O professor Alexandre Guida Navarro apresenta uma visão geral sobre os assentamentos lacustres em palafitas do Maranhão e de zonas úmidas, o que evidencia que este tipo de moradia é um fenômeno global. E novamente vemos que a pré-história é cheia de surpresas e que nossos ancestrais fizeram e souberam de coisas que não imaginaríamos. Esses sítios arqueológicos certamente têm o potencial de reescrever grandes partes da pré-história da América do Sul em uma variedade de formas e facetas - seja em termos de desenvolvimento cultural seja em história ambiental. Surpresas estão a caminho!

Dr. Niels Bleicher

Laboratório de Arqueologia Subaquática e Dendroarqueologia, Zurique, Suíça

ISBN 978-85-62485-86-2

ISBN 978-85-7862-918-2

A obra de Alexandre Guida Navarro mostra os restos de uma civilização única surgida há mais de mil anos e preservada nas zonas úmidas dos estuários do Maranhão. Essa era uma cultura de pessoas que habitavam lagos e rios e construíam seus assentamentos em amplas plataformas erguidas sobre esteios de madeira maciça. Os esteios permanecem lá como sentinelas múltiplas nos assentamentos abandonados, ainda sobre os sedimentos e águas das planícies de inundação. O padrão de assentamento destes povos não somente era único entre as culturas arqueológicas conhecidas no Brasil, mas sua maneira de subsistência em recursos também era especial. O projeto das palafitas do Maranhão tem o potencial de elucidar a antiga sequência cultural de um habitat aquático ainda pouco estudado. Mas também poderia fomentar a futura gestão de recursos e desenvolvimento econômico no Brasil.

Anna Curtenius Roosevelt
Professora de Antropologia da University of Illinois at Chicago

Alexandre Guida Navarro (Organizador)
A CIVILIZAÇÃO LACUSTRE E A BAIXADA MARANHENSE

EDUFMA

Alexandre Guida Navarro
(Organizador)

A CIVILIZAÇÃO LACUSTRE E A BAIXADA MARANHENSE

Da Pré-História dos campos inundáveis aos dias atuais

EDUFMA

Alexandre Guida Navarro é doutor em Antropologia pela Universidad Nacional Autónoma de México (UNAM) e possui dois pós-doutoramentos: um pela Universidade Estadual de Campinas (UNICAMP) em 2008 e outro na University of Illinois at Chicago em 2017, onde foi, também, Professor Visitante com bolsa da Fulbright Institution (modalidade Visiting Professor Award). Pesquisou em instituições como Smithsonian Institution (Washington D.C.) e American Museum of Natural History (Nova York), Estados Unidos. É professor Associado I do Departamento de História (DEHIS) e Programa de Pós-Graduação em História Social (PPGHIS) da Universidade Federal do Maranhão (UFMA).

A Civilização Lacustre e a Baixada Maranhense

da Pré-História dos campos inundáveis aos dias atuais

Alexandre Guida Navarro
(Organizador)

A Civilização Lacustre e a Baixada Maranhense

da Pré-História dos campos inundáveis aos dias atuais

São Luís

Café & Lápis EDUFMA

2019

Editoração: Café & Lápis
Revisão: Claunísio Amorim Carvalho
Diagramação: Germana Costa Queiroz Carvalho
Capa: Marisio Amorim Carvalho
Impressão: Halley S. A. Gráfica e Editora

Dados da Catalogação Anglo-American Cataloguing Rules
Marcelo Diniz - Bibliotecário CRB 2/1533

C582

Navarro, Alexandre Guida (org.)

A civilização lacustre e a Baixada Maranhense: da Pré-História dos campos inundáveis aos dias atuais. / Organizador: Alexandre Guida Navarro. - São Luís: Café & Lápis; EDUFMA, 2019.

594 p.; 22 cm

ISBN 978-85-62485-86-2 (Café & Lápis)
ISBN 978-85-7862-918-2 (Edufma)

1. Pré-história maranhense. 2. Arqueologia – Maranhão. I. Navarro, Alexandre Guida.

CDD 981.21
CDU 903 (812.1)

Livro publicado em cumprimento ao termo de compromisso com terceiros, de acordo com o processo n.º 8104114/2014.

CASA EDITORIAL QUEIROZ CARVALHO LTDA.
CNPJ 10630734/0001-08 - Inscrição Estadual n.º 12311705-4
E-mail: cafelapis.editora@gmail.com
São Luís - MA Telefone: (98) 3181-5720

EDUFMA | Editora da UFMA Av. dos Portugueses, 1966 - Vila Bacanga
CEP: 65080-805 | São Luís | MA | Brasil
Telefone: (98) 3272-8157
www.edufma.ufma.br | edufma@ufma.br

À memória de
Raimundo Lopes que,
há exatos 100 anos,
presenteava o mundo com
a divulgação das estearias.

SUMÁRIO

APRESENTAÇÃO

O livro "*A Civilização Lacustre e a Baixada Maranhense: da Pré-História dos campos inundáveis aos dias atuais*" é a primeira obra que reúne diversos autores que se debruçaram sobre as estearias do Maranhão. Pela primeira vez na Arqueologia das palafitas, um grande grupo de pesquisadores, de diferentes ramos das Ciências Humanas, Exatas e Naturais, apresentam seus estudos relacionados ao tema. Deste modo, o livro cumpre com seu papel proposto: uma análise multidisciplinar sobre os povos aquáticos pré-coloniais da Baixada Maranhense.

Esta empreitada foi possível graças aos diversos editais de fomento à pesquisa capitaneados pelo Laboratório de Arqueologia da Universidade Federal do Maranhão (LARQ/DEHIS/UFMA), dentre os quais se destacam: Edital MUSEUS-02818/13 Edital n.º 19/2013, REBAX-03464/13 Edital n.º 30/2013, ACERVOS-02637/17 Edital n.º 12/2017, Edital n.º 002/2018 UNIVERSAL, Edital n.º 47/2017 de Pós-Doutoramento e Edital n.º 21/2017 de Pós-Doutoramento no Estado. A publicação deste livro é fruto do projeto de pesquisa "*O povo das águas: carta arqueológica da porção centro-norte das estearias da Baixada Maranhense*", sob o convênio firmado entre o Instituto do Patrimônio Histórico e Artístico Nacional (IPHAN) e a Fundação Sousândrade (Processo n.º 8104114/2014/SUZANO/FSADU).

Iniciando o livro com uma bela introdução, o Prof. Pedro Paulo Funari (UNICAMP) apresenta o contexto histórico mundial em que a Arqueologia surgiu até chegar à realidade brasileira, alegando que o fim da ditadura possibilitou o avanço da disciplina no país. Funari apresenta,

teoricamente, os avanços que os estudos nas estearias tiveram com sua retomada pelo LARQ/UFMA.

Em seguida, quatro capítulos apresentam a área de estudo deste livro: a Baixada Maranhense. O Prof. João Gouveia (UEMA) sintetiza os aspectos históricos da região, dando destaque àquelas cidades onde as estearias foram construídas; enquanto o Prof. Marcelino Farias (UFMA) debruça-se sobre a geografia humana e os dados do Índice de Desenvolvimento Humano (IDH); o Prof. Campelo Franco (UFMA) analisa a geografia física mostrando a importância dos lagos da Baixada e o Prof. Cláudio Urbano (UFMA) discorre sobre a vegetação da área.

Uma parte considerável do livro está destinada aos estudos da coleção cerâmica proveniente de coletas sistemáticas de quatro campanhas de campo realizadas na Baixada Maranhense. Neste sentido, a Profa. Helena Lima (MPEG) faz uma introdução dos aspectos teóricos sobre a cerâmica arqueológica; a Profa. Neuvânia Ghetti (UFPE) apresenta um protocolo de conservação para os artefatos que foram desenvolvidos a partir de estudos específicos no LARQ; o Prof. Carlos Appoloni (UEL), juntamente com Madson A. Bruno, apresentam o resultado da análise residual de um vasilhame do sítio Cabeludo e, por fim, um estudo ainda inédito sobre os gestos de produção cerâmica são apresentados por Lílian Panachuck (UFMG), pelo Prof. André Prous (UFMG) e pela estagiária do LARQ Tayse Mendes, resultando num avanço para a compreensão das artistas que pintaram os potes cerâmicos. Por fim, no que tange aos aspectos arqueológicos da cerâmica, a obra dedica um capítulo redigido por mim, pelo museólogo Hélder B. de Mello e pelos estagiários e colaboradores do LARQ, a saber: Karen Conceição da Costa, Raquel de Lima Silva, Flaviomiro Mendonça da Silva, Tayse Handreyza Abreu Mendes, José de Ribamar Júnior, Elton Menezes e Gabriel Serra. Neste sentido, dentro de uma arqueologia inclusiva, todos os membros do Laboratório participam dos resultados da pesquisa.

Dado que pouco se tem trabalho com a Biologia na Arqueologia, convidei três especialistas que escreveram sobre os apliques zoomorfos da coleção cerâmica. Os resultados foram surpreendentes. O Prof. José de S. S. Júnior (MPEG) conseguiu identificar diversas espécies de ma-

míferos, com predominância de macacos e roedores. Os Profs. Miguel Trefault (USP) e Taran Grant (USP) demonstraram que alguns apliques de anuros são sapos venenosos, levando à intepretação de uso do veneno destes anfíbios para caça e práticas xamânicas.

Pela primeira vez, também, uma análise lítica mais ampla foi feita nos materiais coletados nas estearias, em sua grande parte constituída de lâminas polidas. Este artigo é assinado pelos Prof. Luiz Rocha (UFPE) e Abrahão Sanderson (UFRN).

O livro apresenta, ainda, capítulos sobre a iconografia das estearias, padrão de assentamento das aldeias e hipóteses para o colapso da civilização lacustre, escritos por mim. Cabe mencionar, finalmente, a participação de dois professores de destaque no cenário antropológico e arqueológico mundiais: a Profa. Anna C. Roosevelt (University of Illinois at Chicago) faz um brilhante estudo etnográfico comparando os Warao da Venezuela com os povos das estearias, encontrando paralelos importantes que servirão para a interpretação da cultura material, e o Robert L. Carneiro (American Museum of Natural History at New York) presenteia o livro com um texto teórico sobre os impactos do pós-modernismo e humanismo na Antropologia. Por fim, o arqueólogo Niels Bleicher, do Laboratório de Arqueologia Subaquática e Dendroarqueologia de Zurique, Suíça, escreve o posfácio desta obra, comparando as estearias com os sítios de palafitas da região dos Alpes.

Assim, o leitor tem a oportunidade de desfrutar de 20 textos escritos por autores provenientes de 11 instituições nacionais e internacionais, sobre diferentes temas e sob diversas perspectivas teóricas, cuja essência centra-se nas estearias e na Baixada Maranhense. Talvez, esta obra seja, também, o maior compêndio já produzido sobre esta importante região lacustre, de onde provém grande parte dos habitantes da atual capital da ilha do Maranhão, São Luís.

Boa leitura!

Alexandre Guida Navarro
Coordenador do Laboratório de Arqueologia da
Universidade Federal do Maranhão (LARQ/UFMA)
Bolsista de Produtividade do CNPq nível 2
São Luís/Budapeste/Zurique

AGRADECIMENTOS

Este livro é fruto do projeto de pesquisa "O povo das águas: carta arqueológica da porção centro-norte das estearias da Baixada Maranhense", sob o convênio firmado entre o Instituto do Patrimônio Histórico e Artístico Nacional (IPHAN) e a Fundação Sousândrade (8104114/2014/SUZANO/FSADU). Deste modo, a iniciativa da Historiadora Kátia Santos Bogéa, atual Presidente Nacional do IPHAN, foi primordial para a execução deste projeto, cujos resultados são apresentados aqui. Meus sinceros agradecimentos a ela, e ao seu estímulo e envolvimento com o crescimento e as pesquisas do Laboratório de Arqueologia da Universidade Federal do Maranhão (LARQ/UFMA).

Várias instituições participaram do deste processo, dentre elas destaco: Universidade Federal do Maranhão (UFMA), Programa de Pós-Graduação em História Social (PPGHIS) e Departamento de História (UFMA), Fundação de Amparo à Pesquisa do Estado do Maranhão (FAPEMA), Instituto do Patrimônio Histórico e Artístico do Maranhão (IPHAN), Museu Nacional (Rio de Janeiro), Museu Paraense Emílio Goeldi (Belém), Museu de História Natural de Nova York, Penn Museum (Filadélfia, Pensilvânia), Fundação Smithsonian (Washington DC) e Universidade de Illinois em Chicago, esta última onde fui pesquisador visitante e realizei um Pós-doutoramento de 2017 a 2018 com apoio da Fulbright Institution (modalidade Visiting Professor Award) e Edital FAPEMA n.º 47/2017.

Gostaria de fazer um agradecimento especial à Profa. Dra. Anna Curtenius Roosevelt, precursora da Arqueologia Amazônica, que conheceu a Baixada Maranhense comigo em janeiro de 2018, uma das

poucas regiões arqueológicas da Amazônia onde ainda não havia estado, e hoje possui uma parceria sólida com o avanço das pesquisas nas estearias. Obrigado por apoiar meus estudos nos Estados Unidos, assim como quero agradecer também às suas queridas irmãs Susan Roosevelt Weld e Alexandra Roosevelt Dworkin, que igualmente me acolheram em Washington e Nova York.

Agradeço a Robert L. Carneiro, renomado pesquisador do Museu de História Natural de Nova York, com quem pude dialogar sobre meus trabalhos nas estearias. Agradeço, também, à Laila Williamson, da Divisão de Antropologia do mesmo Museu, por intermediar a publicação do texto do pesquisador Robert Carneiro.

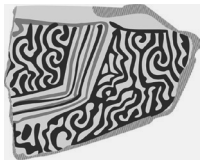
Quero agradecer aos diversos professores e colegas que contribuíram para a formação e aprimoramento do LARQ com seus conhecimentos e aqueles que ministraram cursos e palestras, grande parte deles escritores dos capítulos do livro. Ao museólogo Hélder Luiz Bello de Mello (LARQ/UFMA), pela sua dedicação ao trabalho arqueológico e aos estagiários José de Ribamar Silva Gonçalves Júnior, Karen Cristina Costa da Conceição, Flaviomiro da Silva Mendonça, Raquel de Lima Silva, Gabriel Ferreira Moreira Serra, Tayse Handreyza Mendes de Abreu e Elton Estácio Viana Menezes, todos do curso de História da UFMA. A Mayara Rocha Dias (curso de Design) e a Wilson Silva Garcia (curso de Pedagogia).

Estendo os agradecimentos a todas as demais pessoas importantes que fazem parte da nossa História: D. Neilse Silva Peixoto Vieira e Sr. Gládiston Vieira, D. Francisca das Chagas da Silva Amaral, à família da D. Rosa (Sr. Aluísio – *in memoriam* – e Eleilson); Sr. Roxinho; Sr. Lacraia; à família dos Abreu e em especial ao amigo Dimarcos Lobato; Homero Weba Filho; Girlene Pimenta Martins (que doou uma coleção de artefatos para o LARQ); Sr. Manoel; Sr. João e família; Sr. Fernando. Agradeço ao Sr. Antonio Evaldo Silva Ribeiro, Diretor de Garagem da UFMA, e ao professor de Biologia Francisco de Oliveira, que muito nos auxiliou em campo.

Ao atual prefeito de Santa Helena, Sr. Zezildo Almeida Júnior, e ao secretário de Meio Ambiente desta cidade, Saulo Pereira Arouche, pelo apoio da pesquisa no município. Agradeço, também, ao ex-secretário

de meio ambiente Sr. José Edkison Ferreira Nogueira (Zezinho) e ao ex-prefeito de Santa Helena, Sr. João Jorge Weba Lobato, pela ajuda concedida à equipe no campo. A Mary Aurea de Almeida Costa Everton e a Fábio Matta, fotógrafos que se dedicaram ao projeto e cujas imagens estão reproduzidas na obra.

Por fim, estendo meus agradecimentos a todos que ajudaram direta ou indiretamente este grande projeto.



CAPÍTULO 8

The Warao of the Orinoco Delta: A Culture of Stilt Villagers

Anna C. Roosevelt

Abstract

The discovery of prehistoric stilt villages in the estuarine wetlands of Maranhão state in eastern Brazil inspires a consideration of ethnographic stilt villages in South America. The indigenous Warao of the lowlands of the Orinoco delta are a numerous people whose cultural adaptation to their tropical forest floodplains includes houses built on pilings over water, as well as other structures. Here, we take a comprehensive look at the characteristics of Warao culture, as recorded over more than four hundred years. Though their culture is sometimes represented as a rare survival of early Holocene hunting and gathering, the evidence makes them seem more like a regional variant of greater Amazonian tropical forest culture. Although forced acculturation by missionaries, ranchers, saw-mill-owners, and farmers in the late 20th century has integrated some Warao into the western nations whose margins they occupy, most Warao still live in riverine or tidal forested wetlands very much as they have since the first records by European explorers. Traditional Warao society is still organized in extended matrilocal families around an older female, her spouse, her daughters, their spouses, and their offspring. Warao still live by seasonal exploitation of the fruits, sap, and stem starch of cultivated and domesticated palms, collection of the fruits of cultivated and wild trees, shrubs, and herbs, cultivation of starchy crops, and fishing. Hunting of most large animals is tabooed, but smaller species are sought, and domesticated

ducks are kept. The thatched structures of their dispersed settlements are built on platforms elevated on poles or on the ground at higher alluvial levees. Small ritual buildings in settlements include a women's ritual seclusion house on the west and on the east, a shrine with stone idols, ritual instruments, and a palm starch storage bin for seasonal festivals. The Warao rich religious ideology focuses on ancestral spirits and astronomical deities from a mythic cosmos established by the first shaman, a goddess called *Mother of the Forest*. Her alter ego the water serpent is embodied in the dugout canoe which Warao specialize in making. An annual festival patronized by leading women and officiated by priest-shaman of both sexes celebrates the harvest of Moriche palm starch with singing, dancing, feasting, and the making of special crafts. Renowned as hired navigators and indefatigable paddlers, the Warao have always actively traded their numerous useful products, from canoes, paddles, hammocks, and baskets to tame birds, hunting dogs, and smoked fish.

