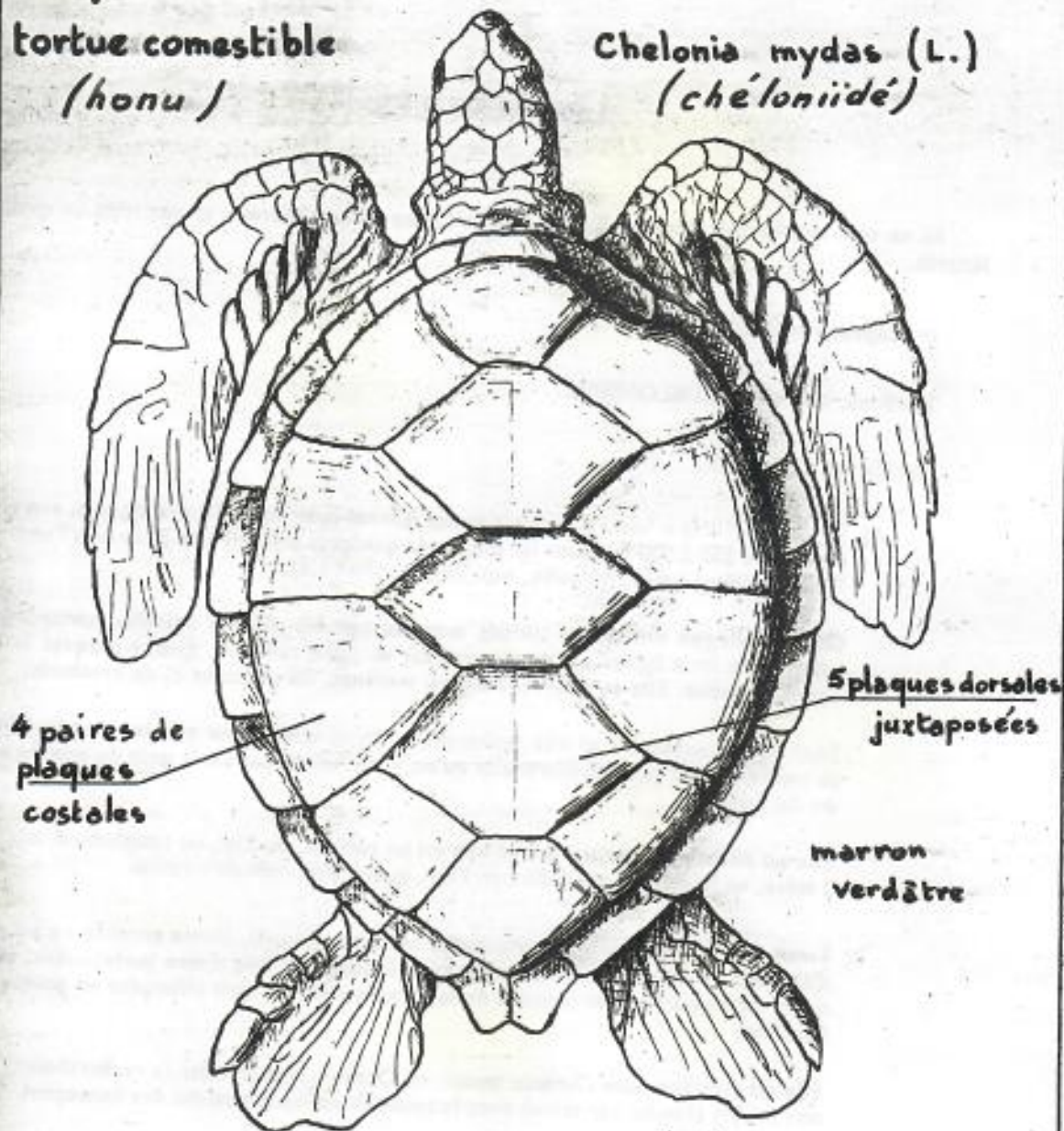
A part ces deux tortues, on trouve, rarement d'ailleurs, des *Ophidiens marins* ou serpents marins comme le « tunatore » *Hydrus platurus* (Linné), cité par Seurat (1). Ces serpents sont venimeux. Ne pas les confondre avec les murènes (voir poissons).

(1) Nous n'en avons jamais capturé.

Reptiles

tortue comestible
(honu)

Chelonia mydas (L.)
(chéloniidé)



4 paires de
plaques
costales

5 plaques dorsales
juxtaposées

marron
verdâtre

peut atteindre 1,20m et 180 kg

from Dick James - June 1973

(EXTRAIT du J.O. n° 2 du 31 janvier 1972)

ARRÊTE n° 196 AA du 25 janvier 1972 rendant exécutoire la délibération n° 71-209 du 23 décembre 1971 de l'Assemblée Territoriale de la Polynésie Française.

Le Gouverneur de la Polynésie Française, Chef du Territoire,

Vu le décret du 26 décembre 1895 concernant le Gouvernement des Etablissements français de l'Océanie et les actes modificatifs subséquents ;

Vu le décret n° 57-812 du 22 juillet 1957 portant institution d'un Conseil de Gouvernement et extension des attributions de l'Assemblée Territoriale dans la Polynésie Française ;

Vu l'ordonnance n° 56-1337 du 23 décembre 1956, relative au Conseil de Gouvernement et à l'Assemblée Territoriale de la Polynésie Française,

A R R Ê T E :

Article 1er. - Est rendu exécutoire la délibération n° 71-209 du 23 décembre 1971, de l'Assemblée Territoriale de la Polynésie Française, réglementant le pêche de la tortue de mer (*Chelonia mydas*) dans le Territoire de la Polynésie Française.

Article 2. - Le présent arrêté sera enregistré, communiqué et publié partout où besoin sera.

PAPEETE, le 25 janvier 1972

Pour le Gouverneur en mission :

Le Secrétaire Général,

Jean TISSIER

DELIBERATION n° 71-209 du 23 décembre 1971 réglementant la pêche de la tortue de mer (*Chelonia mydas*) dans le Territoire de la Polynésie Française.

L'Assemblée Territoriale de la Polynésie Française,

Vu le décret n° 46-2379 du 25 octobre 1946 portant création d'une Assemblée représentative dans les Etablissements français de l'Océanie, modifié par les lois n° 52-1175 et 57-536 des 21 octobre et 26 juillet 1957 relatives à la composition et à la formation de l'Assemblée Territoriale ;

Vu le décret n° 57-812 du 22 juillet 1957 portant institution d'un Conseil de Gouvernement et extension des attributions de l'Assemblée Territoriale de la Polynésie Française, modifié par l'ordonnance n° 98-1337 du 23 décembre 1958 1958 ;

Vu l'arrêté n° 2792 AA du 24 octobre 1968 déterminant l'échelle mobile des peines applicables aux infractions de la réglementation résultant des délibérations de l'Assemblée Territoriale ;

Vu l'arrêté n° 1449 AA du 2 mai 1967 portant création et organisation du Service de la Pêche ;

Vu la lettre n° 1331 PECHE en date du 28 octobre 1971 de M. le Gouverneur, Chef du Territoire approuvée en Conseil de Gouvernement le 20 octobre 1971 ;

Vu l'arrêté n° 3228 AA du 13 octobre 1971 convoquant l'assemblée Territoriale de la Polynésie Française en session ordinaire ;

Vu le rapport n° 290-71 en date du 26 novembre 1971 de la Commission des affaires financières, économiques et sociales ;

Dans sa séance du 23 décembre 1971 ,

A D O P T E :

Article 1er..- La pêche de la tortue de mer (*Chelonia mydas*) dont le carapace présente une longueur inférieure à 65 cm dans son plus grand axe est interdite sous toutes ses formes dans tout le Territoire de la Polynésie Française.

Article 2..- La capture à terre des tortues de taille réglementaire est interdite du 1er novembre au 31 janvier.

Article 3..- La capture en mer des tortues de taille réglementaire est interdite du 1er juin au 31 janvier.

Article 4..- Les zones de concentration des tortues sont livrées à la pêche suivant un quota réservé à chaque zone et fixé par arrêté pris en conseil de gouvernement sur proposition du Chef du Service de la Pêche.

Article 5..- La détention pendant plus de 10 jours de tortues vivantes n'est autorisée qu'en vivier dans lequel aura été aménagé un atri contre le soleil.

.../...

Le transport des tortues vivantes doit obligatoirement être effectué à l'abri du soleil et en tous cas sans mauvais traitement susceptible de leur occasionner une souffrance inutile.

Article 6.- La récolte à terre d'œufs de tortues matures est interdite.

Article 7.- Des autorisations exceptionnelles concernant la capture des tortues de toute taille et la récolte d'œufs matures pourront être délivrées par le Chef du Service de la Pêche à des fins de recherches scientifiques.

Article 8.- L'abattage des tortues doit être effectué dans de bonnes conditions d'hygiène et notamment à l'abri des mouches, de la poussière et de toutes matières polluantes ou infectieuses.

Article 9.- La vente de tortue de mer est interdite dans toute la Polynésie Française.

Article 10.- Sera puni des peines prévues par l'arrêté n° 2792 AA du 24 octobre 1968 pour la 5ème catégorie d'infraction, quiconque aura récolté des œufs maturés sur terre sans autorisation et quiconque aura vendu des tortues entières vivantes ou de la chair de tortue.

Sera puni des peines prévues par l'arrêté n° 2792 AA du 24 octobre 1968 pour la 4ème Catégorie d'infraction, quiconque aura pêché des tortues dont les tailles ne sont pas réglementaires pendant les ouvertures de pêche et toute femelle sur terre qui n'a pas accompli sa ponte d'œufs maturés.

Sera puni des peines prévues par l'arrêté n° 2792 AA du 24 octobre 1968 pour la 3ème Catégorie d'infraction, quiconque aura pêché des tortues durant la période de pêche interdite.

Sera puni des peines prévues par l'arrêté n° 2792 AA du 24 octobre 1968 pour la 2ème catégorie d'infraction, quiconque aura contrevenu aux autres obligations de la présente délibération.

Article 11.- La présente délibération est prise pour servir et valoir ce que de droit.

Un secrétaire,

Tetunara OFUTU

Le Président

John TEARIKI

From Dick James - June 1978

POLYNESIE FRANCAISE

SERVICE DE LA PECHE

ET/OK

PAPEETE, le 16 juillet 1975

REGLEMENTATION DE LA PECHE DE LA TORTUE DE MER

La pêche de la tortue de mer est réglementée par la délibération N° 71-209 du 23 décembre 1971 de l'Assemblée Territoriale, rendue exécutoire par arrêté n° 196/AA du 25 janvier 1972 (J.O.P.F. du 31/1/72).

Extraits de la réglementation

I - CAPTURE

1.1 - Taille

La capture de tortues dont la dimension (axe) de la carapace est inférieure à 65 cm est strictement interdite en tout temps et en tout lieu du Territoire.

1.2 - Lieux de capture

- a) à terre : interdite du 1er novembre au 31 janvier.
- b) en mer : interdite du 1er juin au 31 janvier.

Récapitulation

<u>juin Juillet Août Septembre Octobre</u>				<u>Novembre Décembre Janvier</u>			<u>Février Mars Avril Mai</u>		
en mer				à terre			Pêche autorisée pour tortues de + de 65 cm (axe de la carapace)		
Période d'interdiction de pêche									
5 mois				3 mois					

II - DETENTION ET TRANSPORT DE TORTUES

- 2.1 - la détention n'est autorisée qu'en vivier abrité contre le soleil ;
- 2.2 - le transport doit avoir lieu également à l'abri du soleil (les mauvais traitements ne sont pas tolérés).

.../...

III - LA RECOLTE D'OEUFs DE TORTUE EST STRICTEMENT INTERDITE

IV - L'ABATTAGE DES TORTUES DOIT ETRE FAIT DANS DE BONNES CONDITIONS D'HYGIENE

V - LA VENTE DE TORTUES DE MER (OU DE LA CHAIR DE TORTUE) EST STRICTEMENT INTERDITE

VI - DES PEINES D'AMENDES ET MEME DE PRISON SONT PREVUES POUR CEUX QUI SERAIENT EN INFRACTION A LA REGLEMENTATION CI-DESSUS.

Development of the "Turtle Project" in French Polynesia

The Department of Fisheries of French Polynesia has continued its efforts towards better knowledge of the problems involved in the conservation of green turtle (*Chelonia mydas*) stock in the Tropical and Equatorial Pacific.

Taking into account the advice and recommendations of SPIFDA consultants Professors Hirth and Hendrikson, a tagging programme was initiated at the beginning of 1972 (see SPIFDA Newsletter No. 5, May 1972, p. 23-24) with support from the SPC and SPIFDA. An initially encouraging result came when two tagged turtles were recovered in July and August 1972, in Fiji and Tonga respectively (see SPIFDA Newsletter No. 6, September 1972, p. 14). Despite difficulties and the cost of operations to be carried out in the Scilly atoll (Fenua Ura) the French Polynesia Fisheries Department went ahead with its tagging programme in December 1972 and February 1973, which made for the recovery of two turtles in Fiji and Wallis, tagged in February 1973. As the SPIFDA Project is about to terminate, it is timely to review the progress achieved through this joint effort.

Catching and tagging turtles

Under the supervision of Mr Jean TAPU, French Polynesia's Chief Fisheries Officer, a team visits periodically the Scilly atoll, west of the Society islands group, where it is common knowledge that turtles come regularly and in great numbers to lay eggs. The turtles are caught either on the beach or by diving, and kept in pens constructed within the closed lagoon, formerly used to hold turtles awaiting despatch to the Papeete market. When enough turtles have been collected, measurements are taken and the turtles are tagged before being released into the lagoon, from which they can get back to the open sea, crossing the reef barrier at high tide. As the island of Scilly is so far away from Tahiti (500 km), such operations can only be carried out two or three times a year. Details of the work done are given below:

1st operation

During April 1972, 67 female green turtles were tagged, being released on 30th April. All the turtles had been caught on the beaches of the atoll from January 1972, and had to be kept in pens and fed on green leaves during their captivity. Tag numbers were 13 to 98. Measurements made: total length and width of shell, plastral length, width of head.

2nd operation

During December 1972, 166 female green turtles and 13 male ones were tagged and released. 32 turtles had been caught in October and November and held in the pen. 147 turtles, 13 of which were males, were caught in the course of the operations which were all effected outside the reef on the outer sea-slope. The same measurements were made on all the turtles as in the case of the 1st operation. Besides this, it was possible to weigh 148 females and 7 males. Tag numbers from 68 to 75, 101 to 212 (186 missing) and 1301 to 1361.

3rd operation

From the middle of December 1972 to mid-February 1973, 107 females turtles were caught on the beaches of the atoll and placed in pens. After they were tagged, measured and weighed, they were released on February 19th, 1973. Tag numbers 1362 to 1468.

Thus, during operations carried out in three series, 353 green turtles (*Chelonia mydas*) were tagged and measured, of which it was possible to weigh 262. The total weight of the 353 turtles released may be taken to be 43,000 kilos, representing a potential market value of about 5 million francs CFP (\$US 65,000) in the Papeete market.

Results

Some numerical data are given in the following tables.

Size in centimetres, total shell-length of turtles tagged in Scilly atoll by the Fisheries Department of French Polynesia

cm	30 April 1972 females	December 1972 females	1972 males	February 1973 females	Total
80		1		3	4
80		1		3	4
81					-
82		1			1
83		1			1
84		2		1	3
85		1	1	1	3
86		3	1	2	6
87		1	1	2	4
88	1	2	1	5	9
89	1	3		3	7
90		9	3	4	16
91		5	1	4	10
92	4	14		3	21
93	5	14	1	6	26
94	8	8		6	22
95	3	7	2	11	23
96	3	9	1	4	17
97	4	12		7	23
98	7	17		9	33
99	5	4		6	15
100	2	14		5	21
101	9	7		4	20
102	6	10	1	5	22
103	2	6		3	11
104	4	3		4	11
105	2	3		3	8
106	1	3			4
107		1		1	2
108		3			3
109		1			1
Total	67	166	13	107	353

Weight of turtles tagged in Scilly atoll, taken before they were released in the sea

Weight in kilos	Number of turtles			Total
	December 1972		February 1973	
	males	females	females	
70 - 79		1	2	3
80 - 89	1	1	3	5
90 - 99	2	14	9	25
100 - 109	2	17	13	32
110 - 119	1	23	16	40
120 - 129	1	22	22	45
130 - 139		24	13	37
140 - 149		28	16	44
150 - 159		10	6	16
160 - 169		4	5	9
170 - 179		2	2	4
180 - 189		1		1
190 - 199				-
200 et plus		1		1
Total	7	48	107	262

Migration of turtles tagged in Scilly

4 turtles tagged in Scilly were caught 3 to 4 months after their release in an area about 1,500 to 2,000 nautical miles to the west.

Date of release	Tag No.	Sex	Centimetres				Date of capture	Places
			Shell		Plastral	Head		
			Length	Width	Length	Width		
30.4.72	18	F	101	77	84	14	9.8.72	Vavau island, Tonga archipelago
30.4.72	26	F	102	71	77	14	26.7.72	Rabi island-Vanua Levu, Fiji arch.
19.2.73	1402	F	88	67	71	12	26.6.73	Wallis island
19.2.73	1403	F	95	73	77	12	mai 73	Lami Point (Suva) Viti Levu island, Fiji archipelago.

This brings out clearly the fact that all South Pacific island groups are involved in migrations by green turtles (*Chelonia mydas*). The phenomenon calls for a regional approach if one is to obtain concrete results in conserving and developing stocks of this species, considered everywhere as symbolizing the constancy of the island way of life.

Ensuring that green turtles are protected by very strict rules in French Polynesia (see the new text promulgated in December 1971, SIFPDA Newsletter No. 5, May 1972, pp. 25-26) would hardly seem to serve any purpose if elsewhere the indiscriminate massacres of these animals were to be continued.

Catch Data, American Samoa Tuna Longline Fishery, 1972

Month	Total hooks (thousands)	Albacore		Bigeye Tuna		Yellowfin Tuna	
		Thousands of fish	C/100 hooks	Thousands of fish	C/100 hooks	Thousands of fish	C/100 hooks
January	2,735	66	2.4	8	0.3	28	1.0
February	2,822	36	1.3	13	0.5	46	1.6
March	2,951	35	1.2	12	0.4	53	1.8
April	3,057	134	4.4	8	0.3	37	1.2
May	3,667	170	4.6	9	0.2	28	0.8
June	3,353	111	3.3	9	0.3	22	0.6
July	3,891	143	3.7	14	0.4	26	0.7
August	3,252	105	3.2	12	0.4	23	0.7
September	2,415	48	2.0	11	0.5	25	1.0
October	2,164	43	2.0	8	0.4	13	0.6
November	2,439	45	1.8	10	0.4	13	0.5
December	2,741	68	2.5	6	0.2	14	0.5
T o t a l	35,487	1,004	2.8	120	0.3	328	0.9

The above data are summarized by months for the year 1972.

Because of the length of the fishing trips, the data for the last quarter are probably incomplete.

The tuna fishery is made up primarily of Korean and Taiwanese vessels. Japanese vessels had essentially pulled out of the fishery in 1972. The data presented were derived from logbook records collected by the Honolulu Laboratory, National Marine Fisheries Service. Logbook records were collected from an average of 70% of the trip actually made. Hence, the catch per 100 hooks statistics were calculated directly from the data, while the total catch and hooks data were estimated using the logbook information and the percent of trips made by the fleet that were actually sampled.

DIARY OF FORTHCOMING MEETINGS

1973

- December 4 - 16 FAO : Technical Conference on
Fishery Products
Tokyo, Japan
- December 4 - 6 UNESCO: Fifth Regional Meeting
of Marine Science Experts
in Southeast Asia, Hong Kong
- December 7 - 16 Pacific Science Association:
Symposium Hong Kong

1974

- January 31 - SPC: Third Regional Conference
February 6 of Directors of Agriculture,
Livestock Production and
Fisheries,
Lae, Papua New Guinea
- February 18 - 22 SPC: Expert Committee on Tropical
(?) Skipjack, Tahiti.

*
* *

37.
see p 2
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on behalf of the participating Governments.

(49/74)

SOUTH PACIFIC ISLANDS FISHERIES DEVELOPMENT
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EDITORIAL

Professor Doumenge has now returned to France, and this is the last SPIFDA Newsletter. As mentioned in the Editorial of Newsletter no.9, SPC will, at the request of delegates to the 6th Technical Meeting on Fisheries, continue to produce a Newsletter which will be distributed to the present recipients of the SPIFDA Newsletter.

Sometime in 1974, the South Pacific Commission will have an offset printing press at Headquarters in Noumea. This will undoubtedly improve the presentation of the Newsletter. We sincerely hope that the content will live up to the improved presentation.

At the South Pacific Commission conference in Guam in September, the SPC's Special Fisheries Projects (see pp. 2-3-4 for summaries) were approved in total. These projects were made possible by special voluntary contributions from Australia and New Zealand, with supplementary funding made by France at the conference.

Three of the papers in this present Newsletter show the exciting possibilities of fisheries developments outside the reefs:

- Deep water Fishing, by P. Fourmanoir ;
- The Development of Tuna and Skipjack Fishing in French Polynesia ;
- Exploratory Shrimp Trapping, by P. Struhsaker and D. Aasted.

The shrimp farming experiments show promise for the future, but will inevitably be a high cost, advanced technology operation for some time. Farming of molluscs can add to both protein and cash income in many areas. Turtle farming has promise and the transplantation and "seeding" of *Trochus* in Tahiti, demonstrates that the introduction of exotic species can so produce good economic returns.

R.H. Baird

* * *

SPECIAL PROJECT ON OUTER REEF ARTISANAL FISHINGS U M M A R Y

The primary goal of fisheries development programmes in the South Pacific should be satisfaction of local fresh fish demand, thus providing protein at reasonable cost. Surplus catches can be sold to foreign markets as a source of foreign exchange. Initial development can be based on indigenous crews working from relatively small craft. The American Samoa Dory Project has demonstrated the practical potential of this approach.

It is proposed that SPC undertake an artisanal experimental and demonstration fishing project in those territories which are not able, at present, to test and develop their local fisheries potential. The objectives of the project are to assess territorial resources, determine and demonstrate successful fishing techniques, prepare an economic investment prospectus, train a limited number of fishermen, and compare the cost effectiveness of two different types of fishing craft.

The project will be substantially self-contained, with provision for boats, fishing gear, refrigeration and personnel. The two boat types will be the petrol-powered 24' plywood "Samoan dory" and an aluminium boat with diesel power. A variety of fishing techniques will be used. Personnel will include a Project Manager, master fisherman and four volunteers. Trainee crews will come from the territories in which the project operates.

*
* *

(Reef and lagoon)

Introduction

With the increase in population of many of the Pacific islands and with consequent increase in pollution and in fishing pressure, in many cases the island populations can no longer maintain their fish requirements from lagoon sources, particularly not in areas close to centres of population. This is the reason for the SPC's emphasis on outer reef artisanal fishing developments.

However, there still are many possibilities for reef and lagoon fisheries developments.

Lobster (Panulirus spp.)

There is some considerable body of evidence that commercially exploitable stocks of lobsters are found on the reefs of most Pacific islands. Remarkably little is known of the vital population parameters such as growth rate, mortality, stocks and in consequence, optimum yield. Knowledge of all these is required in the long term in order to maintain maximum sustained yield.

However, it is known that there are many, at present unexploited or under-exploited stocks. The main difficulty is that of logistics. Widely scattered archipelagos, with remote islands with exploitable stocks of lobsters, are unable at present to market lobsters because of the irregularity of collection. One immediate, and fairly inexpensive partial solution of this problem would be live storage at island sites. Live storage of lobsters is practised extensively in Central America, Europe and Africa of Panulirus spp. and also Homarus spp. in N. America and Europe. There seems to be no reason why Panulirus spp. should not also be successfully stored alive on island sites in the Pacific. If this were possible pending collection for processing and marketing, it could make a substantial contribution to the cash income of many remote island villages.

Recommendations have already been made in reports to the Administrations of both the British Solomon Islands Protectorate and the New Hebrides, that this problem should be looked into and guide lines have been given for the initial approach. However, neither of these territories has the resources of personnel to conduct reasonable long-term experiments in depth. As the problem is one common to nearly all the territories of the Pacific, who would all stand to gain from a definitive answer, it would be desirable for the Commission to finance one or two years work into the solution of this problem.

Bêche-de-mer (Holothurians)

There is at present a big demand at a good price for Bêche-de-mer. Many territories are at present exploiting this resource. A handbook prepared by the FAO Consultant to SPIFDA, Mr. Sachithanathan, on Bêche-de-mer is suffering some considerable delays in production due to doubts about identification of some species.

As with lobsters, little is known about growth rates, stocks and recruitment. Identification of the main commercial species is frequently a problem for out islanders. The volunteer working on lobsters

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above would often be working on an area of Bêche-de-mer. He could, incidentally, begin to make a study of stocks and methods of preservation (formalin injection) that would allow the main commercial species to be preserved in a recognisable form and distributed for species identification.

Turtle Farming

In areas where nesting turtles occur, turtle farming by means of hatcheries and rearing has been shown to be a congenial and effective operation at the village level, producing both protein food and cash, while at the same time contributing substantially to conservation of turtle stocks.

An investigation of the feasibility of this operation in one or two Pacific islands is considered a well worthwhile low cost project. A reasonably successful farming operation could be used as a demonstration centre and a substantial industry could be built up in the Pacific area for turtle products.

Turtles have the advantage, like Bêche-de-mer and possibly lobsters, of being able to be held in remote areas awaiting collection for processing and marketing without the need for high cost freezing equipment.

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INITIAL ORGANIZATIONAL WORK FOR FARMING PENAEID SHRIMPS
IN ST. VINCENT'S BAY (NEW CALEDONIA)

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I. Natural population for stocking the farm

A natural population is present, of which juveniles and young specimens that have not yet reached adult size keep to the mangrove channels and the mud-sand floor of the coastal strip. In order to stock the pond, live shrimps 2 to 5 gr in weight may be caught without any great difficulty by means of fixed nets which act as traps. These fyke nets, called capetchades, are used by fishermen in the lagoon and salt-water pools along the French Mediterranean Coast. Capetchades, which consist of a barrier 50 or 100 m long leading into an enclosure surrounded by 3 trap nets, keep alive the fish and shell-fish which get into them. Setting up a complete capetchade using 6 poles for the barrier and 7 for the enclosure and trap nets, takes about an hour. Once in position, the capetchade may be left in the same spot for one or two weeks. The nets in the trap should be inspected twice a day - this involving in all between 15 and 20 minutes - so that specimens caught may be removed and the trap nets put back into position. The contents of the nets are spread out on wet sacks placed in the bottom of the fishing boat. Live shrimps are immediately sorted by hand and put into a plastic tub full of sea water that is stirred and constantly changed. If more than 10 or 15 minutes are spent between the time the live shrimps are caught and their release into the rearing pond, a battery-operated portable oxygen-bubble generator should be used.

The shrimps are mixed with other shell-fish and fish, which also, are immediately sorted. All juveniles and young specimens not used are returned alive to the sea once sorting is completed by washing and rinsing the bags. With trained staff on the job, this takes only a few minutes. The whole thing can be managed by two persons, though it is most useful to have a third person on hand to speed up the manual processes. Hitherto, shrimp catches have consisted almost exclusively of Penaeus merguensis (banana prawn), which are very delicate, having to be handled with great care and swiftness if a high mortality rate is to be avoided. When the experiment was initiated, there was less than 20% survival. Improved organization, with the benefits of daily training, then raised this figure to a very satisfactory 80 to 85% survival. A capetchade set-up can easily provide 100 to 300 live shrimps per day; and this was the case in a season characterized by a pronounced drought which made it impossible for the nets to be used at a time when masses of shrimp concentrated on the coastal fringe following a period of heavy rain.

This suggests that if capetchades are used during the season when juveniles come together, they could provide daily several thousand subjects for farming, so that it would be possible to fill a pond in about 10 days of intensive collection. Along with the Penaeus merguensis, there is also a natural population of Penaeus semisulcatus and Penaeus monodon, but up to now catches have been limited to a few specimens. Further, great numbers of Metapenaeus monoceros are mixed up with the Penaeus merguensis, but at the juvenile stage it is difficult to distinguish between them.

II. Size-increase in natural stock used

Since August 1972 when the experimental pond was filled, some hundreds of shrimps fished with a cast net and weighing 1 to 3 gr, were put into the tank so that observations could be made of their behaviour, no food being introduced from outside.

These juveniles showed rapid growth and their average weight in mid-December 1972, when they had been in the pond for four months, was 12 gr in the case of males, while the females varied in weight between 20 and 35 gr, depending on their sexual maturity. (See SPIFDA Newsletter No. 7, December 1972, p. 9-12). Subsequently, the small number of specimens remaining continued to grow, even though the salinity level of the pond water remained constant at about 40‰, owing to the protracted and unusually bad drought experienced in this part of New Caledonia.

In March and in the beginning of April 1973, Penaeus merguensis introduced into the pond 7 months before weighed 40 to 55 gr, which made them identical in size to the large shrimp fished in Australia.

Apart from the few hundred specimens introduced systematically into the pond when it was filled, other shrimps got in through the pumping system, despite the fact that the water was introduced through a coke-filter. It was interesting to note that the larval or post-larval stages of Penaeus semisulcatus, Penaeus monodon and Metapenaeus monoceros entering the tank, developed to the adult stage equally as well as Penaeus merguensis.

III. Harvesting of the pond-reared specimens of marketable size

Wherever shrimps are found, whether it is in Japan, in Europe or in the United States, one of the problems most difficult of solution lies in harvesting, gradually, the totality of farmed individuals that have attained marketable size, while at the same time endeavouring not to endanger the animal life of the pond as a whole.

The most drastic method, which consists of draining the pond was adopted to observe the effects on animal life and to determine the problems that were likely to come up. The experiment conducted on 18th and 19th April 1973 was far from conclusive and was in fact rather unsuccessful. The shape of the pond and the fact that there is too much mud on the bottom render this procedure totally unsuitable. Losses were very high, the majority of big shrimps remaining buried in the mud, where they died after a few hours.

Another technique has been developed which appears to be quite satisfactory. This consists of using a large fixed pound net with large meshes from 15 to 35 mm square of the Mediterranean "guangui" type. This type of net is used in the channels and salt water pools fisheries along the French Mediterranean coast. The net is fixed by means of 3 poles, its wings and mouth opened to face the direction from which the pumped water comes over the overflow-chute, the cod-end of the net being fixed abreast of the "moine pêcheur", a concrete trap, fitted with sluices. The left wing of the net is fixed with a stake to the edge of the tank. Shrimps of marketable size, i.e. specimens weighing over 10 gr each, are retained in the cod-end of the net. The rate of fishing can be improved

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by making the animals in the pond move around, by simultaneously pumping in filtered sea water and partially emptying out water near the bottom by removing a board from the sluices.

This is a simple and labor-saving system since harvesting of the live shrimps in the net can be carried out by a single person. To avoid the accumulation of too many specimens in the cod-end, collection of shrimps caught can be made every 4 or 5 hours. This harvesting method makes for top-quality produce. It has also made it possible to use the first reared specimens to try and build up a controlled breeding-stock.

IV. Transport of farm-reared and natural specimens to Tahiti, to set up a controlled breeding centre

The French Centre for Oceanic Management (CNEOX) has set up in Tahiti a very large laboratory which is to concentrate on experimental large-scale farming of Penaeides.

As natural populations of these species do not exist in the waters of French Polynesia, external sources had to be approached for specimens that could constitute an initial breeding-stock.

CNEOX approached the St Vincent's Bay Demonstration Centre, which is at present the only organisation in the Pacific capable of supplying specimens to be used for breeding purposes following controlled growth in a rearing pond.

It is especially satisfactory that the St Vincent's Bay Demonstration Centre could be used in this venture as at present neither conditions nor equipment are suitable for carrying out controlled reproduction experiments.

Five batches were sent by plane (one in December 1972, one in January 1973, two in February 1973 and one in March 1973), comprising about 200 shrimps in all from the rearing-pond population. The method of conditioning consisted of lowering the water temperature and releasing oxygen into plastic or glass bottles. The method was gradually improved until the in-flight mortality rate was reduced from 75/80% to only 25/30%.

With a view to increasing the breeding-stock in Tahiti, two batches were sent on 18th and 25th May 1973, involving 462 shrimps from a natural habitat, 343 of which were found to be alive upon arrival. In the course of April 1973, another experiment was carried out involving the transport by sea in the "Coriolis" of 37 juvenile shrimps. Nine of these reached Tahiti alive after 17 days on the ship.

Finally at a more recent date, 122 shrimps from natural stocks and 75 from the tank were sent by air on 23rd June and 10th August respectively. A shipment of about 81 shrimps was made on the 25th August 1973.

Very satisfactory growth-rates were obtained in Tahiti with the use of a locally-produced food, based on a mixture trochus flesh (Trochus niloticus) and skipjack (Katsuronus pelamis) meat, improved by the incorporation of vitamins and minerals.

In mid-July 1973, the following were under observation in the CNEEXO laboratory in Vairao (Tahiti) from among the specimens transported from St Vincent's Bay:

<u>Penaeus merguensis</u> :	400 individuals between 4 and 9 gr in weight plus some specimens weighing between 13 and 16 gr.
<u>Metapenaeus monoceros</u> :	about 35 specimens, females from 14 to 20 gr, males from 9 to 12 gr in weight.
<u>Penaeus semisulcatus</u> :	5 individuals, including a female weighing 51 gr.
<u>Penaeus monodon</u> :	1 male 75 gr in weight.

20 males and 20 females of the species P. merguensis kept in a fibreglass tank (500 litres) are weighed regularly to determine the growth pattern in captivity. The other individuals are reared in two tanks of 12 m³, made of flexible plastic sheeting.

The presence of mature females in the last batch to arrive (25th August), made it possible to initiate larval and post-larval tests in the beginning of September, with the technique normally practised in artificial hatcheries.

V. Stocking the rearing-pond

The pond was drained for the first time in mid-April 1973. Routine treatment was given, such as ploughing the bottom when dry. The pond was ready for refilling by the 20th May 1973, 150 kg of phosphated fertilizer being added. The object of the current experiment is to study the behaviour and growth of Penaeid and Metapenaeid shrimps at a density of about one individual per m².

This experiment is expected to last 6 or 7 months and should, if successful, make it possible to obtain in mid-December 1973 a few hundred kilos of specimens having reached a sub-adult stage, very close to being reproductive. Initially, between 25th May and 9th July, 5363 shrimps were placed in the pond. This population came from catches made with two capetchades, placed very close to the farm, one on the muddy zone in front of the mangrove swamp shielding the wall of the dam, and the other also in a mangrove swamp within a small adjoining bay, at a distance of about 400 m. This sort of location has made it possible to solve transportation and survival problems in a satisfactory manner.

The juvenile shrimps are mainly of the species Penaeus merguensis (banana prawn). An analysis of the catches shows clearly how plentiful they were, considering the limited number of days when conditions were favourable. In one single day, 14th June, 687 specimens were collected; and the six best days (6th June, 10th June, 14th June, 18th June, 19th June and 30th June) between them accounted for over 40% (2244) of the shrimps collected. For the time being, it is not possible to correlate the catches made with the phases of the moon or tidal flow, as too many external factors interfered with the effects of natural conditions, for instance losses due to the improper use of nets, yields affected by the fact that it was not at first possible to inspect the nets regularly or as only one capatchade was at the time suitable for fishing.

The breakdown of live shrimps collected to stock the pond was as follows:

394	specimens	from 25th to 31st May
692	"	from 1st to 7th June
1604	"	from 8th to 14th June
1161	"	from 15th to 21st June
589	"	from 24th to 30th June (1)
923	"	from 1st to 9th July.

(1) All shrimps caught from 22nd to 23rd June were sent to Tahiti. These are not mentioned in this table.

A summary check was made on how the natural stock was made up, the sizes of shrimps in certain batches being measured before they were released into the farming pond. The distribution indicates that the population of juveniles is fairly homogeneous.

Of the shrimps concerned, 50 to 70% (overall average 62.5%), were in the 7 to 8 cm size-bracket, 21% of the total collected being more than 8 cm, and 16.5% less than 7cm in length.

Size in cm	1st June	3rd June	5th June	11th June
4	-	4	2	-
5	10	7	8	2
6	14	5	7	4
7	19	25	18	50
8	30	23	20	59
9	16	11	9	35
10	2	1	1	8
	91	76	65	158

Later on, in early July, two large batches of specimens which were found dead in the pocket of the capatchade nets were measured for size and preserved as controls for checking the state of the natural stock upon completion of the first stocking period. There was hardly any difference between their sizes in early July and those recorded in June, confirming the structure of the population being fished.

Of the shrimps collected, 69.7% were in the 7 to 8 cm group, 9.8% of them being larger and 20.5% smaller.

Sample batches - shrimp sizes

cm	3rd July	4th July
5	4	5
6	24	48
7	80	98
8	58	72
9	32	10
10	-	1
Total	208	234

In the case of these sample batches, the average weights were determined on 3rd July. The 234 shrimps weighed 721 gr, so that the average weight was 3.08 gr. The 193 shrimps collected on 4th July weighed 605 gr, giving an average weight of 3.15 gr per individual.

The average weight of specimens introduced into the pond may thus be estimated at about 3.10 gr each, which would make for a total live weight of just over 16 kg.

VI. Observing the first growing period

In connection with the first shipment of shrimps to the CNEKO laboratory in Tahiti, a check was made on 10th August 1973 on the growth pattern after they had been reared in the pond for an average of six weeks. 447 shrimps were studied, representing about 8% of the specimens introduced between 25th May and 9 July. A considerable increase in size could be noted, the 9-10 cm group being the most numerous (70% or 312 individuals) against 7.2% that were smaller (33) and 22.8% (102) larger in size. This sample check made it possible to establish a size/weight ratio that can be used in assessing the live-weight of shrimps stocked in the tank.

Panaeus merapiensis - batch of 10th August 1973

<u>Weight in grams</u>	<u>Total length in centimetres</u>
3.00	7.5
4.00	8.8
8.00	10.2
10.00	11.2
13.00	12.1

After sorting was completed, it was possible to classify 217 male specimens weighing 1,454 gr in all, with an average weight per individual of 6.7 gr, and 222 females with a total weight of 1,936 gr and an average individual weight of 8.17 gr. The average weight of this population, which appears to be evenly balanced, is thus 7.7 gr per shrimp. It may thus be assumed that on 9th August 1973 the pond must have contained about 40 kg of live-weight in shrimps, leaving all mortality factors out of the reckoning.

Adjustment of these figures taking into account natural mortality can only be made after harvesting. Up to the present moment, no accidental mortality has been noted.

VII. Rearing tank: hydrological characteristics and water displacement

The water supply to the tank consists of pumped sea water filtered through a coke ring about 80 cm thick. The rate of flow varies between 500 m³ and 800 m³ per hour, depending on tidal conditions and the power adjustment. Pumping initially carried out over a total of 10 hours between 25th and 30th May made it possible to cover the muddy bottom of the pond with a 30-40 cm layer of sea water. This ensured the disappearance of bacterial and planktonic flora and facilitated the onset of curing so that the bottom could be covered with algae. The sea water pumped in had a mean temperature of 23.5° and its salinity was 36‰.

Owing to a particularly bad drought (4 mm of rainfall between 25th May and 5th June) and heat that was quite unusual for that time of the year (the maximum air temperature in the shade varied between 26° and 27°C from 25th to 31st May and 29° and 30°C between 1st and 5th June) the water temperature in the tank rose sharply to 27.4° on 5th June, the salinity shooting up to 41.49‰.

It should be pointed out that the first shrimps placed in pens during this period seemed to adjust perfectly to these extreme conditions.

From the 6th June onwards, after superficial ploughing of the area not covered by the water of the first pumping, pumping was resumed so as to bring the water-level in the tank to the mean mark, i.e. 1.40 metres in the "moine pêcherie", the effect of evaporation being compensated for. For a month, from 6th June to 5th July, pumping was carried out almost daily for 1 to 5 hours per day, depending on the tidal level and the effect of evaporation. In the course of these 30 days, pumping went on for a total of 60 hours, so that the salinity of the water in the pond could gradually be brought down from over 41‰ between 5th and 9th June to 40.19‰ on 10th June, 39.2‰ on 12th June, 38.4‰ on 15th June, to hold steady between 38.5‰ and 39.5‰ from 16th to 28th June. It returned to 38.4‰ on 29th June, 37.58‰ on 4th July and 37.35‰ on 5th July. During the period from 6th June to 4th July, drought conditions continued to be extreme and only 9.6 mm of rainfall was recorded. The effect of a pronounced drop in air temperature (maximum between 24° and 26°C and minimum between 12° and 15°C) soon made itself felt, and the temperature in the pond dropped almost throughout this period to 20° and 23°C. On 5th July at 7.15 a.m., when the first period of drought came to an end, the sea temperature was 20.55°C and the salinity 35‰, while in the pond a temperature of 21.2°C was recorded, the salinity being 37.35‰.

There followed, between 5th and 20th July, a relatively cold (maximum temperature between 21° and 24°C) and rainy (150 mm) spell which did a certain amount of damage. Following heavy rain on 7th, 8th and 9th July, when over 90 mm of rainfall were recorded, salinity in the tank fell to $32.10^{\circ}/\text{oo}$. Pumping was then reduced to a minimum just so as to mingle the surface water and avoid stratification. Between 5th and 20th July, water was pumped in only 5 times for a total duration of 11 hours. At 7.15 a.m. on 17th July, the water in the sea ($33.39^{\circ}/\text{oo}$, 18°C) and that in the pond ($33.80^{\circ}/\text{oo}$ and 19.65°C) showed very similar characteristics.

There was drought again between 21st July and 20th August (3 mm of rainfall), but there was less evaporation as the temperatures were lower (minimum usually between 10° and 15°C and maximum temperature between 24° and 26°C). 14 pumpings over a total period of 30 hours were enough to keep the temperature very close to that of sea water (average 20°C) and the salinity a little higher (at 7.15 a.m. on 15th August, $34.8^{\circ}/\text{oo}$ in the sea to $36.00^{\circ}/\text{oo}$ in the tank).

On 20th and 21st August, 15 mm of rainfall cooled the weather down sharply, salinity dropping considerably. On 22nd August at 8.00 a.m., the temperature in the tank was 16.5°C and the salinity $33.7^{\circ}/\text{oo}$.

From 22nd August to 25th September, the weather remained cool and often cloudy, but rainfall continued to be low (less than 15 mm) and both the temperature and the salinity of the pond gradually increased. The salinity recorded on 10th September was over $36^{\circ}/\text{oo}$ and on 25th September at 7.10 a.m., the readings taken in the tank were 23°C and $38.1^{\circ}/\text{oo}$. To compensate for loss due to evaporation and in order to maintain fair physico-chemical stability in the pond, pumping was effected for 14 hours between 22nd August and 9th September, and 18 hours between 9th and 25th September.

On 22nd September at 7.10 a.m., sea water in the vicinity of the pumping station had a temperature of 18.5°C and a salinity of $35.3^{\circ}/\text{oo}$, while the corresponding readings for the pond water were 19.5°C and $37^{\circ}/\text{oo}$. Between 25th and 30th September, a brief wet spell brought with it 28 mm of rainfall, so that the salinity was maintained below $37^{\circ}/\text{oo}$, but owing to persistent winds and the fact that day temperatures were between 25° and 27°C , there was considerable evaporation.

Thus, despite climatic conditions that were particularly unfavourable (long periods of drought interrupted by a few days of very heavy rain), the existing facilities and water-control methods practised proved adequate in maintaining certain hydrological characteristics in the farming of Penaeid shrimps; and there is every likelihood of success.