Introduction

Archaeologists have discovered well-preserved prehistoric stilt villages in the lowlands of Maranhão on the east coast of Brazil (NAVARRO, 2018). Evidence from these new sites indicate a long, dynamic occupation there. The wood posts from nine sites have been dated between about 6000 and 900 years ago, with most of the sites' dates clustering at about 1100 years ago (uncalibrated). These later prehistoric sites have abundant polychrome pottery with some similarities to pottery from contemporary mound sites on Marajo Island in eastern Para State to the north and from sites along the Brazilian coast further to the south (BROCHADO 1984; MEGGERS; EVANS 1957; ROOSEVELT, 1991; SCHAAN, 2004**)**.

But some of the Maranhão stilt villages had differently-shaped pottery with distinctive grooved rim decorations comparable to earlier prehistoric pottery of the Formative stage in the lower Amazon in eastern Brazil and the Guianas and Venezuela in the north (EVANS; MEGGERS, 1960; OLIVER, 2014; ROOSEVELT, 1978; ROOSEVELT, 1980, 1995; ROOSEVELT; et al. 1991; CRUXENT; ROUSE; OLSEN; ROOSEVELT, 1976). Dates at about 2000 BP

from several sites in the Baixada may be from such a Formative occupation. Furthermore, a post from one structure at the large site of O Encantado has given an earlier radiocarbon date of c. 6000 BP, comparable to dates from pottery Archaic sites in the lower Amazon and Guiana's coasts (ROOSEVELT, 1995; ROOSEVELT; et al., 1991). Such sites, occupied by fishing specialists, have produced the earliest pottery in the Americas. All these findings suggest that living in stilt villages was a special long-term adaptation to conditions of life in the eastern wetlands of Maranhão.

Although not exensively studied by archaeologists, historical records reveal that many estuaries of eastern South America were still settled by populations living in such stilt villages at the time of the European conquest. Tracing and collecting the accounts of these cultures could furnish an important context for understanding the stilt village cultures of Maranhão. According to early historical accounts, some Amerindian groups in the estuarine wetlands of eastern lowland tropical South America lived on platforms elevated on stilts, as well as on tree trunks (GUMILLA, 1791: chapter 9; RALEIGH, 1997, p. 156-163, 191-192). Little substantive ethnographic information about the stilt-village societies was gathered during Europeans' early visits, and few have been excavated until now (NAVARRO, 2018). Their occupation sites now lie under water for part or all of the year. Although complicated to excavate, archaeological wet-sites have the potential to yield unique information due to the excellent preservation of perishable materials in them (PURDY, 1990; 2001).

Only one of these pre-contact cultures seems to have survived as an intact society until today: the Warao of the Orinoco delta. Since prehistoric times the Warao have lived in stilt villages built along riverbanks and in the depths of the lakes, river channels, and swamps of the Orinoco Delta. The majority of their living population is located in Venezuela but there have long been Warao settlements in adjacent Guyana, Surinam, and Trinidad, as well. Although their culture and lifeways have been challenged in many ways since first observed during the European conquest of the Caribbean and South America, the Warao have managed to hold onto their ethnographic culture and identity for more than five hundred years.

Their name means people of the canoe or of the lowlands (there are two competing etymologies, HEINEN; et al., 1995), and although Warao cultural survival is sometimes attributed to their isolation in the inaccessible maze of tangled rivers, lakes, and swamps of the delta (HEINEN, 1988b; HEINEN; et al. 1995; WILBERT, 1972, 1980a), it is not known whether they choose to live in such locations for defense or for access to the abundant fish and large Moriche palm groves that abound in the interior lakes. However, since the earliest accounts of them, the Warao have been described as active traders and paddlers and navigators for hire, so not as isolated as some suppose.

The cultures of greater Amazonia were diverse and dynamic (BARONNE-VISIGALLI; ROOSEVELT, 2010; ROOSEVELT, 2013b), so living indigenous peoples may not live the same ways as any particular ancient culture. Nonetheless, understanding of prehistoric Amazonian cultures has been greatly helped by consultation and observation of living indigenous people and vice-versa. Stilt-village cultures that survived the conquest and their lifeways and beliefs, could enrich the interpretation of the ancient stilt villages of Maranhão. To delineate an ethnographic model with which to approach the future archaeological excavations there, this paper explores the available ethnohistoric and ethnographic information on the life-style and social-political culture of the Warao of the mouth of the Orinoco river, the largest surviving population living in stilt-villages. The purpose of this paper is to summarize basic information on the Warao, explain how they have been theorized, summarize factual issues about them, and thus make their information available for comparison with the archaeological stilt village cultures of Maranhão in the future.

The Warao

Without much history and prehistory to go on, those who study the Warao have had to speculate about their history and evolution, and not a few of their speculations seem misplaced. Some ethnographers have assumed that the Warao are an ancient, relict hunting and gathering culture descended from the early marine Holocene foragers known from archaeological sites on the Caribbean coasts of South America

(WILBERT, 1972, p. 65-115). Such scholars suggest that fish were the main food of the Warao, in the distant past. Most anthropologists represent the Warao as traditionally living by foraging on wild, wetland palm fruits, palm heart, and palm stem starch, supplemented with tree fruits, fish, and small game until cultivated plants were introduced by other Indian groups, such as the Arawak and Caribs, and by European settlers and missionaries (HEINEN, 1988a, p. 611-618; HEINEN, 1988b; WILBERT, 1972, p. 65-115; SANOJA; VARGAS ARENAS, 1995, p. 359-382; WILBERT, 1980a). Heinen and his colleagues (1995) later changed their opinion to allow for traditional Warao cultivation of moriche palm and some field crops).

There is though no archaeological evidence supporting the speculative history of the Warao as pure foragers. The Warao, in fact, represent horticulture as part of their culture created by culture heroes in the time of origins (ROTH, 1915; WILBERT, 1972, p. 91). Contrary to some anthropologists' assumptions that the plants Warao traditionally have relied on are exclusively wild plants and animals only collected or hunted for food, many of the species are known to be ancient domesticates, cultigens, or intensively managed plants, rather than wild species. The plants include moriche (*Mauritia excelsa* L.), açaí, (*Euterpe oleraceae* Mart.), and temiche (*Manicaria saccifera* Gaertn.) palms, and South American taro (*Xanthosoma sagittifolium*). Some species used by Warao were brought into cultivation elsewhere, and wild species are not found in the Warao area. Others are wetland species likely to have been brought under human management in lowland habitats like the Warao homeland. There's no reason to assume that their use was introduced there from elsewhere. Therefore, domesticated or cultivated species are an important part of traditional Warao economy and ritual. Thus, the Warao known since historic times cannot be said to be relict foragers.

In many ways, Warao lifestyle and culture is similar to that of lowland South American tropical forest horticulturalists of greater Amazonia (KIRCHOFF, 1948). Seasonally, the Warao rely heavily on palms, like most Amazonians, and they cultivate a celebrated domesticated palm, the peach palm (*Bactris gasipaes*). Warao in some homeland areas also cultivate ancient and widely used South American staple crops such

as manioc and maize, and many use common domesticated condiments like chile peppers and fruits such as pineapple. Other Warao staple crops, such as South American taro (*Xanthosoma sagittifolium* L. Schott), are widely planted and cultivated by tropical lowland Indians east of the Andes. In fact, botanists consider northeast Venezuela, where the Warao live, as a likely place where the species was originally brought under cultivation. And like the Warao, tropical forest horticulturalists who live in river floodplains throughout greater Amazonia rely on fish as their faunal staple, rather than on game, so the Warao reliance on fishing as opposed to hunting does not set them apart from other tropical forest Indians. Warao material culture of artifacts does not differ significantly from other lowland Indians, either. Though some Warao don't make pottery, others do, and there are prehistoric pottery sites dotted through their homeland. Furthermore, the Warao share a creation story and mythic cosmology similar in many details to those of other tropical forest Indians. Top deities they recognize: the sun and a woman shaman with anaconda alter ego, are shared with many of the others. Large numbers of indigenous Amazonians, like the Warao, attribute their origin to ancestors who were born from the canoe-shaped body of the Serpent Goddess. And some of these peoples in lowland South America, like the Warao, organize their residential compounds around a woman and her daughters, whom they honor with special initiation rites, though others organize around a man and his sons.

History of contact

Early in the exploration of South America and the Caribbean, the Warao were contacted by Europeans navigating the coasts of the mainland and the island of Trinidad and into the delta of the Orinoco (HEINEN, 1988a, p: 597-604; WHITEHEAD, 1997). Their arrival caused a time of turmoil, with different Indian groups attacking others at the behest of different competing European nationalities (KEYMIS, 1596). At the time, as now, the Warao were living both on lakes in the interiors of the delta islands and on the levees of delta rivers and the adjacent coasts. Warao were engaged in trading with others at that time, and Europeans joined that trade, exchanging metal tools, cloth,

and trinkets for items such as dugout canoes, fish, and fruits. Without spending significant time in Warao settlements, some Europeans explorers reported that the Warao lived solely on fishing and collecting of fruits, asserting that they lived entirely without use of agriculture or animal husbandry (e.g., RALEIGH, 1997, p. 156-163). Based on reports like Raleigh's, some anthropologists have assumed that the early historic Warao were pure hunter-gatherers and that the crops that Warao were planting during later observations in the 19th and 20th century were introduced to them by other Indian groups (HEINEN, 1988a; SUAREZ, 1968; WILBERT, 1972, 1980a). However, this conclusion by ethnographers seems not to be accurate, as the Warao traditional subsistence relies heavily swamp-adapted root crops and on palms and trees that botanists classify as domesticated and/or cultivated.

After the period of initial colonization, sporadic contacts with the Warao were reported over the centuries of colonial and national development. Warao underwent mainly protestant missionization by the mid 19th century in British Guiana (e.g., SCHOMBURGK, 1847-1848; BRETT, 1852, 1881) but missionary contacts by Catholics did not become common or intrusive in the Venezuelan part of the delta until the mid 20th century (BARRAL, 1960?; HEINEN, 1988a, 597-604; SUAREZ, 1968, p. 3-4; WILBERT, 1980a). Catholic missionaries in Venezuela made it a point to try to travel to every known Warao community in order to gain access and "*to form the new mentality of the sons of god*" (BARRAL, 1979, p. 528, 600, 706; Dupouy in BARRAL, 1960?, p. X-XI). After mission stations were built on river levees on the southern margins of the Warao area in Venezuela, the priests persuaded some families to send their very young children to the stations to be "interned" in regimented boarding schools. But in both Venezuela and British Guiana much of what the youths did in the mission stations was the basic work to maintain and supply the missions and work on mission businesses such as sawmills, without pay. Their educational achievements were minimal. During the period from the 1940s to the 1980s, many Warao were persuaded to take European names (Botuka in HEINEN, 1988b, p. 114-116; Morokoni in HEINEN, 1988b, p. 110-113, 117-119); most, however, also kept indigenous "nicknames"

or family-related names, and continued to hold traditional beliefs and observe traditional rituals. Some shaman, though, were perusaded by priests to stop performing certain curing rituals and songs (OLSEN, 1996). Some Warao have merged with the Mestizo population of the lower Orinoco and delta, but large numbers of Warao in Venezuela seem to be continuing traditional ways away from the missions and riverbank settlements, in the swamps of the interior of the delta islands. Their DNA, as we shall see below, is very uniform and does not reflect mixture with people of European origin.

When national Venezuelan populations came into the Warao area by the 1950s to establish farms and ranches they employed Warao. Ethnologists have said that slash and burn field-crops such as maize and manioc were introduced into the Warao economy at this time, but as we shall see, some of these crops were already under cultivation in the Warao area more than a century before. Although ethnologists tend to portray these changes as going from an indigenous system of pure foraging to farming, such changes would more acccurately be described as adding field-cropping and new forms of animal husbandry to agroforestry and root cropping supplemented with fishing and shell-fishing. Furthermore, the establishment of settlements on riverbanks by Warao families would be a re-establishment, rather than an unprecedented, new pattern, since they had previously occupied such places, according to the earliest accounts, mentioned above.

How do the Warao who have been interviewed speak about acculturation and their relation to the larger state society? Some praise the missionaries for teaching and representing them (HEINEN, 1988b), but most describe with resentment their unequal relationship with both the state and national citizenry. They say that the settlers, whom they term *Criollos,* have circumscribed their access to resources and information and that neither Venezuelan nationals nor national institutions carry through on their agreements with Warao. They understand that acculturation means descent to an underclass at the margins of western society.

They characterize their position in the national society as marginals and "slaves" (Katose in HEINEN, 1988b, p. 106-108): *I want the children to go with me and learn how to fish. When we go to the moriche palm*

groves to gather sago starch, I want our children to be with their mother and myself. If they don't learn how to gather palm starch and to catch fish, they will have no other choice but to work for the criollos. They will become the slaves of the criollos. Yes, dahe, that is why I do not send my children to school. If we forget how to live in the forest, we will all become slaves of the criollos. We will be clearing fields for them to grow rice. We will cut lumber and palmito for them. And we will be carrying boards the whole day in the sawmill. I like to fish and to live in the forest. In a similar vein, another Warao man says: *Our late forefathers showed us, so this custom will always go on. We Warao cannot change and become something else. If one knows how to live in the forest, it is not work. If we abandon living in the forest the way our ancestors lived, we will be sitting around here waiting for the criollos to give us work. Then we will depend on the criollos for food* (Idamo Kabuka in HEINEN, 1988b, p. 108-109).

Anthropological research on the Warao

Some naturalists, administrators, and missionaries conducted scholarly quality observations on Warao communities and habitats (e.g., BRETT, 1852, c. 1880, p. 50-86, 1881; HILHOUSE, 1825, 1834; ROTH, 1915, 1924; SCHOMBURGK, 1847-1848). Their curiosity and ability to observe and their scholarly depth and breadth - with interests ranging from botany and zoology to the tiny details of women's craftwork - are extraordinary. The first extensive modern ethnographic studies were carried out by missionaries in the mid-20th century missionaries (e.g., BARRAL, 1957a, 1957b, 1958, 1964), who had diverse anthropological interests from linguistics to simple vernacular songs.

Concerted research by anthropologists on the Warao also began about the same time, by a group of anthropologists of varied interests (HEINEN, 1988a, p. 604-608). Some of the anthropologists collaborated quite closely in both research and reporting. Johannes Wilbert of UCLA took a leading role and made significant contributions to the literature on the Warao (1956a, 1956b, 1963, 1976, 1980a, 1980b, 1987, 1993). His writings have explored numerous different aspects of Warao culture. His most important contribution was probably the collecting, interpreting, and publishing of Warao folklore and ritual as part of his major systematic publishing program on Amerindian oral

literature (WILBERT, 1964, 1970, 1993). But his articles and volume on Warao oral literature usually paraphrase Warao stories rather than quoting the exact words used, a process which allows the filter of western culture more scope to impact the stories. Also, he and his colleagues sometimes leave untranslated the names of heroes, demons, and deities in the stories. When translated, such names can yield very important information on the phenomenological and conceptual nature of mythic figures and their ecological characteristics and their connections to the cosmologies of other lowland Indian societies. Not knowing the names' meanings can diminish for the reader the level of interpretation possible but is very remediable by future translation projects.

Another feature of Wilbert's ethnographic work was its tendency to masculinism. Although he acknowledged that the Warao main deity was female and that Warao extended families were organized around an older female head, her descendants, and their affines, he cites no interviews with Warao women, only interviews with men. Like Gerardo Reichel-Dolmatoff, Wilbert also based his reconstructions of Warao cosmology on the testimonies of only a handful of male shaman. He also never examined the leadership roles of women and used pejorative or demeaning terms for female roles and associated structures and elevated terms for male ones. Thus, the small shrine he attributed to males was a "temple", but the female ritual structure was a "hut", despite their similar dimensions (WILBERT, 1972, 1980a). He mostly refers to the key ancestral "gods" called Kanobo as male characters, though he acknowledges that the central female snake-godess also was a Kanobo (WILBERT, 1993). The only shaman and priests he consulted were men, though he acknowledged that women also were shaman and conducted ceremonies and Warao reflect this practice in their verbatim texts that others have published. In this, Wilbert contrasts with an earlier eminent researcher on Warao myth and ritual, Walter Roth, who frequently interviewed older women and included their stories and insights (e.g., 1915, p. 194,196, 256). He also contrasts with the missionary Barral, who wrote a whole article with texts of mother's lullabys (BARRAL, 1957b) and included important

statements by women savants about Warao religious beliefs (e.g., BARRAL, 1969, 1981) and pictures of women ritualists conducting public ceremonies (e.g., BARRAL, 1979, p. 358).

Another very important ethnographer of the Warao is Dieter Heinen, who cites Wilbert as a mentor. Heinen has developed a comprehensive synthesis of Warao historical ecology (1988a). Although originally in the theoretical mode of environmental determinism, in later works he included information about possible effects of Warao management and cultivation in their environments as new information emerged (HEINEN; et al. 1995). Like Wilbert, Heinen mostly cites male informants, but his work adds a significant valuable new element to the evidence: numerous verbatim recordings, transcripts, and translations of the exact words of Warao informants. Through such records, one can look at how Warao characterize things, in contrast to how the ethnographers do. Both Heinen and another Wilbert protege Dale Olsen have remedied the lack of quotes of Warao songs and stories by publishing several extensive verbatim songs and testimonies (HEINEN, 1988b, 2009; HEINEN; GASSON, 2008; OLSEN, 1996). These very useful accounts allow the Warao to speak for themselves and for other researchers to form their own interpretations.