VIII. Pond water-supply and fauna equilibrium

Low density stocking enables the use of the natural productivity of the water channelled through a coke-filter, during the pumping process.

It is worth noting that, during the period under review (end of May 1973 to beginning of October 1973), onh planktonic forms developed in the pond, and, in particular, that there was no invasion of predatory crustacea or fish, whereas during the period from September 1972 to April 1973, eggs and larvae of numerous species passed through the filter and eventually developed into approximately a thousand "blue breams" (Acanthopagrus berda), several dozen crabs (Scylla serrata, Portunus pelagicus, "mangrove crabs", "fighter crabs", "caledonian crabs") and Stomatopodes (Squilla).

The water contained in the pond rapidly took on a brownish colour, indicating a high density of diatoms. There were almost no green algae, whereas colonization of the banks had previously been a problem.

A significant growth of Copepods was noted around 10 July. It did not however endanger the overall equilibrium.

In order to sustain the growth of the stock of Penaeides supplementary food was used, upon which the shrimps fed actively. It consisted exclusively of fresh fish minced by hand with a household mincer. The minced fish was placed partly in control feeding trays but once the shrimps had shown sustained appetite for it, the food was broadcast from the banks and the dike, it was distributed over the surface which proved most attractive to the shrimps.

The fish used was mostly clupeoid-like fish called "Japanese sardines" (known as "Konoshiro" in local language). A few "Pomadasy's hasta" ("Crocros") were sometimes added and most of the small fish consisted of fish locally called anchovy, sardines and "prêtres". The volume and frequency of feeding varied according to the appetite of the shrimps. It should be pointed out that in June and the beginning of July, a significant portion of the food was not used. Therefore, to lessen the risk of pollution, the heads, tails and scales of the biggest fish were discarded before mincing.

The distribution was as follows:

Period	Total food distributed g.	Weight of daily feed g.	Estimated live-weight of shrimps in the pond g.	Daily feed/weight ratio of shrimps (%)
5 - 17 June	8 000	600	5 000	12
18 - 30 June	22 000	1 800	10 000	18
1 - 10 July	22 000	2 200	15 000	14.6
11 - 20 July	18 000	1 800	22 000	6.2
21 - 31 July	17 000	1 500	30 000	5.0
1 - 10 August	30 000	3 000	40 000	7.5
11 - 20 August	32 000	3 200	45 000	7.0
21 - 31 August	30 000	2 800	50 000	5.6
1 - 10 Sept.	25 000	2 500	55 000	4.5
11 - 20 Sept.	20 000	2 000	60 000	3.3
21 - 30 Sept.	42 000	4 200	65 000	4.4
1 - 10 Oct.	28 000	2 800	70 000	4.0

IX. Further stocking of pond

After the sample batch of 447 shrimps was collected on 10 August, fishing was continued using a simple capatchade net to obtain fresh food. Live Peneaeides and Metapeneaeides shrimp caught with this net were introduced into the pond, serving as the basis for a new stock. By 10 October, 6,216 live shrimp had been introduced into the pond (not including the 477 specimens introduced on 10 August).

The breakdown was as follows:

	Number of shrimps
- Shrimp caught for initial stocking (25 May to 9 July)...	5,363
- Shrimp caught end of July in Tontouta	55
- Fishing in front of pond, 5 to 7 August	402
Total on 9 August:	5,820
- Sample on 10 August	- 447
Shrimp remaining on 11 August:	5,373
- Shrimp caught 11 to 24 August	276
- Shrimp caught 30 August to 20 September	192
- Shrimp caught 24 September to 10 October	375
Total number of live shrimp introduced:	<u>6,216</u>

X. Operations involved in initial harvesting

In order to observe the growth of shrimp and to make stock estimates, night-fishing was carried out five times between 10 and 14 October, using the gangy-type fixed net.

The following is a breakdown of the catches made:

Period	<u>Penaeus merguensis</u>				<u>Metapenaeus</u>		<u>Monoceros</u>	
	Males		Females		Males		Females	
	No.	g.	No.	g.	No.	g.	No.	g.
10 October	615	5.991	607	10.363	4	33	23	375
11 October	424	3.925	848	14.50	7	61	8	125
12 October	380	3.561	188	3.241	20	164	8	123
13 October	178	1.732	60	1.048	6	49	1	15
14 October	197	1.895	136	2.469	4	31	6	86
Total	1.814	17.104	1.839	31.623	41	338	46	624

The homogeneity and well-balanced nature of the stock fished are to be noted. The average weight of the specimens, weighed when drained of water, was in the case of P. merguensis, 9.4 g. for males and 17.2 g. for females, and in that of M. monoceros only 8.2 g. for males and 13.5 g. for females.

The very small number of Metapenaeus monoceros caught may be taken to indicate that the gangy-type net is less efficacious for fishing this species, which buries itself in the sand. Penaeus merguensis on the other hand, stays on the bottom without burying itself, and seems to be very easy to catch by virtue of the fact that it moves around more. It was possible to make more detailed observations while measurements were taken of all specimens of M. monoceros and 400 specimens of P. merguensis.

Reference should also be made to two mature Penaeus semisulcatus females caught, one of which weighed 25 g. and the other 40 g. Among the smaller and lighter specimens introduced since the end of August, catches were considerably reduced and involved Penaeus merguensis, 10 males weighing 40 g. in all (4 g. each) and 8 females 51 g. (6.5 g. each).

Thus between 10 and 14 October, 3.742 adult specimens were caught, that may be assumed to belong to the population of 5.373 shrimps placed alive in the tank before 11 August. The catch percentage is very high (69.9%), indicating an extremely high survival rate. This can be verified more precisely during the next fishing operation, which should take place around mid-December 1973.

XI. Marketing the Penaeides shrimp reared in New Caledonia

When the initial fishing operation was carried out, involving about 50 kilos of shrimp, it was decided to investigate the possibility of marketing them in Noumea.

The sale, which was organized by Mr. Paul Guerlain, an oyster farmer in Ouenghi and the owner of a high-quality sea-food store in Noumea, was a great success. 37 kilos were sold for a total of 44,400 fr CFP, so that the average price per kilo was 1,200 fr CFP.

This price of 1,200 fr CFP par kilo (\$A 10 or \$US 15) may appear to be, and is in fact, rather high. However, to have a better understanding of the level attained, it should be borne in mind that the New Caledonian domestic market is accustomed to importing food products at extremely high prices, its considerable purchasing power being conditioned by a standard of living boosted by mineral wealth and heavy industry.

Further, the farmed shrimps were very favourably received by consumers as the produce was remarkably fresh and very homogeneous. There is no doubt that the consumer is biased in favour of fresh shrimp from the rearing pond, as they have a far better appearance than trawl-fished specimens.

Although mid-October is not a favourable time for selling a luxury product, the demand exceeded the supply so that individual sales had to be limited.

Already, consumers have offered to buy produce expected at the next harvest which, scheduled as it is for the Christmas season, is likely to fetch a higher price that can as of now be assessed at being equal to or over 1,500 fr CFP par kilo (\$A 15, \$US 22).

If expectations are to be based on such sale prices, it seems possible to envisage the establishment of some pilot farms which could develop more sophisticated techniques, making for much higher production involving larger shrimp stocks.

XII. Conclusion

Initial experiments involving the controlled farming of Penaeides and Metapenaeides shrimp in St. Vincent's Bay indicate that it is possible to hope for economically feasible results provided one can readily obtain several hundred thousand post-larvae to supply the stock of juveniles that can get the maximum benefit from the favourable hydrological and climatic conditions in rearing ponds, which can be set up at moderate cost in many locations on South Pacific Islands.

The remarkable results obtained by CNEKO in the Vairao laboratory in Tahiti, allow one to hope that by the end of 1973 or the beginning of 1974 at the latest, further experiments on these lines will be carried out in the St. Vincent's Bay Mariculture Demonstration Centre, taking into account initial data collected since work began in August 1972.

More particularly, it may be hoped that thanks to the judicious rotation of generations - with small tubs being used for pre-growing the shrimp - there would be three main harvests per year.

As behaviour varies between different species, greater numbers of shrimps can be farmed, associating species that ordinarily live buried in the sand (Penaeus semisulcatus, P. monodon, Metapenaeus monoceros) with a species that always remains above the sand floor like Penaeus merguensis.

Recent progress achieved both in Japan and the United States, in Europe as well as in Tahiti, in developing a cheap and standardized feed in the form of manufactured pellets, will help in the transition from the present stage, involving research in a small number of specialized institutions, to the practical application of the results in shellfish farms that could bring in a considerable amount of income both to the private investors and the territories concerned.

BIOMETRY

Although produced from natural stock that is necessarily heterogeneous, fished at random with capetchades, the stock in the pond was found to be surprisingly homogeneous. This confirmed the initial indications of the first tests carried out at the end of 1972. As in December 1972, the number of samples being far larger, the Penaeus merguensis males are shown to be grouped together in a narrow bracket (over 80% of the specimens weighed being within the 9.00 to 9.99 g. range). The females, as was to be expected since their individual weights vary greatly according to the sexual stage, were more widely distributed. Nevertheless, over 80% are within the 16.00 to 18.5 g. range.

Penaeus merguensis : Distribution of mean weight in grams

Males			Females		
Weight in g.	No.	%	Weight in g.	No.	%
7.50 - 7.99	10	0.9	14.00 - 14.49	10	0.8
8.00 - 8.49	10	0.9	14.50 - 14.99	-	-
8.50 - 8.99	80	7.0	15.00 - 15.49	20	1.6
9.00 - 9.49	408	35.7	15.50 - 15.99	70	5.7
9.50 - 9.99	510	44.7	16.00 - 16.49	140	11.4
10.00 - 10.49	104	9.1	16.50 - 16.99	240	19.6
10.50 - 10.99	20	1.7	17.00 - 17.49	251	21.0
			17.50 - 17.99	170	13.9
			18.00 - 18.49	180	14.7
			18.50 - 18.99	90	7.3
			19.00 - 19.49	40	3.2
	1.142	100.0		1.211	100.0

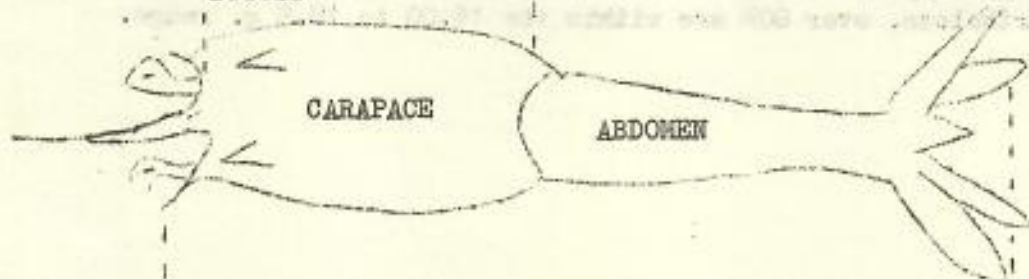
A more detailed morphometric study involving 50 specimens of each sex made it possible to determine the length/weight ratio in the two sexes and the stage of sexual maturity among the females.

Morphometry : Guide marks involved in the two measurements made

C.L. =

Carapace length

starting from
the orbital
recess



T.L. =

Total length is length from the orbital recess to the tip of the middle segment of the telson

Morphometry of a random sample of 50 males and 50 females

Penaeus merguensis

Males			Females			
T.L.	C.L.	Weight in g.	Sexual stage	T.L.	C.L.	Weight in g.
9.2	2.0	9.0	0	12.3	3.2	17.0
9.3	2.1	7.0	0	12.0	2.9	17.0
9.3	2.1	8.5	0	12.8	3.4	20.0
9.5	2.2	8.0	0	12.5	3.3	18.0
9.5	2.3	9.0	0	12.3	3.3	18.0
9.5	2.2	8.0	0	11.4	2.9	15.0
9.5	2.3	8.2	0	11.8	3.0	15.0
9.5.	2.2.	8.0	0	12.2	3.7	18.0
9.5.	2.2	8.0	0	12.3	3.1	16.0
9.6.	2.2	8.0	0	13.0	3.3	19.0
9.6.	2.3	8.0	0	11.2	2.8	13.0
- 9.7	2.2	8.0	0	12.0	2.9	17.0
- 9.7	2.3	8.0	0	10.9	2.4	11.0
- 9.7	2.4	9.0	0	12.3	3.0	15.0
9.8	2.4	8.5	0	12.3	3.1	18.0
9.8	2.5	9.0	0	11.8	3.2	15.0
10.0	2.2	10.0	1	12.7	3.3	20.0
10.0	2.4	8.5	1	11.9	3.2	16.0
10.0	2.2	8.0	1	11.8	2.7	17.0
10.0	2.2	8.0	1	12.4	3.2	18.0
10.0	2.2	9.0	1	11.9	3.1	18.0
10.0	2.3	9.0	1	11.5	3.0	15.0
10.0	2.4	9.0	1	12.4	3.3.	18.0
10.0	2.3	9.0	1	13.0	3.4	20.0
10.1	2.5	9.0	2	12.2	2.8	17.0
10.1	2.3	9.0	2	12.5	3.2	18.0
10.2	2.3	9.0	2	12.0	2.7	16.0
10.2	2.3	9.0	2	11.6	3.1	16.0
10.2	2.5	10.0	2	12.8	3.2	20.0
10.2	2.4	9.0	2	12.4	3.2	19.0
10.3	2.1	9.0	3	12.5	3.1	18.0
10.3	2.4	10.0	3	12.3	3.0	17.0
10.3	2.3	9.0	3.	12.4	3.3	18.0
10.3	2.3	9.0	3	11.5	3.0	14.0
10.3	2.4	9.0	3	11.6	3.0	15.0
10.3	2.3	9.0	3	12.4	3.3	16.0
10.3	2.3	9.0	3.	11.6	2.9	15.0
10.3	2.3	9.0	3	12.5	3.4	19.0
10.4	2.5	9.0	3	12.6	3.3	18.0
10.5	2.5	10.0	3	13.0	3.3	19.0
10.5	2.3	10.0	3	12.9	3.4	19.0
10.5	2.3	9.0	3	11.0	2.5	12.0
10.5	2.4	10.0	3	12.8	3.5	20.0
10.5	2.6	10.0	3	12.0	3.2	16.0
10.5	2.5	10.5	3	12.5	3.4	18.0
10.6	2.3	9.0	3	13.0	3.5	20.0
10.7	2.4	11.0	3	12.9	3.6	18.0
10.7	2.4	10.0	3	12.6	3.6	18.0
10.9	2.6	11.0				

Key to Table page :

T.L. : Total length in cm from the orbital recess to the tip of the middle segment of the telson.

C.L. : Length of carapace is length from the orbital recess to end of carapace (in cm).

Weight in grams.

Sexual stage: 0 = immature
1 = start
2 = mature
3 = about to spawn

It is worthwhile pointing out the characteristics of females found to be still carrying spermatophores after moulting.

Penaeus mexuensis females that have moulted and still carry spermatophores:

Total length	Carapace length	Weight in g.
10.7	2.6	12.0
11.0	2.6	15.0
11.2	2.2	15.0
11.2	2.2	15.0
11.3	2.5	14.0
11.3	3.0	16.0
11.5	3.0	16.0
11.5	2.6	16.0
11.5	2.5	15.0
11.5	2.7	15.0
11.8	3.1	17.0
12.0	2.6	16.0
12.0	2.5	17.0
12.0	2.6	16.0
12.0	3.0	18.0
12.0	2.5	18.0
12.2	2.7	18.0
12.3	3.3	19.0
12.5	3.2	18.0
12.5	3.3	18.0
12.7	3.3	19.0

Though the number of Metapenseus monoceros present was small, it was considered that - in view of their very particular behaviour, to note the biometric characteristics of samples from this species.

Morphometry of *Metapenaeus monoceros* males:

Total length	Carapace length	Weight in g.
7.2	1.6	6.0
8.1	1.9	7.2
8.5	1.9	8.0
8.7	2.0	8.2
8.7	2.2	8.0
8.8	2.1	7.9
8.8	2.3	8.0
8.8	2.2	8.2
8.9	2.0	8.5
8.9	2.4	8.5
8.9	2.2	8.9
9.0	2.2	9.0
9.0	2.1	9.0
9.0	2.5	8.0
9.0	2.5	9.6
9.0	2.7	10.5
9.0	2.0	8.4
9.1	2.4	9.4
9.3	2.5	9.5
9.3	2.3	9.0
9.3	2.6	9.5
9.3	2.4	10.1
9.4	2.3	10.2
9.4	2.2	9.5
9.0	2.3	10.8
9.8	2.8	12.0
10.0	2.5	15.5
10.4	2.9	14.5
10.5	2.7	15.2
10.5	2.9	15.0
10.5	2.7	13.0
10.5	2.5	14.0
10.6	3.0	17.0
10.7	2.9	15.0
10.7	2.4	14.0
10.7	2.7	15.0
10.8	2.9	15.0
10.8	3.0	16.8
10.9	3.2	19.0
11.0	2.9	17.4
11.0	3.0	16.0
11.0	3.2	17.0
11.0	3.2	15.0
11.0	3.0	16.0
11.0	3.0	16.8
11.2	3.1	17.5
11.2	3.0	16.0
11.3	3.3	19.0
11.3	3.1	18.1
11.4	3.3	19.0
11.5	3.3	20.9
11.5	3.0	19.0
11.5	3.0	19.0
11.8	3.2	19.0
12.0	3.4	20.0

Deep-water fishing in some islands of the South-West Pacific *)

by

P. Fourmancir
ORSTOM, Noumea

Deep-water fishing can, for practical purposes, be limited to that practised at a depth of between 120 and 400 metres. In fact, fishes of commercial importance, with the exception of oil-fish, grow scarce beyond the 250 m mark. Such fishing in deep-water is undertaken in the New Hebrides and in Mare (Loyalty Islands), where, as there is no reef, it is possible to go fishing at night. In New Caledonia, as the waters of the lagoon are so full of fish, deep-water fishing is only carried out on an experimental basis. The same applies to the atolls of French Polynesia. In Tahiti, about ten fishermen are still engaged in night-fishing for oil-fish (Ureva), touching depths of 450 metres, other deep-sea fish having practically disappeared. This kind of fishing is mainly centred on the capture of snappers which can be very plentiful indeed and are much valued.

I. Fishing methods and gear

When the weather is fine and in places where the slopes are not too steep, it is better to let down the line with a temporary sinker (expendable sinker such as rock, iron, etc.) about 2 kg in weight - which can be released near the bottom with a jerk - rather than a fixed sinker, which makes for the less sensitive fishing. When the drift is fast over a changing ocean-floor, use must be made of a permanent weight of 0.8 to 2 kg, generally of lead, to ensure that the fishing line stays close to the bottom. In such cases, it is advisable to fix the lead weight in the centre of a metal rod (of brass or galvanized iron) 90 cm long with a diameter of about 3 mm. This would prevent the sinker's getting lost in a rock crevice, such losses being actually almost as common between depths of 120 m and 250 m as on markedly uneven coral beds between 30 and 60 m below the surface. As regards leaders, we would recommend the use of 4 or 5, about 65 cm apart, fitted with double-circle hooks Nos 5 to 7.

Instead of a vertical line, held in the hand or run off a reel, a bottom line (or longline) may be used, provided with a dozen hooks fitted on leaders 1 m long, about 3 m apart. This bottom line, about 40 m long, is weighed down at the free end by a 4 kg chain, its buoy-cable end being attached to a chain weighing 6 kg. Before being released, the longline is laid out in the shape of a U, both its ends being kept in the boat. Then the free end with its sinker is cast into the water, the other end being held till the longline is played out as the motor starts and the boat goes slowly forward. Now the second sinker still holding the longline is cast into the water so that the line extending almost horizontally on the surface, sinks to the bottom dragging down the single buoy-cable. The bottom line is generally raised after 20 minutes.

*) This information relates to fishing carried out close to the ocean floor, and not to subsurface fishing such as is practised in the case of tuna, opahs (Lampris), and breams (Taractes).

II. Deep-water fish

1. SNAPPERS

- a) Pristipomoides: Flavescens, Filamentosus, Typus, Sieboldi
 b) Etelis: Carbunculus, Oculatus

2. GROUPERS

Epinephelus; Chlorostigma, Compressus, Morrhua

3. JACKS

Seriola purpurascens

1. SNAPPERS

- a) There is a difference of 10 units on the number of scales present along the lateral line in snappers belonging to the genus Pristipomoides:

<u>Typus</u>	50	scales
<u>Flavescens</u> , <u>Filamentosus</u>	60 - 62	scales
<u>Sieboldi</u>	72 - 74	scales

They are characterized by a pearly pink coloration, a shape similar to that of sea-breams or beakers, and a continuous dorsal fin. The meat of these fish is excellent.

PRISTIPOMOIDES FLAVESCENS (Yellow snapper)

The top of the head presents a mottled lilac-pink to olive-yellow appearance. Both the lateral line and the pectoral fin of this fish are yellow, and the caudal fin pink with a yellow fringe. There are also large yellow spots on the dorsal membrane.

The habitat of this snapper is between depths of 150 and 300 m. It is widespread beyond the great New Caledonian reef and off the Ouvéa Atoll (Loyalty Islands). It does not seem to be very mobile. While all other species of snappers are found in the Indian Ocean and the Pacific, the "Yellow" one is at present found only in New Caledonia.

Maximum weight: 3 kg.

PRISTIPOMOIDES FILAMENTOSUS (Rosy Job-fish, Opakapaka) *)

The difference between this species and the preceding one, though hard to determine by meristics, can easily be made out through the fact that flavescens has a predominantly yellow coloration, and that the caudal fin of filamentosus has a red border.

*) See figure

This white snapper, which is very mobile, is found in schools comprising over a hundred fish, which it has been possible to observe in the Loyalty Islands at depths of 40 m. The habitat of this fish may go from depths of 30 to 280 m. It is sometimes caught in channels by New Caledonian fishermen. This is the fish that is best known among amateurs in Mare, who catch it along with Gymnocranius at a depth of between 80 and 100 m.

Maximum weight: 6 kg.

Synonyms: P. microlepis, P. violascens, P. roseus, Apsilus microdon.

PRISTIPOMOIDES SIEBOLDI (Kalikali)

Generally small in size (T.L. 28cm) in New Caledonia, it is rarely caught with the big hooks used for deep-water fishing.

It is distinguished by the fact that the scales found along the lateral line, numbering 73-74, are rather small.

This snapper is always caught at depths of over 180 m.

PRISTIPOMOIDES TYPUS

This big fish is plentiful south of the Isle of Pines at depths of between 190 and 210 m. As this area has a regular insular shelf sloping only slightly (sometimes the depth increases by only 100 m over a distance of 2 miles), trawling may be resorted to in places.

Maximum weight: 6 kg.

Synonyms: P. brevirostris, P. multidentis.

- b) Snappers of the genus Etelis are found at greater depths, are larger, redder and still better than those belonging to the genus Pristipomoides. Their dorsal fins are discontinuous and there are 50 scales on their lateral line.

ETELIS CARBUNCULUS (Ulaula, Paru ihi) *)

This is the largest of the snappers, and it can weigh as much as 30 kg. It is deep red in colour, with a slightly orange tinge. The lateral line of this fish is tinted yellow.

The caudal fin is short and white at the tip of the lower lobe. It lives at a depth of 230 to 350 m, at the foot of under water cliffs rising from a rocky bottom. In New Caledonia, small or large specimens are caught. Fish weighing between 2 kg and 10 kg have not been met with.

Synonym: Etelis marshi.

*) See figure

ETELIS OCULATUS

This magnificent cherry-red fish differs from the preceding one in that its dentition is less adequate, its shape more slender and the upper lobe of its caudal fin frequently elongated. Red in colour, the latter reminds one of a tongue of fire.

This Etelis goes down to a depth of 400 m in New Caledonia and the Loyalty Islands. Its diet includes small deep-sea squids, lantern fish and barracudas (Lestidiinae).

Maximum weight: 20 kg.

Synonyms: Etelis corruscans, E. evurus

Both species occur in almost equal numbers in New Caledonia. In Polynesia E. carbunculus is more common than E. oculatus.

2. GROUPERSEPINEPHELUS COMPRESSUS

This big grouper is identified by the fact that there are great gaps in its dorsal membrane between the spines, its rather compressed shape and its dark violet-brown colour.

Younger specimens bear eight very distinct black vertical bands, which are not as clearly distinguishable in fish weighing over 10 kg.

Epinephelus compressus is found in Lifou, where we caught it around the Torche Bank, at a depth of 290 m, where this species of grouper is plentiful. It is also familiar to the Marquesas Islanders.

The record for the heaviest fish caught (60 kg) is held by the Marquesas.

Epinephelus compressus was described for the first time in 1964, in the Reunion.

EPINEPHELUS MORRHUA

This fish has a maroon-green skin with 3 or 4 brownish-black bands that alternate with a garland made up of dots. It attains a length of 90 cm and a weight of 5 kg. Smaller specimens are encountered starting from a depth of 140 m, adults going down in New Caledonia to as much as 260 m. This is the commonest deep-water grouper found in the Indian Ocean and the Northern Pacific. In its place is found in Polynesia a very similar species, E. tuamotuensis.

The meat of this fish is mediocre in quality and has led to some minor cases of fish poisoning in Mauritius.

EPINEPHELUS CHLOROSTIGMA

Covered with very small olive-green to brown haemetite hexagonal spots, closely spaced. It attains a length of 90 cm and 9 kg. Specimens caught at depths between 150 and 280 m in New Caledonia weigh on an average 2 kg. The meat is very fine.

3. JACKS

SERIOLA PURPURASCENS (Yellow-tail)

This fish is caught near the bottom at depths varying between 140 and 300 m. The larger specimens, which may weigh as much as 25 kg, are found at greater depths.

The meat, which is mediocre in quality, is relished nevertheless in Japan and Hawaii.

This inventory of deep-water fish found at depths of 120 to 350 m is somewhat theoretical. In deep water are also found fish caught in the shallows of the lagoon such as:

Aprion virescens up to 130 m.

Variola louti up to 230 m.

Lethrinus nebulosus up to 130 m.

Lethrinus miniatus up to 230 m.

Lethrinus chrysostomus up to 260 m.

Epinephelus microdon up to 200m.

Epinephelus kohleri up to 150 m.

Lutjanus bohar up to 240 m.

Sharks that go down to depths of up to 300 m are Carcharhinus milberti, (Sand bar) and Carcharhinus albimarginatus (White tip). Sharks constantly present include Squalus blainvillei, Galeorhinus japonicus and Hexanchus vitulus.

*

* *

Journal of the Polynesian Society 73(2): 143-160.
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NOTES ON SANTA CRUZ VOYAGING

chest part of a coconut leaf with knots tied in it as a charm to prevent the Bishop's soul from coming back to haunt them. A woman named Niuvai pushed the canoe out over the reef towards where the *Southern Cross* was waiting. Behind her men with bows let fly with arrows at the dinghy from the *Southern Cross* as it came to receive the canoe with the Bishop's body. A Polynesian-speaking woman named Tutuka came ashore from the *Southern Cross* and set fire to houses in the village.⁽²⁾

Years later a man-o-war came to Nukapu and shelled it from the sea. Everyone but one man, Taikau, ran off to the north side of the island to take shelter. Taikau took cover behind some coral slabs, but one of the shells felled a coconut tree that toppled over and crushed him to death. Tetuli, the Bishop's assassin, was safe at Matema and lived to a ripe old age there.

Teniau of Nukapu fills in some more details in his version of the Patteson incident. Some time later two of the men taken by the "black-birders" returned to Nukapu. They had stolen a sailboat or a canoe (not remembered which) in Fiji, where they had been taken to work, and sailed it directly back to Nukapu. The first thing they did upon arriving was to burn the canoe and hide all its fittings. It was they who told how Tucina had been shot while trying to escape from the ship's hold; how one man had married a Fijian woman and settled in Fiji; and how they had lost track of the others. Shortly after these two survivors returned, the first epidemic of dysentery broke out on Nukapu and many people died. From Nukapu the epidemic spread to all the other Reef Islands. The man credited with engineering the successful escape from servitude in Fiji and piloting the stolen craft across nearly 1,000 miles of open seas to Nukapu was Bakapu.

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15. Dr. Samuel Elbert of the University of Hawaii has still two different versions of the Patteson killing that he obtained on Nukapu and Niifliti in May 1968. It seems clear from the variation among the versions and from such items as "shooting a gun from the *Southern Cross*" and the "woman named Tutuka canoe ashore" that this important event is being embroidered with other legendary material.

EASTERN POLYNESIAN BURIALS
 AT MAUPITI

Kenneth P. Emory and Yosihiko H. Sinoto

INTRODUCTION

Since 1960 the Bishop Museum of Honolulu has been involved in excavations in the Society Islands.⁽¹⁾ It was not until 1962, on the island of Maupiti, that artefacts were unearthed which differ significantly from those of the historic period and suggest an early cultural link between New Zealand and the Society Islands.

On the island of Maupiti the Bishop Museum Tahitian Archaeological Expedition in June 1962 excavated a burial of an adult male with accompanying ornaments, adzes, and fishhooks. Because the forms of the artefacts differed from the historic Tahitian forms and were so nearly identical to those artefacts which the earliest settlers of New Zealand buried with their dead, they confirmed an East Polynesian derivation of the archaic Maori culture and identified this site as the earliest thus far excavated in the Tahitian area.

A return to this site for four weeks of intensive digging in May 1963 resulted in the discovery of fifteen more burials and a large number of

1. Emory 1958:117-120. The expeditions in 1960 and 1961 were financed by the Institutional Pacific Program sponsored by Bishop Museum, University of Hawaii, and Yale University, and by the McInerney Foundation of Honolulu and Mrs. Jon Wilg. In 1962, a three-year project was launched by Bishop Museum in co-operation with Auckland University, Canterbury Museum, and Otago University to carry out archaeological field-work in French Oceania, the Cook Islands, Samoa, and Pitcairn. Finances were obtained from the National Science Foundation, and for 1962 supplemented by funds from the Henry W. Oliver Foundation, the McInerney Foundation, and Mrs. Jon Wilg. The McInerney Foundation and Mrs. Wilg also continued aid in 1963.

artefacts belonging to this same remote period, all of which served to confirm the conclusion reached after the first excavation. Because of their bearing on the origins of Maori culture in New Zealand we have thought it desirable to make available now in the *Journal of the Polynesian Society* a detailed description of the first burial and the artefacts found in association with this and the other burials.

Description of the Site of Maupiti

Maupiti lies about 25 miles west of Borabora and is the most westerly inhabited island of the Society chain. It is a volcanic island about 2 miles in length and is surrounded by a fringing reef. On the northern part of this reef is Motu Paeao islet, located between two larger islets (*motu*), (Fig. 1). From the lagoon side of the islet rises a fairly flat sandy beach which ends in an elevation of a little over one metre to meet the general level of the islet. The elevation is greater on the ocean side where a high bank of broken coral grades rapidly down to an exposed, flat reef. Ancient earth ovens, marked by clusters of basalt stones and pieces of charcoal and held together by coconut rootlets, lie exposed on the lagoon beach and along the eroded banks of the sides of the islet, but not on the seaward front. The burial site referred to here is about 30 metres inland from the lagoon beach.

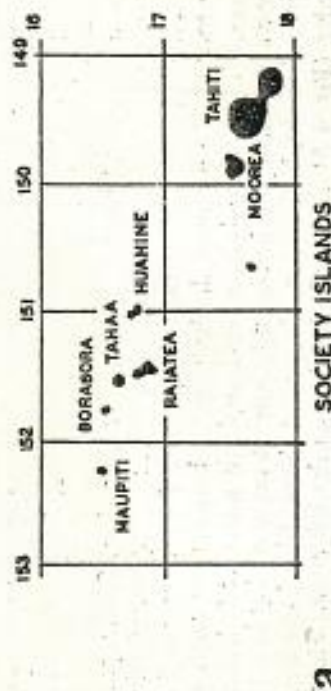
Discovery of the Site

In 1961 when Pofatu, a planter of Maupiti, was digging post holes for a fence to enclose his family's land on Paeao islet, he struck a skull. In removing the fragments, he found two whale-tooth pendants and an adze (Figs. 2; 3, *a*, *b*; 4, *c*). These he gave to the local medical practitioner, Bruno Schmidt, knowing of the Bishop Museum's interest from a visit to Maupiti by Emory and Sinoto in 1960, took the artefacts to Tahiti where they were seen by the latter pair in May 1962. The remarkable similarity of the pendants to those found in necklaces worn by Maa-hunters of New Zealand suggested that burial belonged to an early phase of Society Island culture. From June 15th to 17th, 1962, Sinoto visited Maupiti with Aurora Natua, conservatrice of the Papeete Museum, and persuaded Pofatu to take them to the spot of the discovery and to allow its excavation.

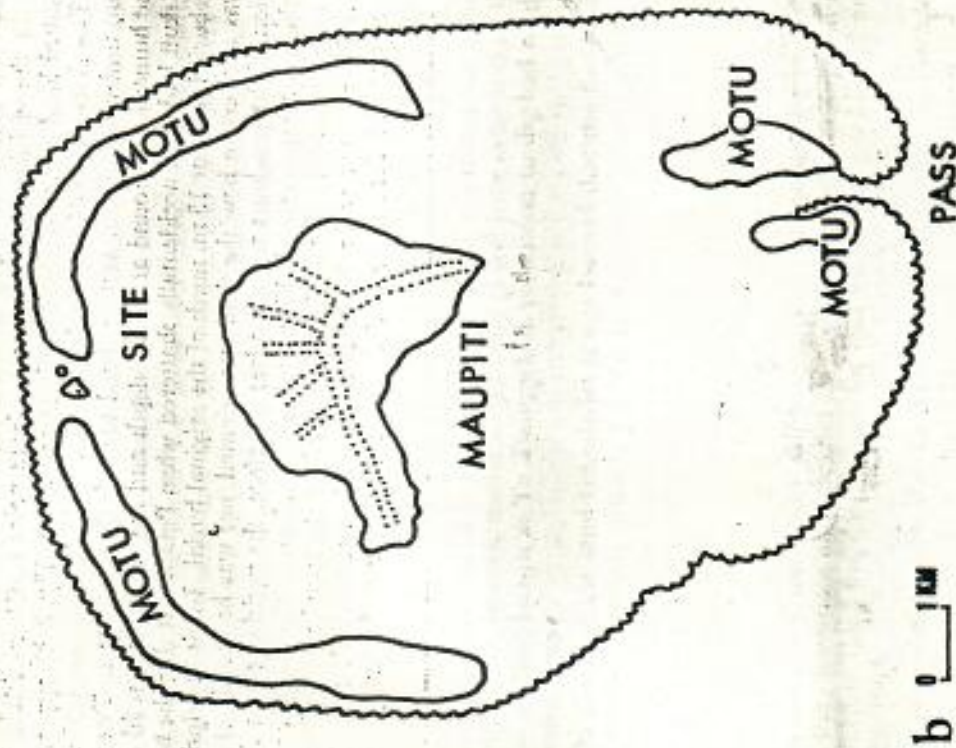
Excavation of the First Burial

The hole where Pofatu had found the skull and artefacts was expanded into an excavation area of 2 square metres. The first trolling-hook lure-shank and a fragment of the base of a lure-shank (Fig. 3 *g*, *i*) were found at a depth of 20 cm., in the position shown in Figure 2.

Soon after, two complete trolling-hook lure-shanks (Fig. 3 *e*, *f*) were found, face down, south-west of the original location of the skull, and 27 cm. below the surface. About one metre east of the skull position, there was a fragment of cut pearl-shell (Fig. 3 *k*), a human canine perforated through its root (Fig. 3 *d*), and a very small whale tooth, which had been split in half and perforated transversely (Fig. 3 *c*). Between the human tooth pendant and the cut pearl-shell, two adze chips



a



b

FIGURE 1

a. Map of Society Islands showing position of Maupiti Island. b. Map of Maupiti Island showing location of prehistoric burial site on islet of Pae'ao.

appeared. Approximately one metre north of the skull position a pearl-shell trolling-hook point with two holes (Fig. 3 *f*) was found. These artefacts were 20 cm. below the surface.

When the sand had been cleared away to a depth of 30 cm. part of the skeleton was visible and the slow work of uncovering the remainder began. On the right chest was an adze (Fig. 4 *e*). Base upward and cutting edge towards the centre of the body, it lay buried at an angle with its poll elevated. When the skeleton was completely uncovered, the length of the excavation was again increased by one metre, resulting in a final, overall dimension of 2 by 3 metres. As soon as the next level was started, another adze (Fig. 4 *b*) appeared, this time on the left chest. The adze was face up and its cutting edge towards the shoulder. At the 40 cm. level, in the vicinity where the trolling-hook point had been found, an unfinished head of a pearl-shell, trolling-hook shank (Fig. 3 *h*) appeared.

The skeleton was found to lie extended on its back between 20 and 35 cm. under the present surface, head towards the south-east. The top of the humerus was found at 35 cm. depth and the ankle bone at 20 cm. The skull had been accidentally shattered when Pofatu first dug the hole. He reburied it about 15 m. north of the original burial. In his description, he was not certain how the skull was oriented, nor was he certain of the position of the pendants and the adze; therefore, the position of the skull and these three specimens in Figure 2 are approximate. The pelvic bones, vertebrae, most of the ribs, and the symphysis of the long bones had completely disintegrated, while the long bones were in a most fragile condition. Sinoto estimated the stature of the man to be not over 157 cm. (5' 2").

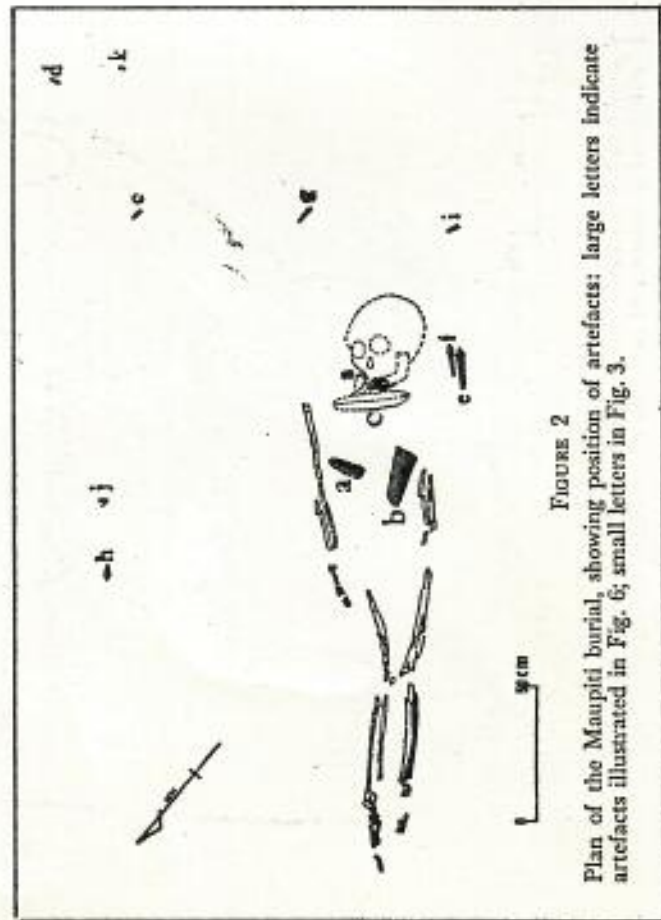


FIGURE 2

Plan of the Mauptiti burial, showing position of artefacts: large letters indicate artefacts illustrated in Fig. 6; small letters in Fig. 3.

Just beyond the skull lay fragments of the femur of another skeleton, extending south-east and barely covered by sand. The rest of the bones had evidently disintegrated after being exposed by erosion.

The face of the excavated pit showed two distinguishable layers above the white sterile coral-sand layer. Stratification was not due to cultural deposits, but to differences in the amount of naturally formed humus. The top layer of dark humus, mixed with sand and coral pebbles, was about 25 cm. thick. The second layer appeared grey in colour, had much less humus mixed with sand and coral pebbles, and was about 18 cm. thick. The skeleton and all the artefacts were located in the lower part of the top layer and the upper part of the second layer. The only exception was the head of an unfinished trolling-hook shank, which was found in the lower part of the second layer, 40 cm. below the surface. Although irregularly shaped, large coral-stones were found, two by the skull and two at each side of the feet and at the same level as the skeleton, there were no structures associated with the burial. Also, there were no traces of ash, charcoal, or food remains, such as shells or fish bones.

Excavation of a burial site sometimes causes strained relations between the excavators and the local people, and our case was no exception. Although Pofatu did not resist our taking artefacts from the site, he was extremely sensitive about removing any bones. It was felt wise, therefore, in the interest of maintaining good relations with the inhabitants, not to remove any of the bones at this time for study.

EXCAVATIONS OF BURIALS IN 1963

An opportunity to extend the 1962 excavation on Paeano islet came in May 1963. Trenches and test pits were put down over a large area to determine if this was a burial ground, and if so, the extent and nature of it. Altogether 46 cubic metres of sand and gravel were excavated on the division of land known as Te Tiare, where permission to dig had originally been given.

On checking the land boundaries it was learned that the first burial excavated in 1962 was actually on the land division known as Paeano, from which the islet derives its name. By the time the trenches and test pits were completed on Te Tiare land, although two burials were discovered, indications definitely pointed to the burial ground extending onto Paeano land. Most fortunately for all concerned, permission was obtained from the owners of Paeano to excavate there. At this site 38 cubic metres of sand and gravel were put through the sifting screens. During the 1963 season the excavations on both land divisions required the employment of seven men working five days a week for four weeks between May 22 and June 20, 1963.

The two skeletons on the Te Tiare land division were in extended positions on their backs, faces turned to the side, and oriented with heads toward the south-east as the first burial was. Beside one of these skeletons were four adzes, two whale-tooth ornaments, a trolling-hook shank, and two "fetish" stones. Covering the pelvis were two polished pearl-shells. Nearby were found another trolling-hook shank and a rat-chewed whale-

tooth ornament. The whale-tooth ornaments and the trolling-hook shanks were similar in form to those of the first burial. The four adzes were of non-historic forms.

From the digging on the land of Paeao, eleven burials were located: three were on their backs, two on their sides, three in prone positions, two in squatting positions, and one was face down with legs in a flexed position. The extended burials lay with their skulls toward the east or south-east. One of the squatting burials faced the south-east, while the other was placed in the opposite direction. The bones of most of the skeletons were in a fair state of preservation, none of them as fragile as those of the first burial excavated, the condition correlating with the state of drainage over a particular skeleton.

From the excavations on Paeao were recovered fourteen whale-tooth pendants; two pearl-shell breast plates, a small pearl-shell disc perforated at the centre with two holes, eight adzes, one complete trolling-hook shank, several fragments of trolling-hook shanks, and a one-piece fishhook of pearl shell.

THE ARTEFACTS

Whale-tooth Pendants

The two whale-tooth pendants which were found by Pofatu, with the first burial, were pitted by weathering, giving an outer appearance of bone rather than ivory. Each tooth had been shaped to a point, the back of the upper part flattened, and the front of the tooth slightly convex in profile.

The larger tooth (Ma 1-4, Fig. 3 *a*)¹ measures 81 mm. high, 23.5 mm. wide at the top, 29.5 mm. at its greatest diameter, and weighs 39 grams. The smaller pendant (Ma 1-5, Fig. 3 *b*) measures 64 mm. high, 19 mm. wide at the top, 25 mm. at its greatest diameter, and weighs 26 grams. A small hole pierces both sides of the top on each.