Venezuelan anthropologist Maria Matilde Suarez conducted several years of research on the Warao starting around 1963 (1968, 1971). Her focus is on Warao social organization, kinship terminology, and marriage customs. Her treatments of general Warao society tend to follow similar assumptions as Wilbert and his colleagues, but she differs with them on social organization, rejecting the characterization of the Warao as matrilineal because of the lack of corporate linages with time-depth. She hypothesizes that under missionary and Criollo influence in the 20th century the Warao were evolving from a matrilineal kinship system to a cognatic one (SUAREZ, 1971, p. 63, 97, 114-115). However, she acknowledges the very strong influence that Warao matrilocal residence gives to the preferential rights of the female descent group to the house and household members and the consequent strong preference Warao express for female children (SUAREZ, 1971, p. 88-89, 91-96). Some of her publications include numerous photographs of the Warao in the 1960s (SUAREZ, 1968).

Culture history of the Warao

In the absence of empirical information about the Warao past, Wilbert and Heinen had to speculate about their prehistory and history. Like some other early ethnographers of the 20th century, Wilbert used progressive theories about human evolution to organize and interpret ethnographic information but could not test the theories with evidence because that would involve archaeological research. In his time, leading anthropologists who edited the Handbook of South American Indians saw the indigenous past as a succession of discrete evolutionary stages limited by habitats. They believed that hunter-gatherers and tropical forest tribes (KIRCHOFF, 1948; STEWARD; FARON, 1959, p. 441-442) would not have had temples, idols, and social classes, so the Warao must be a devolved society originating from a migration from the central Andes. Wilbert (1956a, 1972, p. 3-12) employed a version of this paradigm derived for the Caribbean coasts of South America and the Antilles (CRUXENT; ROUSE, 1958-1959; ROUSE; CRUXENT, 1963). The sequence involved possibly Caucasoid Paleolithic big-game hunters with flaked stone projectile points, Mesoindian marine foragers with ground-stone and bone tools, and Neoindian Formative agriculturalists using ceramics and weaving (WILBERT, 1993, p.145-146). Because Wilbert classified the Warao as Mesoindian foragers living in a difficult habitat, he felt that they would not have developed a temple-idol cult, themselves, so he hypothesized that there had been a migration into their area from the Andean civilizations that influenced their culture (1956). Mario Sanoja and Iraida Vargas Arenas (1995), Venezuelan archaeologists influenced by prominent mid-century American archaeologists from the Smithsonian Institution, extended these theoretical formulations with a Marxist, environmental determinist interpretation of the Warao past. Their scenario envisioned the Mesoindian ancestors of the Warao being pushed from the Venezuelan coasts by Formative-stage ceramic-using agriculturalists coming in from the Andes.

But what is now known about greater Amazonian Indians shows a more complicated picture (BARONNE-VISIGALLI; ROOSEVELT,

2010; ROOSEVELT, 1994). From the many cultures discovered and dated since then in the tropical lowlands of South America, we now know that the Paleo people were not of European origin but Amerindian and were mostly not big-game hunters but mixed foragers. At about the same time, 11,000-10,000 BP, there were broad-spectrum hunter-gatherers in the far north of the continent, mammoth and bison hunters in the high plains, fishers/shellfishers on both the California and Peruvian coasts, palm and tree-fruit collectors/fishers in the Amazon, hunters of rheas and guanaco on the Southern Cone pampas and forests, and fishers/shellfishers in Tierra del Fuego (ROOSEVELT, 2000a; ROOSEVELT; et al. 1996, 2000a, 2000b, 2002, 2009). Excavations in tropical lowland South America show that the early Paleoindians had a broad-spectrum ecological adaptation with an emphasis on fishing and collection of palm fruits, a pattern that continues in parts of the area to this day. They also show that first ceramicists were intensive riverine and coastal foragers contemporary with the "Mesoindians" of the north Venezuelan coast (ROOSEVELT, 1995; ROOSEVELT; et al. 1991). The sites are called shell-middens, but most of the faunal food they represent were fish, not shellfish. Shellmound sites of these early potters have been found in parts of the Warao homeland (BRETT, 1881, p. 132-137, 251, 257-158; EVANS; MEGGERS, 1960; ROOSEVELT; 1995; ROSTAIN, 2008; WILLIAMS, 1992). In fact, one of the earliest shellmound pottery cultures is named after the Aruka, a tributary of the Barima river, where Schomburgk visited many Warao villages in the early 1840s (SCHOMBURGK, 1847, map after p. 470; 1876). Formative agriculturalists of the Saladoid/Barrancoid tradition first arose in the Orinoco, not in the Andes, and early archaeological sites of their culture are found in the Orinoco homeland of the Warao (CRUXENT; ROUSE, 1958-1959; OLIVER, 2014; ROUSE; CRUXENT, 1963; SANOJA, 1979; SANOJA; VARGAS ARENAS, 1995; VARGAS ARENAS, 1981; VERSTEEG, 2008). In late prehistoric times some populations in the Amazon and Orinoco organized paramount chiefdoms, built mounds, and relied on intensive agriculture rather than slash and burn horticulture (CRUXENT; ROUSE, 1958-1959; ROOSEVELT, 1980, 1997, 2016; STENBORG, 2004), and a phase of the culture extends

to the Orinoco delta. So it seems possible that the Warao must have participated in all these cultures.

Anthropologists did not at first consider that the traditional Warao could have been both cultivators and foragers. Most greater Amazonian Indians living today do both and have done so for thousands of years; most of those classified by evolutionists as hunter-gatherers are not (ROOSEVELT, 1998). Recent research on tropical lowland subsistence shows that tropical agroforestry is an important form of purposeful plant cultivation today, not only the open-field cropping or slash and burn (ANDERSON, 1988; BALEE, 1989, 2013; POLITIS, 1996, 2007; SMOLE, 1976). Most living tropical forest cultivators also rely heavily on foraging, especially fishing. Wilbert and his colleagues did realize that some of the palms and trees Warao rely on are cultivated species, not wild ones, and that their clusters in the delta could not persist indefinitely without human intervention (HEINEN; et al. 1995; WILBERT, 1980a). But they attributed the field crop cultivation that they observed Warao doing as having been introduced by foreigners in the 20th century. However, both maize and manioc seem to be ancient crops in the lower Orinoco (OLIVER, 2008, 2014; ROOSEVELT, 1980, 1997, 2016), and 19th century accounts show Warao relying on them in parts of their homeland then, too (ROTH, 1915; SCHOMBURGK, 1847, 1876). Other Warao field crops observed then and now also are traditional cultigens. So, what could be the history of Warao use of all these domesticates and cultigens? Without detailed archaeobotanical sampling from stratigraphic excavations in the Warao homeland, we just don't know.

As mentioned, the ancestors of the Warao are thought by anthropologists to have lived in a wider area than their current homeland of the Orinoco Delta (KIRCHOFF, 1948, p. 869-870). Scholars have pointed to the occurence of Warao-like indigenous placenames all along the Caribbean coast from Columbia to the mouth of the Orinoco in Venezuela (SANOJA; VARGAS ARENAS, 1995; WILBERT, 1957) and to the location in Trinidad of an important mountain sacred to the Warao (HARRIS, 2011). Based on possible Warao-related toponyms, some linguists and archaeologists also have theorized that the

earliest inhabitants of the Caribbean islands were Warao-speakers (GRANBERRY; VESCELIUS, 2004), though their evidence is pretty scant, consisting of only a word here and there.

So far, though, there is little evidence with which to evaluate the hypothesized movements of Warao and their ancestors. As yet, no archeological culture has been associated with the Warao. Are the early Archaic shell-middens in the Orinoco delta the remains of Warao ancestors? If so, they seem to show a very early transition to pottery in the area. Is the Saladoid/Barrancoid pottery in delta sites a relic of the Arawak movement down the Orinoco? The enthusiasm for identifying the culture as ancient Arawaks is not matched with evidence of a linguistic connection where people now speak Arawak, and the movement of cultures of the horizon is just as likely to have ascended the Orinoco as descended, given that the earliest dates are in the middle and lower Orinoco, not in the upper Orinoco, based on the radiocarbon dating. However, most sites of these styles have not yet been dated definitively, so we still don't know the full history of the pottery style. Another conundrum is that the Warao are supposed to have taken refuge in the swamps of the Orinoco Delta to escape from attacks by cannibal Caribs. The Arauquinoid archaeological cultures mentioned above are sometimes associated with ethnohistoric Carib speakers in the lower and middle Orinoco (GUMILLA, 1791; LATHRAP, 1970), and related late prehistoric pottery styles of the Guarguapo phase have been found in the Orinoco delta (CRUXENT; ROUSE, 1958-1959). Do these sites represent the cannibals of Warao myths? Other tropical lowland major cultural horizons are clearly multi-, not mono-, linguistic (ROOSEVELT, 1991). All these questions must await systematic archaeological exploration of the delta.

Language of the Warao

The Warao language is agreed to be an isolate, according to the many reports by linguists and ethnographers (**Fig. 1**) (CAMPBELL, 1997; SEIFART; HAMMARSTROM, 2017, p. 264). The language's distinctive vocabulary and word order - object/subject/verb - contrasts

with that of all the other languages in the area (HERRMANN, 2002). Linguists had linked Warao to the Macro-Paezan family (GREENBERG, 1960), but no detailed linguistic analysis yet supports this assignment. Warao vocabulary has long been observed to include words from these and other language groups, such as Arawakan and Cariban (BARRAL, 1958, 1979,), but linguists (CAMPBELL, 1997; SEIFART; HAMMARSTROM, 2017, p. 264) have now accepted these words as probable borrowings that occurred during the existence of the Warao for hundreds if not thousands of years at the nexus of travel between the Orinoco, Guianas, Caribbean coast, and Caribbean islands and the people's long tradition of active trading and work in navigation and rowing services (HILHOUSE, 1825). Lending of words has also gone from Warao to others. Linguists find that the Taino word for ceremonial seat, duho, is likely derived from with the Warao word duhu, stool or to sit (MOSONYI; et al. 2000), for it has no Taino etymology. Other authors also find Warao-related words in toponyms in the Greater Antilles, suggesting thereby that the Archaic cultures there may have come from the Warao homeland in northeastern Venezuela (GRANBERRY; VESCELIUS, 2004; WILBERT, 1957). According with this view, recent DNA comparisons of mainlander indigenous groups, including the Warao, suggest that Caribbean Island populations have a strong, unitary geographic origin in populations from the Amazon and Orinoco (MORENO-ESTRADA; et al., 2013). However, attempts to find genetic similarity of Warao with groups of the Chibchan language family have not succeeded (LAYRISSE; WILBERT, 1966; LAYRISSE; et al., 1963). Linguists also have identified Warao-related words in post-contact indigenous languages along the north coast of Venezuela (GRANBERRY; VESCELIUS, 2004). Such relict words could have spread through the trading network or could reflect prior residence in those areas by Warao ancestors, a pattern predicted by some ethnologists and archaeologists (SANOJA; VARGAS ARENAS, 1995; Wilbert note in Barra, 1957a; 1972). However, recent linguists have challenged archaeologists and anthropologists to critically examine and test their assumptions about the spread of languages and other cultural elements during prehistory (CAMPBELL, 2002).

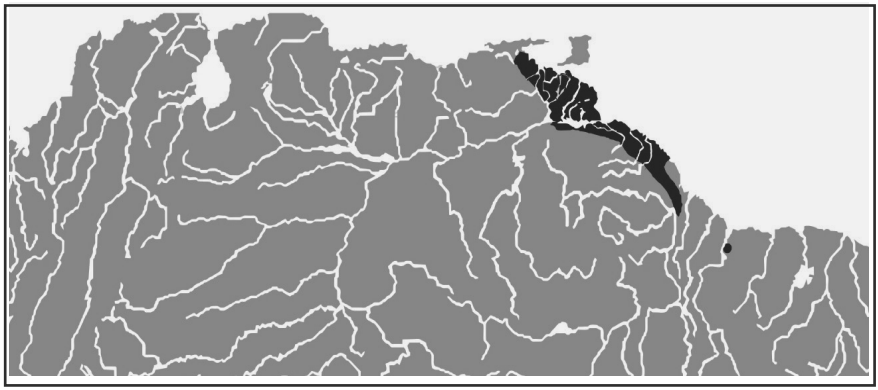


Fig. 1: Warao language distribution (Davius. Wiki Commons).

In the hundreds, if not thousands, of years the language has been spoken, there has been little diversification within the Warao population. Observations by the respected British colonial polymath Im Thurn suggest that dialectical variations among the Warao in his time consisted merely of slight differences in pronunciation (1883, p. 165) and that was still the case a hundred years later (BARRAL, 1969; SUAREZ, 1968). Thus, within its wetland forest homeland, this canoeing people has maintained good internal communication. Despite their long participation in trade and labor with others, Warao populations were protected by their relative geographical isolation from forced linguistic acculturation until very recently. Their homeland is surrounded by large, fast rivers and its interior is protected by the maze of islands and waterways, everchanging due to the twice-daily tides and seasonal and periodic floods. Nonetheless, their ecological, social, and religious culture falls squarely into the widespread eastern lowland tropical forest South American culture area. Thus, they are an example of linguistic but not general cultural separation with the outside. This accords with much evidence that Amazonian supraregional cultural styles did not separate language groups but integrated diverse languages within them (e.g., ROOSEVELT, 1991).

Biological anthropology and genetics of the Warao

The anthropologists who have studied the Warao have pursued a number of collaborative studies of their physical anthropology (GENDZEKHADZE; et al., 2004; LAYRISSE; WILBERT, 1966; WILBERT; LAYRISSE, 1980, p. 115-165).

To summarize what is known so far, the Warao clearly are Amerindians and have the straight or wavy black hair, olive skin, and dark eyes common in those populations **(Fig. 2)**. They also are comparatively long-headed (dolichocephalic). This is a trait that they share with most Paleoindians and early Archaic people, but this does not necessarily make them more like Archaic and Paleoindian foragers than like the living horticultural, ceramic-using people in lowland South America. A relatively elongated head-shape is widely shared among living indigenous populations in eastern lowland South America (GREENE, 1986; ROOSEVELT, 1991, p. 384-395; WILBERT; LAYRISSE, 1980, p. 139-151).

Fig. 2: Young man (CREVAUX, 1883, p. 617).

Mid 20th century researchers on the Warao (LAYRISSE; WILBERT, 1966; WILBERT, 1972) espoused early theories that the first migrants to the New World might have come at least 50,000 years ago. By this date, it was assumed, Mongoloid populations had not yet evolved, so the migrants must have been Caucasoid or proto-Caucasoid. This racial conclusion was not however bolstered by any

evidence that Caucasoids preceded Mongoloids in prehistoric times, so it seems to derive from the late-Colonial era concepts of some Euro-American scholars that whites must have evolved earlier than other races. Consistent with the assumptions of the time, the early researchers on Warao also thought Paleolithic people would have been specialized big-game hunters.

Studies of the genetics of Warao Indians, however, show that the group is very homogeneous immunologically and shows no genetic evidence of mixture with ancient Europeans or Africans or with Europeans, Africans, or Asians arriving with the conquest (GENDZEKHADZE; et al., 2004). These patterns accord with the apparent culture history of the population as being spatially localized in the Orinoco Delta forested wetlands as a refuge from intrusion, acculturation, and biological merger with the national populations surrounding them. The total lack of any immunological genetic patterns shared with Europeans in the samples studied seems definitive evidence of their continuing Amerindian biological identity.

Warao men are 100% of the Y chromosome Q M3* lineage, which is common among South American tropical lowland indigenous samples. The Warao Y-chromosome entry to the Americas is calculated at c. 14,000 years (BORTOLINI; et al., 2003), which would be about 12,000 years radiocarbon, almost exactly the beginning date of the Nenana early Paleoindian culture in Alaska and Yukon Terri-tories, Canada. This lineage is considered ancestral to the Q-M19 Y-chromosome lineage that has a more restricted distribution in South America (ALVES-SILVA; et al., 2000). Thus, Warao genetics as now known are consistent with the arrival of Paleoindians in the terminal Pleistocene, not before the Late Glacial Maximum at c. 20,000.

Location and demographics

For hundreds of years at least, the Warao have lived in the wet tropical forests and swamps of the Orinoco delta, primarily in Venezuela and to a lesser degree in Trinidad and Tobago, Guyana, and Surinam **(Fig. 3**). They are already very recognizable in various explorers' accounts by the sixteenth century. At the end of the

sixteenth century, Raleigh noted that virtually all of the large, low-lying delta of the Orinoco was occupied by them (RALEIGH, 1997, p. 132, 158-161, 165, 191-192). "*Al those that inhabite in the mouth of this river upon the several north branches are these...*" (RALEIGH, 1997, p. 158). According to Neil Whitehead (1997, p. 158), "*Raleigh accurately names the Siamani and Waraouwitu ("true Warao"), related groups together comprising the Warao or Tivitivas*". Ethnographers in the mid 20th century noted that local resident groups' names derive either from the names of the streams where they live or the name of a leader (SUAREZ, 1968).

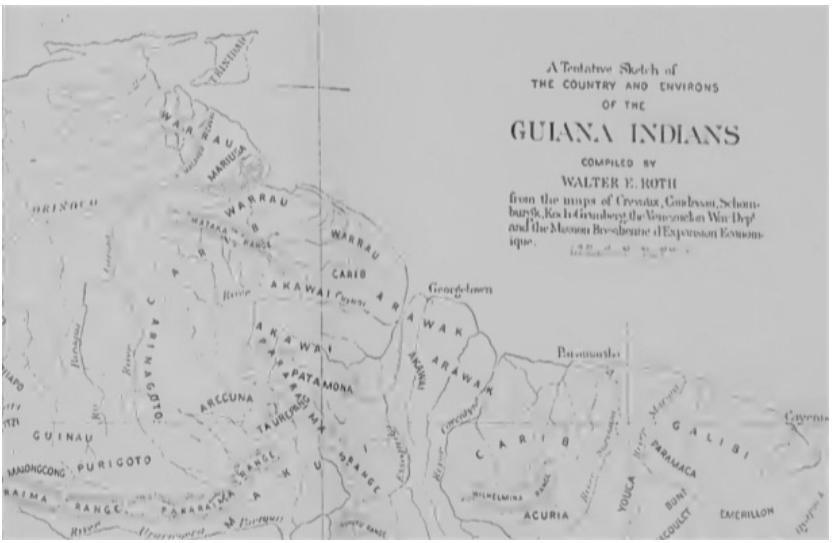


Fig. 3: Map of Indians in Guiana and Venezuela (ROTH, 1924, p. 69).

Despite diminishing in numbers due to epidemics from new infectious diseases introduced during the contact period and to being driven from some of their land by Europeans (PLASSARD, 1868; SCHOMBURGK, 1840, p. 48), Warao populations recovered and have maintained sizeable populations for a long time. Some 19th century missionaries and researchers working among the British Guiana Warao mentioned a reduction of population at the time and estimated Warao numbers in the lower thousands, but it's not clear they were speaking of the entire delta population (BRETT, 1852, 1881). Though population density has now diminished somewhat from the highest estimates, they still numbered up to 70,000 in the mid to late 20th century (HEINEN,

1988a, 620-623; HEINEN, 1988b; HEINEN; et al., 1995; WILBERT, 1980a; WILBERT; LAYRISSE, 1980, p. 167-247). In the late 20th century, Warao still maintained quite robust health (WILBERT; LAYRISSE, 1980, p. 160-165). They had generally good nutritional status, the only deficiency noted being anemia, not uncommon in even in the national population. The main complaints brought to health clinics were dysentery, skin infections, and respiratory ailments with fever. Parasitic infections from malaria, Leishmaniasis, Chagas, Yellow Fever, and malaria were not found. But recently, Warao health has been affected by serious infectious diseases brought by increased contact with outsiders since the late 20th century (SEMPLE, 2018), but those ills are found more among Warao who choose to follow occupations in areas of national populations, missions, and businesses. But diminishing general immunity due to poor life conditions may be related to the rash of mysterious illnesses recently reported (ROMERO, 2008).

Habitat

The Warao inhabit a highly diverse and productive habitat (BEEBE; et al., 1917; LASSO; SANCHEZ-DUARTE, 2011; LASSO; et al., 2010; SCHOMBURGK, 1847, 1848), though it has experienced some severe recent stresses from ranching, intensive cash cropping of rice, timbering, and oil exploitation. The habitat of the Warao is basically a fluvial one, not a marine coastal one as insisted on by some ethnographers (WILBERT, 1993, p. 145-146). As is the case with the Amazon, the Orinoco river brings so much water and sediment out its mouth that it pushes away the mass of salt water that would otherwise bathe the coasts there. Salt water only threads in during the dry season when the flood of fresh water diminishes, but this only causes brackish water in the ouths of some streams, and the majority of the land is flooded by freshwater, either from the rains or from the Orinoco's seasonal overflow.

The terrain in the Orinoco delta is swampy and of low but variable topography. The Orinoco brings to the delta a large amount of sediment, which tends to settle out as the water speed is slowed as it meets the ocean. Higher land in the region has been produced

by alluvial deposits built up near stream channels **(Fig. 4)**. Countless riverine islands divide the labyrinth of large and small streams that flow through the floodplains **(Fig. 5**).

Fig. 4: Orinoco Delta banks (CREVAUX, 1883, p. 597).

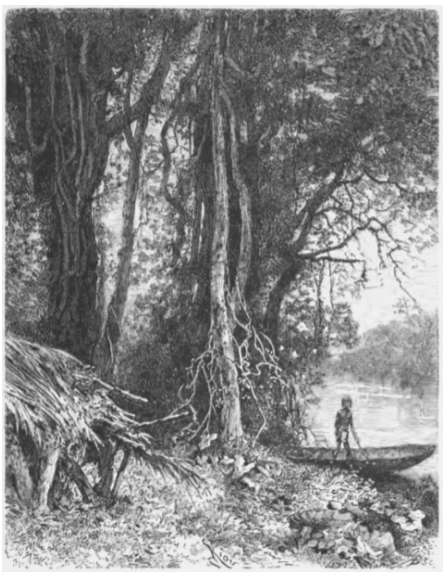


Fig. 5: Orinoco Delta channel at Macareo (CREVAUX, 1883, p. 603).

The vegetation of the delta is primarily seasonally or tidally flooded tropical rain forest, though low river levees and bottoms support herbaceous vegetation in early stages of their emergence. Near

the Atlantic coast where brackish water enters, mangrove vegetation predominates **(Fig. 6)**. Much of the vegetation is adapted to frequent flooding due to the generally high water table and twice-daily tides along the Atlantic coast. The average water level varies by the major seasons, receding more during the dryer months of winter and rising during the summer rainy season. During rainy season the water level rises several meters, flooding much of the terrain, creating islands of the higher land. The alluvial islands, favored for settlement traditionally, tend to develop a bowl-like topography with ponds or lakes at the center because their edges receive more sediment than their interiors. 20th century ethnographers describe these swamps in the interiors of the large delta islands as the "real" habitat of the Warao (HEINEN, 1988a, p 608-611; HEINEN; et al., 1995; WILBERT, 1972), but the Warao since contact are documented as also living on the non-flooded levees of delta rivers and headwaters of creeks (CREVAUX, 1883; RALEIGH 1997; SCHOMBURGK, 1847). People make expeditions from one microhabitat to another for seasonal food resources or materials. Their houses on the floodplain are elevated on posts or tree trunks over the water **(Fig. 7**). On terra firme land, their houses are build on the ground (**Fig. 8**). Because of the division of the land by countless river channels, the Warao are inveterate canoers (**Fig. 9**).

Fig. 6: Orinoco Delta mangroves (CREVAUX, 1883, p. 595).

Fig. 7: House on stilts (HILHOUSE, 1834, between p. 321-323).

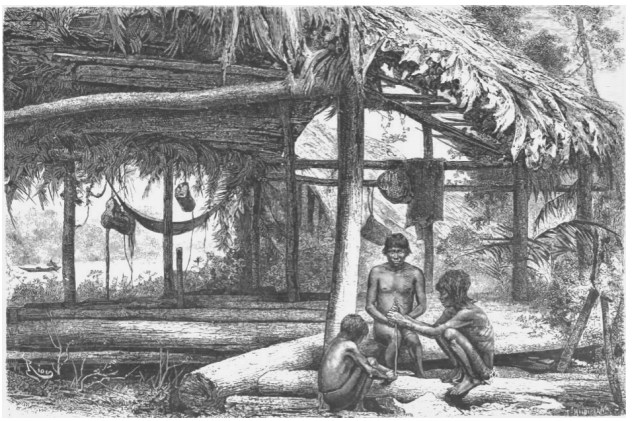


Fig. 8: House on terra firme (CREVAUX, 1883, p. 609).

Fig. 9: Family and their dog in canoe
(SUAREZ, 1968, photo 9 by Thea Segall).

Seasonal environmental changes affect the availability of the important food resources such as the palms, ocumo, and the water fauna, especially fish and turtles. So, moriche fruit and the starch of its trunk are available during the dry season, when fishing productivity also is high. Fish are scarce in the expanded and muddy waters of the rainy season flood, but the nutritious moriche sap is abundant and also its flowers, resources that most observors do not mention. Ocumo is cultivated in the dry season, when muddy bottom lands are exposed. In terra firme swiddens, the field crops are planted near the end of the dry season, just before the rains return.

Although there's scant acknowledgement in the modern literature, 19th century naturalists recognized the dominance of anthropic botanical formations in the delta (e.g., SCHOMBURGK, 1847, 1848). On terra firme land, they noted clusters of domestic, cultivated, and encouraged tree and palm species in the tall, diverse tropical rain forest. In lowlying, frequently flooded land, the clustering of moriche palms at current and abandoned settlements has been recognized in the recent literature (e.g., HEINEN; et al., 1995). The human role in the presence of such tropical vegetation is now generally recognized as a significant cause for the great diversity of tropical rainforest vegetation in greater Amazonia (STEEGE; et al., 2013; and references in ROOSEVELT, 2013b).

Warao traditional culture

Warao arts and crafts

Warao material culture seems basically comparable to that of most greater Amazonian cultures, which vary in detail depending on habitat and degree of indigenous cultural integrity versus acculturation. Perhaps their strong reliance on particular palms, such as the moriche, for food, housing, tools, and fabrics is distinctive, but many lowland people use parts of palm for tools, clothing, and ornaments. Palm and tree bark fiber as well as cotton are used to make cloth for loincloths (CREVAUX, 1883; IM THURN, 1883, p. 194; WILBERT, 1963, 1993, p. 255, Fig. 10.2) wraps, and hammocks **(Fig. 10)**. (Wilbert feels that the hammock is not original to the Warao (1993, p.34), but it is mentioned

in both very early historic descriptions and in Warao stories of the creation (WILBERT, 1970, 1993, p. 268).) Many kinds of basket are made by both sexes for containers and sifters. Women make basketry trays both for sale and for use **(Fig. 11)**. Beads of plant materials and glass trade beads are used to make ornaments and women's decorative aprons. For rituals people also decorate their bodies with colorful feathers (PLASSARD, 1868, p. 581). 18th century Warao are described as ornamenting their noses with silver discs (BANCROFT, 1769, p. 265). Other distinctive features of Warao materials relate to their fluvial/tidal habitat and proximity to the coast. Their dugout canoes and paddles made by men are items found widely in Warao communities living along rivers but not so much in the few areas away from navigable streams. Large mollusc shells and hard palm wood blades are used for cutting tools.

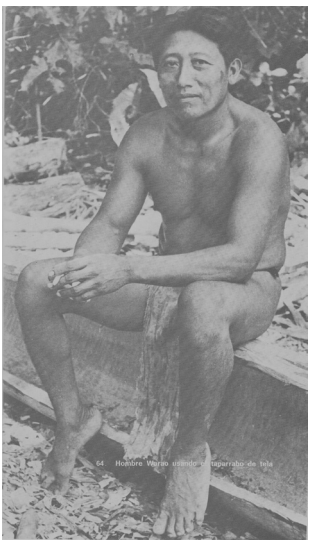


Fig. 10: Man wearing loin cloth (SUAREZ, 1968, photo 64 by Thea Segall).

Fig. 11: Basketry tray (ROTH, 1924, plate 98).

Recent ethnographers of the Warao insist that Warao don't know how to make pottery (SUARZ, 1968; WILBERT, 1980a, 1993, p. 34). However, since the mid-20th century, the Warao have used metal cook pots and plastic vessels, though early 19th century Warao in several areas made pottery (SCHOMBURGK, 1847, p. 130). Even Warao villages with the same names as those recent ethnographers have studied (Mariusa, Winikina, Araguabise, Curiapo, and Guaro) are described by early ethnographers who lived with the Warao as having a "talent in ceramic art" in the mid-19th century (PLASSARD, 1868, p. 591-592). Even some Warao trumpets made of fired clay (SCHOMBURGK, 1848, p. 856, and Roth in a footnote to this work confirms that he also had seen some). Also some archaeological sites in their homeland do include pottery (BRETT, 1881, p. 257-258: SANOJA; VARGAS ARENAS, 1995; CRUXENT; ROUSE, 1958-1959), and cooking pottery is present in Warao myths about the creation times (WILBERT, 1970). It thus seems likely that their immediate prehistoric ancestors also were ceramicists. How far back potterymaking in the Warao area goes back is hard to say. Brett mentions that the earlier levels of archaeological shellmounds in the Warao homeland seem to lack pottery, but it may be simply scarcer in those levels. Though scholars thought at first that the early Archaic shellmounds in Guyana were preceramic, all now have been determined to have pottery (ROOSEVELT, 1995).

Though Warao art has been little analyzed in the literature, it seems richly developed in the ritual context. Women's basketry tray patterns include skin patterns of the anaconda (**Fig. 12**), the alter-ego of the important deity "Mother of the Forest". Both wood and stone are carved to shape idols representing ancestor spirits, though none have been illustrated. Wood boards are also cut and painted with several colors for dance headdresses and bow ornaments for canoes (WILBERT, 1993, cover illustration and legend). The images on the latter also depict spirits, in the latter case, an anthropic butterfly spirit. Domesticated calabashes (*Crescentia cujete* L.) are hollowed out to make large ceremonial rattles, which are decorated with both simple and complex incised or painted designs depicting humans, animals, and heavenly bodies (**Fig. 13**) (BARRAL, 1979, p. 316; SUAREZ, 1968, Fig. 48; WILBERT,

1993:136, Fig. 5-1). Colorful feathers for ornamentation and symbolic reference are attached to many items, including some ceremonial rattles and people's woven or plaited arm or leg bindings. The style and choice of subjects and motifs and their uses are comparable to art of other lowland groups, both ancient and modern.

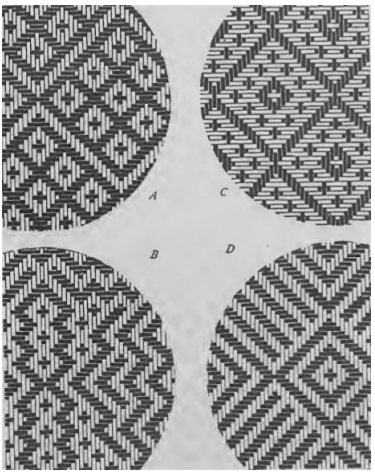


Fig. 12: Basketry patterns (ROTH, 1924, Fig. 110).

Fig. 13: Feathered shaman's rattle (BARRAL, 1979, p. 316).

Settlement patterns

The multifamily houses are built either on the ground or on log platforms elevated on pilings and connected with elevated log walkways. The kitchen is usually on a separate connected platform placed at somewhat a lower level. Large dance platforms for calendrical harvest rituals also are erected on platforms (GUMILLA, 1791, p. 142-145; WILBERT, 1980a). Ethnographers and archaeologists of the second half of the 20th century consider Warao stilt villages in the interior to be their original form of dwelling (HEINEN, 1988a; HEINEN, 1988b; SANOJA; VARGAS ARENAS, 1995; WILBERT, 1972). They hypothesize that Warao settlements on terra firme riverbanks were a response to missionization and employment by Creoles. Warao now

have their settlements both in the swampy, lowlying interior of the delta and on the higher land along the edges of delta islands, rivers, and creeks. Furthermore, some of the earliest accounts, including Raleigh's, describe Warao living both on terra firme land and on pilings over water in the lakes and rivers of the interior delta swamps. Von Humboldt (1850, p. 147-149) thought Raleigh must have been mistaken about the houses being placed on trees, but both Hilhouse and Brett later saw houses built on clusters of living moriche palms whose tops were cut off to support the platforms (see the quote below). In prehistoric times in other parts of the estuarine deltas of eastern South America, people commonly built mounds to raise their dwellings above the floods (ROOSEVELT, 1991, 2012). Hilhouse (1834, p. 327-328) also says that though Warao built stilt houses in areas subject to flooding, they also build houses on the ground at the high, dry land at creek-headwaters.

Warao settlements consists of one or more multifamily houses and their outbuildings **(Figs. 14 and 15)**. In the 1830s, Hilhouse (1834, p. 327) saw settlements with as many as 100 people, and in the 1840s, Richard Schomburgk (1847, p. 88) saw 12 houses at Cumaka, a *terra firme* Warao village on the Aruka river. (By the time Roth translated Schomburgk's book in 1847, the site had been reduced to an archaeological site, the area having been taken over for a commercial rubber plantation). In lowlying areas, houses are elevated above flooding either on poles and platforms, on earth mounds, or on living tree trunks. For recent settlements, ethnographers describe Warao cutting the posts from moriche palm trunks and driving them into the mud with at least two meters of height above the mud (HEINEN; et al., 1995). But in the early 19th century, both Hilhouse and Brett saw Warao make stilt houses by cutting off the stems of living moriche palms and attaching the house platform to these (BRETT, 1881, p. 105; HILHOUSE, 1834, p. 327). "I*nnumerable clusters of the ita (or mauritia) palm stud the surface of that wild and muddy region. The Warraus use the upright trunks of the living trees as posts, thatch a roof overhead beneath their fan-like, leafy crowns, and make a flooring of split trunks above the mark of former inundations. On this rude floor they place a thick layer of clay for a hearth, and kindle thereon the fire necessary for their daily wants*" (BRETT, 1881, p. 105).

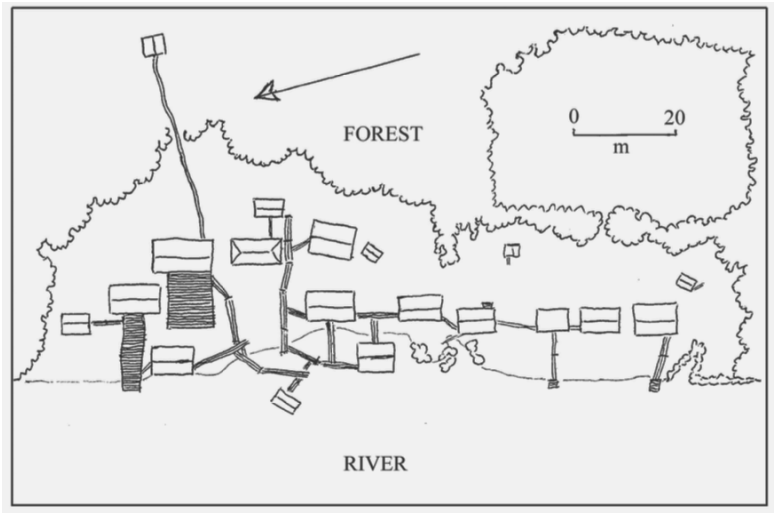


Fig. 14: Plan of village (HARRIS, 2011, Fig. 5 after HEINEN, 1988a, p. 639, Fig. 6).