A third pendant (Ma 1-6, Fig. 3 *c*), found in our excavation of the first burial, is much smaller in size and of a different type. It is a split whale-tooth, 28 mm. high and 9.5 mm. in maximum width, with a small transverse hole just below the top edge for suspension.

Among the eighteen whale-tooth pendants (Pl. 1) from the 1963 digging, six have a lipped-rim at the top. Most of the pendants showed the markings of rat teeth and were found singly where they evidently had been carried by rats. Five of the smaller whale-tooth pendants were found placed around the base of a square basalt stone set approximately in the middle of the burial ground. A pair was found at each of three of the burials, indicating that not more than two were placed with a skeleton. One of the pendants (Ma 3E11-3, Plate 1, *d*), found just under the surface, was an unshaped tooth except for the base having been ground flat and the sides perforated at the top.

The Mauptiti pendants, the first of their kind reported from the Society Islands, vary only slightly in form from those described by Duff.² Some of the Mauptiti pendants have the lipped-rim at the top, so characteristic of Maa-hunter pendants (see Figure 5). The Mauptiti

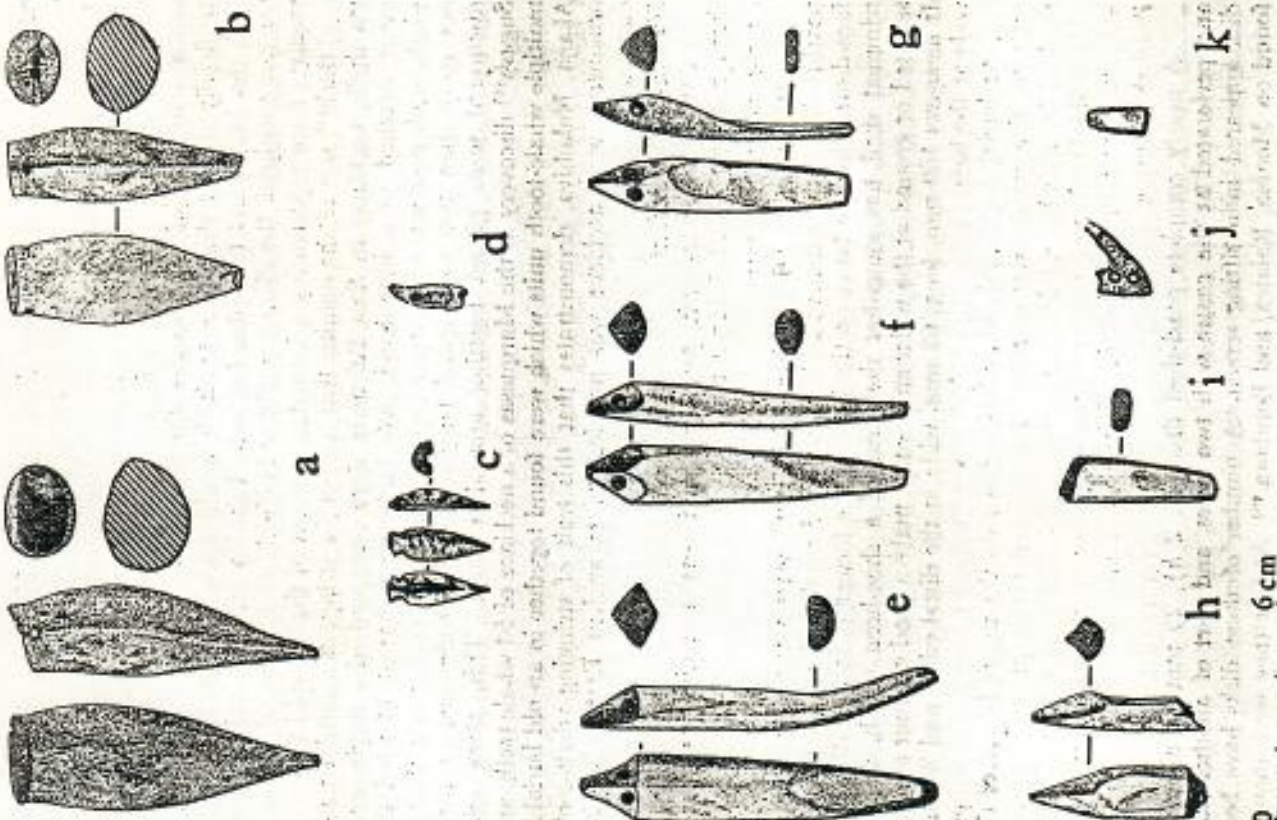


FIGURE 3

Artefacts recovered from prehistoric burial on Mauptiti, Society Islands: *a*, *b*, *c*, whale-tooth pendants; *d*, human canine, with its root perforated for suspension; *e*, *f*, *g*, pearl-shell lure shanks of bonito hooks; *h*, unperforated head of a pearl-shell lure shank; *i*, broken base of pearl-shell lure shank; *j*, broken, bi-perforated pearl-shell point of a bonito hook; *k*, a piece of cut pearl-shell.

¹ Numbers beginning with the letters Ma refer to specimen numbers for artefacts found in the Mauptiti site.

² Duff 1956:118, Fig. 24 f; 130, Fig. 25 h.

pendants are less curved, but there is no mistaking that the artificial shaping of the Mauptiti pendants would lead to the more definite curving observed in the Maori and historic Hawaiian whale-tooth pendants. The Hawaiian pendant, however, represents an extreme and highly conventionalized curve, resulting in a feature which the Hawaiians themselves called a tongue (*aleto*). Because the Marquesans seem never to have artificially shaped the whale tooth, it would appear logical to attribute both the Maori and Hawaiian forms to Tahitian influence. If this is so, we can anticipate the discovery, either in Tahiti or Hawaii, of an intermediate form representing a later development of the Mauptiti type.

Buck⁽⁴⁾ was of the opinion that, except for strings of small land and sea shells, necklaces in East Polynesia were composed of a single ornament attached to a neck band. We know now that at Mauptiti the whale-tooth pendants were strung together in a necklace, for even though not more than two were found buried with one body, five of those discovered were placed together around a stone. This, along with Suggs's⁽⁵⁾ discovery in the Marquesas of a necklace of 53 whale teeth, and multiple whale-tooth units which were found together in an old burial in Akapa, Nukuhiva, demonstrates that this trait of stringing whale-tooth ornaments in a necklace was not foreign to ancient East Polynesian culture.

Human-tooth Pendant

The one human-tooth pendant found was a canine perforated through its root (Ma 1-7, Fig. 3 *d*).

Pearl-shell Breast Plates

Placed over the pelvis of burial 2 (Tiare), were a complete polished pearl-shell and the trimmed middle section of another. Both were placed face-down with the latter on the back of the former (Ma 2-9, 10). The trimmed shell has somewhat the form of a shoe-horn which, were it serrated or ground at the wider end, would make a good coconut scraper. It measures 160 mm. long, 62 mm. wide at the distal edge, and 28 mm. wide at the base.

At burial 4 (Paean), placed face-down on the upper breast of the skeleton of a youth, was a polished pearl-shell breast plaque with one small hole drilled from front to back at the thickest part of the hinge (Ma 3E11-4). We also came across a number of pearl-shell fragments indicating the existence of other polished ornaments.

Pearl-shell Button

A nearly complete pearl-shell disk (Pl. 2 *h*), 25 mm. in diameter and perforated at the centre with two holes, and part of another such disk appeared in a sifting screen. A number of these disks have been found on Moorea, Raiatea, and Borabora.⁽⁶⁾ At first they were thought to be imitations of European buttons, but they are far too thin to have served the purpose. Also, the one found on Moorea was deeply buried in a shelter (Site Mo-1), and the ones from Mauptiti must be considered

4. Buck 1946:114.

5. Suggs 1961:179, Burial 36.

6. The collection is owned by M. Faehete of Tahiti and was photographed by Sinoto in July 1961.

contemporaneous with the other artefacts found at the same depth. They were probably fastened to head-bands, as may be seen in Marquesan exhibits in museums.

"Fetish" Stones

Two dark grey stones, probably natural but extremely weathered, with a peculiar shale-like grain were found with the skull by Pofatu. One (Ma 1-15) was 16 cm. long, 3 cm. wide and 2 cm. thick at the middle; the other (Ma 1-16) was 10 cm. long, 3.5 cm. wide and 3 cm. thick at the middle. Two more stones of the same material were placed with an adze (Ma 2-2) to the side of burial 2 (Tiare). One was (Ma 2-3), 14 cm. long, 4 cm. wide tapering down to 3 cm., and 3 cm. thick, tapering finally to a point. One of the wide sides of this stone is flat. The other stone (Ma 2-5), 17 cm. long, 8 cm. wide, and 5 cm. thick in maximum measurements, has been deeply weathered, the markings resembling a grotesque human form with face, arms, and legs. As it does not seem that these stones could have any practical use, we have designated them "fetish stones".

Fishhooks

The fishhooks consisted of six complete pearl-shell lure-shanks of trolling hooks, several fragments of such shanks, one pearl-shell point of a trolling hook, and a one-piece fishhook. For measurements of the complete shanks, see Table 1.

The shanks (Figure 3 and Plate 2), are truncated at the top, and have sharp shoulders which in most of them connect with the vertical median frontal ridge by a transverse edge where the head of the shank meets the body. Holes bored from each side of the head meet to form a perforation for the lashing. Two of the shanks have grooves across the back at the base for lashing the point to the base.

There were two unpierced heads of broken shanks (Ma 1-2, Figure 3 *h*; Ma 3E13-7, Pl. 2, *e*). The first of these was found nearly a metre east of the first burial; the other near the stone marker at the centre of the burial ground. Both of these unfinished pieces may not have been contemporaneous with the burials.

The base of a pearl-shell shank (Ma 1-11, Fig. 3 *i*), does not match the head which was found, and so represents another hook.

TABLE 1
MEASUREMENTS OF TROLLING-HOOK SHANKS (mm.)

Specimen No.	Length	Width at		Thickness at	
		Shoulder	Middle	Shoulder	Middle
Fig. 3 <i>e</i> Ma 1-9	100	19		11	9
<i>f</i> Ma 1-10	87	14		10	9
<i>g</i> Ma 1-8	72	12		9	4
Pl. 2 <i>a</i> Ma 2-6	118	25		14	6
<i>b</i> Ma 2-12	91	20		14	9
<i>c</i> Ma 3C15-2	93	17		14	6

The trolling-hook shanks and point from Maupiti correspond very closely in form to the stone lures, or shanks, and bone points of the trolling hooks of the Moa-hunters as figured by Duff⁽⁷⁾ (see Figure 5). Obviously these early New Zealand settlers, lacking pearl shell, were imitating in stone and bone the trolling hook of tropical seas. Being unsuitable their hook did not survive into historic times but was replaced by the more adaptable *kakarwai* trolling hook.

The Maupiti trolling hook finds its counterpart in the hooks illustrated by Emory,⁽⁸⁾ which came from a prehistoric site on Fanning Island. Here again we see the sharp shoulders of the head of the shank and the same type of point, a point which has a proximal upward projection of the base and which is perforated with two holes. This point has appeared in the earliest sites in Hawaii⁽⁹⁾ and the Marquesas⁽¹⁰⁾ and is similar to the points used with lure-shanks in West Polynesia.⁽¹¹⁾ The historic Hawaiian and Tahitian hooks lack the upward turned base and have only one perforation. The prehistoric points have now come to light on Moorea and Raiatea in the Society Islands, showing that this trait was not limited to the island of Maupiti.

The single, one-piece fishhook of pearl shell (Ma 3D14-1, Pl. 2, *g*), found at the same depth as the burials, is the only complete hook with this head-form so far discovered. It measured 19 mm. high, 54 mm. wide, and 6 mm. thick.

As in Moa-hunter hooks the point is turned in at right angles (see Figure 5, *f*, and 6, *f*). The existence of this form in the early Maupiti period had already been predicted on the basis of the Moa-hunter hooks and the finding of broken hooks of this head-form on Maupiti (see Fig. 6, *e*) and elsewhere in the Leeward Society Islands. Suggs⁽¹²⁾ illustrates one of the same form from an early period deposit in the Marquesas.

Adzes

The fifteen adzes from the Maupiti burial ground exhibit a wide range of forms, probably covering those of that period. They have been shaped by chipping and grinding, with several showing pecking on the butt. Six of the adzes lack the tang which is a distinguishing feature of the historic adzes of East Polynesia, and with one exception the remaining adzes show only a slightly developed tang. All the adzes were weathered a light grey and most of them to a depth which could be readily scratched into by a sharp stick. Those which were accidentally chipped showed a dark blue beneath the patinated surface.

Three of the adzes were broken transversely approximately in half (see Pl. 3 *b*, 4 *b*). The broken faces have the same degree of patination as the rest of the adze, proving the break to be ancient. Also, the breaking

7. Duff 1956:209, Fig. 59, no. 185; 206, Fig. 59, E. 143 193.

8. Emory 1854:16, Fig. 4.

9. Emory, *Berk. Sinolo* 1919:51, Pl. 4, no. 48.

10. Suggs 1961:79, Fig. 26, *b*.

11. Burrows 1938:12, Fig. 3.

12. Suggs 1961:79, Fig. 26, *c*, and p. 81.

seems to have been deliberately done, because adze Ma 3E12-2 (Pl. 7 *b*) was lying between the two parts of adze Ma 3E12-5, 6 (Pl. 3 *b*).

Measurements and weights of the adzes are given in Table 2. The adzes can be grouped into six forms, which for purpose of description and reference in this paper we have given numbers.

TABLE 2
MEASUREMENT OF ADZES (mm.)

Specimen No.	Length	Width		Thickness		Weight (gm.)
		Edge	Middle	Middle	Butt	
Fig. 3 <i>a</i>	131	51	45	16	18	167
<i>b</i>	175	27	59	34	29	632
<i>c</i>	250	pointed	56	52	53	953
Pl. 3 <i>a</i>	236	66	67	45	52	1400
<i>b</i>	179	57	56	36	32	600
<i>c</i>	135	40	41	35	37	300
Pl. 4 <i>a</i>	264	58	43	35	32	1150
<i>b</i>	224	67	61	28	40	650
Pl. 5 <i>a</i>	224	45	40	42	31	800
<i>b</i>	203	44	40	64	39	1225
Pl. 6 <i>a</i>	256	81	65	65	40	1220
<i>b</i>	136	40	46	35	34	300
Pl. 7 <i>a</i>	204	61	60	40	33	700
<i>b</i>	163	52	50	39	35	450
<i>c</i>	167+	47	67	—	—	—

Form 1. Generally square in cross-section, but with corners definitely rounded and all sides somewhat convex, so that the cross-section is almost oval; incipiently tanged (plate 3 *a*, *b*, *c*, adzes Ma 2-1; Ma 3E12-5, 6; Ma 2-4). Adze Ma 2-1 and Ma 2-4 were in association with each other and with an adze (Ma 2-2) of Form 3 B.

This adze has not appeared in Hawaii or early New Zealand culture, but it is reminiscent of Fijian and some Tongan adzes. At one time these would have been pointed out as indicating the presence of an underlying Melanesian culture, but here we see these adzes contemporaneous with typical East Polynesian adzes.

Form 2. Quadrangular in cross-section, untanged, the base wider than the face (pl. 4, *a*, adze Ma 3D17-1). It was in association with an adze (Ma 3D17-2) of Form 5. This form is typical of Samoan and Tongan adzes and is present in archaic Maori but only one example has come to our knowledge in Hawaii.⁽¹³⁾ One (D-2791) was found on Hāmo islet within the lagoon of Raiatea, so we know that this Maupiti example is not unique. The Bishop Museum fortunately possess an example (D-2946) from Hivaoa, and one from Nukuhiva (D-3030) in the Marquesas. Therefore, we know that this West Polynesian type of adze was present in East Polynesia at a very early time and so could have been carried to New Zealand from East Polynesia.

13. Duff 1956:168, Fig. 37, provides a Maori example. The Hawaiian example is in the Leo Forrester Collection, No. 85, from Kalainu Valley, Kauai, Hawaii.

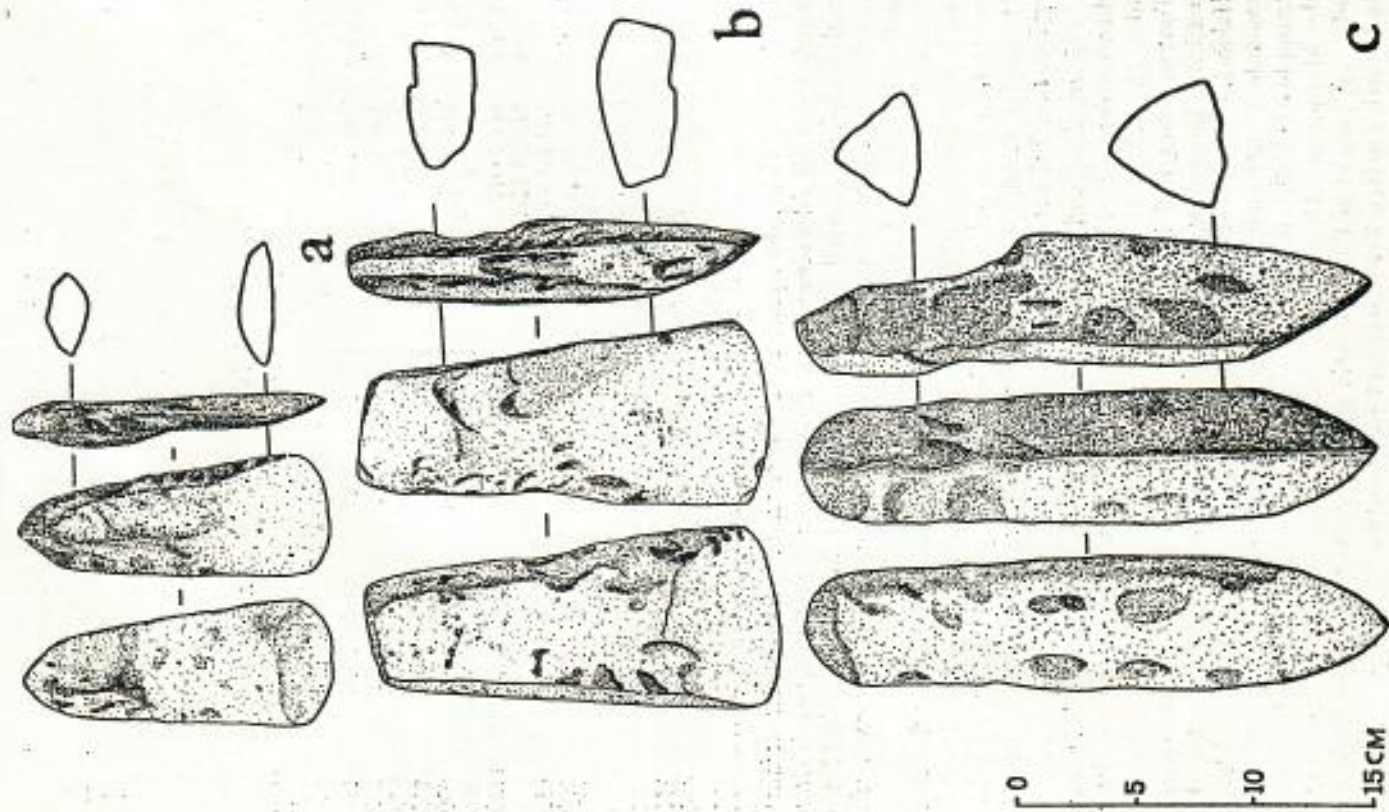


FIGURE 4
Basalt adzes from Mauipiiti burial. Base, face, and side views, with cross-sections.
a. Ma1-2, b. Ma1-3, c. Ma1-1.

Form 3, A and B. Quadrangular in cross-section. A: the face wider than the base, B: the face and base of equal width, untanged. Figure 4 b and plate 4 b (Ma 1-3 and Ma 3E14-1), are examples of Form 3 A. The first was associated with an adze of Form 5 and another of Form 6; the second was by itself with one of the two skeletons in a sitting position. Plate 5 a, b (Ma 3D16-1, untanged, and Ma 2-2, tanged by pecking on the butt), are examples of Form 3 B. The first of these two was by itself, the second was associated with two adzes (Ma 2-1 and Ma 2-4) of Form 1.

Adzes of these cross-sections are found among the Moa-hunter adzes, but most of them have a well-developed tang, and some of them have lugs on the poll,⁽¹⁴⁾ indicating a later stage of development. The quadrangular untanged adzes of the historic period of New Zealand⁽¹⁵⁾ are doubtlessly a response to the nature of the stone of which they are made, which is more easily shaped by grinding than by chipping or pecking.

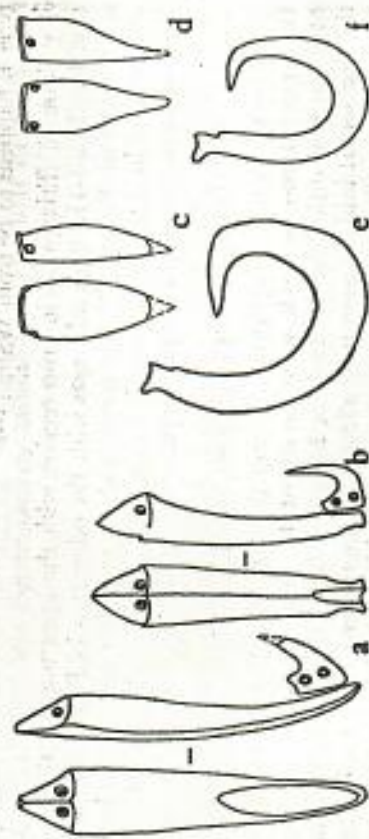


FIGURE 5
a. Pearl-shell lure shank Ma1-9, point Ma1-13; b. Duff 1956: stone shank Fig. 52, p. 203; bone point Fig. 53, p. 204; c. whale-tooth pendant Ma3 C15-1; d. Duff 1956: whale-tooth pendant Fig. 24, p. 118; e. pearl-shell one-piece fishhook Ma3D14-1; f. Duff 1956: bone one-piece fishhook Fig. 54, no. 9, p. 215.



FIGURE 6
One-piece fishhooks. a, b. Marquesas, pearl-shell (after Suggs, 1961, Fig. 26, b, n); c, d. Hawaii, pearl-shell (H1J15-13; H1L14-22); e. Mauipiiti, pearl-shell (TMa1-11); f. New Zealand, moa bone (after Duff, 1956, p. 215, Fig. 57, 9); g. Mauipiiti, pearl-shell (TMa-83). Scale a, b 1/3, c, d, e, g 2/3.

14. Duff 1956:147, Fig. 50; 150, Fig. 41.
15. Duff 1956:162, Fig. 85.

Form 4. Triangular or subtriangular in cross-section, apex down, slightly tanged. Plate 6 *a, b* (Ma 3C14-1 and Ma 2-8) are examples of Form 4. Each adze was by itself. These appear among the archaic adzes of Wairau.⁽¹⁶⁾ A few occur in Hawaii but with a more marked tang, indicating a later phase. This form would seem to be the precursor of the most common Tahitian adze form, which is definitely triangular in cross-section and has a well-defined tang.

Form 5. Semi-circular in cross-section, the base flat, face and cutting edge curved, giving the adze a hoof-shaped appearance Figure 4 *a*; plate 7 *a, b, c* (Ma 1-2, Ma 3D17-2, Ma 3E12-2, and Ma 3D15-1) are examples of Form 5. The first adze was with the adzes shown in Figure 4; the second adze was with adze Ma 3D17-1 of Form 2; the third and fourth adzes were each by themselves. These have an archaic equivalent in Hawaii. The one example illustrated by Duff, under his classification type 4, happens to be from Wairau.⁽¹⁷⁾

Form 6. Triangular in cross-section with the apex towards the face (fig. 4 *c*; Ma 1-1). This adze was with the other two in Figure 4. Such adzes occur at Wairau,⁽¹⁸⁾ but some of them have the end of the butt upturned as in Tahitian adzes of historic times, and so indicate that this Maupiti form served as their prototype.

PRESENT DISPOSITION OF THE ARTIFACTS

The two whale-tooth pendants and the adze which were given by Pofatu to Bruno Schmidt were presented by Schmidt to the Bishop Museum Expedition for the Papeete Museum. The other artefacts from the first burial initially were only allowed by the owners of the land to be taken temporarily for study. On the second visit of the Bishop Museum party in September, 1962, the owners were persuaded to leave all the artefacts in the permanent care of the Papeete Museum, in the name of Terinoho a Puhī, the ancestor from whom the present owners hold their claim to the land. The signatures of nine of these land owners were obtained in agreement to this disposition. When, in 1963, it was learned that these objects were on the adjacent land, the owners of both lands fortunately agreed that all artefacts should be turned over to the custody of the Papeete Museum.

14. Duff 1956:171, Fig. 38, type 3, variety B.
17. Duff 1956:188, Fig. 44. Another example of this form has been found on Haino Islet, Raiatea (TR-56), another on Moorea (TM-98), another at Punaauia, Tahiti (Edward Leons Collection, No. 28), and two on Makatea Island (Bishop Museum Collection Nos. D-466 and D-467). Suggs figures one from the Marquesas and calls it the Hahihū type (Suggs 1961:108, Fig. 31 *f*; 110-111); and Bishop Museum has two fine specimens in its collection from the Marquesas (1967 and 2077). This form of adze emerges as a definite type, archaic in both central East Polynesia and West Polynesia. Two adze sections of this type have been excavated by Roger Green from the bottom levels of a house mound at Vailole, Upolu, Samoa, previously radiocarbon dated by Golson about A.D. 9 (Suggs 1960:57-58). Three adzes of this type are to be seen in the Fiji Museum, Suva. One is from a house mound being excavated by Bruce Palmer at Nadiers near Suva; two others are from the Lau Islands.
18. Duff 1954: Pl. 31, A 2.

CONCLUSIONS

Enough detailed points exist in common between what we discovered at the prehistoric Maupiti burial ground and what has been discovered with the remains of the Mōa-hunters of Wairau, South Island, New Zealand, to indicate that at Wairau we are witnessing an East Polynesian derived culture which has been in the process of adapting itself to the New Zealand environment.

Bodies at Wairau were placed in the same positions and were similarly oriented; artefacts were deposited in much the same manner, as can be judged by comparing our Figure 2 with Figure 14 in Duff.⁽¹⁹⁾

While the whale-tooth ornaments and the fishhooks are practically identical in form, the adzes are not as elaborated and therefore strongly suggest that the Maupiti site antedates the settlement of New Zealand. If this is so, then the Maupiti site should be older than A.D. 900. The earliest radiocarbon dates from Wairau place its culture there by *circa* A.D. 1150.⁽²⁰⁾ We can tentatively assume from this that its people had arrived in New Zealand several centuries earlier, certainly by A.D. 900.

It is not likely that the culture of the Maupiti burials persisted for long in the Society Islands, because all of its forms were obsolete in historic times and are extremely rare among the known artefacts which have been gathered from the islands. Furthermore, the historic forms which succeeded them have been in existence a long time.

All six adze forms excavated at Maupiti have appeared in one or another of the collections of adzes we have examined from the Society Islands and the Marquesas, but as we have said, they are of very rare occurrence. This in itself is an indication of archaism. Caches of adzes intermediate in form between the Maupiti adzes and the historic forms in the Society Islands have been recorded by Bishop Museum personnel. They strongly suggest that the historic forms have evolved from such forms as were encountered in the Maupiti burial ground. These early adzes exhibit unsettledness in forms and a wider range than the later adzes. At the early stage, the shaping of a tang or leaving an adze untanged appears to have been optional. Evidently one chose to have a quadrangular adze with rounded edges, or with the face less wide, as wide, or wider than the base, or the adze might be inverted-triangular or inverted sub-triangular in cross-section. In place of all these forms the Tahitians seem to have ended up with an adze of inverted-triangular (∇) cross-section. However the Maupiti adze of upright-triangular (Δ) cross-section continued to historic times unchanged except for the butt ending in an upward turned point.

When we compare these early Maupiti adzes with the Maori, all forms appear in the Mōa-hunter adzes except Form 1. Form 1 occurs in Tonga and Fiji and Form 2 is the typical form in West Polynesia. We know now that these two forms were present in East Polynesia in prehistoric times and therefore that Form 2, present in New Zealand, could have been carried there from East Polynesia. Forms 3 and 5, the adze

19. Duff 1956:86, Fig. 14.
20. Duff 1956:181.

quadrangular in cross-section and the adze of upright-triangular cross-section appear among Moa-hunter adzes both in the simple Maupiti form and also in more elaborate forms having a well developed tang and lugs such as have also appeared in the Society Islands. When all these things have been considered it is logical to infer that the first settlers of New Zealand derived their adze culture from a phase of East Polynesian culture later than that represented by the Maupiti adzes.

Forms 3 to 6, in well-defined tanged form, reached Hawaii, but, judging from the extreme rarity of all but Form 3 (quadrangular cross-section) the others soon dropped out of use. These early Hawaiian forms could have been derived from the Marquesas as well as from the Society Islands. This meant that if the Marquesans dropped the West Polynesian Form 2 before it was dropped in the Society Islands, Hawaii could have been settled before New Zealand and yet not have this adze.

In our oldest site so far discovered in the Hawaiian Islands, Sand Dune site at South Point on the island of Hawaii, adzes of Form 3 (quadrangular cross-section) and Form 4 (inverted-triangular in cross-section) have been found, but with a well developed tang. Their fishhooks differ in form from the historic fishhooks of Hawaii, the Marquesas Islands, and the Society Islands, but agree more closely with the early hooks in the Marquesas than with those of the Maupiti burial ground. Also suggesting a Marquesan rather than a Tahitian origin for these early people in Hawaii is the fact that in this early site stone sinkers for octopus lures of cowrie shell appear in early Marquesan culture.⁽²¹⁾ The Tahitians in historic times were not using a sinker for their octopus lures of cowrie shell and seem not to have used them in the past. The very few which we know have been picked up in the Society Islands (four in Paca district, Tahiti, one on Raiatea) could have been due to influence from Hawaii in post-European times, as their use in Hawaii was continuous till at least 1900, or they could have been due to sporadic contact with Marquesans. Another link between Hawaii and the Marquesas is seen in the stone whirls for the pump drill; two of coral were unearthed from Sand Dune Site on Hawaii, one of coral from an adjacent cave site, and two of stone have been found on Kauai. Recently one of stone has come into the Papete Museum from Upou island in the Marquesas. So far none are known from the Society Islands.

At Maupiti itself, the historic Tahitian one-piece fishhook (T Ma 83) which has a pointed head with a lateral projecting knob (Fig. 6, *g*) was found just above a deposit level which has been radio-carbon dated about A.D. 1350.⁽²²⁾ Significantly it appears in cultural deposits in Hawaii dating circa A.D. 1200-1300. Once it made its appearance in Hawaii, this form quickly supplanted the earlier forms,⁽²³⁾ which find their counterpart in early hooks from excavations in the Marquesas (Fig. 6, *a, b*).⁽²⁴⁾ The implication here is that the pattern of this historic Tahitian head-form, along with its form of trolling-hook point, was

21. Suggs 1961: Fig. 28a, and p. 90.

22. Eignahi, Tomikura, and Emde, 1963: 98, GaK-154, GaK-156.

23. Sinoto 1962.

24. Suggs 1961: 79, Fig. 58 *f, n*, and p. 81.

carried to Hawaii from the Society Islands at a later period in both Tahitian and Hawaiian history, and that previous to this Hawaii was occupied by descendants of settlers from the Marquesas.

The genealogies of Hawaiian chiefs go back to individuals who are placed at 25 to 30 generations ago and who are stated in tradition to have come from "Kahiki". Allowing 25 years to a generation this would place them as having lived between the 12th and 14th centuries. The fact that Hawaiian culture in its elaboration of political organization, temple forms and religious rituals is much closer to Tahitian culture than either Maori or Marquesan, indicates a powerful influence from the Society Islands which must have been subsequent to the settlement of New Zealand. The Maoris carried with them the old Polynesian concept, retained in West Polynesia, of the *marae* as the village green and assembly ground. In East Polynesia, the increasing sanctity of the god-house rendered the adjacent ground of the *marae* too sacred for secular ceremonies and the *takua* was created to fill this need.⁽²⁵⁾

It would seem that, if the "fleet migration" of New Zealand's traditional history, which supposes New Zealand to have been already occupied by previous settlers, actually took place in about the beginning of the 14th century as has been generally believed, it would have carried the same influences as those which reached Hawaii at about this time. There seems to be no certain evidence as yet in New Zealand archaeology of an incoming of culture from East Polynesia other than that reflected in the culture of the Moa-hunters. Therefore, those who came by the traditional "fleet" may have been, after all, the original settlers of New Zealand, and the shortness of the genealogies misleading as to the length of time which lapsed since their arrival.

We now have solid evidence that the cultural features which the islands of East Polynesia share in common, and which set them apart from West Polynesia, are not due to a settlement of East Polynesia by people who by-passed West Polynesia. Many of these differences can now be shown to be outgrowths of a culture which spread at an early period from West Polynesia into central East Polynesia.⁽²⁶⁾

These cultural differences between East and West Polynesia are many and first received serious attention when Edwin G. Burrows published his monograph, "Western Polynesia", in 1938.⁽²⁷⁾ Recent archaeological finds have disclosed that in early East Polynesian culture, differences in the forms of adzes, fishhooks, and ornaments largely disappear. It would seem from these findings that central East Polynesia (that is, the Society Islands, the Marquesas, and the adjacent islands) was settled from Samoa or Tonga, or both, and that beginning 1,500 years ago, more or less, the culture of central East Polynesia spread to the distal corners of the East Polynesian cultural area: first to Easter Island, then to Hawaii, then to New Zealand. Subsequent to their first settlement, the Hawaiian islands received major influences from the Society Islands which resulted in bringing their culture in closer agreement with changes which had taken place in the Society Islands after the departure of the people who settled New Zealand.

25. Emory 1948: 16.

26. Emory and Sinoto 1962.

27. Burrows 1938.

EASTERN POLYNESIAN BURIALS AT MAUPTI

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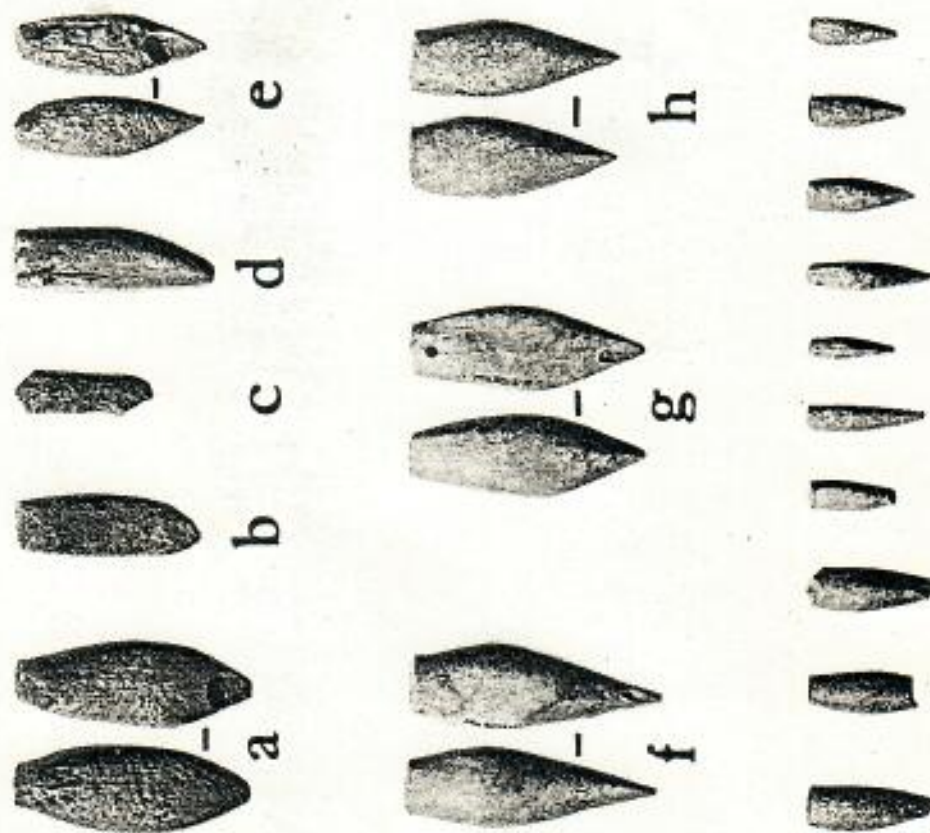


PLATE 1

Whale-tooth pendants from Maupiti burials. a-c. From Te Tiare Ma2 site, Ma2-7, -13, and -14; d-r. From Paeno Ma3 site, E11-3, E11-2, C13-1, C13-2, E11-1, C13-1, E13-3, B12-3, C14-2, E13-4, E13-5, E13-6, E13-10, C14-3, and E13-12. Scale 1/2.

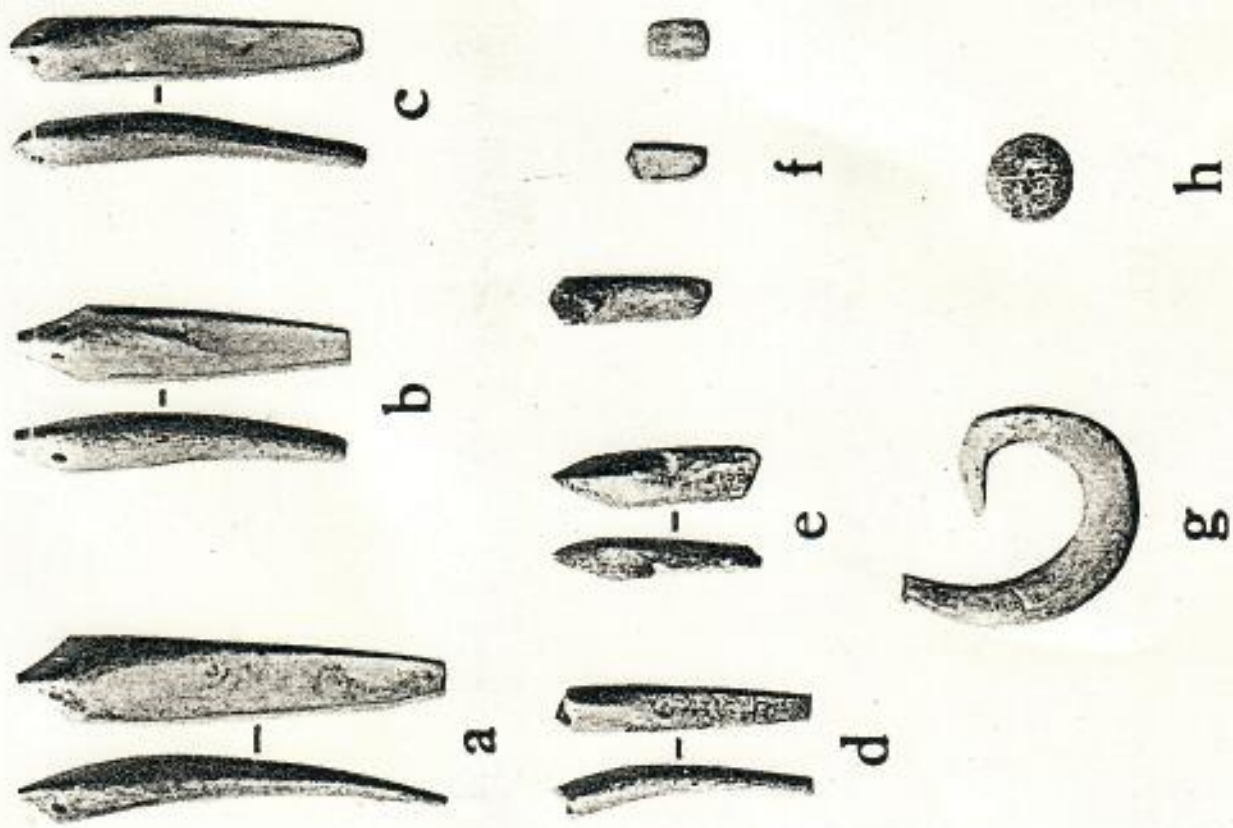


PLATE 2

Fishhooks and a perforated disk from the Maupiti burials. *a-c*. Pearl shell bonito-hook shanks, Ma2-6, Ma2-12, Ma3C15-2, Ma3E13-2, Ma3E13-7; *f*. Pearl shell bonito-hook shank fragments; *g*. Pearl shell one-piece hook, Ma3D14-1; *h*. Pearl shell disk perforated with two holes, Ma3E12-4, F12-1. Scale 1/2.

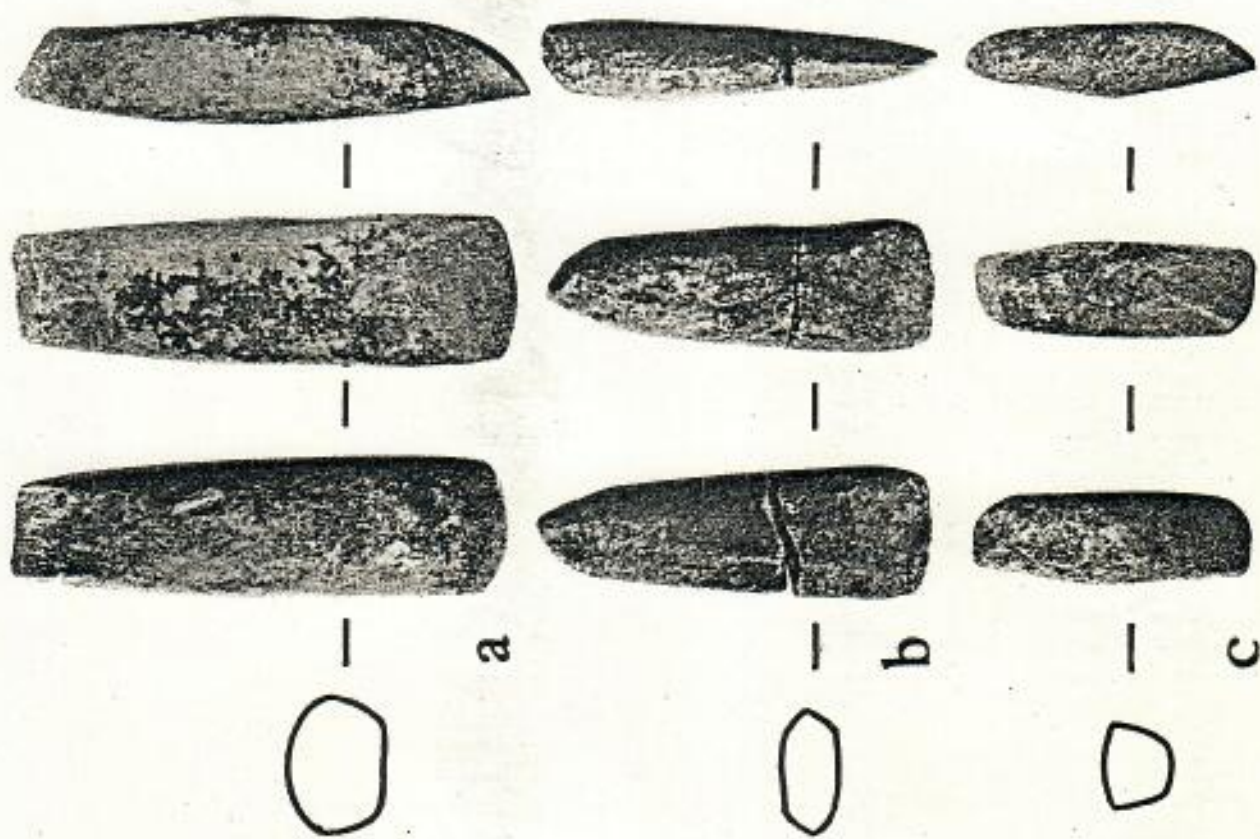


PLATE 3

Basalt adzes from Maupiti burials. Face, base, and side views. *a*, *c*. left side. *b*. right side. Form 1, quadrangular cross-section, corners rounded. *a*. Ma2-1; *b*. Ma3E12-5 and 6; *c*. Ma2-4. Scale 1/4.