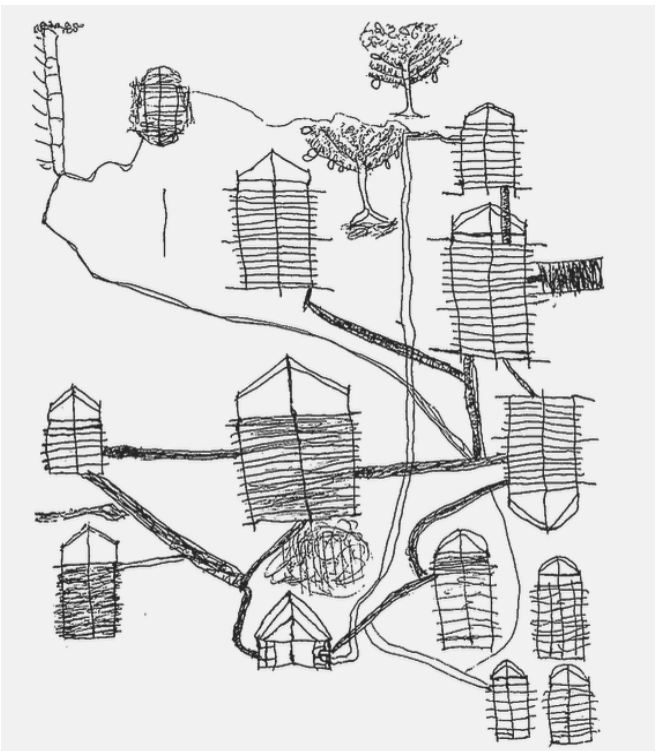


Fig. 15: Warao drawing of a village (WILBERT,1962, Fig. 1).

The large platforms built upon the cut posts or moriche trunks support houses, outbuildings, and a dancing floor. The chief outbuildings for a settlement are the women's seclusion house, on the west, and the shrine for the idols of the ancestors and the moriche starch bin on the east. These are joined to the main platform by boardwalks, for which poles are driven into the ground and Açaí/manaca trunks cut in half are mounted upon them.

Subsistence

Traditional Warao, however, are usually described as exclusive hunter-gatherers foragers who get all their food from wild resources (e.g., WILBERT, 1972, 1980a). This blanket categorization seems to be inaccurate. It arises from the *a priori* idea of many anthropologists that the Warao are pre-agricultural relics, "Mesoindians". As mentioned in the introduction and sections on ethnographic work and culture history, anthropologists have assumed that the Warao are ancient hunter-gatherers who traditionally lacked reliance on plant cultivation or animal husbandry. However, Warao have never been observed to lack reliance on domesticated and or cultivated plants and domestic or tamed animals, and those they have always used since scientific observation began have been shown by dated archaeological finds to have significant time-depth in the Orinoco, Guianas, and Caribbean coasts. Furthermore, this classification as hunter-gatherers does not arise from any detailed study of Warao subsistence through time. Since anthropological research on Warao began, their subsistence and habitat management have never been analyzed with the quantitative methods needed to assess the roles of different foods in indigenous economies (chapters 7 and 8 in ROOSEVELT, 1994). Therefore conclusions about their current economy are impressionistic assessments, not systematic studies. When such studies are done, the results are often different than the assessments done by mere eye-balling.

Nonetheless, some generalizations are possible based on the long history of observations by naturalists and ethnographers. Though most Warao ethnographers have primarily worked with male informants, eschewing work with females, who would ordinarily be in charge of

planting, cultivating, and caring for animals, it is clear from others' observations that Warao do rely on domestic plants and do cultivate many other plants and they do possess both domesticated and tamed animals. This conclusion is based on the characteristics of the plants and animals that have been observed in use in their communities since initial contact. Like the majority of indigenous people of the Amazon and Orinoco floodplains, the Warao rely primarily on the abundant small fish for their faunal food. They also hunt smaller game and collect crabs, shellfish, and turtles and keep domesticated ducks. For plant food, they traditionally relied most on the majestic moriche or buriti palm whose fruits, heart of palm, stem starch, and sap probably have supplied most of the calories in the diet. But several other palms are commonly planted, and one palm, the peach palm, is definitely a domesticated species. The products of numerous other palms and trees, many of them planted, are also regularly eaten by Warao. A native domesticated root crop, locally called ocumo or yautia, also was an important traditional source of food, as were manioc, maize, chile peppers, and anatto/onoto, in some communities. As the Warao have become more and more integrated into the national cultures, they have added several foreign crops to their inventory without abandoning the traditional ones.

Fauna

Recent ethnographic summaries on the Warao state that their main traditional faunal foods were river fish and turtles, with only occasional hunting of small game and seasonal supplements of small shellfish such as crabs and moluscs (e.g., HEINEN, 1988a; WILBERT, 1972). The Warao emphasis on fishing and disinclination to hunt sizeable mammals has been noted for two hundred years at least. In the early 1840s, Richard Schomburgk (1847, p. 126) noted that only smaller birds and rodents were actively sought by hunters, both male and female. It appears that the Warao tabooed larger mammals like deer and tapir, which the ethnographers think Warao should be hunting because they are "nutritionally most valuable game animals" (WILBERT, 1972, p. 68-69). People's explanation for the avoidance of

mammals was that animals are like humans. An ecological explanation that comes to mind is that fish are much much more abundant in the biomass of the Orinoco delta than game and less time-consuming and effortful to acquire. Thus, pursuing fish is a more reliable and abundant food source and more economical of human labor. In their strong reliance on fish as opposed to game for faunal food, Warao resemble the majority of greater-Amazonian horticultural Amerindians. It does not therefore make them "hunter-gatherers". In Schomburgk's time, Warao also harvested enough molluscs to leave notable shell-middens (SCHOMBURGK, 1876, p. 12). The Warao are considered expert fishers who have deep knowledge of the ecology and social behavior of their prey and have developed numerous tools to capture them. They have a wide range of implements for fishing, from fish fences and baskets to arrow and harpoon points (**Fig. 16**) (ROTH, 1924).

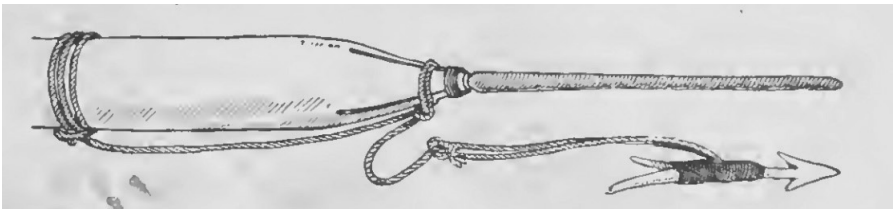


Fig. 16: Harpoon point (ROTH, 1924, Fig. 57).

Anthropologists insist that the only domestic animal among the Warao is the dog (SUAREZ, 1968; WILBERT, 1980a); "The *Warao make no economic use of any domestic animal except the dog*" (WILBERT, 1972, p. 96). But as Schomburkg points out, Warao settlements were full of tamed or domesticated animals (SCHOMBURGK, 1847, p. 93; 1848, p. 357). He reports that Warao women actively tamed many species of young birds and mammals, including monkeys, possums, large rodents, curassows, parrots, and other birds, feeding infant mammals at their breasts (**Fig. 17**) (SCHOMBURGK, 1847, p. 128-129): "*The pride of the women consists mainly in the possession of a large number of tame domestic animals*". In his accounts, Warao are also described as keeping muscovy ducks (*Cairina moschata* L.) and constructing coops for the birds (143). Though recent ethnographers assume that the muscovy ducks in Warao settlements are "wild ducks" (HEINEN, 1988b, p. 127; SUAREZ,

1968, p. 81), this is a very common, long-domesticated duck species in lowland South America (DONKIN, 1988) from a group of dabbling ducks native to South America, based on genetic data (JOHNSON; et al., 1999). The varieties kept in the Warao area (HILHOUSE, 1834, p. 325) are distinct in coloration and head-skin patterns from the wild ones. Thus, Warao, like many Indians of greater Amazonia, have long kept domesticated ducks, which, along with the carefully trained hunting dogs, were traded out by Warao.

Fig. 17: Woman with her tamed bird (SCHOMBURGK, 1847, between p. 120-121).

Palms and trees

Recent ethnographers of the Warao often assume that the trees and palms around settlements are wild and that any herbaceous cultivated plants they use were introduced by missionaries, western settlers, or other Indians. Indeed, in the Columbian exchange, several foreign tropical species have been introduced in both the Orinoco and Amazon drainages. Among foreign cultigens are Asian taro (*Colocasia antiquorum*), several species of Citrus, Mango, and others.

However, this interpretation of the all native plants that Warao use as wild is not supported by knowledge of the history, prehistory, and systematics of the plants in question. First of all, it is now known that agro-forestry, specifically tree-cropping or orchard cultivation, has a long history in the tropical lowlands of South America, perhaps even longer than swidden cultivation of staple perennials and annuals (BALEE, 1989, 2013; ROOSEVELT, 2013b, 2016). Thus many of

the trees that the recent ethnographers of the Warao consider wild are actually considered to be cultivated species by ethnobotanists. Furthermore, the early ethnographic information gathered from the literature by the encyclopedic Walter E. Roth and also from his own observations indicated that most of the palms and trees found surrounding Warao settlements - moriche, peach palm, temiche, seje or pataua (*Oenocarpus bataua* Mart.), the various *Astrocaryum* species, Brazil nut (*Bertholletia excelsa* Bonpl.), pakea or Piquia (*Caryocar* spp.), guava (*Psidium guavaja* L.), jenipapo, jagua, or genip (*Genipa americana* L.), tapereba or hog plum (*Spondias mombin* L.), jatoba, jutai, or West Indian locust (*Hymenaea courbaril* L.) were cultivated by the Indians (1915, 1924, p. 215-221). Such species are valued for their delicious and nutritious fruit and sometimes medicinal products from their leaves, bark, or roots. Some of the other non-palm genera that are commonly cultivated or otherwise managed in the general Warao area for their fruit, for medicine, and or for their wood - *Tababuia*, *Handroanthus*, *Ocotea*, *Nectandra*, *Chrysophyllum*, *Chrysobalanus*, *Astronium*, *Tabernaemontana*, *Dialium*, *Tachigali*, *Licania*, and *Hymenaea*, also turn up as the posts of prehistoric stilt-villagers in the Baixada of Maranhão in Brazil (PEREIRA GONCALVES, 2018). Most of these trees common to eastern lowland South America are cultivated there (LORENZI, 2002; SCHNEE, 1984). Systematic botanists, who used to assume that the diversity due to the clustering of certain palms and trees in the Amazon forest was a natural pattern caused by the formation of forest refugia during the Pleistocene, now concede that human cultivation and management is the probable cause (STEEGE; et al., 2013).

The most important plants in Warao food systems are the palms, from which people take the fruit, the heart, the sap, and stem starch, in addition to many fibers and woods. Rather than being simply 'wild' palms, these are species that lowland South American people purposely cultivate and manage as part of their landscaping systems. Among the palms long used intensively by the Warao are moriche or buriti, açaí or manaca, seje or pataua, temiche or bussu (HEINEN, 1988a; HEINEN; RUDDLE, 1974; WILBERT, 1976, 1980a; SCHOMBURGK, 1847, p. 91). Prominent in such management systems is also the peach palm, a domesticated palm some of whose cultivars have lost the ability to set seed (see

the discussion below). Many other palms and trees in the lowland South American orchards also are cultivated, as mentioned above.

The most heavily relied on palm in the Warao economy is the moriche (Venezuela), ite (Guyana), or buriti (Brazil) (HENDERSON, 1995, p. 70-74; RABELO, 2012, p. 319-331; RABELO; FRANÇA, 2015; YUYAMA; et al., 2013, p. 34-36) (**Fig. 18-19**). Gumilla, observing Warao villages in the mid-18th century, characterized it as "*the Warao tree of life*" (1791, p. 141-145). Certainly this wet-adapted swamp palm, seems to have long been the main traditional source of carbohydrates in the floodplans, in the form of extracted stem starch, sap, and ripe fruits. The different parts of the plant are sought at somewhat different times of year: the sap during the rainy season, the stem starch during the dry season, and the fruits in the transition between the seasons. To obtain the stem starch, Warao move to interior lakes or swamps where the trees cluster densely, chop down older trees, and chop the pith out of interior of the stems. The sawdusty pith is collected by women in basketry sifters, doused and kneaded with water, then the liquid is squeezed out with tubular baskets into in vessels below. The starch settles out of the liquid and is collected and dried to make flour and cakes. This technique is very similar to the way bitter manioc is processed in some parts of the Orinoco (ROTH, 1924), and perhaps the manioc technique arose as an offshoot of the moriche-processing technique.

Fig. 18: Moriche palm tree, Marajo Island, Amazon Delta (ROOSEVELT, 2013: Fig. 14).

Fig. 19: Warao drawing of a moriche palm tree (WILBERT, 1962, Fig. 2).

This palm is widely distributed along water bodies in lowland South American, especially in the riverine and estuarine systems of greater Amazonia (HENDERSON, 1995, p. 72-74). Its distinctive ecological adaptation is as a swamp palm, like açaí, and like that palm this one forms dense concentrations where people have been using it. Even ethnographers who consider the Warao relict hunter-gatherers notice that Warao seem to bring its fruits to mangrove- dominated sites, where its proliferation causes the recession of the brackish-water mangroves and the extension of freshwater morichales. Wilbert (1970, p. 23) calls its use "arboriculture" and Heinen observes: "*Man-made morichales are also occasionally found along the levees of these islands, where they indicate the former presence of Warao village sites*" (HEINEN; RUDDLE, 1974, p. 124). A similar pattern of purposeful management has been recorded among Brazilian peasants in the estuaries of the Amazon mouth and Amapa state in Brazilian Guiana and in that area is called a form of cultivation. Brazilian peasants there currently manage moriche intensively by building up earth platforms to encourage the palms to proliferate at the expense of the coastal mangroves (PADOCH; PINEDO-VASQUEZ, 1999; RAFFLES, 2002).

Another heavily utilized palm in the Warao economy is the famous açaí (Brazil), manaca (Venezuela), or assai (Guyana), (*Euterpe oleracea,* Mart.), a water palm much used for food in the form of fruit and heart of palm, as well as for wood and fiber for numerous crafts (YUYAMA; et al., 2013; RABELO, 2012, p. 296-307). This palm is widely planted

and cultivated in lowland South America and is considered to have been brought into cultivation in eastern South American estuaries like the one occupied by the Warao. Its distribution follows the coasts and estuaries of eastern and northeastern South America (HENDERSON, 1995, p. 105-111, Figure 6.15 C), and it occurs prehistorically more than 1000 years ago there in the Columbian Amazon and in the delta at the mouth of the Amazon in Brazil (MORCOTE-RIOS; BERNAL, 2001, p. 322, Table 1; ROOSEVELT, 1991). Cultivated açaí is a staple food in the estuaries of northeastern South America, reaching almost 50% of the dry weight of some Brazilian peasant populations in the Amazon delta (MURRIETA; et al., 1999). It also is an important local and international cash crop that is purposely planted by 100% of the families in estuarine communities at the mouth of the Amazon in Amapa State, Brazil (BRONDIZAO; et al., 2002; DuVAL, 2010; PADOCH; PINEDO-VASQUEZ, 1999; RAFFLES, 2002). There, cultivators carefully select and exchange seed to achieve desired qualities such as texture, flavor, and color. In addition to planting seed in home gardens, specialized fields, and outfields, people build earthworks to sustain desired soil conditions for the plantings. The ecological adaptation of açaí is to tidal and flooded soils (HENDERSON, 1995, p. 105-112), like those of the Warao homeland. Its distinctive monotypic groves in the estuaries along the northeast coast of South America are strongly associated with human settlements; they are not considered wild concentrations (ANDERSON, 1988), contrary to the ethnographers of the Warao. Nothing in the ethnographic literature provides evidence that Warao use this palm differently than other native Americans in the lowlands. Therefore, it is not accurate to say that they are "foraging" açaí. Rather they are cultivating and intensively managing it.

Other palms long noted at Warao settlements include seje or pataua. This is another palm genus whose species are considered to have been spread by humans (RABELO, 2012, p. 340-347; YUYAMA; et al., 2013, p. 29-30). Seje in particular is thought to have spread from its center of diversity in northwestern South America first to eastern South America and then to the Gianas (MORCOTE-RIOS; BERNAL, 2001, p. 340-341; POLITIS, 1996). It is recorded from archaeological

sites as early as 9000 years ago in the Colombian Amazon. Its fruit is especially valued for its fatty and relatively protein-rich fruit, often used to make drinks. The palm temiche also has many uses among the Warao. It is used for thatching in some areas and also for its fruits and stem starch, similarly to moriche (WILBERT, 1976). Another common palm at some Warao settlements is tucuma (*Astrocaryum aculeatum* G. Mey.), whose fruit are particularly rich in protein, c. 5.5% (RABELO, 2012, p. 361-378; YUYAMA; et al., 2013, p. 68-69).