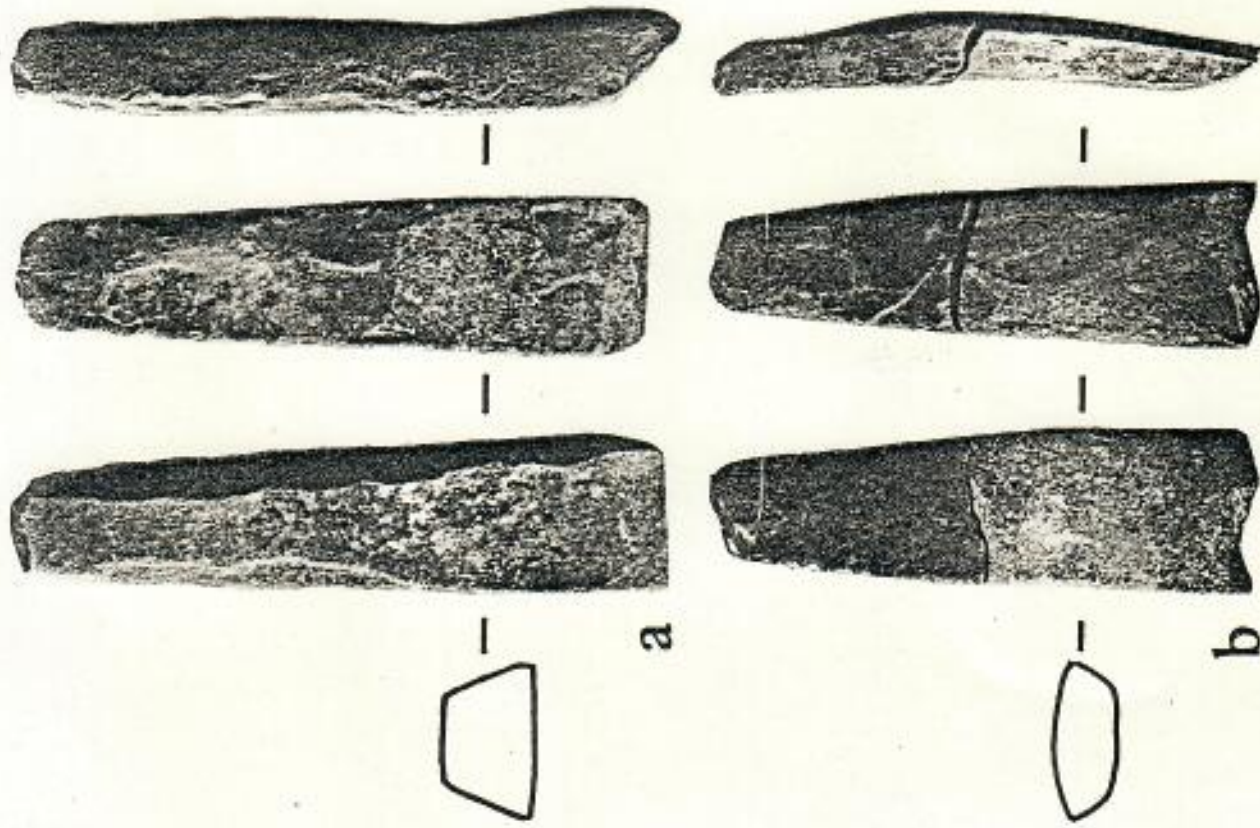


PLATE 4

Basalt adzes from Mauapiti burials. Face, base, and left side views. *a.* Form 2, quadrangular cross-section, base wider than face, Ma3D17-1. *b.* Form 3, quadrangular cross-section, face wider than base, Ma3E14-1, the bit; Ma3D13-1, the butt. Scale 1/3.

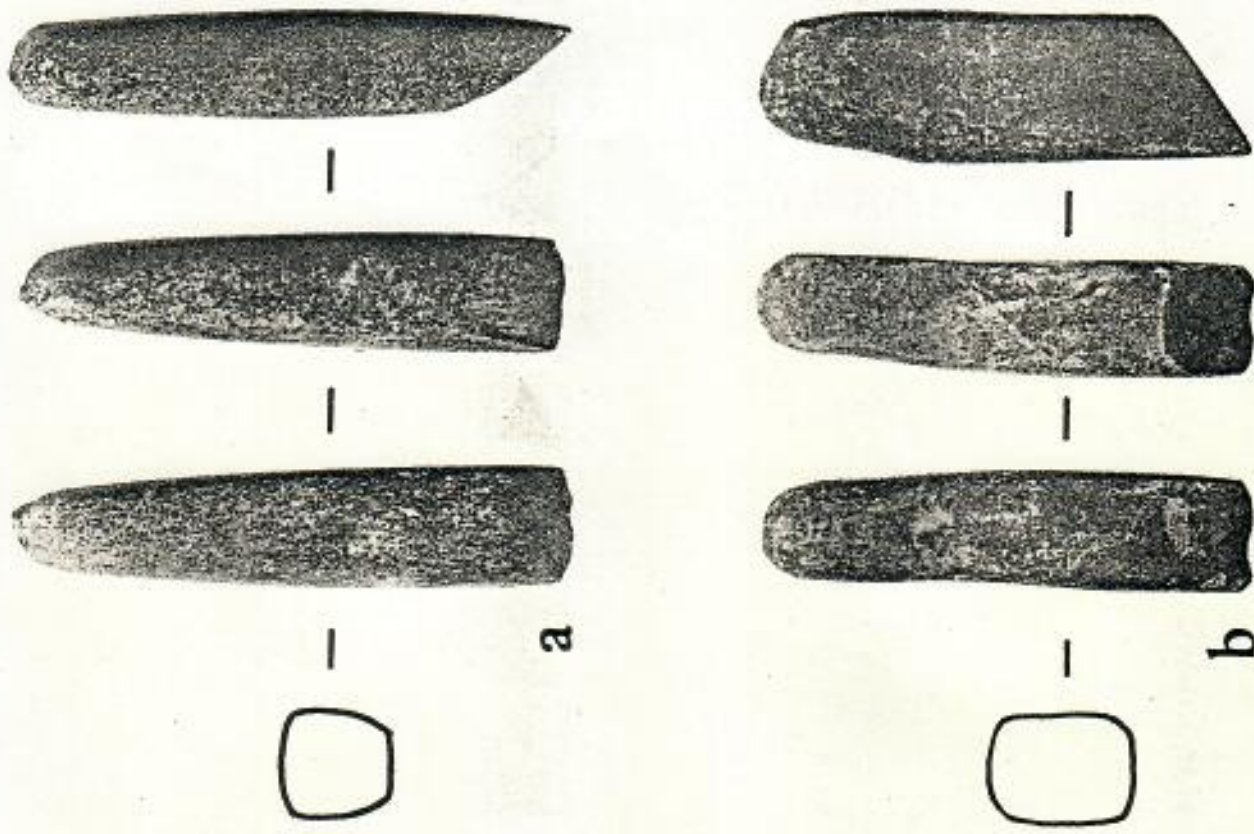


PLATE 5

Basalt adzes from Mauapiti burials. Face, base, and side views. *a.* left side, *b.* right side. Form 3B, quadrangular cross-section, face equal to or wider than base. *a.* Ma3D16-1; *b.* Ma2-2. Scale 1/3.

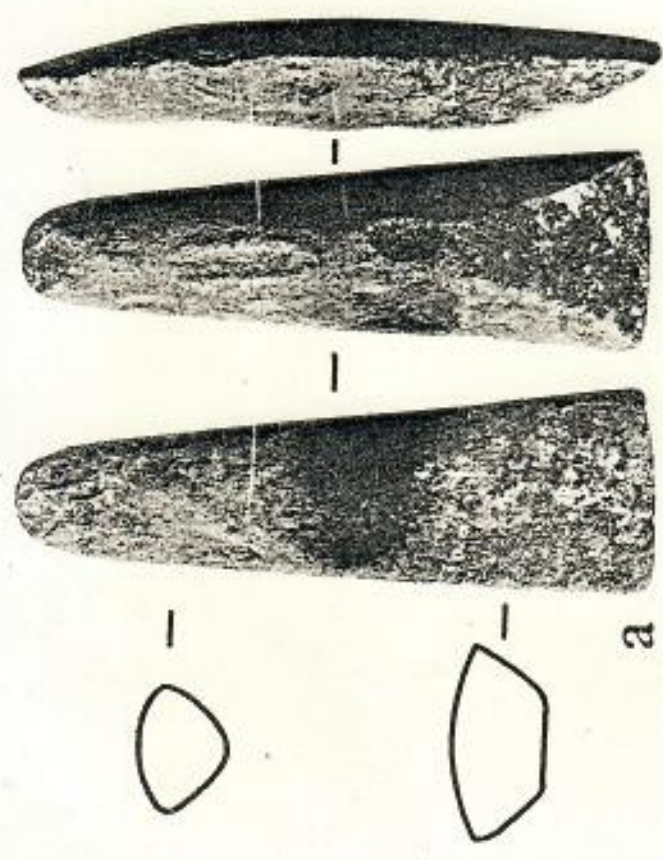


PLATE 6

Basalt adzes from Maupiti burials. Face, base, and side views. *a.* left side, *b.* right side. Form 4, triangular cross-section, apex down. *a.* Ma3C14-1; *b.* Ma2-8. Scale 1/3.

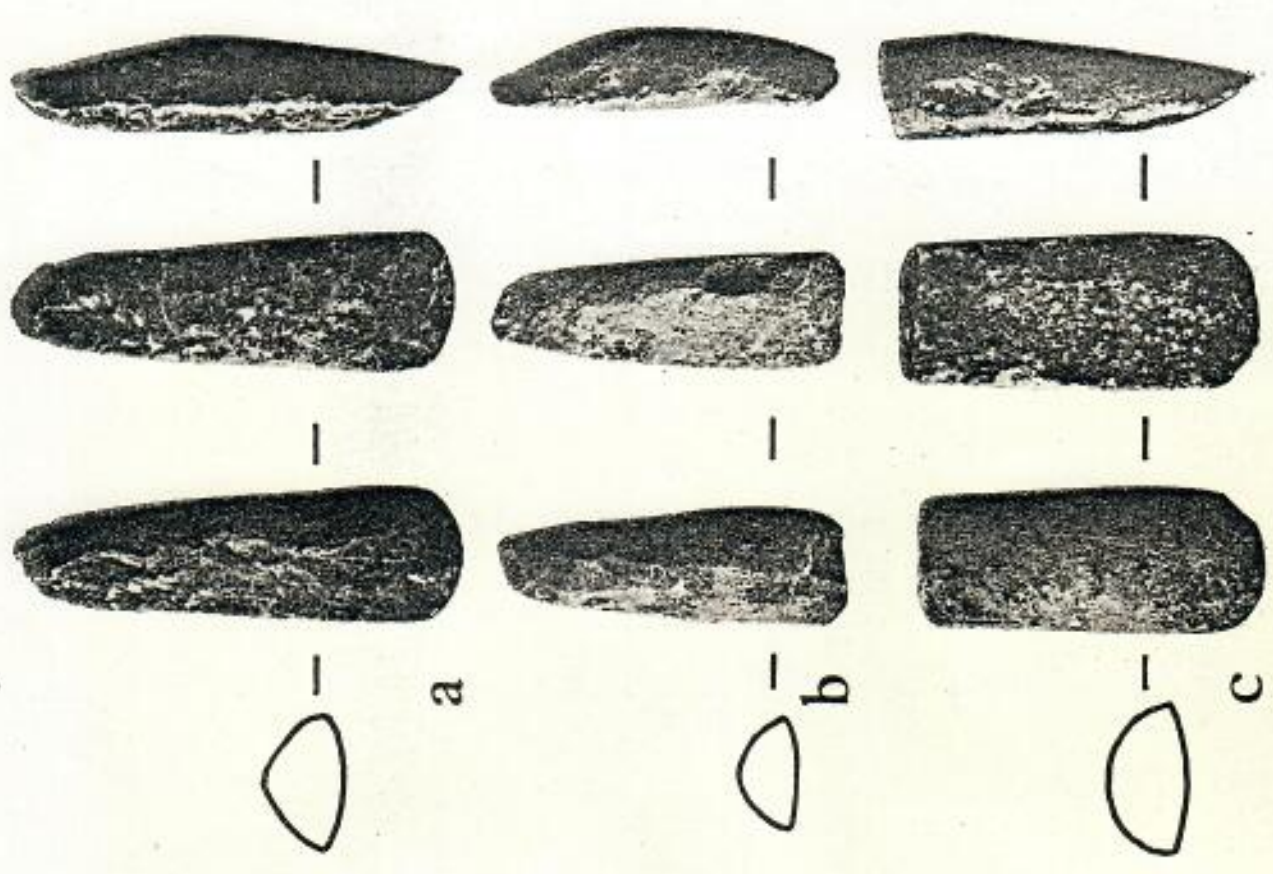


PLATE 7

Basalt adzes from Maupiti burials. Face, base and left side views. Form 5, semi-circular cross-section, curved cutting edge. *a.* Ma3D17-2; *b.* Ma3E12-2; *c.* Ma3D15-1. Scale 1/4.

Developing the Exploitation of *Trochus niloticus* Stock
on the Tahiti Reefs

Readers of our Newsletter have already been informed that the stock of trochus (*Trochus niloticus*) which has developed on the reefs of Tahiti, from a few dozen specimens introduced in 1957 from New Caledonia has started to be methodically harvested (see SPIFDA Newsletter No. 3-4, March 1972, p. 32).

Begun in the southern part of the island (Tahiti Iti peninsula, districts of Tautira and Pueu), the harvesting, strictly supervised, was gradually extended to the whole of the island and over four diving periods from November 1971 to June 1973, more than 350 metric tons of shells were marketed (from over 450 tons of live specimens, for a value of about 5 million Frs CFP (equivalent to about US\$ 70,000).

Results of the trochus diving operations

District	Diving period		Number of diving days	Gross weight in kilos	Net weight of shells marketed kilos	Sale value in Francs CFP
	from	to				
<u>1st Period</u>						
TAUTIRA	3.11.71	14.12.71	234	70,541	56,430	790,048
PUEU	2.11.71	24.11.71	97	18,605	15,300	214,000
<u>2nd Period</u>						
TOAHOTU	7. 8.72	15. 8.72	89	10,883	8,200	114,800
VAIRAO	15. 8.72	30. 8.72	216	36,229	27,420	362,290
MAATATA	19. 6.72	10. 8.72	125	12,724	4,374	65,600
TEAHUPOO	8. 8.72	29. 8.72	159	31,471	25,240	314,710
PAPEARI	26. 6.72	27. 7.72	33	3,456	2,641	39,615
<u>3rd Period</u>						
FAAA	4.12.72	11.12.72	70	16,983	7,250	101,898
PUNAAUA	5.12.72	8.12.72	151	27,766	22,320	416,490
PAEA	5.12.72	14.12.72	86	18,051	8,540	97,633
PAPARA	5.12.72	7.12.72	94	29,460	21,632	346,112
PAPARA (mortal.)	11.12.72	12. 1.73	181	61,200	48,717	673,111
PAPEARI	4.12.72	11.12.72	76	16,756	13,210	198,200
PAPEARI (mortal.)	8. 1.73	12. 1.73	9	6,410	4,964	89,352
MATAIEA	4.12.72	12.12.72	82	15,585	12,210	185,400
<u>4th Period</u>						
PAPEETE	4. 6.73	8. 6.73	43	7,516	5,014	68,704
PIRAE	4. 6.73	8. 6.73	14	4,132	3,326	46,278
ARUE	6. 6.73	11. 6.73	12	3,603	2,420	36,030
FAAONE	18. 1.73	19. 1.73	78	5,880	4,674	93,480
AFAAHITI	18. 1.73	22. 1.73	54	13,200	9,815	176,601
PUEU	18. 1.73	19. 1.73	116	25,200	20,293	344,981
MANINA	5. 6.73	7. 6.73	39	4,432	3,685	66,335
TIAREI	7. 6.73	9. 6.73	44	5,873	4,699	92,445
HITIAA	5. 6.73	7. 6.73	76	12,325	9,280	149,606

These excellent results are due to a carefully planned and controlled organization. This could be set up since trochus shell is a completely new resource which has at no time been a part of the traditional socio-economic system, so that it was excluded from all custom-based constraints and competition between rival family or professional groups. Harvesting is authorized through a special ordinance of the Governor of French Polynesia, which determines the opening and closing of the diving season, and the appropriate quotas per village and per district. The size of trochus shells should be over 8 centimetres and under 12 centimetres. The fleshy portion is to be removed either by immersion in water or by means of a metal hook. Any trochus shell that has been immersed in boiling water for more than 30 minutes is considered as being unfit for sale, and is to be destroyed by the Fisheries Department staff.

All trochus shells harvested are to be submitted to a Control Committee which certifies their place of origin and supervises sales. The Committee in each village comprises representatives of the Local Council and those of local fishermen, along with a member of the Chamber of Agriculture and two officers from the Fisheries Department. Buyers must have a permit issued by the Fisheries Department.

This system ensures the conservation of trochus stock now well established on the Tahiti reefs. Further, it makes for sales that are fully satisfactory both for fishermen and buyers.

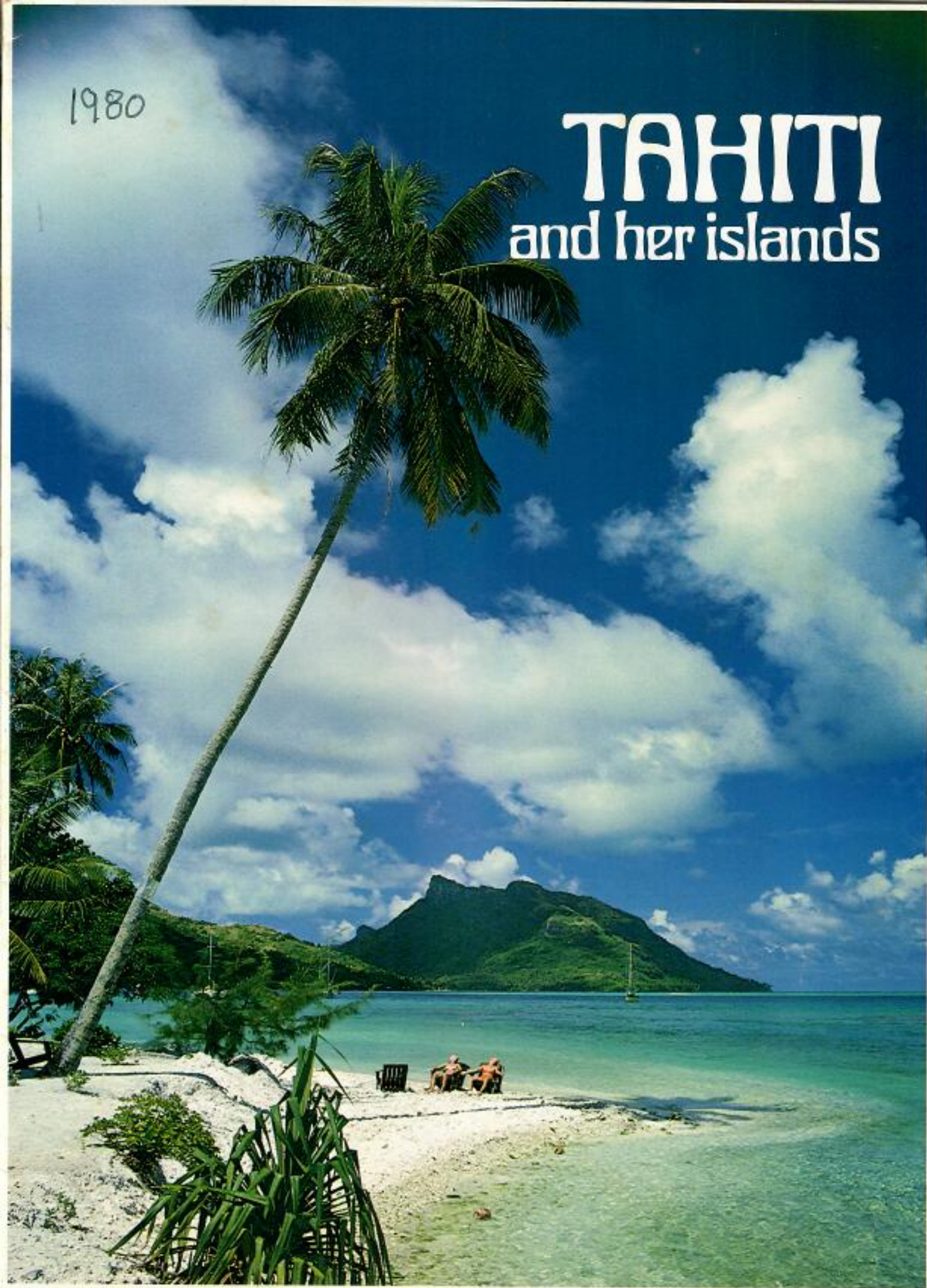
Apart from being in charge of the technical organization involved in the process of harvesting and marketing, the Fisheries Department of French Polynesia has undertaken highly advanced scientific research on the characteristics of the new stock. This study of dynamic ecology is the subject of a Ph.D thesis in Biological Sciences which is to be submitted in Paris (Sorbonne and Museum National d'Histoire Naturelle) at the end of 1973 by Mr Philippe SIU, a native of the Territory and a biologist in the Territorial Fisheries Department.

Trochus flesh is beginning to be used in the manufacture of dried food in pellet form for the rearing of shell-fish (Macrobrachium and Penaeid shrimps). The CNEKO Laboratory in Tahiti has developed a dry food made from trochus shell and skipjack, which is very palatable for shell-fish and has a very high conversion ratio.

1980

TAHITI

and her islands







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Rates in this brochure are subject to change.
 The Tahiti Tourist Board cannot be held responsible
 for changes, errors and/or omissions.



Facts About French Polynesia

Time difference — When it is Sunday noon in Tahiti, it is *in standard time*:

Sunday ...

2 pm in Los Angeles
4 pm in Mexico and Chicago
5 pm in Lima and New York
6 pm in Caracas and Santiago
7 pm in Buenos Aires, Montevideo
and Rio de Janeiro
10 pm in London
11 pm in Paris, Frankfurt, Madrid,
Rome

Monday ...

10 am in Auckland and Fiji
8 am in Sydney and Melbourne
7 am in Tokyo
6 am in Hong Kong
1 am in Moscow
Midnight in Johannesburg

GEOGRAPHY:

Tahiti, the biggest island of French Polynesia, lies in the South Pacific Ocean, half way between Australia and California, approximately half way between Tokyo and Santiago. French Polynesia covers an ocean area about

the size of Europe (without Russia), but total land area of the islands adds up to only 1,544 sq. miles. There are some 130 islands in 5 archipelagoes: the Society Islands (which include Tahiti), the Marquesas, the Tuamotu archipelago, the Gambiers and the Australs. All these islands are either of volcanic or coral origin. Tahiti covers an area of 402sq. miles; it is a beautiful and luxuriant island dominated by the towering peaks of Orohena (7,337ft.) and Aorai (6,786ft.). Most of the islands of French Polynesia, even those of volcanic composition, are ringed by coral reefs enclosing turquoise blue lagoons.

HISTORY IN BRIEF:

French Polynesia extends over such a large area that it took several explorers and many years to discover and chart all the islands. The Spanish and the Dutch were first, making daring voyages through certain archipelagoes during the 16th and 17th centuries.

The first European to discover Tahiti was the English Captain Samuel Wallis in 1767. Bougainville followed in 1768, Captain Cook in 1769 and Captain Bligh in 1788. Bligh was the controversial character of the famous "Mutiny on the Bounty". Tahiti was ruled by the Pomare dynasty until 1880 when the islands became a French colony. In 1957, French Polynesia became a French Overseas

Territory. As such it is headed by a High Commissioner representing the French Republic. The legislative body is the Territorial Assembly consisting of 30 members elected by popular vote; it elects the 7 councillors who compose the Government Council. French Polynesia also elects members for the French Senate, the French Parliament and the French Economic and Social Council.

POPULATION:

Over 140,000 inhabitants of whom more than 50% live in TAHITI. Papeete, the capital of the Territory, has a population of some 30,000 Polynesians of which the Maori race accounts for 75% of the population, Asians 10% and Europeans 15%. Generally speaking, the Tahitians are a handsome people noted for their hospitality, friendliness and easygoing approach to life.

RELIGIONS:

The major religious faiths in French Polynesia are Protestant, Roman Catholic, Mormon, Seventh Day Adventists, etc...

LANGUAGES:

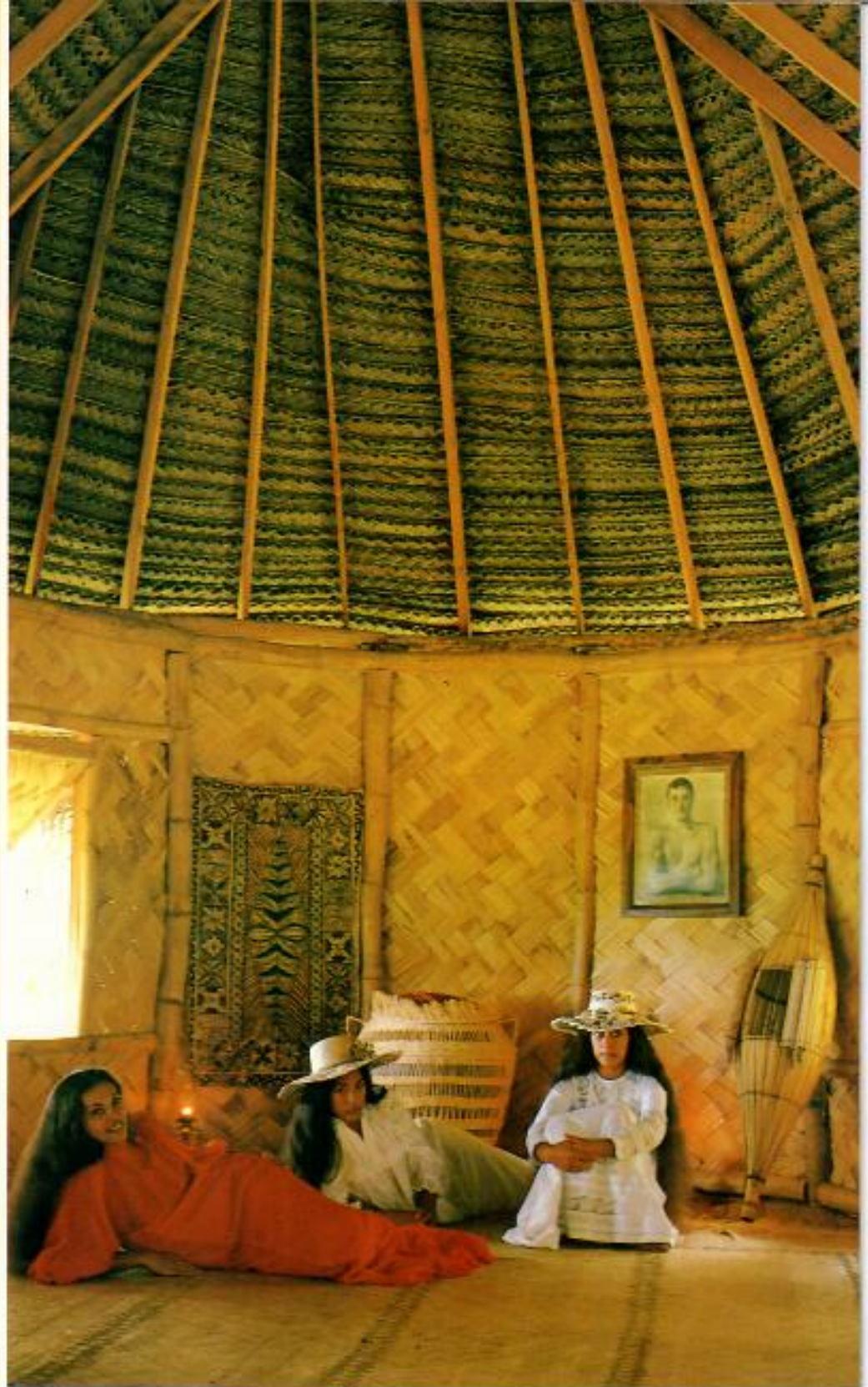
Official languages are French and Tahitian, but almost everyone in the tourist business speaks English.



ECONOMY:

Primary resources of French Polynesia, besides tourism which is the key industry, are products of the coconut (copra and refined coconut oil). Secondary resources are mother-of-pearl shells, cultured pearls, vanilla and coffee. The present five year plan (1976-1980) continues to promote tourism but gives a growing importance to the development of agriculture and oceanic resources. In the last few years Papeete has become a very modern city with new public facilities: shopping centers, bars, restaurants, night clubs... and in Punaauia a lagoonarium and the museum of Tahiti and the islands. Conscious of the needs of the outer islands, the local authorities decided to improve the economy of the remote archipelagoes (Marquesas, Australs, Tuamotu-Gambiers) in building more airstrips, creating new possibilities of exploitations of their resources (fish, mother of pearl shells, cultured pearls, tourism...).

Papeete is equipped with three auditoriums, seating respectively 208, 463 and 865, with modern installations and has become a convention city. Tahiti has one of the most beautiful golf courses in the South Pacific, the ATIMAONO public course, located on the west coast (25 miles from Papeete) and open to visitors.



Air Services

One French airline, UNION DE TRANSPORTS AERIENS, and three foreign carriers, AIR NEW ZEALAND, LAN CHILE, POLYNESIAN AIRLINES, offer frequent jet connections linking Tahiti with Japan, the west coast of Canada and the U.S.A., Hawaii, Samoa, Acapulco and Mexico, Lima, Santiago, Easter Island, Fiji, New Caledonia, Australia, New Zealand, South-East Asia, Europe, etc... LOCAL SCHEDULED AIRLINE SERVICE between Tahiti and other islands of French Polynesia is provided by AIR POLYNESIE (offices on boulevard Pomare, Papeete, telephone 258.50, cable: TELUTA PAPEETE). Equipment used includes Britten Norman Islanders, Fokker Friendship F. 27 and Twin-Otter.

Following are the islands served, mileage from Papeete and flying times:

MOOREA: 11 miles, 7 minutes.

HUAHINE: 110 miles, 40 minutes.

RAIATEA: 137 miles, 45 minutes.

BORA-BORA: 165 miles, 50 minutes non-stop or 1 hour and 10 minutes with stop at Raiatea.

MAUPITI: 194 miles, 20 minutes from Bora-Bora.

RANGIROA: 218 miles, 1 hour.

MANIHI: 330 miles, 1 hour 40 minutes with stop at Rangiroa.

TAKAPOTO: 388 miles, 3 hours 40 minutes with stops at Rangiroa and Manihi.

TUBUAI: 416 miles, 1 hour 50 minutes.

NUKU-HIVA (Marquesas): 759 miles, 4 hours

30 minutes with stop at Rangiroa

UA HUKA: 782 miles, 25 minutes from

Nuku-Hiva.

HIVA OA: 774 miles, 1 hour 10 minutes

from Nuku-Hiva with stop at Ua Pou.

UA POU: 742 miles, 20 minutes from Nuku-

Hiva.

ANAA: 272 miles, 1 hour 10 minutes

MAKEMO: 399 miles, 1 hour 45 minutes

HAO: 571 miles, 2 hours 10 minutes

RURUTU: 355 miles, 1 hour 35 minutes

MANGAREVA (Gambier): 891 miles, 6 hours

35 minutes

Free baggage allowance on inter-island flights

is 22 lbs.

AIR TAHITI: - J. Gillot, manager Box 5019,

Faaa, Telephone: 24834. AIR TAHITI, in

pool with AIR MOOREA, operates permanent

daily service between Tahiti and Moorea.

Equipment used: Britten Norman Islander,

Cessna 206, Piper Aztec.

Air taxi service: available for charters, circle islands flights and transportation to other islands of French Polynesia, are AIR POLYNESIE and AIR TAHITI.

Airport transfers from Faaa International Airport, 3 miles from Papeete, by buses and taxis.

Handling of luggage of arriving and departing

passengers is FREE. Please also remember that THERE IS NO TIPPING IN FRENCH POLYNESIA!

Entry Requirements

Documents: A valid passport, but no visa, for visits of 30 days or less for citizens of Argentina, Austria, Australia, Brazil, Canada, Chile, Colombia, Japan, Mexico, New Zealand, Norway, Peru, Portugal, Spain, Sweden, Switzerland, USA, Bolivia, Ceylon, Cyprus, Costa Rica, Dominican Republic, Ecuador, Finland, Greece, Haiti, Honduras, Iran, Iceland, Israel, Jamaica, Liechtenstein, Malta, Pakistan, Panama, Paraguay, El Salvador, Trinidad, Tunisia, Turkey, Uruguay. Citizens of the European Economic Community: passport only for visits up to 90 days.

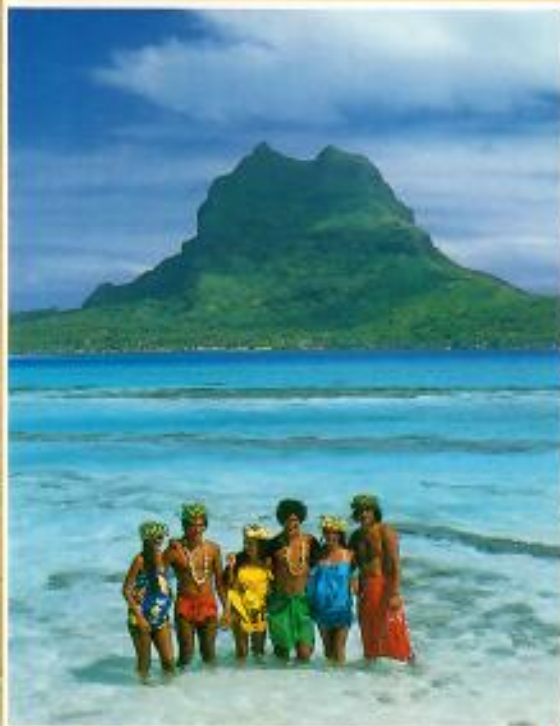
Citizens of France and African countries of the former French Community: no visa. Health certification - Valid smallpox certificate no longer required, yellow fever inoculation certificate required of passengers arriving from an infected area as defined by the World Health Organization.

Customs regulations - In addition to personal effects, 400 cigarettes or 100 cigars or 500 grams of tobacco, one litre of spirits are allowed duty free. Amateur photographers are allowed 2 still cameras with 10 rolls of unexposed film, one movie camera and 10 rolls



of unexposed film. Also permitted are portable radio and tape recorder and articles for outdoor camping.

IMPORTANT note concerning all passengers embarked in Fiji and Pago Pago: All baggage, except hand luggage, must be fumigated upon arrival in Tahiti. Since fumigation takes about 2 hours, passengers should carry clothing and toilet articles for a night's stay in Tahiti in their hand luggage. Baggage being fumigated can be left at the airport (in bond) and picked up later the same or the following day by the hotels, the tour operators or guides on behalf of the passengers. This formality which may cause minor inconveniences is necessary to protect the coconut trees of Tahiti, which are an essential element of the agriculture of the island, against pests found on some islands of the South Pacific.





International Communications

MAIL, TELEPHONE, TELEGRAMS AND TELEX SERVICES

In Papeete, the Post Office is the center of international communications. Here you may purchase stamps and take care of postal matters. Cables may also be sent through Telefrance during postal hours. International and local inter-island calls may also be placed at the Post office or at the hotels. For hours, visitors should check with Post Office or hotel clerks.

The rates are:

- to the USA: 1080 Pacific francs for 3 minutes.
- to Australia, and New Zealand: 540 Pacific francs for 3 minutes
- to Fiji: 660 Pacific Francs for 3 minutes
- to France: 840 Pacific francs for 3 minutes.

Exchange and Banking

The currency used in Tahiti and French Polynesia is the French Pacific franc (FCFP). (Notes: 5,000, 1,000 and 500 francs CFP — coins: 100, 50, 20, 10, 5, 2 and 1 franc CFP). One French franc is worth 18.18 Pacific francs.

Banking hours: 7.45 am to 3.30 pm Monday to Friday (some banks are opened on Saturdays from 7.45 to 11.30 am). Exchange counters at the Faaa International Airport.

Electricity, Water

Current is 110 or 220 volts A.C. 60 cycles (check with your hotel before plugging in an appliance). Tahiti's tap water is safe to drink. A local mineral water "Eau Royale" and all sorts of French mineral waters are available.

Laundry and Dry Cleaning

Excellent facilities in Papeete. May also be taken care of by hotels.

Photography

Color prints made in 3 days from Kodacolor film. Ektachrome, Agfachrome 50S and Fujichrome R100 processing available.

Medical Services

In Tahiti there are excellent medical and dental services, pharmacies, private clinics and a large government hospital.

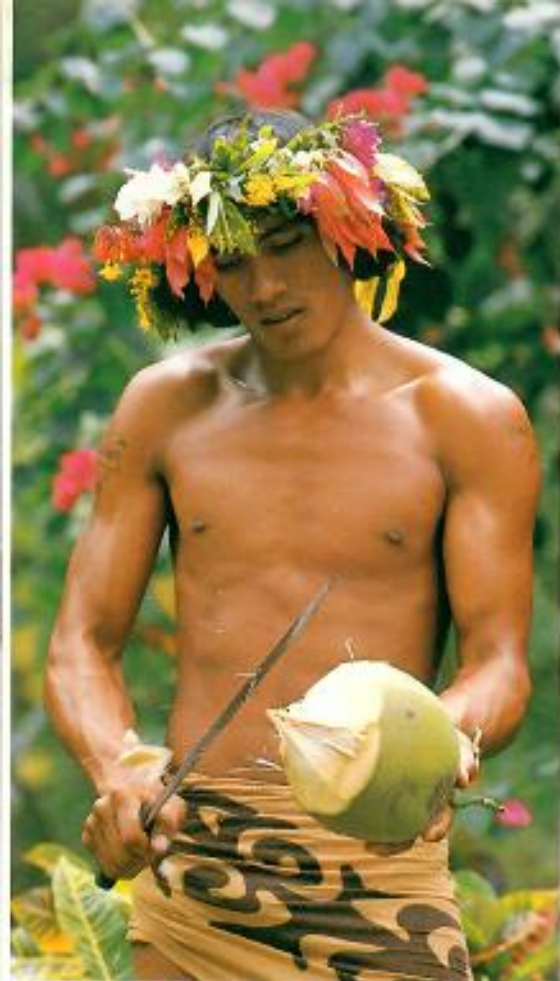
Weather

Cooled by the gentle breezes of the Pacific, climate in these islands is sunny and pleasant. Roughly speaking, there are two seasons: December through February the climate is warm and moist (72 to 90°F). March through November, the climate is cool and dry (64 to 72°F). The preponderance of rain falls during the warm season.

Temperatures

Jan. 79°	Feb. 79°	Mar. 78°	Apr. 78°	May 77°	Jun. 75°
Jul. 75°	Aug. 75°	Sep. 76°	Oct. 77°	Nov. 78°	Dec. 79°

CLOTHING Comfortable informality is the guide to dressing in the islands. Cotton and other light washable clothes may be worn the year round. It is a good idea to take along a summer jacket or sweater for the evening. And a lightweight plastic raincoat is a fine precaution against sudden showers.



Restaurants and Food

All tourist hotels have restaurants. In Papeete and around Tahiti, there are also a number of restaurants offering a wide variety of French, Italian, American, Chinese, Vietnamese and Polynesian dishes (see enclosed folder "useful addresses"). Price for a meal may vary between 300 Pacific francs for a meal in a self-service restaurant and 1,000 Pacific francs and up. Most restaurants stop serving lunch at 2.00 pm and dinner at 10 pm. Liquor — all types of liquor and drinks are available in a wide variety of brands. Be sure to sample the local "Hinano", "Vahine", or "Manuia" beers which are very popular.

About Tipping

Please bear in mind that *TIPPING IS NOT THE CUSTOM IN TAHITI* and is actually contrary to the Tahitian idea of hospitality.

Holidays and Special Events

January 1st (New Year's Day) March 5th — Good Friday — Easter Monday — May 1st (Labor Day) — Ascension Day — Whit Sunday and Monday — July 14th (Bastille Day) — November 1st (All Saints day) — Novem-

ber 11th (Armistice Day) — and December 25th (Christmas)

Biggest event of the year is **BASTILLE DAY**, generally extended into a one week festival commencing on July 11th. Among the colorful events which mark this marathon of merrymaking, are dance competitions which are usually conducted on 4 consecutive nights, canoe races, javelin throwing, all performed before the most boisterous and enthusiastic audiences ever assembled.

Other special events include: Chinese new year, Mini Bastille Fetes, the Night of the Guitar, Ancient Tahiti Ball, the Night "Woman and Flowers," Thousand Flowers Day, Beautification Contest on Tahiti and outer-islands, the Fortnight of Government schools, the Reenactment of the enthronement of a Tahitian king, All Saints Day (illuminated cemeteries), the Day of the Tiare (national flower of Tahiti), deep sea fishing contests, etc.

There are also special events on neighbouring islands.

Stores and Shopping

Interesting buys are to be obtained in Tahiti. Items to be looked for are carved Polynesian "tikis" (idols) and artifacts, costume jewelry

and black decorative items beautifully wrought in Tuamotu mother of pearl, intriguing basketry and woven hats, Polynesian fashions, from bikinis to ball gowns, in attractive materials hand-blocked in local factories. Among the bargains of Tahiti are french perfumes in great variety at prices lower than Paris or New York, crystal ware, jewelry (exclusive models created by local artists). Shoppers should not worry about paying higher "tourist prices". Such practices are not the way in French Polynesia. But visitors should be on guard for closing times. Shops usually open about 7.30 am and close at 5.30 pm (11 am on Saturdays). But there is always a long lunch hour, the extreme limits being from 11 am to 2 pm.

The duty free shops at Faaa International Airport, and at the shopping center **VAIMA** in downtown Papeete are well worth a visit.

Service Clubs

At present, there are two service clubs in Tahiti. The **LIONS CLUB** meets on the first and last Thursday of every month at hotel Holiday Inn. The **ROTARY CLUB** meets at the Beachcomber hotel on the first and third Monday of every month. Address of both clubs is: Papeete, Tahiti.



Recreation

Opportunities abound for the sportsman. On land there are tennis, squash, bowling, horse-back riding, golfing, trapshooting, mountain climbing and of course the full range of water sports and spectator sports (soccer, races, etc...).