Some palms used by the Warao are well-known domesticated palms such as pupunha (Brazil), peach palm (English) pejibaye (Costa Rica and Dominican Republic), chonta, chontaduro (Ecuador), chontaduro (Colombia), pijiguao (Venezuela), pifa (Panama) (HENDERSON, 1995, p. 190-191; RABELO, 2012, p. 360-348; YUYAMA; et al., 2013, p. 56-59). Species of this palm have been cultivated and selected by indigenous South American people for so long that some cultivars have lost the ability to set seed. It was domesticated independently in several places (MORA URPI, 1999, p. 17-24). Rich in complex carbohydrate, fat, and carotenoids, it also has appreciable protein at 3.5%. Individuals or groups may be encountered at abandoned settlements, but they are not considered to be wild and self sustaining, but feral and eventually will disappear. "*It is cultivated in Amazonia for its fruit and is never found in natural populations*" (KAHN, 1988, p. 43). "*Not known as a wild plant but very widely cultivated throughout humid tropical areas of Central and South America. It appears to be a selected form of Bactris macana*" (HENDERSON; et al., 1995, p. 188). The wild ancestor of peach palm is a distinct species, *Bactris macana*, native to non-flooded land. The domestic species' natural and earliest occurance in prehistoric sites is in the uplands of northwestern Venezuela and Colombia (MORCOTE-RIOS; BERNAL, 2001, p. 339-340), suggesting that domesticated cultivars would have been available to Warao ancestors early on. Thus, with this species, the Warao are using a domesticated plant, not gathering a wild plant native to the delta.

The Warao also have long used for containers the fruits of the calabash tree (*Crescentia cujete* L.), a cultivated species planted widely in the Neotropics. Early explorers of the Warao homeland describe

seeing the small tree in people's gardens (e.g., SCHOMBURGK, 1876, p. 1-14). Probably native to northern Central America and Mexico, what anthropologists have called "wild growing" trees must be descendants of cutivated trees. The Warao, therefore, are not collecting wild calabashes but growing this ancient cultigen. In addition to using it for containers, they use it for medicinal treatments and for shamans' "spirit rattles", and their myths place its history at the beginning of their world (WILBERT, 1993, p. 133-143).

Field crops

As mentioned above, the ethnographers Wilbert (1980a, p. 4-5) and Suarez (1968) claim that subsistence agriculture and intensive agriculture were only brought in after 1925 with the penetration of missionaries into the interior, but many traditional Orinoco basin agricultural field crops are described as under active cultivation by Warao women at least 100 years before (CREVAUX, 1883, p. 611; HILHOUSE, 1834, p. 328; PLASSARD, 1868; SCHOMBURGK, 1847, p. 88-91; 1876, p. 1-14).

Among the crops in the Warao's "*flourishing provision fields*" (SCHOMBURGK, 1847, p. 88), according to historical accounts collected over more than 300 years (GUMILLA, 1791; HILHOUSE, 1825; 1834; PLASSARD, 1868; ROTH, 1915; SCHOMBURGK, 1876, p. 1-22; 1922, p. 88-91), were maize, manioc, sweet potatoes, yams, pineapple, chili peppers, anatto (*Bixa orellana*), and many other domestics all considered by ethnobotanists to be indigenous to South or Central America (CLEMENT; et al., 2010; PIPERNO; PEARSALL, 1998; ROOSEVELT, 2016). The amount of cropping varies among Warao living in different areas, but all those who spent any time in Warao settlements mention the cultivation. Although ethnographers suggest Warao only took up cultivation of these due to recent influence from other tribes, missionaries, or Creoles in the 20th century, all these and especially the important South American field crops such as manioc and maize were regularly grown at Warao settlements before missions or western industries were established in their area. Maize and manioc are very ancient cultigens in the entire Orinoco drainage (OLIVER,

2008, 2014; PIPERNO; PEARSALL, 1998; ROOSEVELT, 1980, 1997, 2014, 2016). There is no *a priori* reason to assume they have not been in use by the Warao as long as anywhere else in the Orinoco river valley. Chili peppers are not considered a locally occurring wild plant (CLEMENT; et al., 2010), so their common presence in Warao gardens since the early 19th century means that Warao must have been cultivating them, also.

An important annual root crop observed among the Warao is called by the ethnographers ocumo or ocumo chino and they claim that this is Asian taro (*Colocasia antiquorum*) and that the Warao have only recently taken taro into cultivation through influence by "criollos". However, true ocumo (*Xanthosoma sagittifolium* L. Schott) is an ancient native South American domesticated plant considered by botanists to be one of the oldest cultivated crops in the world; it is supposed to have been domesticated in early prehistory by northern South American Indians and subsequently spread throughout the neotropics before the conquest (FOOD AND AGRICULTURE ORGANIZATION..., 2013; SANDOVAL; ACEVEDO-RODRIGUEZ, 2018). Ocumo is a traditional cultigen throughout most of the tropical lowlands and Caribbean and the similar Asian taro has been happily adopted in those same regions.

True ocumo is a swamp species must have been domesticated in a habitat like the Orinoco delta.

"*It grows best in humid tropical rainforest climates and can be found naturalized along stream banks and in moist, shady areas*" (SANDOVAL; ACEVEDO-RODRIGUEZ, 2018, p. 7) The plant is a fast-growing very vigorous and productive root and leafy vegetable crop that has been widely adopted as a staple in the humid tropics. It germinates easily from pieces of tuber or corm or from seeds or root suckers and produces edible tubers within a year from planting. Tolerant of a wide variety of conditions from full sun to shade, it is often grown under the shade of cultivated shrubs, palms, or trees and can even be planted under full tropical forest. Outside of its native area in northern South America it is considered so vigorous as to be invasive. The plant requires a humid environment and abundant rain, and, though it goes

dormant during flooding, the tubers and crown stay alive and start growing again as soon as the floodwaters have drained away. These quintessential tropical lowland ecological characteristics of true ocumo are such that the most likely origin of cultivation would be the low levees of the Orinoco estuary, i.e., the Warao homeland. Thus, this crop - most useful as a cultigen for swampy land like the Warao hinterland - is most likely to have brought into cultivation by the ancestors of the Warao. Asian taro is also a very desirable staple tuber and leafy vegetable cultigen but its adoption by the Warao and a multitude of other neotropical peoples is no proof of the lack of South American taro in indigenous Warao subsistence.

Among the annual fruits, pineapple is described by some ethnographers as being a wild plant "collected" by Warao (HEINEN; et al., 1995, p. 323; WILBERT, 1972, p. 80). However, wild pineapples are not native to the swampy, deltaic floodplain habitat of the Warao but rather to the interior upland firme tropical forest of the Guianas, where the pineapple varieties with large fruits are thought to have been domesticated, based on genetic evidence (CLEMENT; et al., 2010, p. 85-87). Pineapples do best in hot, humid climates on well-drained, somewhat acidic terra firme soils, and are most vigorous and fruitful when grown in shade (MORTON, 1987, p. 18-28). Vegetative reproduction of the plant is multifaceted; new plants can grow from slips, from the crowns, tops, cores, stumps, or suckers of harvested plants, and so a single plant can generate many new plants upon harvest. Seeds are difficult to germinate and seedlings take longer to bear fruit than clones. Many Indian groups in northeastern Venezuela cultivate pineapples, and the best commercial cultivars originated in northeastern Venezuela. Domesticated pineapples are thought to have spread into the Orinoco floodplains well before the conquest by Europeans. Though domesticated pineapple can naturalize, it tends to cluster by abandoned settlements where it was cultivated. Naturalists who visited the Warao almost 300 years ago observed that pattern (SCHOMBURGK, 1847, p. 88). So, if the Warao are harvesting pineapples in their long-time homeland, they are utilizing a domesticate that some Warao must have planted in the past.

Thus, the Warao really are not relict hunter-gatherers of the Archaic or "Meso-Indian" era. Like most tropical lowland forest horticulturalists in South America, they intensively harvest fish, cultivate many native tropical crops, palms, and trees, and keep Muscovy ducks and dogs. They have done all this for at least 300 years.

Social organization and political leadership

In 1996, when Walter Raleigh visited the Warao, they were divided culturally and politically into two zones, with two parts led by warring paramount chiefs: Pallamos toward the east and Hororotomaka to the north (1997, p. 158). Such patterns of leadership and conflict are not, however, described in more recent accounts. Despite Raleigh's description of conflict, Warao have generally been found to be timid and retiring and have responded to outside threats by withdrawing into the watery center of their habitat. Within Warao society, discord is handled through meetings where everyone gets to express their ideas and the goal is to reach satisfaction for all. Warao also have the traditional indigenous tropical lowland one-on-one duels that are thought to serve as tension releasers. These are wrestling contests in which pairs of fighters engage using decorated and protective woven fiber shields (IM THURN, 1883, p. 326-327; SCHOMBURGK, 1847, p. 150: WILBERT, 1972, p. 99). The goal is to force the opponent to give ground, which amounts to winning the bout.

Both Warao and their 20th century ethnographers describe certain hierarchical leadership titles and functions that were imposed in the course of missionization and nationalization (e.g., BRETT, 1881, p. 109; HEINEN, 1988b; SCHOMBURGK, 1848, p. 369-370). However, Warao have some traditional terms for leadership roles and responsibilities, so it seems these existed before western interventions. Warao indigenous leadership terms include words such as owner, master/mistress, guardian and these sometimes have spiritual implications as well as kinship and economic ones (HEINEN, 1988b; HEINEN; GASSON, 2008; WILBERT, 1993). Terms such as owner of the household are political but terms related to spiritual curing or shamanism turn up both in curing ceremonies and in religious festivals

of an economic character, like the moriche starch extraction harvest. Some leadership terms to refer to ritualists who have roles of guarding ritual items or facilities or to carry out rituals. Among these there is sometimes a hierarchy indicated. Thus, the ritualists who carry out certain annual rituals have assistants. And the female household owner has assistants among her daughters and nieces, with a definite hierarchy of seniority (SUAREZ, 1968).

Traditional Warao villages on pilings shelter one or more extended families, each occupying a large rectangular multifamily house. Like the extended families in some other indigenous societies of the mainstream rivers, such as the Shipibo of the Ucayali floodplain in the Upper Amazon (GEBHART-SAYER, 1984), Warao reckon descent matrilineally and have a matrilocal residence pattern; thus, people trace their family relationships through the female line, and husbands come into the community from the outside to marry (HEINEN, 1972; HEINEN, 1988b, p. 26-29). In the mid-nineteenth century, Warao "*group themselves according to the rivers in the Orinoco basin form which they believe they originally came*" (note by Roth in SCHOMBURGK, 1848, p. 367), though there is now no sense of corporate matrilineages with recognized founders (SUAREZ, 1968, p. 110-126). However, "*The matrilocal tendency of residence and polygynous unions ... strengenthens the importance of the wife-mother in the nuclear family*" (SUAREZ, 1968, p. 144). Warao express a "*vehement*" and "*invariable*" preference for female children (HEINEN, 1988b, p. 52-56; SUAREZ, 1968, p. 128; 1971, p. 89, 93), though Wilbert claims the Warao "*always*" want the first-born to be a male (1972, p. 103). The related women of a settlement show solidarity and cooperation (**Fig. 20**). "*Because of the existing residence rule, married men, as strangers in the society, face a closely-related group of females who condition public opinion and exert considerable pressure. Marriage partners display a high degree of true companionship*" (WILBERT; LAYRISSE, 1966, p. 173). However, the relationship, which for the men involves life-long obligations to their wives and wives' families, can engender hostility, even violence, from the women (SUAREZ, 1968, p. 125). Hispanic missionaries and settlers have been uncomfortable with the female-oriented organization and have tried to persuade the Warao to organize

on a patriarchal basis (HEINEN, 1988b, p. 43-50). Also, state entities have endowed men only with political offices, and male ethnographers have tended to assume that the heads of community households are the elder man, rather than the woman (OLSEN, 1996; SUAREZ, 1968; WILBERT, 1993, p. 254, 256).

Fig. 20: Warao matrons (BARRAL, 1979, p. 438).

Over and above residence and family organization patterns, ethnographers often have little to say about gender roles, though their diction and discourse imply male predominance and political and ritual leadership and leave out female political and ritual leadership in the household and community. But Warao characterize gender patterns differently than do the ethnographers. They describe both gender equality in daily family life and female predominance in the extended family and wider society. For example, in their oral statements about the family, Warao express gender egalitarian practices of child rearing, where both parents take responsibility. They also characterize the older female of the extended family as the "*Owner of the House*" and she directs most of the activities of the household including those of her sons-in-law (HEINEN, 1988b, 123), in contrast to ethnographers who characterize houses as owned or headed by the older male. For example, one Warao man characterizes his spouse as "*my wife, the owner*

of the house" (HEINEN, 2009, p. 59). Another characterizes his house as "*the mother-in-law's house*" (HEINEN, 2009, p. 104). Similarly, Warao describe the female house owner as directing the work of the sons-in-law in their work extracting trunk pith for starch in the moriche groves (in HEINEN, 1988b, p. 32-33, 104-106, 108-109), in contrast to ethnographers, who portray the sons-in-law as directed by their father-in-law, who is married to her (WILBERT, 1972).

In the Warao system, leaders who are respected and supervise larger numbers of people in food production, crafts, and ritual are privileged. "*Although the Spanish missionaries introduced the positions of political office, true authority among the Warao is vested in the society's three religious practitioners: the medicine man, the shaman, and the priest*" (WILBERT; LAYRISSE, 1966, p.172). Despite the use of male gender in such statements, the same ethnographers acknowledge that either men or women can serve in roles of shaman, curer, or priest. They acknowledge, "*Women quite frequently achieve a rather high status, and at some time in the past female priest-shaman seem to have been influential persons*" (WILBERT, 1970, p. 24), "*while sub-tribes seen to have been governed by female leaders*" (WILBERT; LAYRISSE, 1966, p. 172).

Religion

Warao religion seems best characterized as a combination of animism with ancestor worship. In animism, all things have spirits within, and, in ancestor worship, the dead become spirits who must be propitiated to limit bad luck, sickness, and death. The spirit ancestors are called Hebu and important ones among them are worshipped and propitiated as ancestral Kanobos. A complex mythic hierarchy of powerful ancestral gods and goddesses are represented as creators of the humans, the earth, and the cosmos. Propitiation of deities and spirits by the Warao, through "feeding" them with tobacco smoke and Moriche starch offerings, is thought necessary to avoid the vengeful supernaturals inflicting on humans bad luck, illness, or untimely death.

Warao characterize their habitat as a forest ruled by an ancestor called Dauarani, the "*Mother of the Forest*". Associated with a watersnake alter ego - the anaconda, the largest predator of the tropical

lowlands - this mythic personage is seen an ancient creation goddess. Ethnographers characterize her as "*the forest God*", who takes the form of a giant serpent as "*Serpent Woman of the Red-Cedar Canoe*" (WILBERT, 1972, p. 93, 1980a; 1993, p. 11, 15, 23, 50, 53, 64-67, 74, 76, 82, 90, 94, 99, 117, 170-171). The larger game animals whom Warao taboo for hunting are said to be her people of the forest (WILBERT, 1972, p. 89).

This Warao deity greatly resembles the female serpent deities important in the creation stories of numerous greater-Amazonian groups (e.g., GEBHART-SAYER, 1984; HUGH-JONES, 1979; ROOSEVELT, 2013a; ROTH, 1915). This kind of deity is widely honored under the names "*Woman Shaman*" or "*the Great Anaconda*" in the oral histories of recent indigenous societies of the Amazon, Orinoco, and Guianas coasts (e.g., BRETT, c.1880, p. 180-187; GEBHART-SAYER, 1984; HUGH-JONES, 1979; ROTH, 1915). A woman shaman in anaconda guise also is also clearly depicted in the ancient and modern art of the famous Polychrome Horizon ceramic mound-building culture that spread from the Amazon delta island of Marajo to the mainstream and upper Amazon and coasts of the Guianas starting 1000 years ago (BROCHADO, 1980; ROOSEVELT, 1991, 2013a).

However, the Warao believe that Daurani was the first shaman of the Warao was who traveled as a boat and sang special songs. "*She chanted like a priest-shaman whose function is to placate the gods and, in doing so, to guarantee health, fertility, and longevity to the people of the community*" (WILBERT, 1993, p. 270). The Warao multilayered cosmos was created by Dauarani. As described by two male informants of the ethnographers Wilbert and Heinen, the cosmos is a place created at the time of origin through the interactions of supernaturals like Dauarani. The supernaturals are named according to their cardinal-directional, astronomical, animal, and human characteristics. (It's not certain whether most Warao ritual savants have this very complex vision of the cosmos, since the references made to it during ceremonies are much more limited in number and character of supernaturals and levels and structures within the supernatural space).

The most detailed ethnographic description states: "*It is significant that the northern solstice points of Warao cosmogony are said to be inhabited*

by supernatural guarantors of sustenance and fertility. The Mother of Sago (Aruarani) is at the midsummer point of sunrise in the northeast. The northern solstice is identified with the sacred trumpet, whose ... master spirits reside with the God of Dance. Also located in the same place are the Grandmothers (Natue), patronesses of the moriche palm fiber.... Opposite the supernatural fertility beings of the northern solstices, the Mother of the Forest (Dauarani) resides at the sumer solstice of the midwinter sun. Just as the Grandmothers of the northern solstice are patronesses of female artisans (hammock makers) and of women in general, the Mother of the Forest of the southern solstice is the patroness of male artisans (boat makers) and of men in general" (WILBERT, 1993, p. 268).