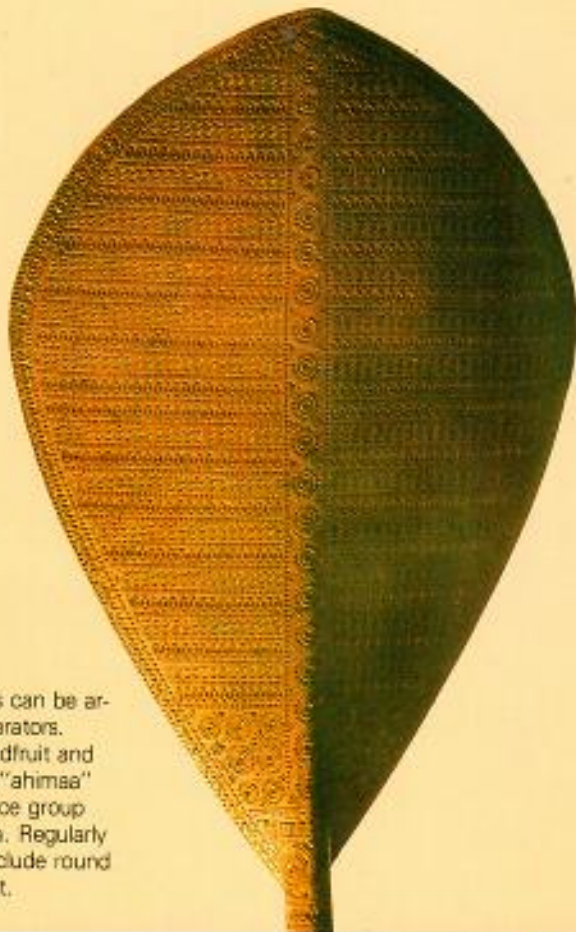
Swimming is excellent and perfectly safe, at white or black sand beaches and hotel swimming pools. Speedboats are available for water-skiing and there are glass bottom boats. Game fishing is first class in Tahiti for marlin, sailfish, tuna and other varieties. Fully equipped sport fishing boats, yachts, catamarans and ketches are for hire in Papeete, Moorea, Raiatea, Huahine, Bora-Bora, Rangiroa and Manihi. Besides deep sea fishing, Tahiti offers good net and spear fishing. All underwater gear can be obtained.

Evening Entertainment

There is plenty of fun, music and exciting dancing in Tahiti. Night spots to be visited abound and include, La Cave, Pitate, Whisky à GOGO, Zizou Bar, le Milord, Club 106, Café de Paris at Maeva Beach hotel, le Roll's Club at shopping center Vaima, le Bounty Club, le Lido, le Punk's, le Mayana. Most hotels offer frequent entertainment, usually

Tahitian music and dancing.

Tahitian "tamaraa", or feasts can be arranged through the local tour operators. These tamaraa feature pork, breadfruit and other native foods cooked in the "ahimaa" (underground earth oven). A dance group usually performs at these tamaraa. Regularly scheduled tamaraa on Moorea include round trip fare, sightseeing and the feast.





Surface Transportation

In Tahiti, the famous vehicle known as "le truck" operates unscheduled bus service between Papeete and the outlying districts. Adventurous types will want to climb aboard "le truck" and enjoy the true friendly Tahitian mode of transportation and also the cheapest. The "truck" does not go around the island but operates only between Papeete (market place) and the different districts of the island, even the peninsula (Tautira — Teehupoo).

The trucks leave Papeete for their districts approximately every half hour. For the nearest points, and for the farthest points, the departure is at around 8 am. For the return to Papeete, ask details to the driver.

TAXIS and BUSES are comfortable.

Fares are government controlled and are displayed in each cab. All information regarding fares are obtainable at the reception counters of the Tahiti Tourist Board (airport and downtown Papeete).

TAHITI offers good motoring opportunities with a 75 mile asphalt circular "Garden Road" around the main part of the island, with two 12 mile stretches of macadam roads giving access to the northern and southern coasts of the "Tahiti it" peninsula.

CAR RENTALS are available from a number of rent-a-car establishment.

It is possible to rent many makes of cars, for 24 hours or per week: Fiat, Peugeot, Volkswagen, etc...

The car rental rates for 24 hours vary between 500 francs CFP and 2,500 francs CFP according to the make of the car and whether a minimum daily mileage is included or not. Unlimited public liability insurance and maintenance are included in these rates. Renter's liability for collision damage to the rented car: 50,000 francs CFP.



Collision damage waiver: 380 francs CFP per day.

Drivers must be at least 21 years of age and in possession of any one year valid drivers licence. In Tahiti, traffic keeps to the right.

Moorea Boats

The round-trip fare between Papeete and Moorea is 1,000 francs CFP for the larger passenger craft and 1,200 francs CFP for the faster and more comfortable cruiser.

Tourist Information

Available at the Tahiti Tourist Board Information Centers at Faaa International Airport (hostesses on duty at each arrival of international flights), and at Fare Manihini, Boulevard Pomare, in downtown Papeete (open daily, except on Sundays, from 8 am to 5 pm). Also available at the Visitors Bureau (see enclosed map) on the waterfront, Papeete.

Sightseeing and Tours

The following are sample tours of Tahiti and other French Polynesian islands.

These may be booked through your travel agent or any Tahitian travel agent/tour operator listed above.

Strolling through colorful Papeete... motoring through the flower adorned outer districts... or touring the neighbouring islands, the visitor gets the same impression of a delightful new world that once lured the famous

French painter Paul Gauguin.

TAHITI — Papeete is the main settlement and is one of the most romantic and legendary ports of call in the South Pacific. The harbor front, now remodeled and landscaped, is busy with copra schooners, ocean liners and yachts. Papeete streets swarm with a melange of vehicles, "les trucks", loaded with Tahitians in from the districts for market-ing... sports cars... scooters and motorbikes many of them piloted by graceful vahines with flowers in their hair. Away from the harbour, the scenery gradually yields to green lawns and foothills tufted with coconut palms swaying in the trade winds and in the back, the cloudcapped fastness of rugged Mount Orohena, dwelling place of the old gods of Tahiti.

Day Tour of Papeete — Drive through town, visiting market, shops, harbor. Luncheon, if included, at one of the better restaurants in or near Papeete.

Glass bottom boat tour — Leaves Maeva Beach or Beachcomber hotels. Spend 2 hours viewing coral gardens, multi-colored lagoon fish. Tahitian fisherman dives under the boat. English speaking guide, refreshment served.

Camera show — Minimum audience: 15 persons. Proceed by bus to beachside home in one of the rural districts of Tahiti. Photograph or film traditional Tahitian activities: coconut tree climbing, coconut husking, grass skirt dancing, pareu tying, net casting, basketry and flower lei weaving. Refreshments served. Lasts 3 hours.

Tamaaraa (Tahitian feast and meal), either at noon or in the evening. On Saturday and Sunday in the main hotels.

Papeete Night Tour (ask your travel agent) — Leaves about 9 pm. Tahitian hotel floor show. Visit to night clubs. One drink at each stop is included.

Island Tour of Tahiti from hotels — Stops at scenic and historical points of interest: tomb of King Pomare V, Point Venus and Museum of Discovery, Museum of Tahiti and the islands, lagoonarium, blowhole, waterfalls of Faaruumai, botanical gardens of Papeari, Gauguin Museum, Atimaono Golf course, Marae fern grotto, Marae Iold Polynesian temple of Arahurahu. Lunch en route at a rural restaurant. Return to hotel in late afternoon.

Island Tour with Tautira extension — Same as Island Tour but includes a drive to the villages of Pueu and Tautira, at the end of the Tahiti Iti peninsula, by taxi.

TRAVEL AGENTS/TOUR OPERATORS IN TAHITI

Kia Ora Tours	..... 28672	Box 706	Papeete
Manureva Tours	... 27258	Box 1745	Papeete
Pacific Travel	..... 29385	Box 605	Papeete
Tahiti Nui	..... 26803	Box 718	Papeete
Tahiti Poroi	..... 20070	Box 83	Papeete
Tahiti Tours	..... 27870	Box 627	Papeete
Tahiti Voyages	..... 25763	Box 485	Papeete
Teremoana Tours	... 29696	Box 475	Papeete
Voyagence Tahiti	... 27213	Box 274	Papeete
Travel Air	..... 39642	Box 613	Papeete
Vahine Tahiti Travel	... 24438	Box 1699	Papeete
Marama Tours	..... 81918	Box 2547	Papeete
Compagnie Maritime Polynésienne	..... 28402	Box 368	Fare Uta
Paradise Tours	..... 24936	Box 2430	Papeete



Tahiti's Sister Islands

Every itinerary should include other islands of French Polynesia. Each has its own personality, its own special charm. Several islands can be visited on a one day tour, but they deserve at least an overnight stay.

Moorea — is the closest island to Tahiti, and one of the most spectacular in the world. It is serrated with sharp peaks that command deep-cleft valleys and emerald lagoons teeming with brightly colored fish. Life is more leisurely in Moorea than in Tahiti. Moorea is less than 12 miles from Papeete. There are 7 tourists hotels (see Hotel Section) and the Club Méditerranée Village. One can therefore spend a full vacation on Moorea.

Special day tour — Leave Papeete. Luncheon at a tourist hotel. Afternoon visit of points of interest, as far as Opunohu Bay. Tahitian tamarua (feast) with traditional singing and dancing. Return to Papeete in the evening.

Two days, one night on Moorea — Leave Papeete. Luncheon at a tourist hotel, sightseeing as far as Opunohu Bay, native village and trading stores. Pao Pao church with world famous murals. Dinner and night at a tourist hotel. Second day — Breakfast at the hotel, morning at leisure.

Three days, two nights on Moorea — Same as two days tour, with the addition of an extra day and full circle island tour on second day of Opunohu visit.

Circle island Moorea tour — Complete trip around the island (total 38 miles) visiting all points of interest and scenic points.

Tahitian Tamarua (feasts with traditional music and dances) are held at some hotels.

Bora Bora

An island dominated by two magnificent peaks, Pahia and Otemanu, Bora Bora has one of the loveliest lagoons in all of Polynesia. There are tourist hotels and an extension of Club Méditerranée (see Hotel Section).

Bora Bora Packages — They include full American Plan, outrigger sailing trips on the lagoon, glass bottom boat, water activities, etc...

Raiatea

The ancient center of Polynesian civilization, particularly interesting for its archaeological sites (marae) or old Polynesian temples. Worshipers from remote islands assembled

here, in ancient times.

Raiatea is also the second largest settlement in French Polynesia. One tourist hotel. Accommodation with local inhabitants.

Huahine

The birthplace of Omai, the first Polynesian to visit Europe in company of Captain Cook in the 18th century. Huahine is the first South Pacific island to offer an "open air museum". One tourist hotel. Accommodation with local inhabitants.

Maupiti

A small island 30 miles west of Bora Bora. For years, Maupiti was only accessible by sea; it has now an airstrip and regular air service. The island is surrounded by coral islets. Archaeological site on Motu Pae'ao. No hotels. Accommodation at private homes.

Rangiroa

The second largest atoll in the Pacific with a lagoon covering 400sq. miles, one tourist hotel, the KIA ORA VILLAGE offers package tours from 2 days to one week, with various water sports activities.

Manihi

A small atoll located north of Rangiroa, 310 miles from Tahiti, with a population of 300 people. Accommodation obtainable from villagers. Manihi has a pearl farm which is worth a visit. Packages to Manihi include two nights, all meals, sightseeing, fishing, etc... One tourist hotel (KAINA VILLAGE).

Takapoto

An atoll located 38 miles east of Manihi, on which there is a Government Research Center for the culture of pearls.

Tetiaroa

A beautiful atoll, 30 miles north of Tahiti, in ancient times the summer residence of Tahitian Royalty. At present owned by Marion Brando. Tours to Tetiaroa include accommodation, many activities (raft cruises to see birds refuge, sailing canoes, fishing, etc...).

Tubuai

The island chosen by the Bounty mutineers for a home in 1789. Cool and temperate climate, white sand beaches. Air service with Papeete. No tourist hotels. Accommodation can be arranged with local families.

Rurutu

Mountainous island, Rurutu is located 355 miles south of Tahiti. The climate is temperate, especially in the winter period (June-July-

August). Rurutu is reputed for the quality of its weaving (hats, mats, etc...). Air service with Tahiti. No tourist hotels, but possibilities to live with local families.

The Marquesas Islands

Offer dramatic sites. Four of the six Marquesian Islands, UA-POU UA-HUKA, NUKU-HIVA, HIVA-OA have air service to Tahiti. No hotels, but accommodation can be arranged with local families. Paul Gauguin and Jacques Brel are buried at ATUONA.

Mangareva

Located at 891 miles South East of Tahiti. It is the main island of the Gambier Archipelago. Air services with Papeete. Temperature climate. Famous by its church entirely decorated with mother-of-pearl shells.

NOTE — All the above tours are presented only as samples and are subject to variation. For complete and up-to-date information, contact your travel agent or one of the Tahitian travel agent/tour operators listed above.

Apart from this Travel Guide to Tahiti and French Polynesia published in English, French, German, Spanish and Japanese, other information material is available:

- Facts about Tahiti and French Polynesia (English, French, Japanese, German, Spanish)
- Marae (old Polynesian sacrificial altars) of Moorea and Huahine (French, English)
- O Tahiti Teie, an 8 page color folder (English, French, Japanese, Portuguese and Spanish)
- Tahiti Vacances (French, English, Spanish, Japanese)
- Investment Code (French, English)
- Statistics (French)

Available for travel agents:

- Tahiti, a 16mm color film (20 minutes, English version)
- Color posters.

For written inquiries and requests for brochures, contact the Tahiti Tourist Board P.O. Box 65, Papeete, Tahiti, French Polynesia.

The Tahiti Tourist Board also maintains offices in London, Frankfurt, Sydney, Tokyo, Los Angeles, San Francisco, Seattle, Dallas, Chicago, Washington D.C., Boston, New York, Miami, Denver, Toronto and Santiago de Chile.

HOTELS and LODGINGS

Tahiti

ROYAL PAPEETE (Grade B) — P.O. Box 919 Papeete
Cable address: ROYALPAP PAPEETE, Phone 2 01 29

35 air conditioned rooms on the waterfront boulevard, boutique, cocktail lounge, coffee shop, restaurant, swimming pool, night club.



HOLIDAY INN (Grade A) — P.O. Box 32, Papeete
Cable address: HITAHITI PAPEETE Phone 2 67 67

Fully air-conditioned hotel.
146 rooms. Half mile west from center of Papeete, 2 miles from airport. Travel desk, cocktail lounge, restaurant. Tahitian lunch Itamearaa and Tahitian dances on Sundays. Frequent Tahitian entertainment. Convention room, discotheque, squash courts.



TAHITI (Grade B) — P.O. Box 416, Papeete
Cable address: HOTAHITI PAPEETE, Phone: 2 95 50

110 units: 18 bungalows, 92 rooms (air-conditioned).
One mile west from Papeete, 2 miles from airport. Typical South Seas hotel, with tropical garden. Travel desk, boutique, beauty shop, cocktail lounge, restaurants, swimming pool, private swimming-dock, water skiing, frequent Tahitian entertainment, Tahitian musicians at cocktail hour.



TAHITI BEACHCOMBER (De luxe) — P.O. Box 6014, Faaa
Cable address: TAHITI BEACHCOMBER, Phone: 2 51 10

200 units: 183 air-conditioned rooms and 17 overwater bungalows, Tahitian style. Located at Pointe Tataa, 4.4 miles west from Papeete and one mile from Faaa airport, restaurants, cocktail lounge, coffee shop, meeting facilities swimming pool with bar, tennis courts. All water sports. Frequent Tahitian entertainment.



TE PUNA BEL AIR (Grade B) — P.O. Box 354, Papeete
Cable address: PUNABEL PAPEETE, Phone: 2 82 24

77 units: 28 bungalows, 49 rooms.
Located in Punaauia, 4.7 miles West from Papeete, 1 1/4 mile from airport. Typical South Seas hotel. White sand beach, restaurant, cocktail lounge, natural spring fed swimming pool. Tahitian entertainment, dancing.



MAEVA BEACH HOTEL (De luxe) — P.O. Box 6008, Faaa
Cable address: MAEVOTEL PAPEETE, Phone: 2 80 42

230 air-conditioned rooms.
In Punaauia, 5 miles west from Papeete, 1.6 miles west from airport. White sand beach, travel desk, boutiques, beauty parlor, barber shop, restaurant, beach restaurant, cocktail lounge, swimming pool. Banquet facilities for up to 350. All water sports, daily Tahitian entertainment, Tahitian musicians at cocktail hour. Sunset cruises, camera show on Sundays at lunch time. Tennis courts.

LE PETIT MOUSSE (Grade B) — P.K. 32.5 — Papara, Phone 7 42 07

6 tropical style bungalows. 112 units
Bar, French restaurant, snack. Water sports, private wharf.



**ROYAL TAHITIEN (Grade A) — P.O. Box 6001, Pirae
Cable address: ROYALTA TAHITI, Phone: 2 81 13**

40 air conditioned rooms on palm shaded grounds and 4 economy bungalows.
In Pirae, 2 miles east from Papeete, 5 miles from airport. Black sand beach. Travel desk, restaurant, cocktail lounge, bar.

**TAHARA'A (De luxe) — P.O. Box 1015 — Papeete
Cable address: TAHARAAHOTEL, Phone: 8 11 22**

201 air-conditioned rooms overlooking historical Matavai Bay. In Mahina, 6 miles east from Papeete, 9 miles east from airport. Black sand beach, travel desk, drugstore, beauty parlor, barber shop, restaurant, grill room, snack bar, cocktail lounge. Swimming pool, trap shooting, tennis courts. Tahitian musicians and dance. Dance orchestra.



Moorea

Moorea is easily accessible from Papeete by boat or air services offering convenient connections with hotels and Club Méditerranée.

PRINCESSE HEIATA (Grade B) — P.O. Box 6003, Pirae, Phone: 2 81 05

25 air-conditioned rooms and 11 air-conditioned bungalows.
Located in Pirae, at 2.5 miles from Papeete and 5.5 miles from the airport, close to a black sand beach.
Cocktail lounge, restaurant, swimming pool.



**BALI HAI/MOOREA (Grade A) — P.O. Box 415, Papeete
Cable address: BALIHAI MOOREA, Phone: 6 13 59 (MOOREA) or 2 90 68 (TAHITI)**

64 units: 13 overwater bungalows, 37 garden and beachfront bungalows, 12 rooms and 2 two bedroom suites with kitchen.
Located in the district of Maharepa, 7.5 miles from airport. White sand beach, beach restaurant, cocktail lounge. Water sports and all excursions desk, boutique, private swimming dock, tennis courts. Tahitian tamaarea (feast) on Sundays.

AIMEO (Grade A) — P.O. Box 627, Papeete
Cable address: AIMEO MOOREA, Phone: 6 13 68

40 units: 26 beach front suites and 14 over-water bungalows.
Located on magnificent Cook's Bay, 9 miles west from Moorea airport.
Restaurant, cocktail lounge, boutique, Tahitian entertainment every Saturday night, Tahitian "tamaaraa" (feast) on Wednesday night. Private swimming dock, all excursions.



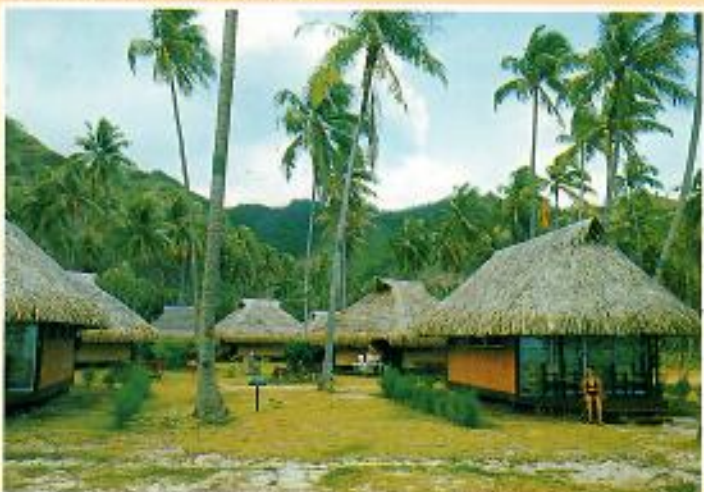
CAPTAIN COOK BEACH (Grade B) — Haapiti, Moorea
Phone: 6 10 60 Telex: 685 615

44 units (20 bungalows, 24 rooms). Located on a white sand beach in Haapiti, 20 miles from the airport.
Bar, restaurant, bicycles, outrigger canoes, water sports, horse back riding, excursions, Tahitian feasts.



RESIDENCE "LES TIPANIERS" (Grade B) — Haapiti, Moorea
Phone: 6 12 67.

17 bungalows (9 with kitchen).
Located in the district of Haapiti, 18 miles from airport, on a beautiful white sand beach. Bar, restaurant, shop, outrigger canoes, tennis, horse-back riding, excursion on the lagoon.



CLUB MEDITERRANEE (Grade B) — P.O. Box 575, Papeete
Cable address: MEDICLUB PAPEETE, Phone: 2 96 99 (Tahiti)

285 bungalows.
Located in the district of Haapiti, 20 miles from airport, on a beautiful white sand beach. Resort Village with restaurant, two cocktail lounges reading room, auditorium, boutique, bar, all water sports (including scuba diving), and land sports, tennis courts, all excursions. Frequent Tahitian shows, dance or orchestra nightly.



MOOREA VILLAGE (Grade B) — Haapiti, Moorea or P.O. Box 1008, Moorea
Phone: 6 10 02

48 bungalows. (15 with kitchen).
Located in the district of Haapiti, 22 miles from airport, on a beautiful white sand beach. Restaurant, bar, shop, tennis courts, bicycles, Tahitian "Tamaaraa" (feast and show) every Thursday.



KIA ORA MOOREA (Grade A) — P.O. Box 706, Papeete
Cable address: KIAORA PAPEETE
Phone: 2 88 72 (Tahiti) — 6 12 90 (MOOREA)

66 de luxe beach and garden bungalows.
Located in the district of Teavaro, 1.1 mile from airport, Beautiful white sand beach, restaurant, bar, over-water night club, tennis courts, water sports, shop, Tahitian Night every Friday.

Bora-Bora

BORA-BORA (Grade A) — Nunue, Bora-Bora or P.O. box 1015 Papeete — Tahiti

Cable address: BORHOTEL PAPEETE

Phone: 8 12 06 (representative: Tahara'a hotell)

80 units: 15 over water bungalows, 65 beach and garden bungalows. Scenic restaurant, cocktail lounge, beautiful white sand beaches, water sports, excursions. Tahitian barbecue, Tahitian music at cocktail hour.



CLUB MEDITERRANEE-NOA NOA (Grade B) — Vaitape, Bora-Bora or P.O. Box 575

Papeete — Tahiti

Cable address: MEDICLUB PAPEETE, Phone: 2 96 99, (Tahiti)

41 Tahitian style bungalows (all double occupancy).

An extension of Club Méditerranée Moorea, also accommodates overnight guests. Open all year. Located at Vaitape village. Cocktail lounge, restaurant, Tahitian music at night. Water sports, excursions and picnics on famous "Motu" Tapu, glass bottom boat, outrigger canoes. Reservations through Club Méditerranée offices in Papeete — Tahiti.



OA OA YACHT SPORT (Grade B) — P.O. Box 1538 — Papeete, or P.O. Box 10, Bora-Bora.

Cable address: OA OA HOTEL BORA BORA

Representative: TAHITI TOURS, Phone: 2 78 70 (Tahiti) or phone 384 (Bora-Bora)

24 units: 16 bungalows, 8 rooms located on Vaitape lagoon within walking distance of the village. Restaurant, bar, private dock, water sports, excursions, picnics, tennis.



HOTEL MARARA (Grade A) — Matira, Bora-Bora, P.O. Box 6008 Faaa — Tahiti or P.O. Box 6, Bora-Bora.

Telex: 214 FP DINOFILM, Phone: 2 80 70 (Tahiti) or 346 (Bora-Bora)

64 units (Polynesian style bungalows): 21 overwater bungalows, 43 beach and garden bungalows located at the end of Matira point, on white sand beach. 2 restaurants — bar — boutique (display reproduction Polynesian fashion film Hurricane). Tahitian music cocktail time — discothèque at night, slide show and Tahitian show. Sailing canoes, outrigger canoes, fishing boats, snorkel equipment, 1 tennis court.



HOTEL MATIRA (Grade B) — P.O. Box 31 Bora-Bora

Phone: 336 Bora-Bora.

13 Polynesian style bungalows with kitchenette, beautiful white sand beach. Located at Matira Point. Outrigger canoes.



MARINA (Grade A) — P.O. Box 1366, Papeete, TAHITI or "MOTU" Mute — Bora-Bora

Representative: Pacific Holidays, Phone: 2 95 01 (Tahiti)

30 units (Polynesian style bungalows):

16 beach and 14 garden bungalows, located on a white sand beach on "Motu" Mute (small island, one mile from Bora-Bora airport).

Reception area with front desk, sitting area, gift shop, boutique and first aid cabinet, multi level beachfront restaurant, wharf-boat jetty with over-water snack-bar and lounging area. All water sports including scuba diving and deep sea fishing, Tahitian canoeing, ping-pong, backgammon, scrabble and other board games, volley ball, tennis.

Tetiaroa

TETIAROA VILLAGE (Grade B) — P.O. Box 2418 Papeete
Phone: 2 63 03 (Tahiti) or 8 13 02
Cable address: TETIAROA

25 units: 15 bungalows with private bath and electricity and 10 A-frame chalets (no electricity).
Guests may see artisans engaged in traditional Polynesian crafts of canoe and house building, weaving and carving.
Free trips in outrigger canoes and snorkling raft cruises. Traditional pit roasted meals.



Huahine

BALI HAI/HUAHINE (Grade A) — Fare, Huahine
Cable address: BALIHAI HUAHINE
Phone: 2 90 68 (Tahiti)

44 units: 34 bungalows, 10 rooms. Cocktail lounge, restaurant, bar, tennis courts, Tahitian music, water sports, excursions to various points of interest, open air museum etc...



Raiatea

BALI HAI/RAIATEA (Grade A) — UTUROA, Raiatea
Cable address: BALIHAI RAIATEA; Phone 249, UTUROA — RAIATEA or 2 90 66, TAHITI.

36 units: 12 overwater bungalows, 16 garden or lagoon bungalows and 8 rooms. Shop, bar, restaurant, swimming pool, lagoon sports, boat trips and all tours available on request. Excursions on Faaroa river.



Rangiroa



KIA ORA VILLAGE (Grade A) — P.O. Box 706, Papeete.
Cable address: KIA ORA PAPEETE
Phone: 2 86 72 (Tahiti)

25 Polynesian style bungalows, all on a beautiful white sand beach. Bar, restaurant, shop, polynesian entertainment. All water sports including scuba diving, glass bottom boat, picnics.



RANGIROA VILLAGE (Grade B)
Address: Avatoru, Rangiroa
Representative — Pacific Travel, Phone: 2 93 85 Papeete, Tahiti

10 Bungalows on a white sand beach at 0.5 mile from the village of Avatoru, 3 miles from Rangiroa airport. Bar, restaurant. Picnic on the "Motu," outrigger canoes, windsurfboards and bicycles available.

Manihi



KAINA VILLAGE (Grade A) — P.O. Box 2460 Papeete
Cable address: KAINA TAHITI, Phone: 2 75 53 Tahiti

16 overwater Polynesian style bungalows. "Fare" of 6 rooms. Beautiful white sand beach, bar, restaurant, boutique, all water sports including scuba diving, deep sea fishing, water-skiing, visit of the pearl oyster beds.



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Photos: Pacifilm, Colombel, K. Chaze, Boemel

Printed in Japan

Songs and instruments

OF THE ISLANDS OF TAHITI



In French Polynesia, daily activities are often accompanied by music and dance.

Whether it be fishing, farming or ceremonies, the Tahitian are known for their colours, movements and pageantry. The gentle tropical breeze blowing through the swaying palms and fragrant flowers have influenced many of the graceful movements and songs. Listed below are just a few examples of our songs, dances and instruments used.

TO'ERE : The TO'ERE is a percussion instrument consisting of a MIRO (rose wood) cylinder, partially scooped out. The scooping out of a to'ere varies according to the grain of the wood and to the use of the instrument and its tonality. There are several types of TO'ERE :

- TO'ERE ARATAI or leader,
- TO'ERE FAATOMA or basic instrument,
- TO'ERE TAMAU or supporting instrument;
- TO'ERE TAHAPE (contra tempo).

An orchestra normally consists of as many as 5 TO'ERE. The beats are made of rosewood sticks (RAAU TA'IRI). For the past years and under the influence of the Cook Islander musicians, the double beat (TA'IRI PITI) performed with 2 sticks, has become popular and is now authorized by the official regulations governing the competitions of Tahitian dances and music.

The important part played by TO'ERE ARATAI must be emphasized ; its main function is to indicate the theme and the figures of the dance. The theme is given by the chief of the dancers called RAATIRA TTATTA.

PAHU (TA'IRI or TUPA'I) : This instrument is a drum carved in the stem of a coconut tree, of an ATI, even sometimes in the stem of a breadfruit tree. The PAHU uses a sharkskin, goatskin or calfskin. When not in use, the skin of the PAHU must be slackened.

FAATETE (PITIRAAU) : This is a drum smaller than the PAHU ; it is played with 2 sticks and its rhythm is a contra-tempo to the PAHU.

TARI PARAU (HO'E RAAU) : Another small drum played with only one stick.

PAHU TUPA'IRIMA : Now seldom used. It is played with the fingers or the palms of the hands.

THE FLUTES : TITAPU (bamboo flutes) and VIVO (nasal flutes) are now seldom used.

GUITARS and UKULELE are commonly used nowadays.



Tita - Guitar :
Introduced by the spaniards in the 1500's and played by the tahitians from the beginning of the missionary era



Ofe tupai - Bambou bass :
Bass sound bambou vertically hit against the ground.



Hue - Calabash



Ukulele:

Introduced by the hawaiians. The tahitians however quickly changed its appearance into what is also called a banjo ukulele



Pu - Conch shell used by the polynesians to summon the people



Faatete - Rhythm drum used for a counter beat



Pahu - Bass drum

Vivo - Bamboo flute



Toere - Tahitian wooden log used as a drum

Tihara: *Split bamboo, used for a rhythmic sound.*



Oro oro - Maracas



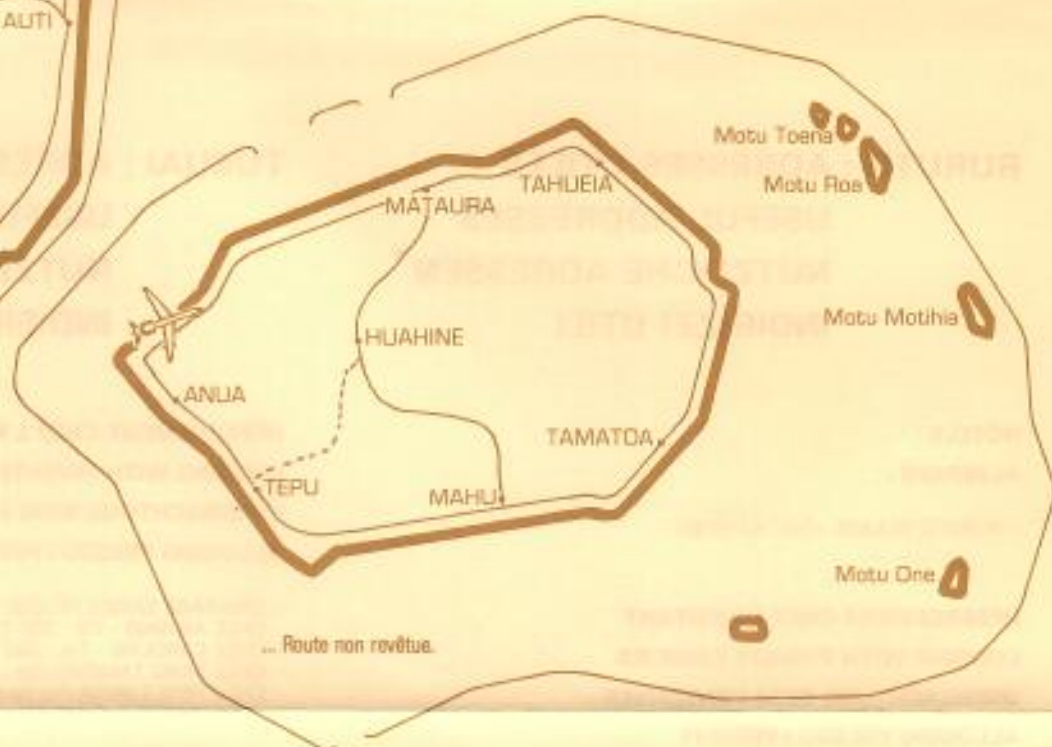
Opaa - Coconuts:
Half coconut shells hit together or on the ground.

Rurutu

HOTEL RURUTU VILLAGE



Tubuai



- Rurutu et Tubuai sont les deux principales îles de l'archipel des Australes étant situées respectivement à 572 km et 670 km au Sud de Tahiti. Rurutu est une île montagneuse et sauvage au climat sec et tempéré, découverte par Cook en 1769. Le navigateur Éric de Biechop y vécut ses dernières années de sa vie.
- Population : 1953 habitants. Village principal : Moerai hôtel et possibilités de logement chez l'habitant, plage de sable blanc, excursion aux grottes de Vitania, artisanat, tressage.
- Tubuai, île au climat sain et tempéré.
- Population : 1.846 habitants. Village principal : Mataura
- Subdivision administrative des îles Australes, bureau de poste, petit hôpital, logement chez l'habitant, centres d'artisanat, plage de fin sable blanc.
- Accès : service aérien régulier de l'aéroport de Tahiti-Faaa, 1 h 40 de vol direct pour Rurutu, 2 h 40 pour Tubuai avec arrêt à Rurutu.

- The two main islands of the Austral Archipelago, Rurutu and Tubuai, are respectively located at 572 km and 670 km from the South of Tahiti.
- Mountainous and wild island Rurutu has a dry and temperate climate and was discovered by Cook in 1769.
- Population : 1953 inhabitants. Main village : Moerai. Hotel and private lodging houses are available, white sand beach, excursions to the Vitania grotto, local handicrafts and braiding.
- Tubuai is an island with sain and temperate climate.
- Population : 1846 inhabitants, main village : Mataura.
- Administrative Subdivision of the Austral Islands, post office, hospital, lodging in private house are available, local handicraft centre fin white sand beach.
- Access : Regular flights from Tahiti-Faaa Airport, Rurutu : 1.40 dire flight, Tubuai : 2.40 with a stop in Rurutu.

- RURUTU è un'isola montuosa e selvatica, al clima secco e temperato, scoperta dal Capitano COOK nel 1769. Il navigatore Eric de BISSCHOP ci ha vissuto gli ultimi anni della sua vita.
- Popolazione : 1953 abitanti
- Villaggio principale : MOERAI.
- Albergo e possibilità di alloggiare presso privati.
- Spiaggia di sabbia bianca, escursione alle grotte di Vitaria, artigianato, intracciatura.
- TUBUAI isola al clima sano e temperato
- Popolazione : 1846 abitanti
- Villaggio principale : MATAURA
- Suddivisione amministrativa delle isole AUSTRALI, ufficio postale, piccolo ospedale ; alloggio presso privati, centri di artigianato, spiaggia di fina sabbia bianca.
- Accesso : Servizio aereo regolare dall'aeroporto di TAHITI-FAAA : 1 ora 40 di volo diretto per RURUTU, 2 ore 40 per TUBUAI con scalo a RURUTU.

- Rurutu und Tubuai sind die beiden wichtigsten Inseln des Archipel der Australen, 572 km und 670 km südlich von Tahiti entfernt.
- Rurutu ist eine bergige Insel, wild, mit trockenem, wohl temperiertem Klima. Sie wurde im Jahre 1769 von dem Engländer James Cook entdeckt. Eric de Bischof verbrachte dort seine letzten Lebensjahre.
- Bevölkerung : 1953 Einwohner. Moerai ist das wichtigste Dorf.
- Es gibt ein Hotel und die Möglichkeit beim Einwohner zu übernachten.
- Weisse Sandstrände, Ausflüge in die Grotten von Vitaria, Handarbeit, flechten.
- Tubuai, Insel mit einem gesundem, temperiertem Klima.
- Bevölkerung : 1846 Einwohner. Das wichtigste Dorf ist Mataura. Hier findet man auch die öffentliche Verwaltung der Australen. Eine Post, ein kleines Krankenhaus, Übernachtungen beim Einwohner, ein Zentrum für traditionelle Handarbeit, weissen Sandstrand.
- Hinreise : Regelmässiger Flugverkehr von Tahiti-Faaa. 1 Stunde und vierzig Minuten bis Rurutu und 2 St. 40 Minuten bis Tubuai, mit Aufenthalt in Rurutu.

RURUTU : ADRESSES UTILES
USEFUL ADDRESSES
NÜTZLICHE ADRESSEN
INDIRIZZI UTILI

HÔTELS :

ALBERGHI :

- RURUTU VILLAGE - Tél : 42.93.85

HÉBERGEMENT CHEZ L'HABITANT

LODGING WITH PRIVATE FAMILIES

ÜBERNACHTUNG BEIM EINWOHNER

ALLOGGIO PRESSO I PRIVATI

- CHEZ CATHERINE - Tél : 311.Rurutu

TUBUAI : ADRESSES UTILES
USEFUL ADDRESSES
NÜTZLICHE ADRESSEN
INDIERIZZI UTILI

HÉBERGEMENT CHEZ L'HABITANT

LODGING WITH PRIVATE FAMILIES

ÜBERNACHTUNG BEIM EINWOHNER

ALLOGGIO PRESSO I PRIVATI

- ERMITAGE SAINTE HÉLÈNE Tél : 479 Tubuai
- CHEZ AH SING - Tél : 352 Tubuai
- CHEZ CAROLINE - Tél : 348 Tubuai
- CHEZ TARO TANÉPAU Tél : 382 Tubuai ou 43.87.32 Tahiti
- CHEZ TERII TURINA Pas de téléphone
- CHEZ VICTOR TURINA Tél : 327 Tubuai

Dances and songs

OF THE ISLANDS OF TAHITI



'OTE'A : The most spectacular of all Polynesian dances, performed by a group of male dancers ('OTE'A TANE) or a group of female dancers ('OTE'A VAHINE), or sometimes male and female dancers ('OTE'A AMUI). It is inspired by old legends ; the themes consist of a certain number of variations, the length of each one being determined by the beats of the TO'ERE. Sometimes the theme of the 'OTE'A is a contemporary one (celebration of a wedding, welcome of an important visitor, marking of an important event, etc.).

The 'OTE'A are usually performed in traditional costumes (A'AHU MORE). A few years ago, it was still possible to admire the gorgeous costumes of the Bora Bora and Tema'e (Moorea) dancers or of the dancers of the far away atoll of Anaa.

APARIMA : The APARIMA tells a story set to music and mimed by gracious gestures of the hands. The APARIMA is a group dance inspired by scenes of the daily life : a boy meeting a girl, a vahine combing her hair, paddlers in an outrigger canoe, description of a beautiful site, etc.

HIVINAU : The HIVINAU is a danced divertimento which ends most of the celebrations ; it is led by a dancer famous for his impromptu talents.

PA'O'A : This dance is generally inspired by scenes of fishing or hunting ; it is performed by a limited number of dancers.

PATA'UTA'U : It is rhythmied by the palms of the hands beating the ground and performed by a male and a female dancer. It was a wild and erotic flavor.

'ORI TAHITI : The 'ORI TAHITI better known alas ! under the name of TAMURE.

UTE : The UTE are impromptu familiar and satirical songs and are among the most popular Tahitian songs. An improviser (TAATA PEHEPEHE or FAATANI) is accompanied by a small number of other singers.

HIMENE TARAVA : These are choirs performed by an important number of singers (50 to 150) divided into 3 groups, each one being directed by a soloist.

COSTUMES : The most elaborate costumes are made of vegetal fibers selected for their gloss. TAPA is used for belts, head dresses and bodices, as well as shells of all kinds, mother-of-pearl, seeds etc. The vegetal dyes used for costumes are extracted from hibiscus flowers and from RE'A (Tahitian ginger) ; feathers are also used...

The dancing groups of French Polynesia are the best folkloric ensembles in the South Pacific. The aura which is so special to TAHITI is partly based on this wealth of beauty, dance and music which still constitutes a very lively aspect of every day life.



Traditional otea costume reserved for the rapid "toere" drum dances, are often made from shells, mother of pearl and "more" grass skirts.



Folkloric "Aparima" costumes (for Tahitian slow hulas) made from locally designed cotton fabrics accompanied by flower "Hei" or "Auti" leaves.



"Purotu" or missionary dresses are used for the Tahitian Hula or "Aparima" dances.



Mamuti



· A 50 km à l'Ouest de Bora Bora
 · Population : 963 habitants
 · Magnifique lagon et plages de sable blanc
 · Pas d'hôtels : possibilités d'hébergement chez l'habitant
 · Accès : liaisons aériennes à partir de Tahiti, 2 fois par semaine, avec escales à Huahine, Raiatea ou Bora Bora
 · Golette une fois par semaine, de Raiatea.

· 50 km west of Bora Bora
 · Population : 963
 · Infirmary
 · Magnificent lagoon and white-sand beaches
 · No hotels, but arrangements possible with local families
 · Access : two weekly flights from Tahiti, with stops at Huahine, Raiatea or Bora Bora
 · Inter island schooner once a week, from Raiatea.

· 50 km östlich von Bora Bora gelegen.
 · Bevölkerung : 963 Einwohner.
 · Lazarett
 · Eine wundervolle Lagune und weisse Sandstrände.
 · Kein Hotel : Übernachtungsmöglichkeiten beim Einwohner.
 · Hinreise : Von Tahiti aus gehen zwei mal in der Woche
 · Flüge über Huahine, Raiatea, oder Bora Bora bis Maupiti.
 · Schiffsverbindungen gehen ein mal die Woche.

· A 50 km ad Ovest di Bora Bora.
 · Popolazione - 963 abitanti.
 · Infermeria.
 · Laguna magnifica e spiagge di sabbie bianche.
 · Nessun albergo classificato : possibilità di alloggio presso i privati.
 · Accesso: collegamenti aerei da Tahiti, due volte alla settimana, con scali a Huahine, Raiatea, o Bora Bora.
 · Golette una volta alla settimana.