One of the most important artisanal ceremonies involves making of the all-important canoe, for which the instructions are given from the leading older woman through her daughters to her sons-in-law (WILBERT, 1993, p. 25-86). Canoes were necessary for getting around in the delta and have long been an important trade item to outsiders (PLASSARD, 1868, p. 586). The making of the canoe is considered one of the most important skills and is acquired both through practice with an expert teacher and through the aid of the goddess. "*An expert canoe maker is one who has learned to perfect his skill in dreams with a Serpent Spirit, who is reputed to have served the Warao culture hero Haburi as a boat when he made his escape from danger. The honor of having been chosen by this Serpent Spirit extends beyond this present life, for such a man will go forth after death to continue his existence in her presence*" (WILBERT, 1972, p. 74-75). The soul of the canoe-maker "*goes to a place next to the Mother of Moriche, where the spirit of the sacred trumpet lives. This spirit is the Mother of the Sacred Trumpets...*" (WILBERT, 1993, p. 101).

The elder women and men of the Warao households are the patrons and priests of periodic festivals to ensure health and prosperity in the community, and also cure the sick. The instruments and accoutrements used in the rituals have a complex and colorful iconography linked to Warao cosmology (WILBERT, 1993) but it has been little studied and illustrated. Shaman meet and greet visitors seated on animal-headed stools (PLASSARD, 1868, p. 581) **(Fig. 21)**. Numerous Warao accounts show that both men and women can serve as shamans both in organizing and leading ceremonies and in curing

(BARRAL, 1979, p. 358; HEINEN, 1988b, 2009, p. 82; HEINEN; GASSON, 2008; WILBERT, 1993, p. 167, 220-221) but the male ethnographers who have predominated in studies of the Warao have only interviewed and observed the men.

Public ceremonies reaching out to the supernaturals address several of the deities and spirits thought to reside in the supernatural cosmos. Early visitors to settlements exclaimed that Warao constantly held ceremonial dances accompanied with singing and playing of instruments (GUMILLA, 1791; SCHOMBURGK, 1847, p. 151). Ceremonies are conducted under the direction and sponsorship of shaman and take place on the community dance platforms (**Fig. 22)**, in front of the ritual structures, on the ground near settlements, or out in the forest.

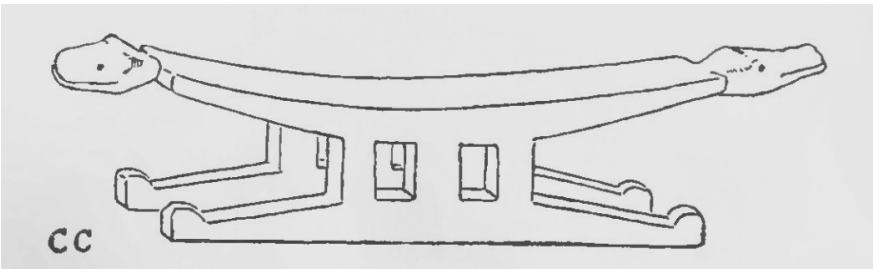


Fig. 21: Stool with animal heads (ROTH, 1924, Fig. 81 CC).

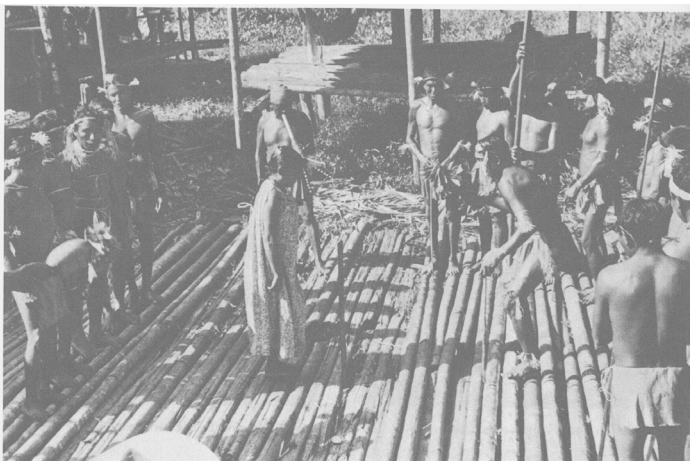


Fig. 22: Ritual taking place on a dance platform (WILBERT, 1980b, 29).

Two modest ritual structures flank either end of the Warao settlement: the shrine for the moriche festival at the east and the women's seclusion house on the west (WILBERT, 1972, p. 78-80, 95-96; WILBERT, 1993). The shrine on the east is a structure that has a small hut elevated over a platform protecting the moriche starch bin for the annual harvest festival (**Fig. 23)**. (The illustration cuts away the front sheathing of the hut to show the starch bin within.) The ancestor stones representing Kanobos and shamans' ritual paraphernalia are kept in the stage above the bin, which is accessed by a notched log ladder. A specialist shaman serves as guardian of this structure. The women's seclusion house at the west of the settlement is about 4 by 5 meters in size and has a ritual fireplace (**Fig. 24**). Ceremonies involving only women take place within the women's seclusion house, which Crevaux called "their sacred house", where they go during menstruation when they are freed from duties such as cooking for everyone (**Fig. 25**). The female puberty initiation rite, in which girls' hair is cut and buried, takes place in the seclusion hut, also used for births (BARRAL, 1979, p. 652; CREVAUX, 1883; WILBERT, 1972). The puberty transition of males is not ritualized thus, though both boys and girls are supposed to undergo the ant-bite ritual.

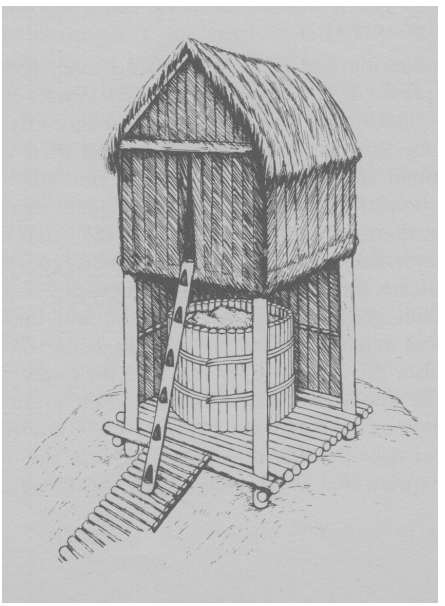


Fig. 23: Shrine for moriche starch, Kanobos, and ritual instruments (WILBERT, 1972, p. 79).

Fig. 24: Sacred seclusion hut (CREVAUX, 1883, p. 614).

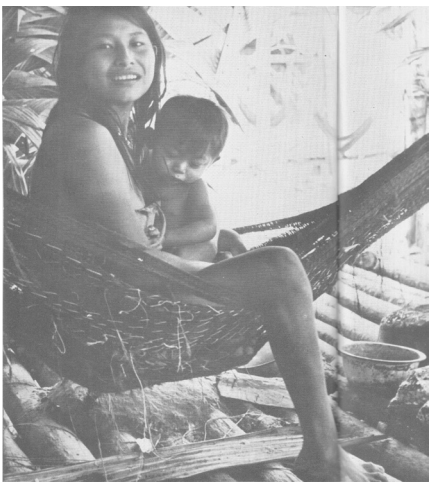


Fig. 25: Woman in seclusion hut (SUAREZ, 1968, Photo 65).

For dance ceremonies, a music master organizes and rehearse orchestras of young men for the dances. Musical instruments include clarinets (sometimes called sacred trumpets or oboes by ethnographers or explorers), deer bone and wood flutes, shell or crab claw whistles, conch trumpets, rattles of calabash, ankle or staff-top rattles of dried fruits, and, in recent times, drums and violins (OLSEN, 1996; WILBERT, 1956b). Schomburgk marvelled at the high quality of the music of that he heard at the moriche starch festival (SCHOMBURGK, 1847, p. 117-118): "*Although ... each instrument only possesses single note, the musical conductor nevertheless knows the notes of the collective instruments so exactly, and gives his directions so explicitly, that really a basis of harmony rules...*". Plassard (1868, p. 581-586), in contrast, found the music slow, monotonous, and sad.

Certain important annual public rituals occasioned extensive preparation of food, structures, and ritual materials. The most important

seasonal ceremony of Warao religion seems to be the the annual moriche starch harvest festival in which important figures honored are a Goddess of the Moriche and of the Sacred Trumpets with dancing, singing, eating, and drinking (**Fig. 26)**.The ritual is conceived of as offering propitiation to the ancestral Kanobo. During the moriche starch festival, the young men directed by the music master play the "sacred trumpets", whose patron spirit is the goddess Dauarani. The processed and dried moriche starch is stored in the Kanobo shrine and used to make large flat cakes for rituals such as the girls puberty ceremony.

Fig. 26: Dance with "sacred trumpets"
(SCHOMBURGK, 1847, between p. 152-153).

When an adult dies, abandonment of houses or even entire settlements takes place. The Warao funerary complex often includes several stages of secondary burial (BARRAL, 1981, p. 187-201; SUAREZ, 1968, p. 199-204; CREVAUX, 1883; SCHOMBURGK, 1847, 1848). Ceremonies of initial mourning involving wailing, singing, and smoking of tobacco were observed by Crevaux and his companions during their week in a Warao village (1883, p. 612-614) and by Schomburgk (1848, p. 356). The dead were usually carried, enclosed, and buried in their hamocks. Suarez observed the burial of several infants. The Crevaux group saw an elderly lady buried in a shallow grave dug by 4 young women relatives. They also saw a young boy was enclosed

in a hollowed tree, sealed in with clay. In an abandoned hut they saw a group of coffins wrapped in palm fronds, elevated on y-shaped posts **(Fig. 27-28**). The explorers marvelled that the ancient woman, clearly in advanced senility, had been fed and cared for so long by her daughter. Their admiration, though, did not deter them from secretly stealing what coffins they could to obtain anthropological specimens for museums.

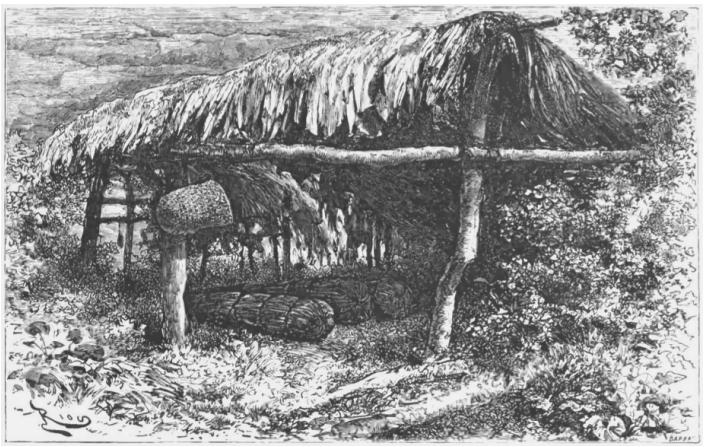


Fig. 27: Abandoned house with coffins (CREVAUX, 1883, p. 615).

Fig. 28: Coffin raised on crossed posts (CREVAUX, 1883, p. 613).

Like several other greater Amazonian groups, the Warao believe that the stellar bodies and planets are the souls of their ancestors both recent and ancient (DAVIS, 2014). A learned Warao woman, Tomasa Rivas, said "*So, the stars are the souls of persons who existed before. Thus, the Indians believe. The large stars are the souls of those who died when adults. The small stars are the souls of children. The brilliant stars are the souls of the best Indians, those who had a name*" (BARRAL, 1969, p. 123).

Conclusions

For the ancient stilt villages of Maranhão, the Warao people offer a valuable enthographic model as they seem to be among the last surviving members of that tradition of settlement in the delta habitat. Their reliance on intensive fishing, palm and tree cultivation, and root-cropping appears to be a venerable subsistence mode in tropical lowland South America. Their vibrant ritual culture of dancing and singing in honor of the ancestral "*Mother of the Forest*" and other ancestral deities surrounds their seasonal extraction of palm sap and starch and underpins their foremost craft, canoe-building.

Comparisons of living Warao with the archaeologically-recovered cultures in Maranhão would offer both inspiration for and tests of interpretations of the life styles and religious cultures of the ancient stilt village cultures. Already there are possible similarities: most of the botanical seeds from the Maranhão sites are from palms; most of the human figures in the art are female; and most other images are animals or birds that live in or around the water.

Conversely, the new archaeological sequence in the deltas of Maranhão and other greater-Amazon regions predicts a more complex past for the Warao. Much of Warao "history" is little more than surmise by ethnologists who assume that Warao traditional culture remained unchanged for thousands of years of prehistory (WILBERT, 1972) and archaeologists who attribute Warao evolution to processes of migration and environmental change (SANOJA; VARGAS ARENAS, 1995, p. 359-382). Already, some of the assumptions about their past have been refuted. Therefore, investigation of Warao prehistory and history through purposeful archaeological exploration in the Orinoco

delta in collaboration with Warao communities should be a priority for the future.

References cited

ALVES-SILVA, Juliana; SANTOS, Magda da Silva; GUIMARÃES, Pedro E. M.; FERREIRA, Alessandro C. S.; BANDELT, Hans-Jurgen; PENA, Sergio D. A.; PRADO, Vania Ferreira. The ancestry of Brazilian mtDNA lineages. **American Journal of Human Genetics**, 67, p. 444-461, 2000.

ANDERSON, Anthony. Use and management of native forests dominated by Acai palm (*Euterpe oleraceae* Mart.). **Advances in Economic Botany**, 6, p. 144-154, 1988.

BALEE, William. **Cultural Forests of the Amazon**: A Historical Ecology of People and their Landscapes. Tuscaloosa: University of Alabama Press, 2013.

_____. The culture of Amazonian forests. **Advances in Economic Botany**, 7, p. 1-21, 1989.

BANCROFT, Edward. **An Essay on the Natural History of Guiana in South America**: Containing a History of the Many Curious Productions in the Animal and Vegetable Systems of that Country: Together with an Account of the Religion, Manners, and Customs of Several Tribes of its Indian Inhabitants, Interspersed with a Variety of Literary and Medical Observations. London: T. Becket and P. A. De Hondt, 1769.

BARONE-VISIGALLI, Egle; ROOSEVELT, Anna C. (eds.). **Amaz'homme**: Sciences de l'Homme Sciences de la Nature en Amazonie. Cayenne, FG: Ibis Rouge, 2010, p. 417-429.

BARRAL, Basilio de. **La Musica Teurgico-Magica de los Indios Guaraos. Coleccion de Lenguas Indigenas**. Caracas: Universidad Catolica Andres Bello, Instituto de Investigaciones Historicas, Centro de Lenguas Indigenas, 1981.

_____. **Diccionario Warao-Castallano, Castelano-Warao**. Caracas: Lithografia Melvin, 1979.

_____. **Guarao A-Ribu**: Literatura de los Indios Guaraos. Caracas: Universidad Catolica Andres Bello, Facultad de Humanidades, 1969.

_____. **Los Indios Guaraunos y Su Cancionero**: Historia, Religion, y Alma Lirica. Madrid: Concejo Superior de Investigaciones Cientificas, Departamento de Missionologia Española, 1964. (Biblioteca "Missionalia Hispanica", vol. 15)

_____. **Guarao Guarata, lo que cuentan los indios guaraos**: reflejos del alma guarauna visto a través de sus leyendas, cuentos, mitos y tradiciones. Prologo por Walter Dupouy. Caracas: Published by the autor, 1960[?].

_____. Vocabulario teurgico-magico de los Indios Guaraos. **Antropologica**, 4, p. 27-36, 1958.

_____. **Diccionario Guarao-Espanol, Espanol-Guarao**. Instituto Caribe de Antropologia y Sociologia, Sociedad de Ciencias Naturales La Salle, Monografia 3. Caracas: Ediciones Sucre, 1957a.

_____. Canciones de Cuna de los Warrau (Guarao, Guarauno). **Antropologica**, 2, p. 31-38, 1957b.

BEEBE, W.; HARTLEY, G. I.; HOWES, P. G. **Tropical Wildlife in British Guiana**. New York: New York Zoological Society, 1917.

BORTOLINI, Maria-Catira; et al. Y-chromosome evidence for differing ancient demographic histories in the Americas. **American Journal of Human Genetics**, 73, p. 524-539, 2003.

BRETT, William Henry. **Mission Work Among the Indian Tribes in the Forests of Giuana**. Published under the direction of the Tract Committee. London: Society for Promoting Christian Knowledge, 1881.

_____. **Legends and Myths of the Aboriginal Indian of British Guiana**. London: William Wells Gardner, c. 1880.

_____. **The Indian Tribes of Guiana**. New York: Robert Carter and Brothers, 1852.

BROCHADO, José Joaquim Justiano Proenza. **An Ecological Model of the Spread of Pottery and Agriculture into Eastern South America**. Ph.D. Dissertation. Urbana-Champaign: University of Illinois, 1984.

_____. **The Social Ecology of the Marajoara Culture**. Unpublished MA Thesis, Department of Anthropology, University of Illinois, Urbana, 1980.

BRONDIZAO, E. S.; SAFAR, C. A. M.; SIQUEIRA, A. D. The urban market of Acai fruit (*Euterpe oleracea* Mart.) **Urban Ecosystems**, 6 (1-2), p. 67-97, 2002.

CAMPBELL, L. What drives linguistic diversification and language spread? In: BELLWOOD, P.; RENFREW, C. **Examining the Farming / Language Dispersal Hypothesis**. Cambridge: McDonald Institute for Archaeological Research; Oxbow Books, distributor, 2002, p. 49-64.

_____. **American Indian Languages**: The Historical Linguistics of Native America. New York: Oxford University Press, 1997.

CLEMENT, C. R.; CRISTO-ARAUJO, M. de; ALVES PEREIRA, A.; D'EECKENBRUGGE, G. Coppens; PICANÇO-RODRIGUES, D. Origin and domestication of Native Amazonian crops. **Diversity**, 2, p. 72-106, 2010.

CREVAUX, Jules. **Voyages dans l'Amerique du Sud**. Paris: Hachette, 1883.