MAUPITI : ADRESSES UTILES
USEFUL ADDRESSES
NÜTZLICHE ADRESSEN
INDIRIZZI UTILI

**HÔTELS NON CLASSÉS ET HÉBERGEMENT
CHEZ L'HABITANT**

**NON CLASSIFIED HOTELS AND LODGING
WITH PRIVATE FAMILIES**

**NICHT EINGETRAGENE HOTELS UND
UNTERKUNFT IN PRIVATHÄUSERN**

**ALBERGHI NON CLASSIFICATI E ALLOGGIO
PRESSO I PRIVATI**

- HÔTEL ALIRA - Mme Edna TERAÏ B.P. 2 Vai'ea - Maupiti
Tél : 67.80.26
- SUNSET BEACH - M. Toehu TUHEIAVA B.P. 1 Vai'ea -
Maupiti - Tél : 67.80.25
- CHEZ MARETA - Mme Mareta ANUA Vai'ea - Maupiti -
Tél : 67.80.26
- CHEZ FLORIETTE - Mme Floriette TUHEIAVA Vai'ea - Maupiti
Tél : 67.80.65

DIVERS

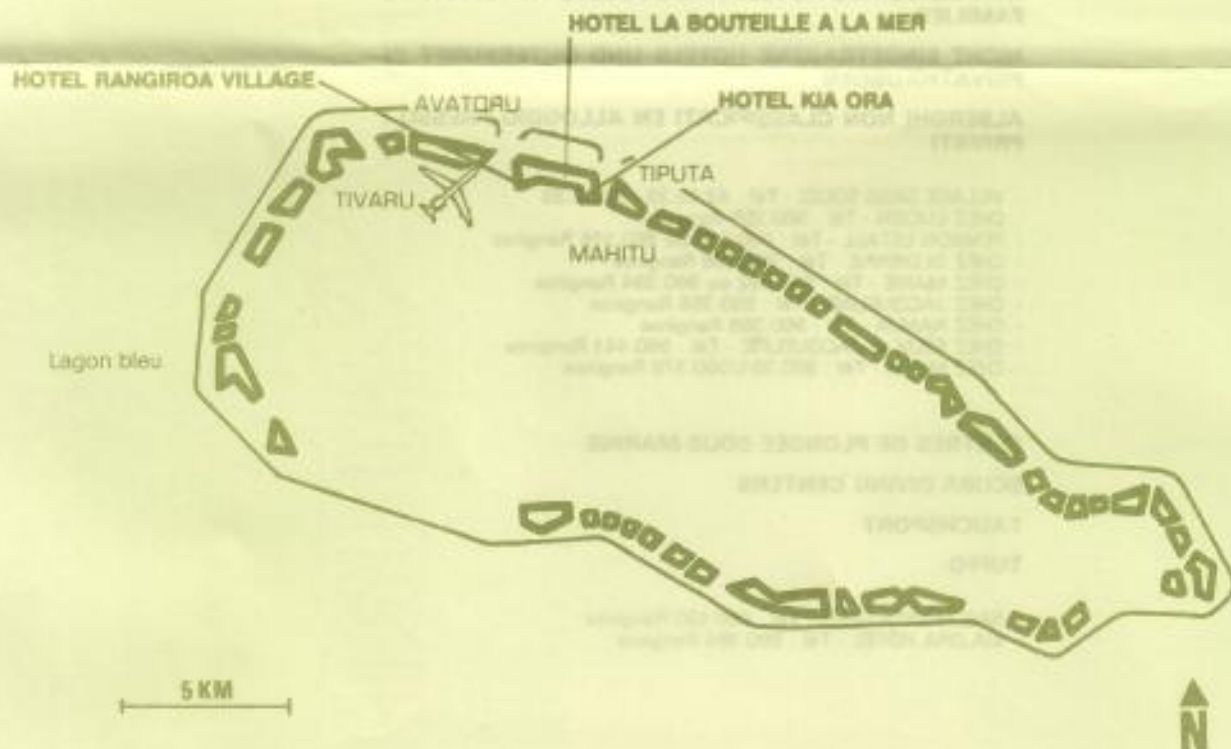
ZUSÄTZLICHE INFORMATIONEN

DIVERSI

- AIR TAHITI Vai'ea - Tél : 67.80.20
- INFIRMERIE - Vai'ea - Tél : 67.80.18



Rangiroa



- À 350 km au N.E. de Papeete

- Population : 1305 habitants

- Bureau de poste, infirmerie, hôtels, logement

chez l'habitant

- Rangiroa est le plus grand atoll de l'archipel des Tuamotu.

- faune sous-marine abondante

- 2 villages : AVATORU et TIPLUTA

- Tous sports et activités nautiques, locations de voiliers,

- excursions au «lagon bleu» en bateau à fond de verre,

- visite

- des villages, des parcs à poissons traditionnels,

- plage de sable blanc.

- Accès : service aérien régulier de l'aéroport

- de Tahiti-Faaa (60 minutes de vol)

- A 350 km al N-E. di Papeete

- Popolazione : 1305 abitanti

- Ufficio postale, infermeria, alberghi, locande.

- RANGIROA è il più grande atollo dell'arcipelago delle

- Tuamotu. Il pesce è abbondantissimo

- 2 villaggi : AVATORU e TIPLUTA

- Tutti gli sport ed attività nautiche, noleggio di velieri,

- escursioni alla «Laguna Blu» colla nave a fondo di vetro,

- visita dei villaggi, dei parchi a pesci tradizionali, spiaggia

- di sabbia bianca.

- Accesso : servizio aereo dall'aeroporto di TAHITI-FAAA

- (60 minuti di volo).

- 350 km nordöstlich von Papeete gelegen

- Bevölkerung : 1305 Einwohner.

- Postbüro, Lazarett, Hotels, Pensionen.

- Rangiroa ist der grösste Atoll des Archipel der Tuamotu

- Est gibt reichhaltig Fisch.

- Zwei Dörfer : AVATORU und TIPLUTA.

- Besonders viele Wassersportarten werden angeboten.

- Ausflüge auf Segelschiffen oder dem Glasbodenboot,

- ein Besuch in die Dörfer zu den traditionellen Fischparks

- oder weissen Sandstrand.

- Hinreise : Regelmässige Flüge von Tahiti-Faaa

- (60 Minutenflug).

- 350 km northeast of Papeete

- Population : 1305

- Pos Office, infirmary, hotels, pensions

- Rangiroa is the largest atoll in the Tuamotu archipelago

- 2 villages : AVATORU and TIPLUTA

- All water sport activities, sailing boat rental, glass bottom

- boat excursion to the «blue lagoon», visit of the villages

- the traditional fish parks, white sand beaches.

- Access : regular flights from Tahiti-Faaa Airport

- (60-minute flight)

RANGIROA : ADRESSES UTILES
USEFUL ADDRESSES
NÜTZLICHE ADRESSEN
INDIRIZZI UTILI

HÔTELS

ALBERGHI

- KIA ORA - Tél : 43.04.98 Tahiti ou 960.384 Rangiroa
- RANGIROA VILLAGE Tél : 960.383 Rangiroa
- LA BOUTEILLE À LA MER - Tél : 960.334 Rangiroa

HÔTELS NON CLASSÉS ET HÉBERGEMENTS CHEZ L'HABITANT

NON CLASSIFIED HOTELS AND LODGING WITH PRIVATE FAMILIES

NICHT EINGETRAGENE HOTELS UND UNTERKUNFT IN PRIVATHÄUSERN

ALBERGHI NON CLASSIFICATI EN ALLOGGIO PRESSO I PRIVATI

- VILLAGE SANS SOUCI - Tél : 42.49.36 - 42.48.33
- CHEZ LUCIEN - Tél : 960.355 Rangiroa
- PENSION ESTALL - Tél : 960.416 ou 960.316 Rangiroa
- CHEZ GLORINNE - Tél : 960.358 Rangiroa
- CHEZ MARIE - Tél : 960.392 ou 960.394 Rangiroa
- CHEZ JACQUELINE - Tél : 960.356 Rangiroa
- CHEZ NANUA - Tél : 960.388 Rangiroa
- CHEZ FÉLIX et JACQUELINE - Tél : 960.441 Rangiroa
- CHEZ MATA - Tél : 960.391/960.378 Rangiroa

CENTRES DE PLONGÉE SOUS-MARINE

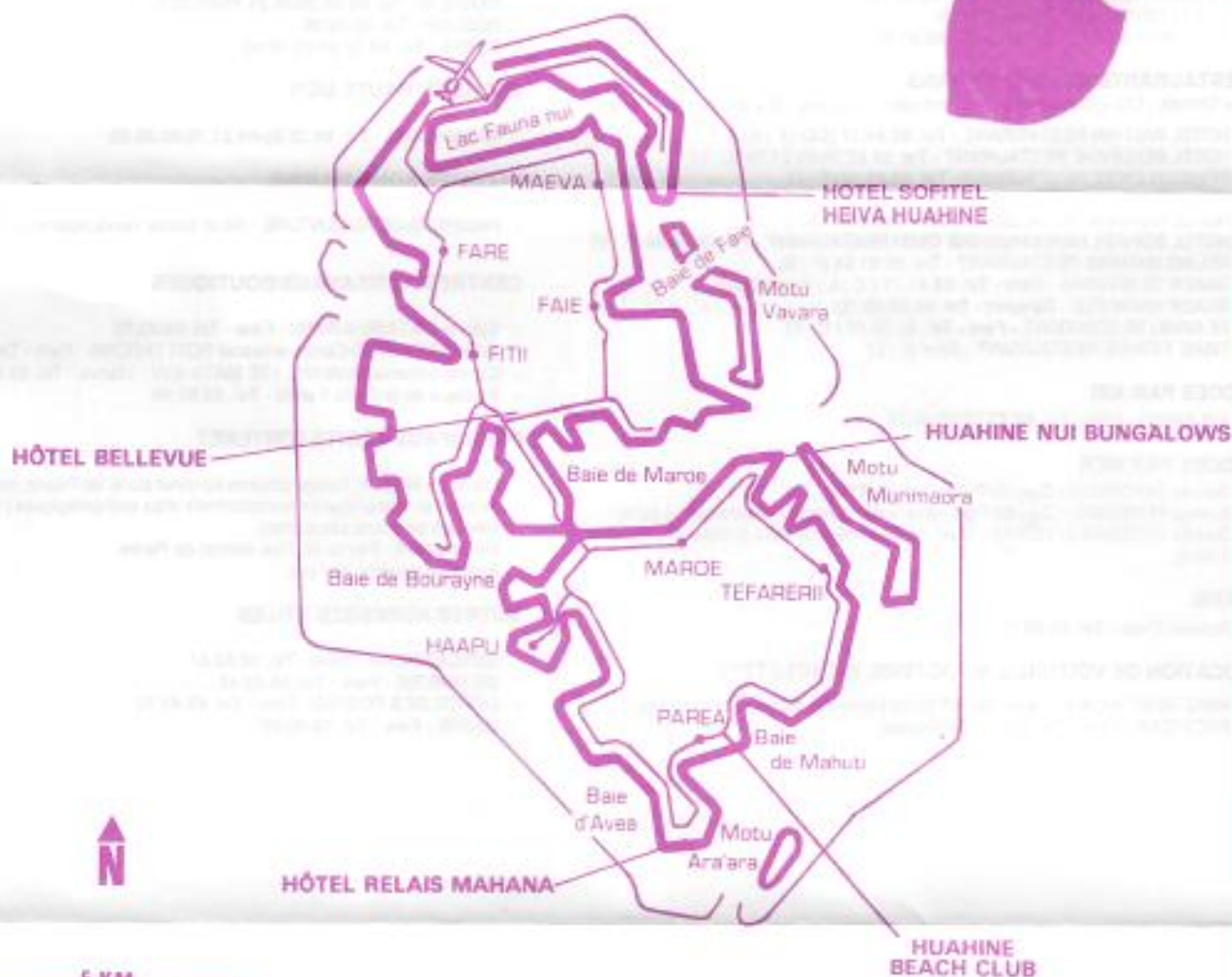
SCUBA DIVING CENTERS

TAUCHSPORT

TUFFO

- RAJE MANTA CLUB - Tél : 960.480 Rangiroa
- KIA ORA HÔTEL - Tél : 960.384 Rangiroa

Huahine



- A 170 km N.O. de Papeete
- Population : 4.491 habitants
- Bureau de poste, infirmerie, hôtels, boutiques.
- FARE : Village principal
- Activités nautiques diverses, surf, pêche au gros.
- Plage de sable blanc, promenades à cheval.
- Location de voitures, bicyclettes, bateaux.
- Curiosités de l'île : le village de Maeva est construit sur le lac Fauna, remarquable "Musée de plein air", comprenant sites archéologiques (marais, habitations).
- Pièges à poissons séculaires.
- Accès de Papeete : service aérien régulier et avions taxis (40 minutes de vol) ; deux goélettes régulières par semaine.
- Ferry deux fois par semaine.

HUAHINE : ADRESSES UTILES

COMITE DU TOURISME DE HUAHINE : Tel. 68.85.69

HOTELS

- BALI HAI HUAHINE - Fare - Tel. 68.84.77 (Res. 66.13.52)
- HUAHINE BEACH CLUB - Paea - Tel. 68.81.46 (Res. 43.08.29)
- RELAIS MAHANA - Paea - Tel. 68.81.54
- SOFITEL HEIVA HUAHINE - Maeva - Tel. 68.85.88 (Res. 41.04.04)

HOTELS NON CLASSES ET HEBERGEMENT CHEZ L'HABITANT

- HOTEL BELLEVUE - Marae - Tel. 68.82.76/68.81.70
- HOTEL HUAHINE NUI - Marae - Tel. 68.84.69
- PENSION ENITE - Fare - Tel. 68.82.37
- PENSION GUYNETTE - Fare - Tel. 68.83.75
- CHEZ LOVINA - Fare - Tel. 68.81.90
- TARAPAPA MOTEL - Maeva - Tel. 68.81.90

RESTAURANTS/SNACKS ET BARS

C = Chinois ; CO = Continental ; F = Français ; L = Local ; S = Snack ; V = Varié

- HOTEL BALI HAI RESTAURANT - Tel. 68.84.77 (CO ; F ; V)
- HOTEL BELLEVUE RESTAURANT - Tel. 68.82.76/68.81.70 (C ; L)
- PENSION ENITE RESTAURANT - Tel. 68.82.37 (F ; L)
- HUAHINE BEACH CLUB RESTAURANT - Tel. 68.81.46 (F ; L ; V)
- HOTEL HUAHINE NUI RESTAURANT - Tel. 68.84.69 (F ; L)
- HOTEL SOFITEL HEIVA HUAHINE OMAI RESTAURANT - Tel. 68.85.86 (F ; V)
- RELAIS MAHANA RESTAURANT - Tel. 68.81.54 (F ; S)
- SNACK TE MARARA - Fare - Tel. 68.81.71 (C ; L ; V ; seafood)
- SNACK VAKALELE - Aéroport - Tel. 68.85.69 (S)
- TE MANU RESTAURANT - Fare - Tel. 68.85.59 (C ; F)
- TIARE TIPANIE RESTAURANT - Fare (F ; L)

ACCES PAR AIR

- AIR TAHITI - Fare - Tel. 68.82.65/68.82.89

ACCES PAR MER

- Bureau TAPORO IV - Quai de Fare - Tel. 68.83.60
- Bureau TEMEHANI - Quai de Fare (réservations émises directement à bord)
- Bureau BAROMATAI FERRY - Quai de Fare (réservations émises directement à bord)

TAXIS

- Pension Enite - Tel. 68.82.37

LOCATION DE VOITURES, SCOOTERS, BICYCLETTES

- KAKE RENT-A-CAR - Fare - Tel. 68.82.59 (voitures, scooters, bicyclettes)
- PACIFICAR - Fare - Tel. 68.81.10 (voitures)

EQUITATION

- LA PETITE FERME - Fare - Tel. 68.82.98

TRANSPORTEURS TOURISTIQUES TERRESTRES

- ENITE EXCURSIONS - Fare - Tel. 68.82.37
- LOVINA EXCURSIONS - Fare - Tel. 68.91.90/68.81.29

CHARTER VOILIERS

- AAFJE - Tel. 68.86.34 - 60-ft.
- DANAE III - Tel. 68.32.80/68.21.75/68.35.93
- ROSCOP - Tel. 68.39.90
- TOOTS - Tel. 68.82.60/42.70.60

PECHE EN HAUTE MER

- VAIMANUTEA - Tel. 68.32.95/68.21.75/68.35.93

PLONGEE SOUS-MARINE

- PACIFIC BLUE ADVENTURE - Hôtel Sofitel Heiva Huahine - Tel. 68.86.86

CENTRES ARTISANAUX/BOUTIQUES

- Galerie MATAIREA/RIMAI - Fare - Tel. 68.83.55
- Galerie MEHERIO/Centre artisanal ROTI TARONA - Fare - Tel. 68.85.59
- Centre artisanal HUAHINE I TE MATA AIAI - Maeva - Tel. 68.82.81
- Boutique de la Petite Ferme - Tel. 68.82.98

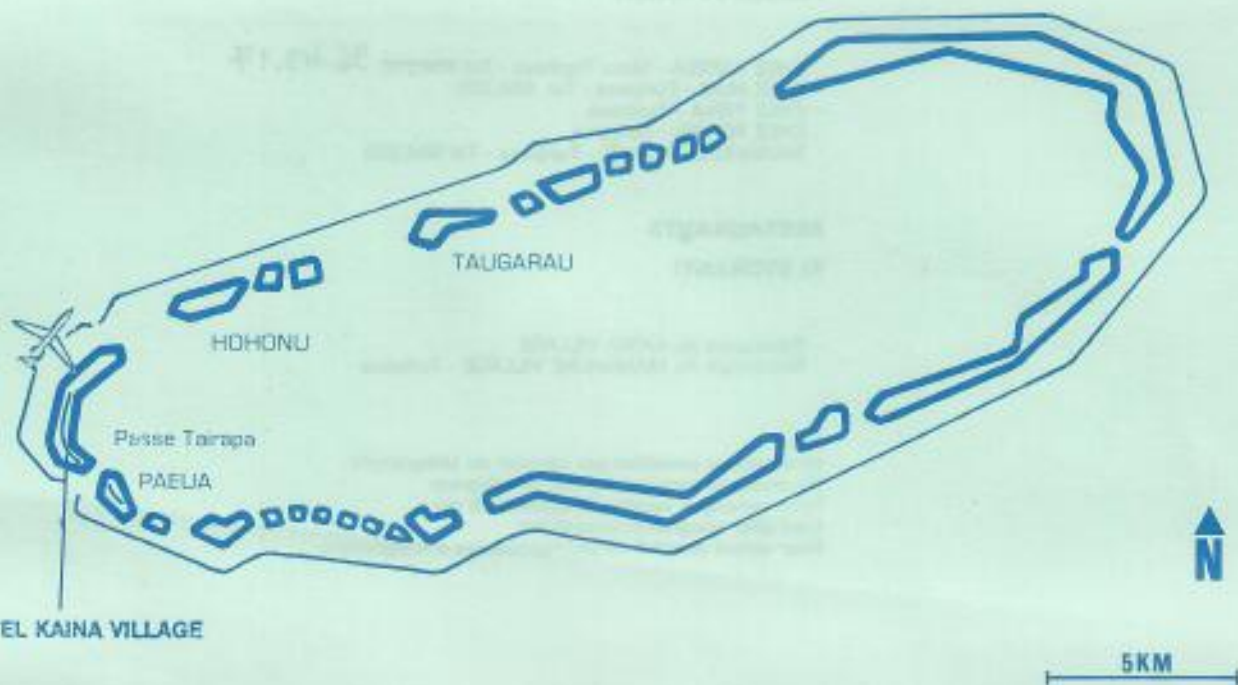
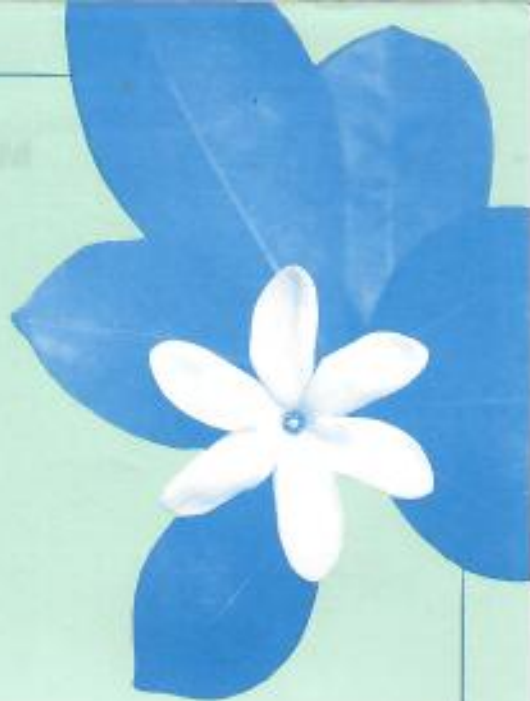
PRINCIPAUX POINTS D'INTERET

- Marae de MAEVA, Village lacustre construit sur le lac Fauna, remarquable musée de plein air comprenant d'exceptionnels sites archéologiques (marae, fare potee, pièges à poissons séculaires).
- Marae ANINI - Pointe de Tiva, district de Paea.
- Anguilles sacrées de Faio.

AUTRES ADRESSES UTILES

- GENDARMERIE - Fare - Tel. 68.82.81
- INFIRMERIE - Fare - Tel. 68.82.48
- OFFICE DES POSTES - Fare - Tel. 68.82.70
- MAIRIE - Fare - Tel. 68.82.60

Manihi



HOTEL KAINA VILLAGE

- A 520 km au N.E. de Papeete
 - Population : 437 habitants
 - Magnifiques plages de sable blanc, lagonarium, station de culture de perles noires, poisson très abondant. Hôtel et possibilités de logement chez l'habitant.
 - Accès : service aérien régulier de l'aéroport de Tahiti-Faaa (1 h 40 de vol avec escale à Rangiroa)

- 520 km northeast of Papeete
 - Population : 437
 - Beautiful white-sand beaches, lagoonarium, cultured black pearl station, plentiful fish. Hotel and possible arrangements with local families.
 - Access : regular flights from Tahiti-Faaa Airport (1-hour, 40-minute flight with stop at Rangiroa).

520 km nord-östlich von Papeete
 Bevölkerung : 437 Einwohner.
 Wunderschöne weisse Sandstrände, ein Lagonarium, eine Schwarzperlenfarm, sehr reich an Fischen ; Es gibt ein Hotel, ansonsten Übernachtung beim Einwohner.
 Hinreise : regelmässige Flüge vom Flugplatz Tahiti-Faaa ; (1 Stunde 40 Minuten, mit Zwischenlandung in Rangiroa).

- A 520 km al N.E. di Papeete
 - Popolazione : 437 abitanti
 - Magnifiche spiagge di sabbia bianca, lagonarium, stazione di coltura di perle nere, pesce abbondantissimo. Albergo e possibilità di alloggio presso i privati.
 - Accesso : servizio aereo regolare dall'aeroporto di TAHITI-FAAA (1 ora 40 di volo con scalo a RANGIROA).

**MANIHI : ADRESSES UTILES
USEFUL ADDRESSES
NÜTZLICHE ADRESSEN
INDIRIZZI UTILI**



**HÔTELS
ALBERGHI**

- KAINA VILLAGE - Phone : 42.75.53

**HÔTELS NON CLASSÉS ET HÉBERGEMENTS
CHEZ L'HABITANT**

**NON CLASSIFIED HOTELS AND LODGING WITH
PRIVATE FAMILIES**

**NICHT EINGETRAGENE HOTELS UND UNTER-
KUNFT IN PRIVATHÄUSERN**

**ALBERGHI NON CLASSIFICATI E ALLOGGIO
PRESSO I PRIVATI**

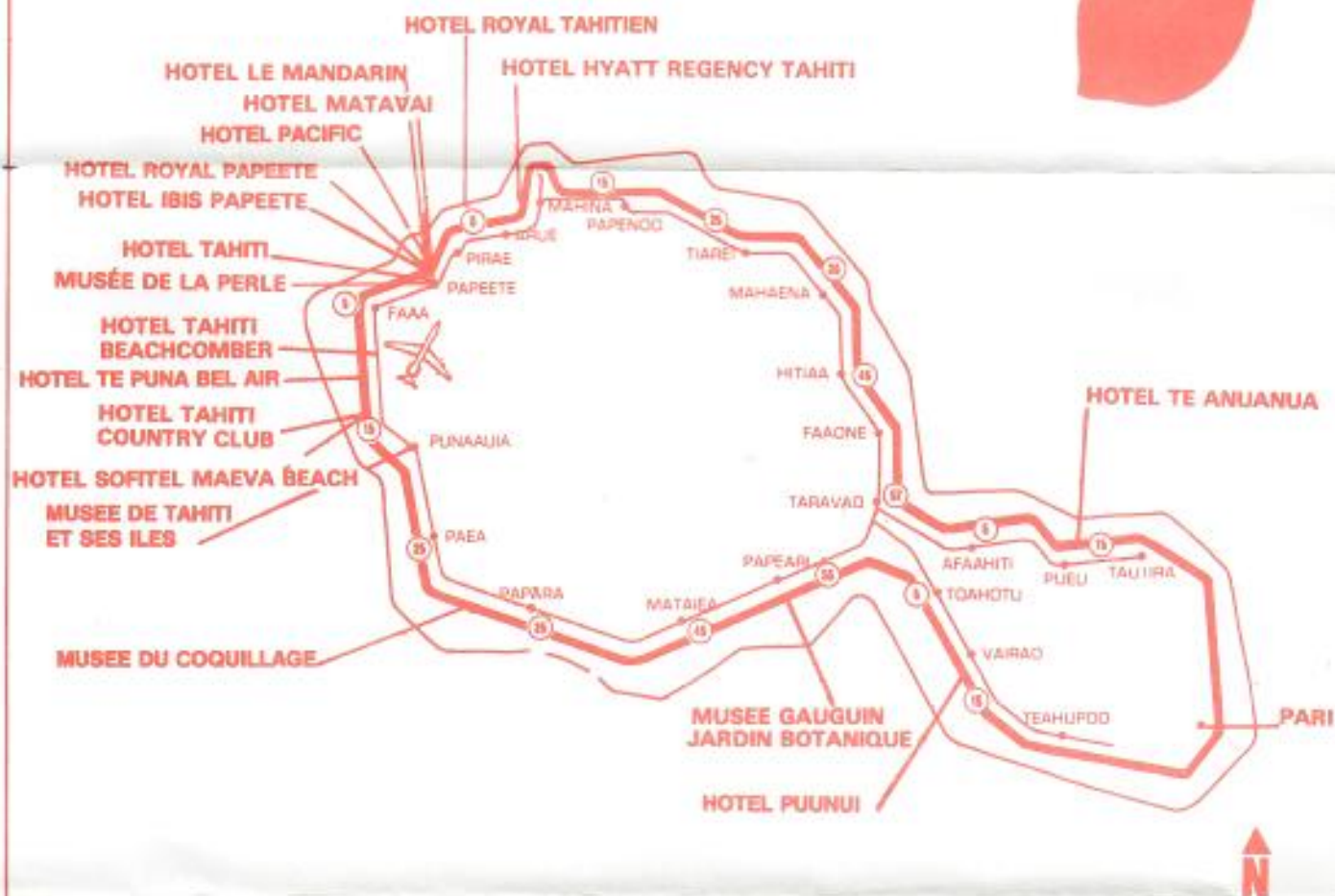
- CHEZ FAREEA - Motu Topiheiri - Tél ~~964.240~~ **96.43.17**
- CHEZ HURI - Turipaoa - Tél. 964.229
- CHEZ TEVA - Turipaoa
- CHEZ PETERE - Turipaoa
- MANAHUNE VILLAGE - Turipaoa - Tél 964.228

**RESTAURANTS
RI STORANTI**

- Restaurant du KAINA VILLAGE
- Restaurant du MANAHUNE VILLAGE - Turipaoa

Note :
Réservations possibles par courrier ou télégramme.
Reservations required by mail or telegram.
Reservierungen werden hauptsächlich per
brief oder telegramm ausgeführt.
Riservazioni possibili da corrispondenza o telegramma

Tahiti



- Tahiti, the largest of the windward islands is formed of Tahiti Nui, mountainous with a circumference of 120 km and of Tahiti Iiti, a small peninsula.
- Highest mount Orohena 2235 m ; Aorai 2066 m ; and in the Peninsula, Mount Rooniu
- Population : 131.309 inhabitants, most of them living in Papeete and along the seaside
- Papeete is the capital and the most important commercial and administrative centre of French Polynesia with its harbour, its public service, and its shopping centres
- Tahiti offers all categories of accommodation
- FAAGA international airport is located at 5,5 km from the city of Papeete.

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REPORT ON THE
SOUTH PACIFIC ISLANDS, 1900-1901
BY
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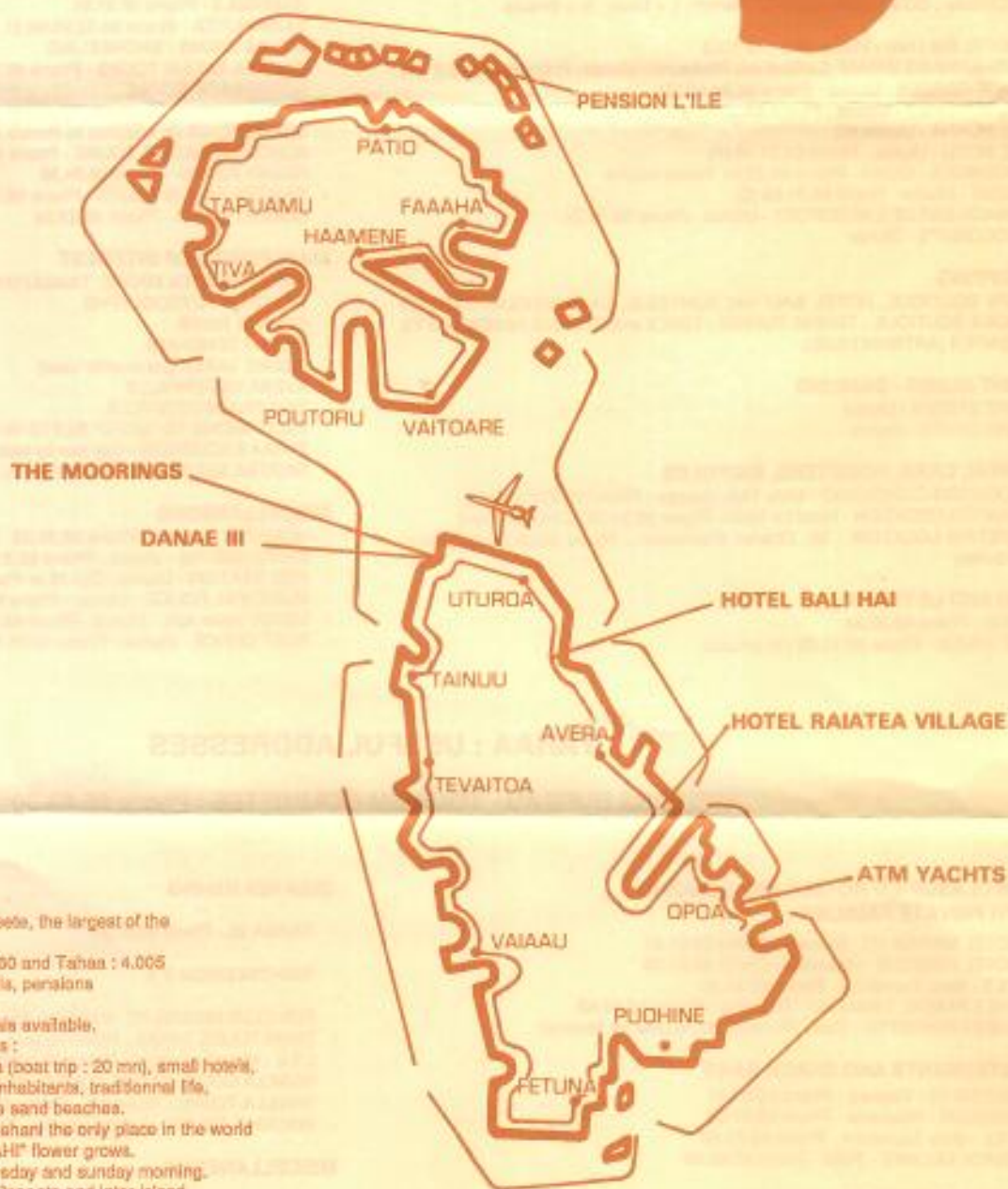


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10. [illegible]

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Raiatea

Tahaa



- 220 km northwest of Papeete, the largest of the Leeward Islands
- Population : Raiatea : 8.500 and Tahaa : 4.005
- Post Office, hospital, hotels, pensions
- Capital : UTUROA
- Car, motorbike, boat rentals available.
- Recommended excursions :
 Visit and sojourn in Tahaa (boat trip : 20 min), small hotels, accommodation with the inhabitants, traditional life, archaeological sites, white sand beaches, Faaroa River, Mount Tamahani the only place in the world where the "TIARE APETAHI" flower grows.
- Popular market on wednesday and sunday morning.
- Access : daily flight from Papeete and Inter-Island schooners twice a week.
 Ferry boat twice a week.



5 KM

RAIATEA : USEFUL ADDRESSES

VISITORS BUREAU - TOURISM COMMITTEE : Phone 66.23.33/66.23.34

HOTELS

- BALI HAI - Uturoa - Phone 66.31.49 (Res. 66.13.52)

NON CLASSIFIED HOTELS AND LODGINGS WITH PRIVATE FAMILIES

- HOTEL RAIATEA VILLAGE - Avera - Phone 66.31.62/66.33.60
- HOTEL LE MOTU - Uturoa - Phone 66.34.06
- SUNSET BEACH MOTEL APOCITI - Apociti - Phone 66.33.47
- PENSION GREENHILL - Faaroa - Phone 66.37.84
- PENSION MARIE-FRANCE - Uturoa - Phone 66.37.10
- PENSION YOLANDE - Avera - Phone 66.35.28

NAUTICAL BASES - SAILBOAT CHARTERS

- THE MOORINGS - Apociti Marina - Phone 66.35.93/66.26.28
- ATM YACHTS SOUTH PACIFIC - Faaroa Marina - Phone 66.23.18
- DANAE III - Apociti Marina - Phone 66.35.93/66.32.95/66.21.75

RESTAURANTS AND SNACKBARS

C = Chinese ; CO = Continental ; F = French ; L = Local ; S = Snacks

- HOTEL BALI HAI - Phone 66.31.49 (CO)
- FISHERMAN'S WHARF (Le Quai des Pêcheurs) - Uturoa - Phone 66.36.83 (F ; L)
- JADE GARDEN - Uturoa - Phone 66.34.40 (C)
- LE GOURMET - Uturoa - Phone 66.22.46 (F)
- LE MOANA - Uturoa (C)
- LE MOTU - Uturoa - Phone 66.34.06 (F)
- MOEMOEA - Uturoa - Phone 66.39.84 Varied cuisine
- REMY - Uturoa - Phone 66.31.08 (C)
- SNACK-BAR DE L'AEROPORT - Uturoa - Phone 66.35.24
- COCONUTS - Uturoa

SHOPPING

- ARII BOUTIQUE, HOTEL BALI HAI BOUTIQUE, LA BOUTIQUE, TAPORO MOEA BOUTIQUE ; TAHINA CURIOS ; TONOI and UTUROA HANDICRAFTS CENTER (ARTISAN FAIRE).

NIGHT CLUBS - DANCING

- BAR VAIRAHU - Uturoa
- BAR ZENITH - Uturoa

RENTAL CARS, SCOOTERS, BICYCLES

- LOCATION GUIROUARD - Motu Tapu Garage - Phone 66.33.09 (Cars)
- RAIATEA LOCATION - Hotel Le Motu - Phone 66.34.06 (Cars, scooters)
- APETAHI LOCATION - Mr. Charles Brotherson - Phone 66.39.04 (Scooters, bicycles)

TAXI AND LE TRUCK

- TAXI - Phone 66.20.60
- LE TRUCK - Phone 66.23.33 (for groups)

AIR SERVICE

- AIR TAHITI - Phone 66.32.50/66.30.51
- LEEWARD ISLANDS AEROCLUB - Mr. Charles Higgins - Phone 66.32.44/66.31.91

INTER-ISLAND BOATS AND FERRIES

- BAROMATAI FERRY - Uturoa dock - Phone 66.31.52
- TAPORO IV - Uturoa dock - Phone 66.30.03/66.32.30
- TEMEHANI II - Uturoa dock - Phone 66.20.65
- BOAT SERVICE TO TAHAA-Uturoa dock - Patio and Hipu - Phone 65.63.91 ; Faaha - Phone 65.80.79 ; Haamene - Phone 65.61.35 ; Poutoru - Phone 65.60.18 ; Tapuamu and Tiva - Phone 65.61.18

ACTIVITIES

DEEP SEA FISHING

- TAXI-BOAT A LA MOANA - M. ANDRE CHONG - Phone 66.30.28
- MOANA VAHI - Phone 66.36.83/66.30.97
- RAIMANA II - Phone 66.37.01
- VAIMANUTEA - Phone 66.32.95/66.21.75/66.35.83
- SCUBA DIVING - SNORKELING
- RAIATEA SAFARI TOURS - Phone 66.37.10
- HORSEBACK RIDING
- KAONIA NUI EQUESTRIAN TOURISM CENTER - Phone 66.22.48
- SIGHTSEEING (In addition to Hotels and Pensions)
- ALMOST PARADISE TOURS - Phone 65.23.84
- HAVAII TOURS - Phone 66.24.35
- RAIATEA SAFARI TOURS - Phone 66.37.10
- ROBERT TIATIA - Phone 66.23.34

MAIN POINTS OF INTEREST

- TAPUTAPUATEA MARAE, TAINUU MARAE
- TEVAITOA PETROGLYPHS
- FAAROA RIVER
- MOUNT TEMEHANI
- MOUNT TAPIOI (panoramic view)
- AVERA WATERFALLS
- TEHURUI WATERFALLS
- EXCURSIONS TO "MOTU" ISLETS-WHITE SAND BEACHES AND PICNICS
- TAHAA EXCURSION - Day tour by boat, with visit to "motu" and picnic
- RAIATEA SEA SHELL - P.J. 10, Pufau - Phone 66.21.35

MISCELLANEOUS

- HOSPITAL - Uturoa - Phone 66.35.03
- GENDARMERIE - Uturoa - Phone 66.31.07
- FIRE STATION - Uturoa - Dial 18 or Phone 66.30.18
- MUNICIPAL POLICE - Uturoa - Phone 66.38.97
- MAIRIE (town hall) - Uturoa - Phone 66.38.73/66.32.22
- POST OFFICE - Uturoa - Phone 66.35.50

TAHAA : USEFUL ADDRESSES

VISITORS BUREAU - TOURISM COMMITTEE : Phone 65.63.00

NON CLASSIFIED HOTELS AND LODGING WITH PRIVATE FAMILIES

- HOTEL MARINA ITI - Vaitiare - Phone 65.61.01
- HOTEL HIBISCUS - Haamene - Phone 65.61.06
- L'ILE - Motu Tuuvahine - Phone 65.64.80
- CHEZ PASCAL TAMAHEHU - Tapuamu - Phone 65.60.42
- CHEZ FRANCOIS - Tiva - Phone 65.63.75 (Ask for Martine)

RESTAURANTS AND SNACK BARS

- MARINA ITI - Vaitiare - Phone 65.61.01
- HIBISCUS - Haamene - Phone 65.61.06
- L'ILE - Motu Tuuvahine - Phone 65.64.80
- SNACK MELANIE - Patio - Phone 65.63.06

TAXI BOAT SERVICE

- TIVINI TOURS TAHAA - Phone 65.61.08
- MARINA ITI - Phone 65.61.01

ACTIVITES

YACHT SERVICES

- LATITUDE 16 SUD - Vaitiare, Apu Bay - Phone 65.61.01
- HIBISCUS YACHT CLUB - Haamene - Phone 65.61.06
- ESOPÉ - Phone 65.62.62
- MARINA ITI - Phone 65.61.01

DEEP SEA FISHING

- TARGA 25 - Phone 65.61.01

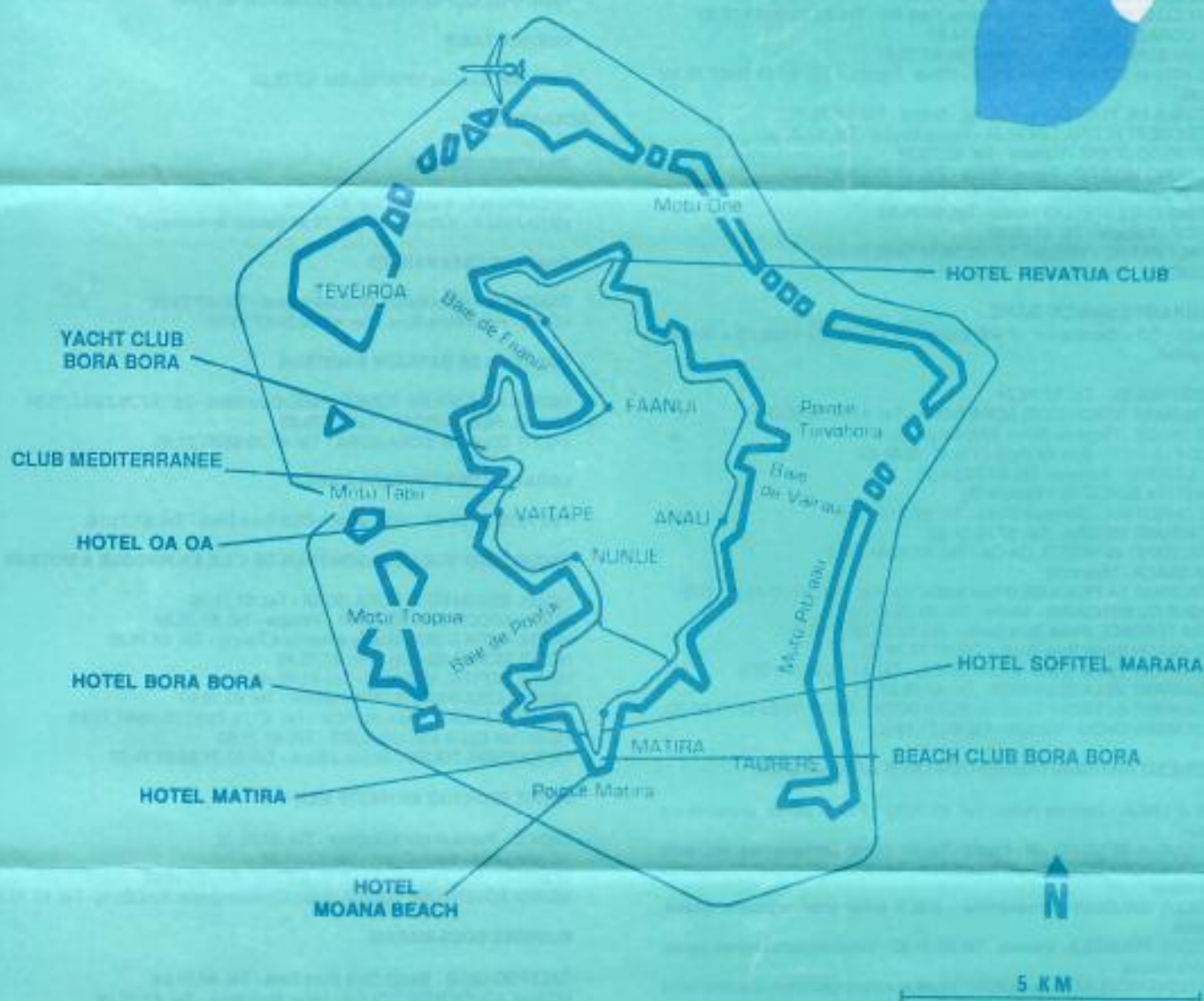
SIGHTSEEING/4 X 4

- FUN CLUB MARINA ITI - Vaitiare - Phone 65.61.01
- TIVINI TOURS TAHAA - Hotel Hibiscus - Haamene - Phone 65.61.08
- L'ILE - Motu Tuuvahine - Phone 65.64.80
- VANILLA COOPERATIVE TOURS - Patio - Phone 65.64.55
- VANILLA TOURS - Haamene - Phone 65.62.46
- WALKING TOURS - André Lemoine - Phone 65.62.56

MISCELLANEOUS

- GENDARMERIE - Phone 65.64.07
- MEDICAL CENTER OF PATIO - Phone 65.63.31
- DISPENSARY OF HAAMENE - Phone 65.61.03
- POST OFFICE - Haamene - Phone 65.60.11/Patio - Phone 65.64.70
- MAIRIE (town hall) - Phone 65.63.00

Bora Bora



- A 280 km N.O. de Papeete.
- Population : 4.225 habitants.
- Bureau de poste, infirmerie, hôpital, Club Méditerranée, auberges.
- VAITAPE : boutiques, tombe d'Alain Gerbault, centre d'information et des métiers d'art. Location de voitures, cyclomoteurs, bicyclettes, bateaux, pirogues à voile. Plage de sable blanc, bateau à fond de verre. Pêche aux coquillages, attraction des requins, plongée sous-marine. Excursions en montagne.
- Accès : services aériens quotidiens de l'aéroport de Tahiti-Faaa (durée du trajet : 50 minutes par vol direct ou 70 minutes avec escale à Raiatea et Huahine). Gâliette deux fois par semaine. Ferry deux fois par semaine.

BORA BORA : ADRESSES UTILES

COMITE DU TOURISME DE BORA BORA : Tel. 67.76.36

HOTELS

- BEACH CLUB BORA BORA - Tel. 67.71.16 (Res. 43.08.29)
- BORA BORA - Tel. 67.70.28 (Res. 45.10.45)
- MATIRA - Tel. 67.70.51
- MOANA BEACH BORA BORA - Tel. 67.73.73
- SOFITEL MARARA BORA BORA - Tel. 67.70.46 (Res. 41.04.05)
- VILLA CLUB MED - Tel. 67.70.57 (Res. 42.06.09)

HOTELS NON CLASSES ET HEBERGEMENT CHEZ L'HABITANT

- HOTEL OA OA - Vaitape - Tel. 67.70.84
- REVATUA CLUB - Faanui - Tel. 67.71.87
- BORA BORA BUNGALOWS - Faanui - Tel. 67.71.33
- ROYAL BORA BORA - Vaitape - Tel. 67.71.54
- YACHT CLUB OF BORA BORA - Pointe Fare Piti - Tel. 67.70.89/67.71.50
- FARE CORAL - Motu Tane - Tel. 67.74.50
- MARAMA BUNGALOWS - Vaitape - Tel. 67.72.97
- CHEZ ATO et SYLVAIN TINORUA - Poval Tipoto - Tel. 67.76.70/67.70.10/67.70.45
- CHEZ PAULINE YOUSSEF (camping) - Matira - Tel. 67.72.16
- CHEZ ROBERT et TINA TINORUA - Pointe Matira - Tel. 67.72.92
- CHEZ FREDO DOOM - Vaitape - Tel. 67.70.31
- CHEZ NONO LEVERD - Pointe Matira - Tel. 67.71.38/67.74.27
- CHEZ SYLVAIN ELLACOTT - Baie de Pofai - Tel. 67.75.66 (le soir)
- CAMPING CHEZ STELLIO - Anau - Tel. 67.71.32
- LE RECIF - Vaitape - Tel. 67.73.87
- FANTASY ISLAND - Vaitape - Tel. 42.54.16 Tahiti (le soir)
- CHEZ MONIA - Pointe Matira - Tel. 67.72.16

RESTAURANTS/SNACK-BARS

C = Chinois ; CO = Continental ; F = Français ; G = Grill ; L = Local ; S = Snack ; V = Vietnamien

- BAMBOU HOUSE - Tel. 67.76.24
- RESTAURANT BEACH CLUB BORA BORA - Tel. 67.71.16 (CO)
- BEN'S SNACK - Plage de Rofai à Matira (L ; S)
- BLOODY MARY'S - Baie de Pofai - Tel. 67.72.86 (G)
- BLUE LAGOON - Vaitape - Tel. 67.70.54 (F)
- BORA BORA BURGERS - Vaitape (S)
- CHEZ CHRISTIAN - (Revatua Club) - Tel. 67.71.87 (F)
- RESTAURANT MATIRA - Tel. 67.70.51 (C)
- RESTAURANT de l'HOTEL OA OA - Tel. 67.70.84 (CO)
- KAINA SNACK - Matira (S)
- RESTAURANT LA PEROUSE (Hotel Sofitel Marara) - Tel. 67.70.46 (F ; CO)
- LA TABLE DU MANDARIN - Matira - Tel. 67.72.04 (V)
- MATIRA TERRACE (Hotel Bora Bora) - Tel. 67.70.28 (F ; CO)
- POFAI BEACH (Hotel Bora Bora) - Tel. 67.70.28 (S)
- RESTAURANT TIARE (Hotel Moana Beach) - Tel. 67.73.73 (F ; CO)
- RESTAURANT VILLA CLUB MED - Tel. 67.70.57 (F)
- RESTAURANT du YACHT CLUB de BORA BORA - Tel. 67.70.89/67.71.50 (F)
- SNACK MAMA CHOU - Vaitape - Tel. 67.71.18 (L)

GALLERIES D'ART/BOUTIQUES/CENTRES ARTISANAUX

- ALAIN et LINDA - Baie de Pofai - Tel. 67.70.32 - Pareo, perles, peintures sur tableaux
- BOUTIQUE du BEACH CLUB - Matira - Tel. 67.71.16 - Lithographies, souvenirs
- BOUTIQUE BORA BORA PEARLS - Vaitape - Tel. 67.74.39 - Bijouterie, vente de perles noires
- BOUTIQUE GAUGUIN - Amanahune - Prêt à porter local, créations locales, souvenirs
- BOUTIQUE PAKALOLA - Vaitape - Tel. 67.71.82 - Vente de perles noires, pareo, créations locales
- CREATIONS NICOLAS - Baie de Pofai - Vente et création de bijoux et perles noires
- GALERIE MASSON - Matira - Tel. 67.72.04 - Vente de pareo et vêtements peints à la main
- MARTINE CREATIONS - Matira - Tel. 67.70.79 - Vêtements peints à la main, vente de perles noires
- MOANA ART - Nunue - Tel. 67.70.33 - Vente de perles noires, livres, cartes postales, prêt à porter local
- NAEA STUDIO - Faanui - Tel. 67.71.17 - Vêtements et pareo peints à la main, peinture sur tableaux
- POFAI SHOPPE - Hotel Bora Bora - Tel. 67.70.28 - Souvenirs, créations locales, snacks

LOCATIONS DE VOITURES/SCOOTERS ET BICYCLETTES

- BORA BORA RENT-A-CAR - Vaitape - Tel. 67.70.09
- BORA BORA RENT-A-BIKE
- BORA BORA TOURS - Hotel Bora Bora - Tel. 67.70.28/67.70.31
- MAEVA RENT-A-CAR - Vaitape - Tel. 67.76.78
- MAUTARA RENT-A-BIKE - Vaitape - Tel. 67.73.16

ACCES PAR AIR

- AIR TAHITI - Vaitape et Motu Mute - Tel. 67.70.35/67.70.85

ACCES PAR MER

- RAIROMATAI FERRY - Quai de Faanui (réservations émises directement à bord)
- TAPORO IV - Quai de Faanui (réservations émises directement à bord)
- TEMEHANI II - Quai de Faanui (réservations émises directement à bord)

LOCATION

LOCATION HELICOPTERES

- TAHITI HELICOPTERES BORA BORA - Tel. 67.73.47

SERVICE TAXIS

- TAXI - Mr. Jacques ISNARD - Tel. 67.72.25

ACTIVITIES

CHARTER VOILIERS

- EPICURIEN II - Vaitape - Tel. 67.70.54
- MARAAMU II - Vaitape - Tel. 67.70.57 (laisser le message)

CHARTER CATAMARANS

- TAAROA III - Hôtel Beach Club Bora Bora - Tel. 67.74.78
- VEHIA - Hotel Bora Bora - Tel. 67.70.28/67.70.78

LOCATION DE BATEAUX A MOTEUR

- MOANA ADVENTURE TOURS - Hotel Bora Bora - Tel. 67.70.28/67.70.34
- MICHEL RENT-A-BOAT - Tel. 67.73.88
- YACHT CLUB DE BORA BORA - Tel. 67.70.89/67.71.50

LOCATION DE SCOOTERS MARINS

- TIKI RENT-A-BOAT - Hôtel Beach Club Bora Bora - Tel. 67.71.16

EXCURSIONS SUR LE LAGON/TOUR DE L'ILE EN PIROGUE A MOTEUR

- HOTEL BEACH CLUB BORA BORA - Tel. 67.71.16
- BLUE LAGOON EXCURSIONS - Vaitape - Tel. 67.70.54
- HOTEL BORA BORA (Moana Adventure Tours) - Tel. 67.70.28
- HOTEL MOANA BEACH - Tel. 67.73.73
- HOTEL SOFITEL MARARA - Tel. 67.70.46
- MATIRA EXCURSIONS - Point Matira - Tel. 67.70.97
- POERANI TOURS - Baie de Pofai - Tel. 67.76.70/67.70.10/67.70.45
- REVATUA CLUB EXCURSIONS - Tel. 67.71.87
- TEREMOANA TOURS - Pointe Matira - Tel. 67.71.38/67.74.27

PECHE SPORTIVE EN HAUTE MER

- LADY C - Pierre et Miri Carcasse - Tel. 67.72.12
- TE ARATAI II - Keith Olson - Tel. 67.71.86
- MOKALEI - Kirk Pearson (Hotel Bora Bora) - Tel. 67.70.28
- MOANA ADVENTURE TOURS - Erwin Christian (Hotel Bora Bora) - Tel. 67.70.28

PLONGEE SOUS-MARINE

- CALYPSO CLUB - Beach Club Bora Bora - Tel. 67.74.84
- MOANA ADVENTURE TOURS - Hotel Bora Bora - Tel. 67.70.28

TRANSPORTEURS TOURISTIQUES TERRESTRES

- BORA BORA JEEP SAFARI - Tel. 67.70.34
- BORA BORA TOURS - Hotel Bora Bora - Tel. 67.70.28/67.70.31
- MAIRE TOURS - Anau - Tel. 67.71.32
- OTEMANU TOURS - Vaitape - Tel. 67.70.49

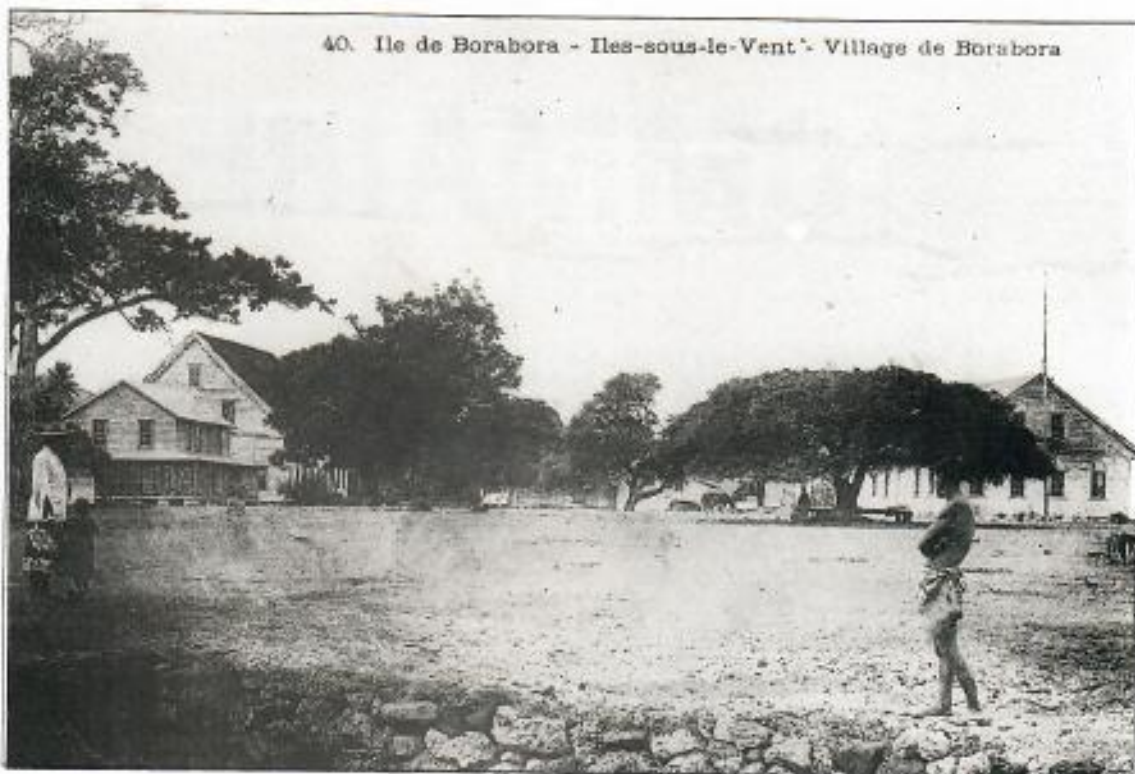
AUTRES ADRESSES UTILES

- GENDARMERIE - Tel. 67.70.88
- INFIRMERIE - Tel. 67.70.77
- MAIRIE - Vaitape - Tel. 67.70.41
- OFFICE DES POSTES - Vaitape - Tel. 67.70.74

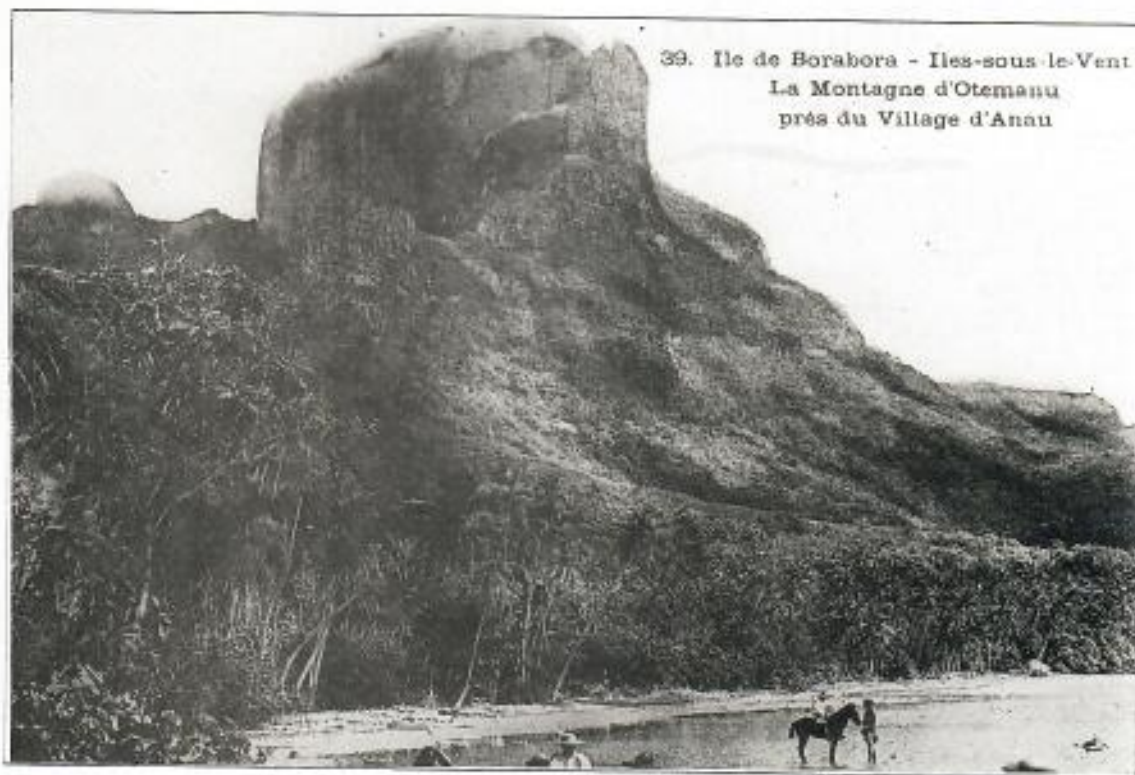
SOMMAIRE

- Carte de Bora-Bora
- Respecter l'environnement
- E tau anoano...
- **Dossier 1:**
Extraction de soupe de corail
- **Dossier 2:**
Les déchets à Bora-Bora
Collecte - Elimination
- **Dossier 3:**
Rahui: histoire et espoir

40. Ile de Borabora - Iles-sous-le-Vent - Village de Borabora



39. Ile de Borabora - Iles-sous-le-Vent
La Montagne d'Otemanu
près du Village d'Anau



LA LETTRE DU MINISTRE DE L'ENVIRONNEMENT

En tenant compte de l'expérience des autres nations, la Polynésie aurait pu gagner quelques années dans sa lutte pour la protection de l'environnement : en effet, les pays développés ont compris tardivement combien le capital "Nature" était fragile, et ce n'est que récemment qu'ils s'obligent à prendre en compte les contraintes de l'environnement dans leurs choix économiques. Les associations ont pris une part essentielle à cette entreprise de sensibilisation, et le mouvement des "verts", longtemps décrié, s'impose enfin par sa crédibilité. Juste retour des choses !

Dans notre pays, il faut nous préparer à suivre le même chemin, long et sinueux : trop de responsables, d'entrepreneurs, de particuliers n'ont pas encore intégré la dimension environnementale dans leur quotidien, et parfois, pour ne pas dire souvent, le découragement nous guette, ... vous guette !

ATUATU TE NATURA est l'une des associations les plus dynamiques que je connaisse. C'est grâce à son combat, et à celui de tant d'autres, que la nécessité de la sauvegarde de la nature s'imposera, un jour, comme une évidence.

Les trois dossiers élaborés par votre association sont autant de pierres à l'édifice à construire. Ils couvrent d'ailleurs les principaux axes de la politique qu'il nous faut mener :

- la sauvegarde du milieu marin, qu'illustre le document sur les extractions coralliennes,

- la collecte, et le traitement des déchets, qui menacent l'esthétique de nos sites, mais aussi les équilibres naturels et la santé publique,

- les grands principes de la pratique ancestrale du Rahui, qui nous rappellent que l'environnement est aussi l'art de gérer intelligemment les ressources vivantes.

C'est la fierté du ministère de l'environnement que de contribuer à la diffusion de ce travail remarquable de sensibilisation et de vulgarisation.

Il n'est pas toujours simple d'être prophète en son pays !

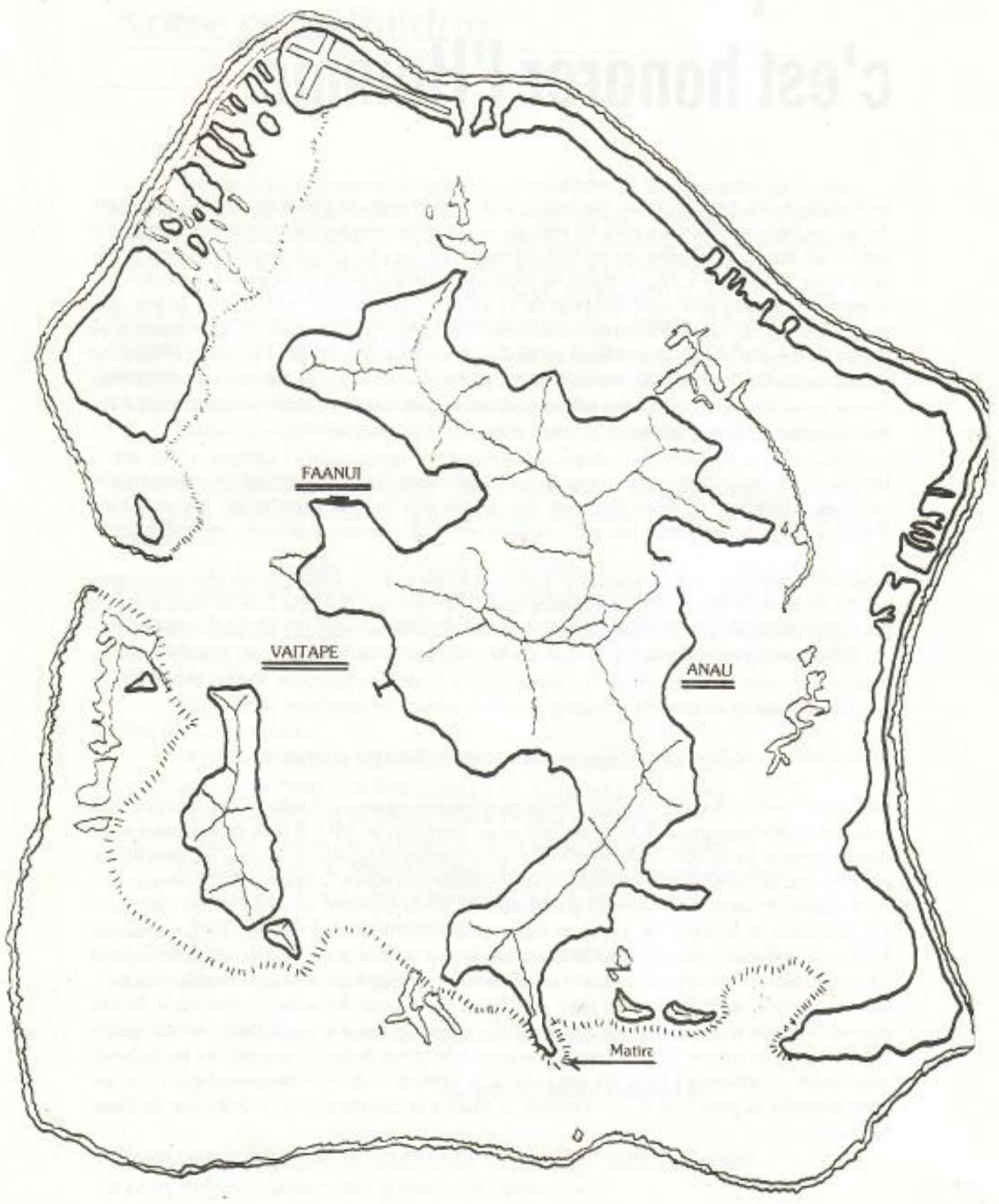
Faaitoito, e ia ora na.



Jacqui Drollet
Jacqui Drollet

BORA-BORA: LA PERLE DU PACIFIQUE - BORA-BORA: LA PERLE DU PACIFIQUE

carte de Bora



"Respecter l'environnement, c'est honorer l'Homme"

La Fédération des Associations de Protection de l'Environnement de Polynésie en a fait son slogan dès sa naissance en décembre 1988. En effet, du monde entier, des touristes viennent contempler le patrimoine naturel polynésien qui est probablement l'un des plus exceptionnels de notre planète. Durant ces 25 dernières années le Maohi est entré dans la société moderne de surconsommation à la vitesse de la lumière avec pour obligation de s'y adapter ou d'être traité de bon sauvage inadapté. Face à une grande vague d'aménagements polluants imposés par la société de surrénovation, ce slogan est de plus en plus d'actualité et ne sera peut-être bien compris par " monsieur et madame tout le monde" qu'en l'an 2000. Les nations des protecteurs de la nature ne sont pas considérées comme rentables par la plupart des politiques et économistes du court terme puisqu'un espace qui reste naturel et protégé sera interdit de béton, donc de profit immédiat.

Les Princes qui nous dirigent se croient de grands hommes dans la mesure où ils implantent des ouvrages et bâtiments en béton alors que nous devons leur faire comprendre que la préservation d'un patrimoine naturel mérite une préoccupation prioritaire plus que l'éphémère règne du béton.

La priorité essentielle chez nous doit être d'informer les gens sur les conséquences d'un non respect de chacun vis-à-vis de notre environnement naturel. Il nous faut percer le mur du silence mis en place par l'ignorance et le laxisme. L'espèce humaine multiplie ses hommes, ses zones industrielles, ses connaissances scientifiques au service de l'économique et du politique. Il se développe tel un monstre qui après avoir tout dévoré en serait réduit à se dévorer lui-même. Quand l'homme aura tout détruit à qui en voudra-t-il ?

Aux associations de Protection de la nature qu'il accusera de ne pas avoir gueulé assez fort.

Est-ce que l'homme doit être mis face à l'insupportable pour savoir qu'il suffirait d'un peu de raison pour que le développement de la vie ne soit pas un cancer ou un SIDA. Il nous faut maîtriser notre développement. La collecte, la destruction des déchets toxiques (polluants, acides, sels métalliques, piles etc...) et des produits non biodégradables (bouteilles plastiques...) constituent un des volets de cette maîtrise. Pourtant, un constat: la grande majorité des polynésiens ne semblent pas s'intéresser à la protection de la qualité de son environnement. Il convient de bien comprendre que certaines formes de pollution évoluent à bas bruit au même titre qu'une pathologie asymptomatique et lorsque le déséquilibre apparaît au grand jour, il ne nous reste que nos larmes pour nous consoler. Maohi, lève-toi, regarde, écoute, sent, marche et parle pour défendre la protection de ton patrimoine car les temps ont changé. De nos jours tout va très vite, il te faut t'adapter et être vigilant pour assurer ton avenir dans un environnement sain. Pour le faire comporte toi en individu responsable en adhérant à l'une des associations de protection de l'environnement qui existe sur notre territoire, ta participation est essentielle et vitale à la construction de la Polynésie du 3ème millénaire.

Pour la Fédération des Associations de Protection de l'Environnement de Polynésie.

Le Président
Dr Patrick Tahiatu HOWELL

Notre contribution

Jamais, il n'y aura autant de colloques, de conférences, de séminaires, de traités... de gouvernements, de gouvernants, d'élus, de scientifiques...de commissions, de comités, d'associations, de fédérations, ...d'émissions télévisées, d'informations radiodiffusées, d'articles de journaux, de revues...traitant des problèmes liés à l'environnement.

Du nucléaire à l'effet de serre, du traité de Washington (E.U.) à celui de Wellington (N.Z.), de la pétition du Commandant Cousteau à celui des habitants de Faanui (B.B), du séminaire organisé par les P.R.O.E (1) aux Journées Territoriales de l'Arbre, à tous les niveaux de décisions et ...d'actions, ça bouge, comme on dit. Juste retour ? En tous cas, c'est une bonne chose. Et Atuatua te Natura ne s'en plaindra pas.

Souhaitons toutefois que la médiatisation, voire la surmédiatisation, ne prenne le pas sur le contenu : l'information. Et, par voie de conséquence, ce qui est considéré aujourd'hui comme un fait de société ne devienne une vogue, une mode en quelque sorte. Cette publication fait partie de cette réflexion. Elle n'est, certes, qu'une modeste contribution.

Nous avons voulu accompagner ce sommaire de quelques photos avec un "paripari". Nostalgie ? Exotisme ! Non. Nous souhaitons seulement souligner la rareté de documents écrits en reo maohi, abordant le sujet du milieu. L'ouverture vers de nouvelles connaissances passent, aussi, par la lecture. Atuatua te Natura a sa part de responsabilité. Relevons le défi.

Enfin, nous voudrions témoigner de notre profonde gratitude à tous ceux et à celles qui nous ont aidés:

- Mireille GUENEE et Michel DAVERAT pour la réalisation des dossiers
- Patrick HOWELL et la fédération (F.A.P.E. (2)) pour leurs soutiens.
- Robert KOENIG et les Editions Haere Po pour leurs conseils
- le Ministre Jacqui DROLLET et ses collaborateurs pour leurs aides
- Claude PAYRI et la délégation à l'environnement pour leur collaboration
- Toromona ITERAELA et tous les anciens pour le dossier Rahui
- Atopa MARAKAI pour les croquis
- Julia STIMSON pour la dactylographie des documents
- Roger BELLA et son équipe pour l'édition.

" Ei hau i te patuatini o te natura. Mauruuru maitai"

Atuatua te natura. Octobre 89.

1) P.R.O.E : Structure interne à la commission du Pacifique Sud, chargée de l'environnement.

2) F.A.P.E.: Fédération des Associations de Protection de l'Environnement.

Atuatu te Natura

(quelques repères)

- 1984:** Fin d'année: création.
Premières démarches concernant les épaves des bateaux échoués.
- 1985:** BORA-BORA, île propre
Vaste opération de nettoyage
200 arbres sont plantés
- 1986:** L'eau et la Vie
Remise à jour des jeux traditionnels
- 1987:** Mon lagon
3ème projet pédagogique
Apparition des aumoa
Pêche aux cailloux
Dossier écologique: extraction
1er Bulletin de liaison
- 1988:** Arbre, mon ami
2ème dossier écologique et 3ème: les déchets - Rahui
Participation aux Assises de la Recherche
Participation à "Te Rai Hau"
Rencontre avec le parti politique "Tahoeraa Huiraatira"
Le Bulletin est amélioré
- 1989:** Une éducation à la consommation
1ère foire agricole
70 agriculteurs adhèrent à ATUATU TE NATURA
2ème Journée Mondiale de l'Environnement
4ème Conférence du Pacifique Sud (P.R.O.E.)
Etats Généraux de l'Education
Tournage "Rahui" par le Ministère de l'Environnement
Création de la 3ème Commission interne : Culture
après "Foire Agricole" et "Projet pédagogique communal"
Le N° 9 du Bulletin est publié

E Tau Anoano

E tau anoano, te tau i mutaaiho i roto i te tiaturiraa màohi, tei vai taamu noa e tona mau atua. Ia tae râ i te hoê tau, ua taoto hia te hoê vahine i te mau atua màohi, e ua tō tãua vahine ra. E, i te taime mauui ai oia i te mauui fanau, ua fanua mai ra e pūfenua. E ere i te tamarii i tona fanauraa mai. E na te pape i taitai i ana i tahatai. E, ua mau atura i niã i te áoa ropu Faanui.

Te tere maira na maò e piti, e ua hiti maira te mahana. No te meae ua mahanahana te pūfenua, ua parari. Ua faaroo hia te tai tamarii. E ere atura i te pūfenua, e tamarii ra. Riro atura na maò ra, ei metua faaãmu no'na.

Mairi hia'tura tona ioa o HETTARAURI I TETARA O TE MAO. Ua haere atura oia i tahatai, i niã i teie motu, tona faaoioraa ia'na, e, mai te manu oio ra. No reira i parauhia ai e, o Motu Oio.

Hoe taime i roto i te matahiti, e àru te miti i tãua outu ra, tãpaò te reira no na Maò, te metua faaãmu no'na.

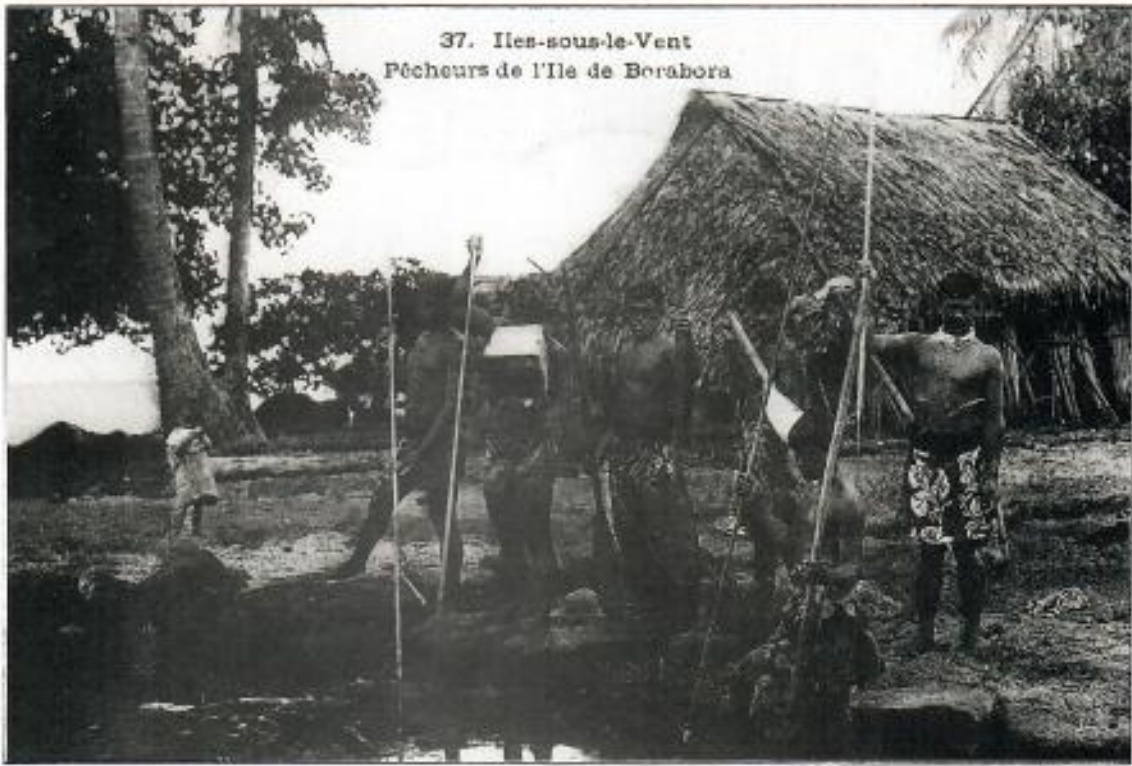
I teie mahana ua moè te parau no teie outu (1). Ua moè atoa te aruraa miti o tera na metua faaãmu.

Toromona ITERAELA

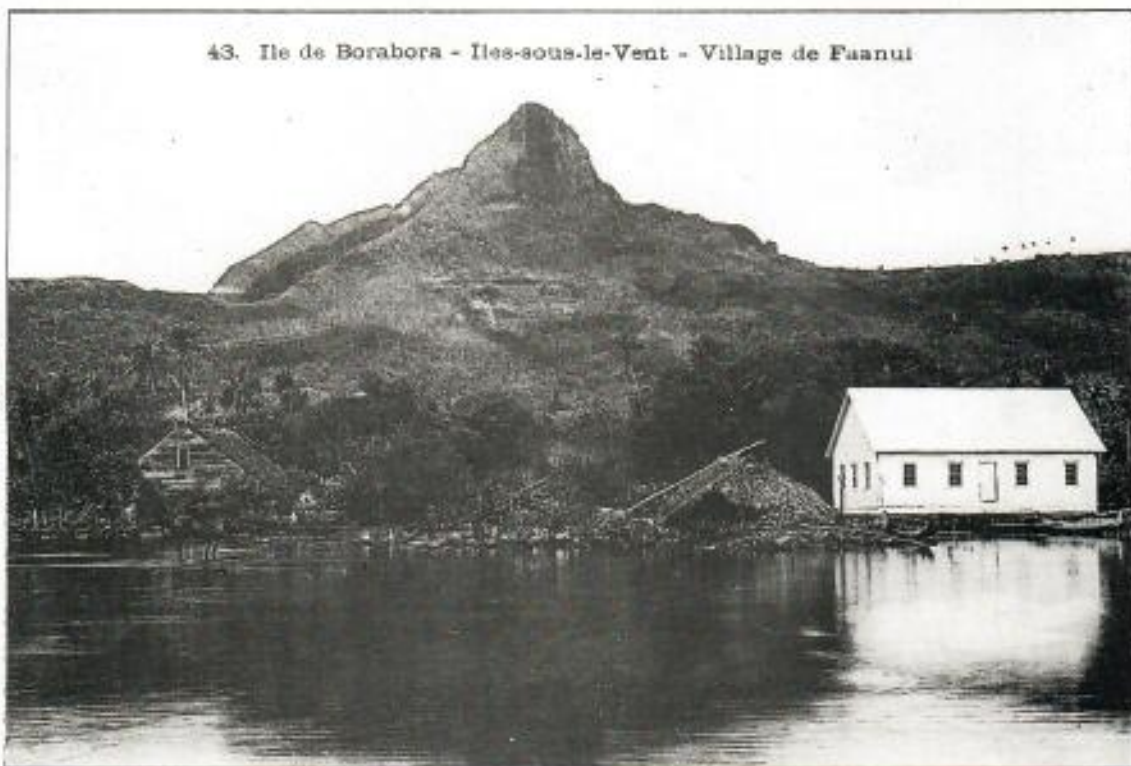
(1) E taipuraa vavara (2) to teie vahii i teie nei. Ua tiãhia i teie nei 14 vahii i taipuhia, ati ae o Pora Pora.

(2) Vavara: I niã matai, e parau tatou e, e aruaru.





Avec l'autorisation de Michel PALACZ





December 5, 1989 F/SWC2:GHB

Mr. Jean-Michel Kande
Service de la Mer
et de L'Aquaculture
BP 20704 Papeete
Tahiti, French Polynesia

Dear Jean-Michel,

I greatly appreciated having the opportunity to meet with you in person to discuss sea turtles during your recent trip to Hawaii. Thank you for providing me with an up-to-date understanding on the status of your research and conservation efforts. As promised, I am sending you an assortment of literature which will hopefully be of benefit to your program.

I look forward to hearing from you again.

Sincerely,

George H. Balazs
Zoologist

Enclosure

bc: Balazs
HL

INDO-PACIFIC LANGUAGES
UNIVERSITY OF HAWAII AT MANOA
HONOLULU, HI 96822
(808) 948-7574
948-8672
September 19, 1989

Dr. George H. Balazs
National Marine Fisheries Service
2570 Dole St.
Honolulu, HI 96822-2396

Dear George,

Thanks for your note and the enclosures about sea turtles. It was good to finally meet you face to face. It is also good to hear that we share a love for Tahiti (and probably French Polynesia). Assuming that is true, you should know that there is going to be a Symposium on Relations between Hawaii and Tahiti which will probably take place on Dec. 1 and 2. The High Commissioner and perhaps the president of the territorial assembly will be there to give key-note addresses. At that time we should have an opportunity to communicate to them something about Hawaii's interests in the French territory and the fields of expertise which exist in Hawaii and especially around the university. This might lead to more chances to conduct research in French Polynesia and help meet some needs which the French and Tahitians are identifying. Bob Kiste, Director of the Center for Pacific Islands Studies, will be presenting the case for UHM, education and scientific research. You might contact him at 948-7700. He needs some input from natural scientists.

I suspect that you might also be interested in a book on the sea turtle which has been published in Tahiti by Haere Po no Tahiti. It is in Tahitian, French, and English and is called simply Honu by Francine Margueron with English text by Marguerite Vernier and Tahitian text by Arapari Papanai. The latter is a friend of mine and a member of the Tahitian Academy. It is a small book with several illustrations.

Hope our paths will cross again.

1982 23P 18422 ill. color

PACC 92666.C5-M37 Sincerely,
1982

Jack H. Ward

Hanel -
please Borrow a copy
for me.
Tx Geo.

M. George H. BALAZS
IUCN/SSC Marine Turtle Group
Hawaii Institute of Marine Biology
PO BOX 1346 Coconut Island

Kaneohe, Hawaii 96744

21 February 1980

Dear George,

It was also, for us, a great pleasure to meet you in NOUMEA. At the present time, no resolution has been made by the Government about the three atolls SCILLY, MOPELIA and BELLINGHAUSEN (Motu One).

Concerning SCILLY, it may be taken as certain that the atoll will be preserved as it stands now. A guardian will be permanently installed on it. The two others atolls will be used for other programs, but I don't think that they will be commercially exploited.

On December we have received a tag from FIJI ISLANDS (VANUA LEU). This turtle has been tagged in December 1972 in SCILLY.

Characteristics of that turtle in 1972 were :

- Sex : Female
- Shell length : 100 cm
breadth : 88 cm
- Head breadth : 12 cm
- Length of breast (plastron in french) 88 cm
- Weight : 140 Kg

Unfortunately, the fisherman didn't give us any information about the recaptured turtle. He just said in his letter "a very big turtle".

The date of recapture is Septembre 9th 1979.

I apologize for my English writing.

Sincerely

M. Bruno UGOLINI
Service de la Pêche
BP. 20 PAPEETE

- TAHITI -


Bruno UGOLINI

Papeete, le 16 juin 1989

Réf. N° 606 /EVAAM/PG/SH

Le Directeur de l'EVAAM

to

Dr George H. BALAZS

Dear George,

I was very please to receive news from you about turtle resarch and conservation, and thank you very much for all informations about it.

I have always problem about the protection of the turtles in French Polynesia, because ell the people here in Tahiti like to eat the Chelonia mydas and it is really a big problem for me to protect them.

The Tahitian Government suggest to "elevate" or to finance a "farm" for lead consumption and, I don't know if it is the best answer for the protection of the species like they said "the cows" is very well protected because there are many farms.

I would like to know your position about this problem, I think I could have some money for research and to send people in Scilly or Mopelia atolls for this purpose, but I have to answer to my government.

I just receive a letter from Anne MEYLAN
Floride Marine Research Institute
1000 Erghth Avenue JE. St
Peterbug, Florida 3370-5095
Fax (813)823 - 0166

that I think you know, who wants to come for the next meeting season to study. I think I can give her some help.

Of course, it will be a great pleasure to receive also a research from HAWAII to visit the island.

Best regards,

EVAAM

Patrick GALENON.

ETABLISSEMENT POUR LA VALORISATION
DES ACTIVITES AQUACOLEES ET MARITIMES

EVAAM





GHB

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center Honolulu Laboratory
2570 Dole St. • Honolulu, Hawaii 96822-2396

July 18, 1989 F/SWC2:GHB

Dr. Patrick Galenon
Le Directeur de l'EVAAM
B.P. 20 Papeete, Tahiti
Polynésie Française

Dear Patrick,

Many thanks for your letter of June 16, 1989. I appreciated hearing from you about problems of research and protection for green turtles in Tahiti. I realize that this is a difficult situation. As you will recall, these same topics were also discussed at our turtle workshop in Noumea back in 1979. I don't know that much has changed since then. To the best of knowledge, the company in the Cayman Islands has still not resolved the problems of breeding turtles in captivity on a large scale. With the exception of a small hatchery for hawksbills in Palau, I am not aware of any farming or ranching projects for sea turtles in the Pacific islands. The one attempted in the mid-1970's in Fiji and Rarotonga by the South Pacific Commission proved to be unrealistic, unsuccessful, and costly.

I would be interested to know what transportation is available from Papeete to Scilly or Mopelia Atolls. Does a small air strip exist? Is there scheduled boat service, or must *one* be chartered? What is the approximate cost of each option? It may be a long time before I have the opportunity to visit Tahiti again, but it would be good to have this information in advance.

If there are any opportunities for even sporadic tagging of nesting females, I would be more than happy to send you a supply of Inconel alloy tags and applicators. These tags have been proven here in Hawaii to be absolutely corrosion resistant. They are far superior to anything else ever used on sea turtles. They have been used on green turtles in Hawaii since 1977. Please tell me if you would like to receive a couple hundred of these tags.

Again, thank you for writing to me. It was good to hear from you again.

Sincerely,

George H. Balazs
Zoologist



GMB

May 16, 1989 P/SWC2:GHB

Dr. Patrick Gaielon
Service de la Mer et
de l'Aquaculture
B.P. 20
Papeete, Tahiti
French Polynesia

Dear Patrick,

It has been a couple years now since we last corresponded about our common interest in sea turtle research and conservation. I want to take this opportunity to reestablish contact with you about this subject.

Our work here in the Hawaiian Islands has been going quite well. Several recent articles are enclosed, as well as a list of all publications resulting from our program. The Inconel alloy flipper tags that we have been using for over 10 years now have proven exceedingly durable. I have yet to see a single tag that shows any sign of corrosion or wear. Double and triple tagging females at the nesting beaches with these tags has, for all practical purposes, solved our tag loss problem. In addition, our capture and tagging of immature turtles in nearshore foraging pastures continues to produce valuable growth data. A mean time of about 25 years is currently believed to be necessary for a green turtle in Hawaii to reach sexual maturity.

I would be interested in hearing from you about the present status of sea turtles nesting at Scilly Island. Are green turtles being tagged at that important location? What opportunities exist for a researcher from Hawaii to visit the island for a few weeks to study the turtles?

Best regards.

Sincerely,

George H. Balazs
Zoologist

Enclosures

IL FAUT SAUVER

Protéger, gérer, connaître et élever la tortue, tels sont les objectifs du programme lancé par l'EVAAM et les Services de la Mer et de l'Aquaculture en liaison avec la délégation à l'Environnement. Outre le programme de recherche, de protection et d'élevage de la tortue verte à l'antenne EVAAM de Papeari, les défenseurs acharnés de la «Chelonia Mydas» lancent une grande campagne d'information, notamment à travers l'affiche «Honu» qui sera diffusée auprès des professionnels de la mer, des écoles Air Tahiti, dans les lieux publics mais aussi et surtout auprès de toutes les écoles de Polynésie Française.

AFIN de procéder au lancement officiel de cette campagne d'information, les médias locaux ont été invités hier matin à l'antenne EVAAM de Papeari. Présents sur place, Patrick Galenon, directeur de l'EVAAM (Établissement pour la Valorisation des Activités Aquacoles et Maritimes), Philippe Sia, chargé des programmes et de la coordination de la recherche, Alain Lochonarn, commandant de l'unité de gendarmerie

de brigade maritime, Yolande Vermandon du Service de la Mer, ainsi que de nombreuses personnes qui participent à la sauvegarde des tortues marines ont dressé un tableau d'ensemble du programme visant à sauver les tortues marines, hélas, fortement braconnées sur le Territoire.

UN COMBAT DIFFICILE

L'élevage de tortues marines à Papeari n'est pas la première tentative effectuée sur le Territoire. En effet, l'élevage familial de la tortue verte a toujours existé en Polynésie notamment aux Tuamotu où il est courant de voir une ou plusieurs tortues dans des enclos en pierre ou en bois de «Kahala» construits spécialement à cet effet.

En 1971, le Service de la Pêche a démarré à petite échelle un premier élevage à Rangiroa, mais faute de moyens, ce projet a été abandonné au bout d'une année malgré des résultats encourageants. En 1983, l'IFREMER (Institut Français de Recherches pour l'Exploitation de la Mer) entreprend à son tour à Vairao un essai de grossissement des tortues vertes en captivité et nourries avec des éléments granulés fabriqués sur le Territoire. Cependant, par manque de financement, ces travaux n'ont pas été poursuivis. Reprenant les résultats de l'IFREMER, l'EVAAM lance une nouvelle série de travaux à Rangiroa à la demande du gouvernement territorial. Une fois encore, les moyens techniques insuffisants et les crédits prévus n'ayant pas été mis en place, cette opération n'a pu être menée à son terme. Ce n'est enfin qu'en 1989 que des moyens importants sont mis à la disposition de l'EVAAM pour créer la ferme expérimentale qui se situe dans l'asse Tatutu dans la baie de Port Phaeton.

LES TRAVAUX DÉJÀ EFFECTUÉS À PAPEARI

Trois élevages successifs se sont déroulés à Papeari où les tortues

sont élevées dans des cages immergées. Le premier qui s'est déroulé en décembre 1988, janvier et février 1990, avec des œufs provenant de Aratika et de Mopelia concernait 55 tortues d'un poids moyen de 22,700 kg. Le second élevage s'est effectué à partir d'une collecte d'œufs effectuée à Mopelia et Scilly en janvier et février 1991 et a vu pour sa part 288 tortues d'un poids moyen de 5,700 kg. Enfin, le troisième élevage actuellement en cours a démarré avec des œufs récoltés en décembre dernier à Scilly. Il a permis d'obtenir 486 tortues d'un poids moyen de 80 g, tortues que l'EVAAM a peut-être sauvées d'une mort due au passage très violent du cyclone Waqa sur l'atoll.

Actuellement, l'antenne de l'EVAAM à Papeari dispose d'un stock en élevage au 31 janvier 1992 de 828 tortues qui sont nourries avec un granulé flottant fabriqué par l'Industrie de Tahiti suivant une formulation mise au point en collaboration avec l'IFREMER.

UN PROGRAMME COMPLET DE RECHERCHE, DE PROTECTION ET D'ÉLEVAGE

Le programme de l'EVAAM visant à protéger cette espèce menacée qu'est la tortue verte s'articule autour de plusieurs actions. Tout d'abord, le recensement et le suivi des sites de ponte et de nidification, essentiellement à Scilly, Mopelia, Bellinghansen... opération qui permet de sauver un maximum de jeunes tortues mais aussi d'effectuer et de poursuivre les recherches sur la nidification et l'éclosion.

Ensuite, le programme comprend l'étude des migrations des tortues effectuées grâce au marquage de celles-ci en collaboration avec le P.R.O.E. (Programme Régional Océanien pour l'environnement). Pour sa part, l'élevage et le grossissement en captivité se fixe pour objectifs le repousserment autour des sites naturels de nidification comme Mopelia, Scilly, Bellinghau-



Philippe Sia et Patrick Galenon, de l'EVAAM expliquent les difficultés rencontrées pour mener à bien l'élevage des tortues afin d'assurer leur sauvegarde.



Les tortues vertes élevées par l'EVAAM à Papeari permettent de repeupler les sites de nidifications naturels comme Mopelia, Scilly ou Bellinghansen.



Les pouvoirs publics n'ont pas ménagé leurs efforts pour éviter que les tortues ne disparaissent de Polynésie.



MINISTÈRE DE L'ENVIRONNEMENT
Délégation à l'Environnement
47 rue de la Mer
91 210 Papeari

MINISTÈRE DE LA MER
Service de la Mer et de l'Aquaculture
47 rue de la Mer
91 210 Papeari

L'affiche «Honu» sera diffusée sur l'ensemble du territoire. Elle entend favoriser une réelle prise de conscience de la nécessité de préserver les tortues marines.

LES TORTUES !

sen et certains atolls des Tuamotu (remise en liberté après marquage) mais aussi, partant du constat que «les Polynésiens ont toujours consommé de la tortue», une étude de faisabilité technique et économique de production de tortues destinées à approvisionner le marché local. A cet effet, on estime réalisable une production annuelle de 30 à 50 tonnes.

NON AU BRACONNAGE !

Dernier point de ce programme, et non des moindres, la lutte contre le braconnage qui se doit de venir en soutien à la gestion et à la protection de la tortue verte. Comme le faisait fort justement remarquer Yolande Veruandou du Service de la Mer, les braconniers brandissent trop souvent l'excuse de «La Tradition» pour justifier leurs actes. Mais la tradition a bon dos ! Car c'est oublier que cette même tradition qu'ils revendiquent n'a jamais autorisé une chasse qui ne respecte pas les saisons de renouvellement. De plus, que deviendra la tradition lorsque les tortues auront été décimées ? Il faut noter qu'il existe depuis 1990 une nouvelle réglementation qui abroge toutes les précédentes. Ainsi, c'en est fini du système des quotas.

La capture (y compris à terre) de même que le commerce des tortues, ou de leurs simples carapaces est donc tout à fait illégitime... (Les tortues sont aussi protégées par la convention de Washington). Les braconniers encourrent de très fortes amendes ainsi que la confiscation immédiate de tous les matériels utilisés lors de l'infraction (bateau, moteurs, tous véhicules...) Les durées d'emprisonnement ont par ailleurs été notablement augmentées...

Les spécialistes de la tortue verte ne sont pas dupes : ils savent bien que le braconnage est chose courante à Bora-Bora, Tupai, Mopelia, Nelly ou encore Rangiroa. Ils savent aussi que «Huahine est un grand centre de convoyage des tortues braconnées» et entendent bien dans l'avenir mener toutes les actions nécessaires contre les braconniers. Il y a fort à parier que les braconniers, très sévèrement punis par cette nouvelle législation, vont bientôt connaître quelques probé-



Alain Locheuarn de la gendarmerie maritime a déjà procédé à l'arrestation de plusieurs braconniers.

mes car des actions concertées sont projetées entre les Services de la Mer, l'EVAAM et la gendarmerie maritime.

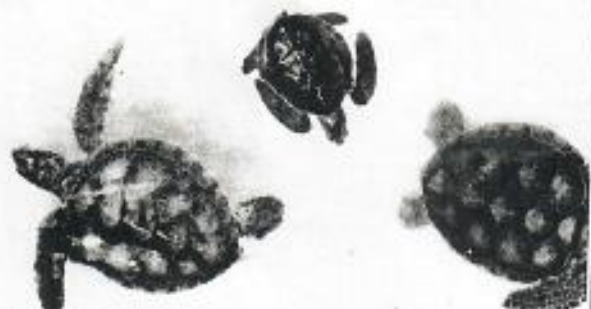
UNE PREVENTION INDISPENSABLE

Afin de changer les mentalités et de mener une action préventive auprès de la jeunesse beaucoup plus sensibilisée que ses aînés aux problèmes de l'Environnement, l'EVAAM, le Service de la Mer et de l'Aquaculture en liaison avec la délégation à l'environnement viennent de lancer la diffusion de l'affiche «Honn» éditée spécialement à cet effet. Distribuée auprès des professionnels de la mer, cette affiche sera aussi exposée dans les lieux publics, dans les écoles Air Tahiti et, bien sûr, dans toutes les écoles du Territoire. Ainsi, nul ne pourra plus prétendre ignorer la nécessité de préserver pour le bien de tous les tortues vertes, ni la législation qui en interdit formellement toute chasse, consommation ou commerce. Protéger les tortues, c'est l'affaire et l'intérêt de chacun. Qu'en se le dise !

Damien GRIVOIS



Opération de bague d'une tortue à Papeari. Le bague permet de connaître les flux migratoires des tortues vertes.



De 80 g à plusieurs dizaines de kilos, plusieurs centaines de tortues vertes sont élevées par l'EVAAM à Papeari.



Les tortues sont élevées dans des cages immergées.

See
Dit-870
E371

Tahiti: voyage through Paradise
Eggelson, George T. 1953

MOPELIA

bullion, plundered from a South American church vault and brought thither for safe burial.

Odd bits of teak planking, railing, and companionway much rounded by the elements were strewn over a half-mile radius, high and dry among the palms. As for the treasure, we could only see that a number of people had taken stock in its existence. So many great pits were dug by the curious, down through the years, that portions of the atoll looked like the outskirts of a Colorado mining town.

Back at the "village," the eggs safely delivered to Etera, we turned our attention to Roo's turtle-conservation program. In the lagoon shallows more than a hundred baby turtles are kept in floating cages as part of a turtle-propagation idea begun by Roo several years before. The plan is roughly this: for every turtle a native raises to maturity and sets free, he is allowed to send another away to the Papeete market to be sold and credited to his account. As all natives participate in the scheme, all share equally in the sales.

At turtle time (only in November, Herr Luckner notwithstanding) men hide along the outer beach night after night and wait for mother turtles to clamber in over the reef. Sometimes they wait two weeks without seeing one, sometimes they spot a dozen in their first week's vigil. Always their job is to lie completely hidden until eggs have been laid, for the eggs are the important thing, and killing the female turtle is rarely attempted.

Turtle eggs are about the size of ping-pong balls, and 150 are often laid at one sitting. Staking the claims, even after having witnessed the egg-laying procedure, is difficult, because a mother turtle is a great pantomimist and will go to no end of trouble to disguise the caching of her embryonic young. Often she will waddle several hundred yards along the high beach, digging a series of dummy holes and going through the motions of laying, just to throw interlopers off the track. These fake mounds not only fool the men but, around hatching time three months later, hundreds of hermit crabs encircle them in wait for the tender, spiderlike turtles they hope to intercept on the dash to the sea.

This dash of the newly hatched turtles to the sea must be the most pathetically one-sided struggle in the world. (If they could only be taught to dash to the inner lagoon instead!) Should any manage to out-

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GEORGE H. BALAZS

year of
account 2

flank the gauntlet of big red hermit crabs, the odds are 100 to one they will be snapped up by sea birds before they have traveled 10 feet; should a lucky one reach the water, the chances are one in 100 he will swim safely past the waiting sharks. All South Sea killers can sense turtle time, and today man is apparently the turtle's only true friend. Thanks to man, 100 lagoon-raised Mopelia turtles are set free each year—turtles formidable enough, by virtue of their 10-inch backs, to hold their own.*

Fisherman-in-chief of Mopelia was Atau, a stocky old fellow who was able to produce on short notice any fish delicacy demanded. He could gather a sack of lobster, moi, or cavelli in just about the time it takes an American housewife to roll a wire basket through an A. & P.

Helping Atau with his fishing chores each day was one way in which we tried to prove ourselves useful in the community. To him, of course, the procedure was routine—to us it was an experience far removed from any "duty" we had ever before performed.

Early one morning, after an especially piquant breakfast of bird's-egg soufflé, garnished with grated coconut, coffee, and canned jam from the *Viator*, Atau armed the three of us with spears as well as the usual short hooks and lines. Then he led us around the mainland to a section of the outer lagoon where scarcely a foot of water covered about an acre of flat sandy bottom. This we came to know as Shark Pond, and it offered thrills aplenty. Here, medium-sized sharks came to sun-bathe in the tepid shallows. It was claimed that since nothing over five feet in length could swim with ease at this depth, we were safe from man-eaters.

Atau's heavy iron-barbed spear flew with deadly accuracy. Any black triangle of fin within 25 or 30 feet of his throwing arm was as good as a trophy of the hunt before he even wound up to throw. The sharks were quite lethargic in their movements until they became aware of what was going on—then they really tore up the water around us. They rarely came very close, but to us, at any distance, they seemed horrific. After Atau had thrown about a dozen upon the beach, he set about slitting their bellies. From each sleek white paunch slid a bucketful of tiny, bright-colored lagoon fish. To emphasize his antipathy for the wolves of the sea he tossed them back for eager brethren to devour.

When is a shark really dead? We thrust a spear handle into the

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FAX PAUL FOR
ENGLISH TRANSLATION

July 1990

TO

Mr BALACZS

US dept of commerce
National Oceanic and Atmospheric
Administration National Marine Fisheries Service
Western Pacific
Program Office
2750 Dole St, HONOLULU HI 96822

Dear Mr BalaczS

It has been quite a long time since I owe you a letter. But I wanted to wait until I could give you good news and I am happy to announce you that french polynesia has a new legislation to protect sea turtle, please find here enclosed copies of the newspapers articles.

The different documents that you sent have been of great help and I am not writing this to be polite. They indeed helped to improve my knowledge of the sea turtle problem. Some parts of the legislation has been rewritten in view of the documents you sent me. Thank you very much for your spontaneous assistance.

The other day I met in Tahiti Mr Paul Holtus from the South Pacific Commission and Mr John Baldwin from the Great Barrier Reef Marine Park Authority of Australia. We of course discussed the problem of turtle and I asked Mr Baldwin to send me literature on sea turtle legislation in Australia.

Mr Baldwin also informed me that the Australian National Parks and Wildlife Service (ANPWS) organised a regional workshop in Camberra from May 28 th to May 31 st in which the major topic for discussion was the development of wildlife legislation. I am sure your are aware of this workshop as the problem of protection of sea turtle has probably been raised. If not, please find here name and address of someone you could get information from :

Paul JEWELL
ANPWS
APO Box 636
CAMBERRA, ACT
2601
AUSTRALIA

FAX : 062-473
528

.../...

If in return you would need some documents on french Polynesia please let me know I will be delighted to help you.

It was a pleasure to meet you in Honolulu and I look forward to meet you again, thanks again.

A handwritten signature in black ink, appearing to read 'Jean-Michel Kande'. The signature is written over a horizontal line that extends across the page.

Jean-Michel KANDE
SERVICE DE LA MER ET DE L'AQUACULTURE
B.P. 20704 PAPEETE
TAHITI



ASSURANCES GÉNÉRALES DE FRANCE

Incendie - Accidents - Maritime - Risques divers.

Les Nouvelles July 16 1990

Les tortues marines de Polynésie Française peuvent enfin être heureuses

Le gouvernement prend les choses en main

Les rapporteurs de la commission permanente de l'assemblée territoriale ont voté le rapport relatif à la protection des tortues marines en Polynésie Française vendredi matin en présence du ministre de la Mer, Boris Léontieff.

Depuis l'annonce dans la presse en novembre 1987, des massacres de tortues en Polynésie Française, de vastes campagnes de mobilisation ont été entreprises et risquent à terme de ternir l'image de marque du Territoire. C'est pourquoi, la sauvegarde des tortues marines est devenue une nécessité capitale non seulement en Polynésie française mais égale-

ment au plan international comme le rappelle Boris Léontieff.

Les tortues marines sont depuis quelques années sur le point d'extinction. Le rapport a donc été adopté par les membres de la commission permanente afin de les sauvegarder au plus vite.

Il était fixé un régime de pêche particulier dans certaines zones selon des quotas déterminés par

amétés par le conseil des ministres et des dérogations étaient accordées pour des raisons scientifiques. Les dispositions réglementaires ont malheureusement facilité une détérioration constante du parc naturel de tortues vertes (*Chelonia mydas*) qui évoluent dans nos eaux. Elle n'est pas empêchée le braconnage intensif, menaçant ainsi les générations et donc la survie de l'espèce dans les eaux polynésiennes.

Une réglementation plus stricte des captures par l'exécution du champ d'application de la loi, il

s'agit d'interdire la pêche des tortues marines sur toute l'étendue du Territoire quelles que soient la taille et la période de capture.

Touche pas à ma tortue

Afin de pallier aux risques de fraude favorisés par une géographie archéologique particulièrement hostile au contrôle du respect de la loi, l'interdiction porte non seulement sur la capture mais encore sur le transport, la détention, la commercialisation, l'importation et l'exportation des tortues.

elle couvre tous les stades d'évolution de la tortue (œufs, juvéniles, âge adulte), tout produit provenant de la tortue (chair, carapace, écailles, tortues naturalisées), et les tortues vivantes ou mortes.

Dérogation spéciale

Toutefois, pour tenir compte des contraintes sociales, des réalités économiques et des besoins scientifiques, une certaine souplesse d'application est nécessaire. Ainsi bénéficieront de dérogations, sous certaines conditions:

- les habitants de certaines îles, confrontés à des besoins alimentaires nés de problèmes de dessertes maritimes et aériennes.
 - les pêcheurs professionnels pour leurs besoins alimentaires en mer.
 - les personnes physiques ou morales pour les programmes de recherche scientifique.
 - les aquariophiles pour les besoins éducatifs et touristiques.
- Jusqu'à la commercialisation des tortues d'aquaculture, à titre exceptionnel, les associations à l'occasion de manifestations officielles.

Un parc d'élevage

Il n'est pas assuré que la disparition des tortues de nos eaux soit éternelle. Il convient de développer les programmes d'élevage de tortues ce qui limiterait l'impact financier du braconnage en cas de situation de monopole.

La vie des tortues marines comme beaucoup d'espèces animales en voie de disparition est entre les mains de l'homme.

Assemblée Territoriale

Des questions écrites comme s'il en pleuvait

A l'ordre du jour de cette session de la commission permanente de l'assemblée territoriale, était inscrite une série de questions écrites.

Après une pose en fin de matinée, les travaux reprenaient, pour être rapidement interrompus à la lumière des débats qui s'instauraient, il paraissait évident au président de séance que la totalité des textes devaient être transmis au conseil des ministres.

C'est donc le gouvernement qui aura à répondre, dans un délai d'un mois à la question adressée par Jean Tupu et Marcel Hant, concernant le projet de vente de l'atoll de Tupai à des investisseurs japonais.

Cette question vise à faire la lumière sur les développements actuels de ce dossier, et plus spécialement si des fonds ont été versés. Le texte prévoyant par ailleurs que les deux conseillers territoriaux retirèrent leur opposition à toute cession du patrimoine à des investisseurs étrangers.

Cette question est accompagnée d'un vœu relatif à la nécessité d'intensifier la vente des terres aux investisseurs de nationalité étrangère.

Arthur Chung avait de même déposé une ques-

tion écrite relative au délai de paiement des divers impôts et taxes assimilées, en ce sens que cette réglementation, en tant que contrainte financière, pourrait démotiver la trésorerie d'entreprises déjà en difficulté.

Le délai vient en effet d'être porté de trois à deux mois. Pour le conseiller territorial, il serait plus opportun de prolonger ce délai, au vu de la situation économique du territoire.

Et enfin, une série de quatre questions, signées Quilo Brown-Otega.

La première porte sur une disposition du nouveau statut du territoire: "Bien que l'on pourrait admettre le fait que les ministres soient désignés par le seul président du gouvernement dans les conditions prévues par le nouveau texte, il me semble impossible d'envisager que le vice-président, lequel serait susceptible d'assurer un intérim allant jusqu'à trois mois et ainsi cumuler les compétences propres qui sont dévolues au président du gouvernement par l'assemblée territoriale, soit désigné sans que l'assemblée ait à se prononcer sur le choix du vice-président du gouvernement".

La deuxième question est plus poétique, et

touche au fonctionnement de fait: le conseiller territorial demande des explications quant à certaines transactions concernant un véhicule du service.

Le Fei est de nouveau la cible de la troisième, mais concerne cette fois, le lotissement social "Touhu", à Nuku-Nuku, et "Tiputa Aniahu", à Raigaoa. Quilo Brown-Otega requiert des éclaircissements quant à l'adéquation de la fourniture des matériaux aux besoins réels de la construction des deux lotissements.

Quatrièmement, enfin: l'affaire de la succession Brown-Petersen, et l'exécution des droits proportionnels se rattachant à la transaction immobilière, "en raison des difficultés posées à la succession", ces droits ne pourraient être calculés, ce qui a suggéré au président du gouvernement "la prise de mesures conservatoires".

Quilo Brown-Otega demande en conséquence l'étude juridique annoncée, et un énoncé des mesures que le gouvernement entend prendre pour garantir la perception de ces droits. On le rappelle, le gouvernement doit répondre avant un mois.

C.J.

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4 x 4



3.650.000F TTC

ISUZU

Comptoir Industriel Tahitien



42.33.80 Maaao



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ISUZU

ISUZU

Cabine Rapide

4 x 4



2.890.000F TTC

LES TORTUES MIEUX PROTÉGÉES

Les braconniers risqueront 3 mois à 1 an d'emprisonnement et une amende de 100.000 à 980.000 CFP

Vendredi 13, jour de chance pour la première séance publique de la Commission permanente. A noter tout de même que depuis 1977, chaque nouvelle opposition réclamait à cors et à cris la fin du huis clos. Un huis clos bien trop commode pour être modifié lorsque ces minorités devenaient majoritaires. Or, rendons à César ce qui lui appartient, en l'occurrence le président Léontieff, qui, là aussi, a tenu parole n'en déplaise à ses adversaires politiques, en transformant cette importante commission (où se réglait toutes les affaires que l'on ne souhaitait pas livrer en pâture à l'opinion) en commission publique !

Les journalistes séanciers pourront donc désormais rendre compte de tous les dossiers traités ! Le secret est bel et bien levé.

DEUX rapports ont été adoptés. L'un relatif à la protection des tortues marines en Polynésie française. L'autre portant sur un projet de délimitation abrogant un arrêté de juillet 1989 rendant obligatoire le dépistage de la tuberculose chez les personnes marinant les débris alimentaires (cette maladie étant pratiquement éradiquée) et huit questions écrites ont enfin été transmises au gouvernement.

Étaient présents les neuf membres de cette C.P. : Tore Tordère, Franklin Brotherson, Pierre Hunter, J. Van Bastelaer, Arthur Chung, JP Cheung, M. Ruzana, J. Teheura, le tout assés d'une manière bien enfant par le président Riquet Marec.

Les conseillers territoriaux suppléants, Quéto Brian Ortega, J.M. Raapoto, J. Monpau, M. Rollan, J. Tupu et Mate Hart, principaux auteurs des questions écrites n'ont pas manqué cette séance.

PROTECTION DES TORTUES

Trois ministres présents : Boels Léontieff, ministre de la Mer, François Nanaï et Louis Savaris (qui a passé près de 2 heures à téléphoner au haut du gouvernement : dire que l'on assure que les femmes sont bavardes !)

Boels Léontieff, comme à son habitude, a répondu aux questions de toutes les questions délicates qui lui ont été posées et a accepté de modifier certains passages du texte, apportant plus de précision.

Boels Léontieff n'a pas manqué d'insister sur la mauvaise image que donne la Polynésie française à l'étranger depuis l'annonce par la presse internationale en novembre 1987 du massacre des chiens et des tortues marines. « Il est important pour le savoir des espèces et l'image internationale de la Polynésie condamnée à la suite de vastes campagnes de mobilisation entreprises par la presse nationale et internationale.

L'impôt sur le revenu des capitaux mobiliers

Impôt mis en recouvrement le : 30/04/90

Exigible le : 31/05/90
Date d'application de la majoration de 10 % : 01/07/90 (alors qu'il devrait être le 01/03/90)

L'impôt sur les Sociétés

Impôt mis en recouvrement le : 31/05/90

Exigible le : 30/06/90
Date d'application de la majoration de 10 % pour paiement tardif : 01/08/90 (alors qu'il devrait être le 01/03/90)

La contribution des patentes

Impôt mis en recouvrement le : 31/05/90

Exigible le : 30/06/90
Date d'application de la majoration de 10 % pour paiement tardif : 01/08/90 (alors qu'il devrait être le 01/03/90)

aisé. Nous devons montrer notre volonté de légiférer sur ce dossier tout en tenant compte de nos habitudes socio-culturelles. Il n'est pas facile de mêler protection et traditions.

Quéto Brian Ortega fait alors remarquer qu'il n'est pas d'accord avec le paragraphe qui stipule « qu'à titre exceptionnel, les associations à l'occasion de manifestations officielles pourront capturer des tortues. « Il n'y a plus qu'à créer une association de mangroves de tortues ».

Mate Hart rétorquait en expliquant que les Polynésiens étaient très friands de chair de tortue : « La preuve, dit-il, pour l'inauguration d'un temple sur un atoll, la presse a relaté que 500 tortues avaient été dégustées par les convives ». Pour Mate Hart, il faut protéger également les petites tortues qui ne manquent pas de prédateurs naturels lorsqu'elles tentent de gagner la mer.

Pour notre juriste Jean-Marc Raapoto, dans la culture polynésienne, la tortue était la nourriture des Dieux «ohé, a-t-il dit, exclusivement réservée aux Rois, c'est donc ce que la tortue représente pour les Polynésiens : un mot de choix. Je ne sais pas si les Polynésiens mesurent bien ce qu'est la notion de braconnage. Si nous admettons que la tortue tend à disparaître, il est normal de prendre des mesures strictes de protection et procéder à l'évaluation des stocks.

Arthur Chung : « La tortue, c'est un peu de la nature, on peut donc la manger mais il faut la protéger des abus : après tout, on mange bien du cheval ! »

En fait, cette protection perd de sa sévérité à partir du moment, où comme l'a souligné le ministre de la Mer, « pour tenir compte des contraintes socio-culturelles, des réalités économiques et des besoins scientifiques, une certaine souplesse d'application est nécessaire, d'où les dérogations que l'on trouve dans la délibération (ci-après). Ce dossier fut adopté à l'unanimité.

DÉCLARATION DE MATE HART

Avant de passer à l'étude des questions écrites, Mate Hart signala au mois de mai de deux d'entre elles avec Jean Tupu devant faire la déclaration suivante : « Ma conscience, de même que mes collègues, ne passent à dire à mes collègues que cette question écrite date du 3 mai. Elle concerne la demande d'introduction de vente de l'atoll de Tupu aux Japonais. Nous sommes en juillet. Un certain laps de temps s'est écoulé. Cette QE, est présentée au nom d'un groupe, le Taboera, auquel je n'appartiens plus. Ainsi je préférerai laisser à mon collègue Jean Tupu le soin de la lire, car il y a des passages avec lesquels je ne suis plus d'accord, car ils ne tiennent pas la route ! Aujourd'hui, les investisseurs sont déçus, ils ont abandonné le projet. Un jour ou l'autre, les investisseurs se feront plus du tout de propositions à la Polynésie française. Même si la

question de fonds de la vente aux étrangers demeure, je demande à ce que cette question écrite soit réglée, elle n'a plus sa raison d'être. Ce qui fut fait en accord avec Jean Tupu !

LE CAMION DU FEI

Les quatre questions écrites suivantes signées de Quéto Brian Ortega furent envoyées au gouvernement, relevant, en effet, de sa compétence. Néanmoins, sous réserve de cette remarque, nous avons relevé celle concernant l'achat d'un camion par le FEI mis en circulation par la première fois en Europe le 28 octobre 1977 et circulant dans le Territoire depuis le 21 novembre 1984 pour le compte d'un transporteur devenu par la suite salarié du FEI.

Une nouvelle carte grise était donc émise le 21 février 89 au nom du FEI avec un détail troublant «-lère main- alors qu'il passait à un troisième propriétaire. Ajoutons que le vendeur faisait partie, selon QBO, de la commission spéciale des recettes techniques ayant accepté d'acquiescer ce camion. Bref, John Brossard a bien tenté de défendre ce dossier mais ses preuves ne concordant pas à celles de QBO, la question écrite a été envoyée au gouvernement qui devra donner des explications.

Relevons, malgré tout, que le président Léontieff a diligencé depuis quelques semaines une enquête administrative sur ce qui se passe au FEI.

ARTHUR CHUNG ET LES IMPÔTS MAJORES

Le conseiller du Taaita Polynésie a levé le drapeau de la réforme sur une décision arbitraire de l'administration fiscale du Territoire. L'article 21-12.13.3 stipule dans son article 2/1 « une majoration de 10 % est appliquée au montant des cotisations qui n'ont pas été réglées le dernier jour du trimestre sans suite celui de la mise en recouvrement de celle-ci.

Jusqu'en 1980, a lancé Arthur Chung, cette disposition a été appliquée par l'administration fiscale du Territoire, «or, a précisé le conseiller, sur les avertissements délivrés aux contribuables au titre de 1980, il est mentionné que la date d'application de la majoration de 10 % pour paiement tardif sera effectuée le dernier jour du 3 mois au lieu du 3, suivant celui de la mise en recouvrement de celle-ci.

Pour ces raisons et compte tenu de la précarité des entreprises, il serait plutôt opportun de protéger ce délai plutôt que de le raccourcir.

« À défaut, préconise Arthur Chung, je demande que les textes en vigueur soient respectés et de ne pas appliquer la majoration de 10 % à l'encontre des contribués qui réglo-

rent leurs impôts le dernier jour du trimestre sans suivant celui de la mise en circulation du titre.

Voilà une intervention qui va plaire à tous ceux qui sont assujettis

à l'impôt ! Espérons pour eux, que le gouvernement qui lui aussi a besoin d'argent, sera compatissant !

Christine BOURNE

LE TEXTE DE L'A.T.

TITRE I PRINCIPES GÉNÉRAUX

Article 1er : Sont couvertes par les dispositions de la présente délibération les tortues des espèces suivantes :

- Chelonia mydas, tortue verte dite «Hona»,
- Dermochelys coriacea, tortue luth,
- Eretmochelys imbricata, tortue bonne écaille dite «Hona Kaa».

Article 2 : Les dispositions de la présente délibération s'appliquent non seulement aux tortues marines à l'état vivant mais aussi à l'état mort et à toute partie ou tout produit obtenu à partir des dites espèces.

Article 3 : Sont interdits : Le transport, la détention, la collecte des œufs de tortues marines, la capture à terre ou en mer, la taxidermie, la commercialisation, l'importation et l'exportation de toute tortue marine, à l'exception des dérogations prévues par la présente délibération.

TITRE II DÉROGATIONS

A) CAPTURE ET DÉTENTION DE TORTUES MARINES

Article 4 : Des dérogations à l'interdiction de capture, de transport, de détention et, sous réserve des dispositions des conventions internationales applicables en Polynésie Française, d'importation et d'exportation, peuvent être accordées à titre exceptionnel par arrêté du Ministre chargé de la Mer après avis du Ministre chargé de la Recherche et du Ministre chargé de l'Environnement :

- à des personnes physiques ou morales, à des fins strictement de recherche, sur présentation d'un dossier explicitant précisément l'utilité et la destination finale des tortues qui auront fait l'objet de la dérogation.

Toute utilisation des œufs de tortues marines prélevés à des fins scientifiques autres que celles précitées dans le dossier de dérogation devra faire l'objet d'une déclaration auprès du Ministre chargé de la Mer dans les meilleurs délais.

Pour l'acquiescement par le Territoire répondant aux besoins éducatifs ou touristiques, sur présentation d'un dossier et respectant des conditions de détention définies par arrêté en Conseil des Ministres.

Tout détournement des tortues couvertes par les dérogations prévues aux alinéas 2 et 4 du présent article à des fins autres que celles précitées dans le dossier de demande de dérogation, et l'exception faite des cas prévus à l'alinéa 3 du présent article, sera passible des peines prévues par la présente délibération et la personne physique ou morale se verra retirer immédiatement la dite dérogation.

Article 5 : Des dérogations à l'interdiction de capture en mer, de transport, de détention peuvent être accordées par le Ministre chargé de la Mer à l'exclusion de la période comprise entre le 1er juin et le 31 janvier et uniquement pour des tortues dans la carapace présente une longueur supérieure à 85 cm dans son plus grand axe :

- à des pêcheurs professionnels strictement pour leurs besoins alimentaires personnels en mer,

- aux habitants de certaines îles du Territoire qui sont confrontés des problèmes de dessèchement marins et aériennes engendrant des difficultés alimentaires.

Des arrêtés en Conseil des Ministres fixeront d'une part, annuellement la liste exhaustive des îles et nombre de tortues qui peuvent être capturées et d'autre part les conditions d'abandon et d'exporter : l'autorisation de capture, de la détention des tortues vivantes avec l'abattage, de l'abattage, de la conservation de la viande et de sa consommation.

Article 6 : Le non respect de conditions fixées dans les arrêtés par les bénéficiaires des dérogations mentionnées à l'alinéa 2 de l'article 5, entraîne de plein droit le retrait immédiat des dites dérogations nonobstant l'application de peines prévues par la présente délibération.

Article 7 : Le Ministre chargé de la Mer, après avis du Ministre chargé de l'Environnement, pourra autoriser, à titre exceptionnel, la capture en mer, le transport et la détention d'un nombre limité de tortues entrant dans la quota annuelle prévu à l'article 5, alinéa 4 de la présente délibération pour des associations légalement constituées depuis au moins 3 ans en vue d'activités récréatives. Ces autorisations ne pourront être délivrées pendant la période comprise entre le 1er juin et le 31 janvier. L'arrêté des tortues capturées devra présenter une longueur supérieure à 85 cm dans son plus grand axe. Cette dérogation prendra fin dès la commercialisation des tortues d'aquaculture.

Les tortues doivent être capturées, transportées, détenues, abattues, consommées dans les conditions prévues par les arrêtés et Conseil des Ministres mentionnés l'article sus-cité.

Article 8 : Seules les carapaces des tortues capturées en dérogation peuvent être commercialisées. Elles doivent être déclarées préalablement à leur commercialisation au Service de la Mer et de l'Aquaculture.

B) COLLECTE ET DÉTENTION DES ŒUFS DE TORTUE MARINE

Article 9 : Des dérogations à l'interdiction de collecte des œufs de tortues marines, à leur détention, leur transport et, leur importation et leur exportation sous réserve des conventions internationales applicables en Polynésie Française pourront être accordées par le Ministre chargé de la Mer après avis du Ministre chargé de la Recherche et de l'Environnement à des personnes physiques ou morales à des fins strictement de recherche, sur présentation d'un dossier explicitant précisément l'utilité et la destination finale des œufs de tortue marine qui auront fait l'objet de la dérogation.

Toute utilisation des œufs de tortues marines prélevés à des fins scientifiques autres que celles précitées dans le dossier de dérogation devra faire l'objet d'une déclaration auprès du Ministre chargé de la Mer dans les meilleurs délais.

Tout détournement des œufs de tortues autres que scientifiques sera passible des peines prévues à l'alinéa 2 de la présente délibération et la personne physique ou morale se verra retirer immédiatement le bénéfice des dites dérogations.

COMMISSION D'ENQUÊTE

CURIEUX tout de même que certains conseillers, dont J.M. Raapoto, nient souhâit que la Commission d'Enquête, présidée par Jacques Teheura concernant les propos tenus par Philippe Lou, se tienne à huis-clos !

Interrogé, J.M. Raapoto a déclaré : « Pour la sévérité des débats ».

L'opinion publique aurait pourtant aimé être tenue informée du déroulement et des résultats de cette enquête.

Espérons que les conseillers respectent le rapport final dans son intégralité à la presse.

Philippe Riquer, nouveau tavana ha

«AVANT TOUT UN CONSEILLER TECHNIQUE» POUR LES I.D.V.



Le nouvel administrateur des Îles-Sous-Le-Vent, Philippe Riquer, est prêt à remplir son rôle de conseiller des élus communaux.

Le nouvel administrateur de la Subdivision des Îles du Vent donnait vendredi après-midi une conférence de presse dans les bureaux de son administration. Philippe Riquer souhaitait se présenter, et expliquer dans ses grandes lignes la façon dont il entend occuper ses nouvelles fonctions.

ARRIVÉ vendredi 4 juillet sur le Territoire, accompagné de sa famille, le nouvel administrateur de la Subdivision des Îles du Vent a pris ses fonctions dès le lendemain. Sa visite à Faou le samedi lui a en effet permis de prendre d'emblée des contacts.

Pour l'instant, Philippe Riquer entend rencontrer tous les maires avec lesquels il sera amené à collaborer, et consulte les dossiers de son prédécesseur, établis en plus impressionnantes sur son bureau. Il s'est déclaré « en phase de prise de connaissance », et il est par conséquent trop tôt pour parler de projets précis.

Les mots qui reviennent le plus souvent dans sa bouche au cours de cette conférence de presse étaient

«collaboration» et «travailler ensemble». Il considère que pour remplir son rôle, il devra être disponible et prêter une oreille attentive aux requêtes des maires et des élus.

Chaque conseil municipal des Îles du Vent pourra soumettre ses problèmes et ses desiderata au nouveau tavana ha, qui examinera ce qui peut être fait, quel que soit le dossier abordé. M. Riquer nous a déclaré qu'il arrivait « sans a priori ».

Fonctionnaire d'État chargé de la tutelle administrative et financière, il se considère avant tout comme un conseiller technique. Son aide devrait permettre aux communes d'établir des dossiers qui pourront aboutir de façon satisfaisante. Loin d'être péjoratif, le terme de tutelle définit selon Philippe Riquer le contrôle de la légalité des actes, sans exclure le nécessaire dialogue.

C) AQUACULTURE DE TORTUES MARINES

Article 10 : Des dérogations :

- à l'interdiction de la collecte, du transport de la détention, de l'importation et de l'exportation des œufs de tortues marines,
- à l'interdiction de transport, de détention, de commercialisation, d'importation et d'exportation des tortues marines,

peuvent être accordées par le Ministre chargé de la Mer pour les programmes d'élevage après avis du Ministre chargé de l'Environnement.

Les dérogations à l'importation et l'exportation seront délivrées sous réserve des conventions internationales applicables en Polynésie française.

Article 11 : Des arrêtés en Conseil des Ministres fixent les conditions d'octroi des dérogations pour les personnes physiques ou morales désirant se livrer à l'aquaculture de tortues, les normes d'élevage. Un pourcentage de jeunes tortues à révéler, les mesures prévalables à la commercialisation et les conditions de la commercialisation des tortues marines d'aquaculture.

Toute utilisation des œufs de tortues marines, ou des tortues marines d'aquaculture à des fins autres que celles expressément spécifiées dans l'arrêté portant dérogation fera l'objet d'une suspension immédiate de la dérogation et les auteurs de l'infraction seront passibles des peines prévues à la présente délibération consistant la révocation immédiate de l'autorisation d'occupation du domaine public maritime dont bénéficierait éventuellement le propriétaire des installations aquacoles.

TITRE III CONTRÔLE ET SANCTIONS

Article 12 : Le Service de la Mer et de l'Aquaculture pourra, à tout moment, procéder à des contrôles des bénéficiaires des dérogations.

Article 13 : Les infractions à la présente délibération seront constatées par les officiers et agents de police judiciaire ainsi que par les agents spécialement commissionnés et assermentés devant le Tribunal de première instance. Le serment peut être fait par écrit. Dans ce cas, il doit être enregistré par le Tribunal de première instance.

Article 14 : Sous réserve d'une homologation par la loi de la présente délibération :

- les auteurs des infractions aux dispositions de la présente délibération et de arrêtés pris pour son application seront passibles d'un emprisonnement de 3 mois au moins et un an au plus et d'une amende de 100.000 F CFP à 900.000 F CFP (3.500 à 33.000 FF) ou de l'une des deux peines seulement ;

- les navires, moyens de transport, engins de pêche et leurs accessoires ou tout autre outil ayant aidé à l'accomplissement des infractions sont susceptibles de saisie immédiate dès constatation de l'infraction

tion et feront l'objet d'une confiscation prononcée par le Tribunal avec vente ou d'une destruction dès leur saisie, si les engins de pêche sont prohibés.

Jusqu'à leur vente, ils seront placés sous le contrôle du Service de la Mer et de l'Aquaculture qui fixera l'endroit où ils seront déposés et bloqués, éventuellement, le gardien de la saisie.

Article 15 : Les œufs de tortues marines collectés, les tortues marines pêchées, transportées et tout produit obtenu à partir des dites tortues, détectées ou commercialisées en infraction aux dispositions de la présente délibération seront immédiatement saisis par l'agent verbalisateur et feront l'objet selon les circonstances, après avis du Service de la Mer et de l'Aquaculture, d'un rejet à la mer, d'une restitution contre décharge à des établissements sociaux et de bienfaisance ou à des personnes nécessaires. Éventuellement, s'il ne peut être procédé ni à un rejet ni à un don, dans les conditions prévues précédemment, les œufs de tortues ou les tortues marines pourront être détruits.

Article 16 : Jusqu'à l'entrée en vigueur de la loi d'homologation, les auteurs des infractions à la présente délibération sont passibles, en application de l'article 95 de la loi N° 81-823 du 16 septembre 1984, des peines applicables aux auteurs de contraventions de la 5ème classe.

Article 17 : En cas d'importation ou d'exportation illicite, les auteurs de ces infractions sont passibles des pénalités édictées par les articles 288 et 289 du Code des Douanes de la Polynésie Française nonobstant l'application éventuelle des peines prévues aux articles 14 et 15 de la présente délibération, si l'importation ou l'exportation illicite ou double d'une violation à d'autres interdictions prévues par le présent texte. La totalité des peines sera saisie par l'agent verbalisateur dans les conditions prévues à l'article 13.

TITRE IV DISPOSITIONS TRANSITOIRES

Article 18 : Les personnes physiques ou morales détenant des carcasses et des tortues naturalisées avant la publication de cette délibération au Journal Officiel de la Polynésie Française devront les déclarer au Service de la Mer et de l'Aquaculture dans un délai de six mois à compter de la date de la publication. Au delà de cette période, les carcasses et les tortues naturalisées sont interdites à la vente et pourront être saisies. Elles pourront faire l'objet d'une confiscation prononcée par le Tribunal et d'une vente aux enchères au profit du Territoire.

Article 19 : La délibération N° 71-228 du 23 décembre 1971 et son arrêté d'application N° 757/PE-CEE du 02 mars 1973 sont abrogés.

Article 20 : Le Président du Gouvernement est chargé de l'exécution de la présente délibération qui sera publiée au Journal Officiel de la Polynésie Française.



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Le champ de ses pouvoirs et capacités d'investigation restreint à préciser, mais Philippe Riquer ajoutait qu'il apportera aux maires de diversifier sa tâche dépend des dossiers qui lui sont soumis.

Il pense rencontrer rapidement l'ensemble des maires des Îles du Vent, certains rendre-visit à déjà pris. Il était ainsi dans la nuit qu'il se samedi, accompagné de femme et ses enfants.

Ses diverses missions, au cours de son début de carrière, l'ont amené à consulter les problèmes des y africains. C'est à ce titre qu'il ministre de la Coopération avait proposé un poste en Afrique.

Un poste à Mexico lui avait également proposé, mais ses parents allaient aux départements territoriaux d'entre mer. Philippe Riquer est donc très heureux d'avoir été affecté au poste qu'il a choisi, et espère que cette nomination lui permettra d'accomplir son rôle d'apprendre constamment et voir de nouvelles choses.

Bienvenue en Polynésie et à courage !

Laurence GRANCHAM
Francis BOURCHOLLI

Ets Paul CONSCIENCE
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