CRUXENT, J. M.; ROUSE, I. **An Archaeological Chronology of Venezuela**. 2 vols. Social Science Monograph VI. Washington, D.C.: Pan American Union, 1958-1959.

CRUXENT, Jose M.; ROUSE, Irving.; OLSEN, Fred; ROOSEVELT, Anna C. **Ronquin revisited**. Proceedings of the 6th International Congress for the Study of Pre-Columbian Cultures of the Lesser Antilles, Guadeloupe, 1975. Gainesville: University of Florida, 1976, p. 117-122.

DAVIS, C. S. **Archaeoastronomy of Terminal Pleistocene Rock Art on the Amazon River at Monte Alegre, Para, Brazil**. Ph.D. Dissertation, Department of Anthropology, University of Illinois at Chicago, 2014.

DONKIN, R. A. **The Muscovy Duck**: *Cairina moschata domestica*: Origins, Dispersal, and Associated Aspects of Geography of Domestication. London: Routledge, 1988.

DuVAL, A. Acai Branco: Maintaining agrobiodiversity through a local seed system in the Amazon estuary. **Tropical Resources**, 29, p. 16-21, 2010.

EVANS, Clifford; MEGGERS, Betty J. **Archaeological Investigations in British Guiana**. Bureau of American Ethnology 167. Washington, DC: Smithsonian Institution, 1960.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS - FAO. FAO Statistical Yearbook 2013: World Food and Agriculture. Rome: FAO, 2013.

GEBHART-SAYER, Angelica. **The Cosmos Encoiled**: Indian Art of the Peruvian Amazon. New York: Center for Inter-American Relations and Americas Society, 1984.

GENDZEKHADZE, K.; HERRERA, F.; MONTAGNANI, S.; BALBAS, O.; WITTER, K.; ALBERT, E.; LAYRISSE, Z. HLA-DP polymorphisms in Venezuelan Amerindians. **Human Immunology**, 65, p. 1483-1488, 2004.

GRANBERRY, Julian; VESCELIUS, Gary S. **Languages of the Pre-Columbian Caribbean**. Tuscaloosa: University of Alabama Press, 2004.

GREENBERG, Joseph. General classification of South and Central American languages. In: WALLACE, Anthony F. C. **Men and Culture**: Selected Papers. Fifth International Congress of Anthropological and Ethnological Sciences, September 1-9, 1956. Philadelphia: University of Pennsylvania Press, 1960, p. 791-794.

GREENE, David L. **Assessment of the State of Preservation of Human Skeletal Remains from Marajo Island, Pará, Brazil**. Report submissted to the National Science Foundation, Washington, DC, 1986.

GUMILLA, J. Historia Natural, Civil y Geografica de las Naciones Situadas en las Riveras del Rio Orinoco. **El Orinoco Ilustrado**. Vol. 1. Barcelona: Carlos Gibert y Tuto, 1791.

HARRIS, Peter. Nabarima: A Warao sacred place in South Trinidad. In: **Procedings of the XXI Congress of the International Association for Caribbean Archaeology**. Gainesville: University of Florida, 2011, p. 486-499.

HEINEN, H. Dieter (ed.). **The Kanobo Cult of the Warao Amerindians of the Central Orinoco Delta**: The Nahanamu Sago Ritual. Ethnologische Studien Bd. 41. Munster, Germany: Lit Verlag, 2009.

_____. Los Warao. In: COPPENS, Walter; ESCALANTE, Bernarda. **Aborigines de Venezuela**, Fundacion La Salle de Ciencias Naturales, Instituto Caribe de Antropologia y Sociologica. Monografia n. 35. Caracas: Monte Avila Editores, 1988a, p. 585-689.

_____. **Oko Warao**: Marshland People of the Orinoco Delta. Ethnologische Studien Bd. 4. Munster, Germany: Lit Verlag, 1988b.

_____. Residence rules and household cycles in a Warao subtribe: The case of the Winikina. **Antropologica**, 31, p. 21-86, 1972.

_____; GASSON, R. (eds.). **Forasteros en su Propria Tierra**: Testimonio de los Amerindios Warao. Centro de Antropologia, Instituto Venezolano de Investigacions Cientificas. Caracas: Ediciones IVIC, 2008.

_____; RUDDLE, Kenneth. Ecology, ritual, and economic organization in the distribution of palm starch among the Warao of the Orinoco Delta. **Journal of Anthropological Research**, 30(2), p. 116-138, 1974.

_____; SAN JOSÉ, José J.; ARIAS, Hortensia Caballero; MONTES, Ruben. Subsistence activities of the Warao Indians and Anthropic changes in the Orinoco Delta vegetation. In: HEINEN, H. Dieter; SAN JOSÉ, José J.; ARIAS, Hortensia Caballero (eds.). **Naturaleza y Ecologia Humana en el Neotropico**. Nature and Human Ecology in the Neotropics. Scientia Guaianae, n. 5. Caracas: Instituto Venezolano de Investigaciones Cientificas, 1995.

HENDERSON, Andrew. **The Palms of the Amazon**. New York: Oxford University Press, 1995.

_____; GALEANO, Gloria; BERNAL, Rodrigo. **Field Guide to the Palms of the Americas**. Princeton: Princeton University Press, 1995.

HERRMANN, Stefanie. Warao. In: **Encyclopedia of Linguistics**. Chicago: Fitzroy Dearborn Publishers, 2002.

HILHOUSE, William. Memoir on the Warow Land of British Guiana. **Journal of the Royal Geographical Society**, 4, p. 320-332, 1834.

_____. **Indian Notices or Sketches on the Habits, Characters, Languages, Superstitions, Soils, and Climate of the Several Nations**. Printed for the author, 1825.

HUGH-JONES, Christine. **From the Milk River**: Spatial and Temporal Processes in Northwest Amazonia. Cambridge: Cambridge University Press, 1979.

IM THURN, E. F. **Among the Indians of Guiana**: Being Sketches, Chiefly Anthropologic, From the Interior of British Guiana. London: Kegan, Paul, Trench & Co., 1883.

JOHNSON, Kevin P.; SORENSON, Michael D. Phylogeny and biogeography of dabbling ducks (Genus: Anas): A comparison of molecular and morphological evidence. **The Auk**, 116 (3), p. 792-805, 1999.

KAHN, Francis. Ecology of economically important palms in Peruvian Amazonia. **Advances in Economic Botany**, 6, 1988, p. 42-49.

KEYMIS, Lawrence. **A Relation of the Second Voyage to Guiana**. London: Thomas Dawson, 1596.

KIRCHOFF, Paul. The Warrau. In: STEWARD, Julian H. **Handbook of South American Indians**. Vol. 3. The Tropical Forest Tribes. Washington, DC: Smithsonian Institution, 1948, p. 869-881.

LASSO, Carlos A.; SANCHEZ-DUARTE, Paula. **Los Peces del Delta del Orinoco**. Diversidad, Bioecología, uso y conservación. Caracas: Fundación La Salle de Ciencias Naturales y Chevron C. A. Venezuela, 2011.

_____; USMA, José S.; TRUJILLO, Fernando; RIAL, Anabel (eds.). **Biodiversidad de la Cuenca del Orinoco**: Bases cientificas para la identificacion de areas prioritarias para la conservacion y uso sostenible de la bioversidade. Bogota: Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, WWF Colombia, Fundación Omacha, Fundación La Salle e Instituto de Estudios de la Orinoquia (Universidad Nacional de Colombia), 2010.

LATHRAP, Donald W. **The Upper Amazon**. New York: Praeger, 1970.

LAYRISSE, M.; LAYRISSE, Z.; WILBERT, Johannes. Blood group antigen studies of four Chibchan tribes. **American Anthropologist**, 65(1), p. 36-55, 1963.

_____; WILBERT, J. **Indian Societies of Venezuela**: Their Blood Group Types. Caracas: Instituto Caribe de Antropologia y Sociologia, Fundacion La Salle de Ciencias Naturales, Monography n. 13, 1966.

LORENZI, Harri J. **Brazilian Trees**: A Guide to the Identificaiton and Cultivation of Brazilian Native Trees. Nova Odessa: Instituto Plantarum de Estudos da Flora, 2002.

MEGGERS, Betty J.; EVANS, Clifford. Archaeological Investigations at the Mouth of the Amazon. **Bureau of American Ethnology**, Bulletin 167. Washington, D.C.: Smithsonian Institution, 1957

MORA URPI, J. Origen y domesticacion. In: _____; GAINZA ECHEVERRIA, J. (eds.). **Palmito de Pejibaye** (*Bactris gasipes Kunth*): Su cultivo y industrializacion. San Jose, CR: Editorial Universidad de Costa Rica, 1999, p. 17-24.

MORCOTE-RIOS, G.; BERNAL, J. Remains of palms (Palmae) at archaeological sites in the New World: a review. **The Botanical Review**, 67(3), p. 309-350, 2001.

MORENO-ESTRADA, A.; GRAVEL, S.; ZAKHARIA, F.; McCAULEY, J. L.; BYRNES, J. K.; GIGNOUX, C.R.; et al. Reconstructing the Population Genetic History of the Caribbean. **PLoS Genet**, 9(11):e1003925, 2013.

MORTON, J. F. **Pineapple**. Fruits of warm climates. Miami, FL, 1987, p. 18-28.

MOSONYI, E. E.; MOSONYI, J. C.; ARINTERO, B. Warao. In: MOSONYI, E. E.; MOSONYI, J. C. (eds.). **Manual de las Lenguas Indigenas de Venezuela**, vol. 1. Caracas: Fundacion Bigott, 2000, p. 116-183.

MURRIETA, R. S.; DuFOUR, D. L.; SIQUEIRA, A. D. Food consumption and subsistence in three Caboloc communities on Marajo Island, Amazonia, Brazil. **Human Ecology**, 27, p. 455-475, 1999.

NAVARRO, Alexandre Guida. **As Estarias do Maranhão**: A Pesquisa Acadêmica do Laboratório de Arqueologia da UFMA. São Luís: EDUFMA, 2018.

OLIVER, José R. Nuevos aportes a la arqueologia del sitio de Saladero, bajo Orinoco, Venezuela. In: ROSTAIN, S. **Antes de Orellana**. Actes del 3er Encuentro Internacional de Arqueologia Amazonica. Quito: Instituto Frances de Estudios Andinos, 2014, p. 97-112.

_____. The archaeology of agriculture in ancient Amazonia. In: SILVERMAN, Helaine; ISBELL, William (eds.). **The Handbook of South American Archaeology**. New York: Springer, 2008, p. 185-216.

OLSEN, Dale A. **Music of the Warao of Venezuela**: Song People of the Rainforest. Gainesville: University Press of Florida, 1996.

PADOCH, Christine; PINEDO-VASQUEZ, Miguel. Farming above the flood in the Varzea of Amapa: Some preliminary results of the Projeto Varzea. In: PADOCH, Christine; AYRES, J. M.; PINEDO-VASQUEZ, M.; HENDERSON, Andrew (eds.). **Varzea**: Diversity, Development, and Conservation in Amazonian's Whitewater Floodplains. Advances in Economic Botany 13. New York: New York Botanical Garden, 1999, p. 345-354.

PEREIRA GONÇALVES, Thais Alves. **Relatorio technico final**: As árvores do povo das águas: Identificação das madeiras utilizadas em artefatos e estearias da porção centro-norte da Baixada Maranhense. São Luís, 2018. Manuscript.

PIPERNO, D. R.; PEARSALL, D. **The Origins of Agriculture in the Lowland Tropics**. San Diego: Academic Press, 1998.

PLASSARD, Louis. Les Guaraounos et la delta de l'Orenoque. **Bulletin de la Societe de Geographie**, 15(5), p. 568-592, 1868.

POLITIS, Gustavo. **Nukak**: Ethnoarchaeology of an Amazonian People. Translated by Bem Alberti. Walnut Creek: Left Coast Press, 2007.

_____. **Nukak**. Bogota: Instituto de Investigaciones Cientificas SINCHI, 1996.

PURDY, B. (ed.). **Enduring Records**: The Environmental and Cultural Heritage of Wetlands. WARP Occasional Papers n. 15. Oxbow Books, 2001.

_____. **Wet Site Archaeology**. Boca Raton: CRC Press of Taylor & Francis Group, an Informa Business, 1990.

RABELO, Alfonso. **Frutos nativos da Amazônia comercializados nas feiras de Manaus**. Manaus: Instituto Nacional de Pesquisas da Amazonia, Editora INPA, 2012.

_____; FRANÇA, Felipe. **Buriti**: coleta, pós-coleta, processamento, e beneficiamento dos frutos de Buriti (*Mauritia flexuosa* L. f.). Manaus: Instituto Nacional de Pesquisas da Amazônia (INPA), 2015.

RAFFLES, Hugh. **In Amazonia**: A Natural History. Princeton: Princeton University Press, 2002.

RALEIGH, Sir Walter. **The Discoverie of the Large, Rich and Bewtiful Empyre of Guiana**. Transcribed annotated, and introduced by Neil L. Whitehead (ed.). The American Exploration and Travel Series. Norman: University of Oklahoma Press, 1997.

ROMERO, Simon. Mystery disease kills dozens in Venezuela. **New York Times**, August 6, 2008.

ROOSEVELT, Anna C. Method and theory of early farming: The Orinoco and Caribbean coasts of South America. **Earth Science Research**, 6(1), p. 1-42. Toronto: Canadian Center for Science and Education, 2016.

_____. The great anaconda and the Amazon woman: A powerful and dangerous ancestral spirit from creation time to today. In: BARONE-VISIGALLI, Egle (ed.). **Colocataires d'Amazonie**: Hommes, Animaux, et Plantes de Part et D'Autre de L'Atlantique. Cayenne, FG: Ibis Rouge, 2013a.

_____. Amazonia and the anthropocene: 13,000 years of human influence in a rainforest. **The Anthropocene**, 4:69-87. Elsevier, 2013b. Citation: http://dx.doi.org/10.1016/j.ancene.2014.05.001.

_____. Long-term human-environment interaction in Amazonia. In: BARONE-VISIGALLI, Egle; ROOSEVELT, Anna C. (eds.). **Amaz'homme**: Sciences de l'Homme Sciences de la Nature en Amazonie. Cayenne, FG: Ibis Rouge, 2010a, p. 17-44.

_____. Humans and nature in Amazonia: Integrative scientific theory for a complex dialectic. In: BARONE-VISIGALLI, Egle; ROOSEVELT, Anna C. (eds.). **Amaz'homme**: Sciences de l'Homme Sciences de la Nature en Amazonie. Cayenne, FG: Ibis Rouge, 2010b, p. 417-429.

_____. Who's on first? There's still no end to the controversy over when and how humans populated the New World. **Natural History**, October/ November, 7, p. 76-79, 2000a.

_____. The lower Amazon: A dynamic human habitat. In: LENTZ, D. L. (ed.). **Imperfect Balance**: Landscape Transformations in the Precolumbian Americas. New York: Columbia University Press. 2000b, p. 455-491.

_____. Ancient and modern hunter-gatherers of lowland South America: An evolutionary problem. In: BALEE, W. (ed.). **Advances in Historical Ecology**. New York: Columbia U. Press, 1998, p. 190-212.

_____. Excavations at Corozal, Venezuela: Stratigraphy and Ceramic Seriation. **Yale University Publications in Anthropology**, n. 83. New Haven, 1997.

_____. Early pottery in the Amazon: Twenty Years of Scholarly Obscurity. In: BARNETT, W.; HOOPES, J. (eds.). **The Emergence of Pottery**: Technology and Innovation in Ancient Societies. Washington, D.C.: Smithsonian Institution, 1995, p. 115-131.

_____. (ed.). **Amazonian Indians from Prehistory to the Present**: Anthropological Perspectives. Tucson: University of Arizona Press, 1994.

_____. **Mound-builders of the Amazon**: Geophysical Archaeology on Marajo Island, Brazil. Studies in Archaeology. San Diego: Academic Press, 1991.

_____. **Parmana**: Prehistoric Maize and Manioc Subsistence along the Amazon and Orinoco. Studies in Archaeology. New York: Academic Press, 1980.

_____. La Gruta: An early tropical forest community of the middle Orinoco. In: WAGNER, Erica; ZUCCHI, Alberta (eds.). **Ensayos Antropologicos en Homenaje a J. M**. Cruxent. Caracas: Centro de Estudios Avancados, Instituto Venezolano de Investigaciones Cientificas, 1978, p. 173-201.

_____; et al. Early hunter-gatherers in the *terra firme* rainforest: Stemmed projectile points from the Curua goldmines. **Amazonica** 1(2), p. 422-483, 2009.

_____; et al. Paleoindian cave dwellers in the Amazon: The peopling of the Americas. **Science**, 272, p. 373-384, 1996.

_____; et al. Eighth millennium pottery from a prehistoric shell midden in the Brazilian Amazon. **Science**, 254(5038), p. 1621-1624, 1991.

_____; DOUGLAS, John E.; BROWN, Linda J. Migrations and adaptations of the first Americans: Clovis and Pre-Clovis viewed from South America. In: JABLONSKI, Nina (ed.). **The First Americans: The Pleistocene Colonization of the New World**. Berkeley: University of California Press and the California Academy of Sciences, 2002, p. 159-236. (Memoirs of the California Academy of Sciences, n. 27)

ROSTAIN, S. The archaeology of the Guianas: An overview. In: SILVERMAN, Helaine; ISBELL, William. **Handbook of South American Archaeology**. New York: Springer, 2008, p. 279-302.

ROTH, Walter E. **An Introductory Study of the Arts, Crafts, and Customs of the Guiana Indians**. Washington, DC: Government Printing Office, 1924.

____. **An Inquiry into the Animism and Folklore of the Guiana Indians**. 30th Annual Report of the US Bureau of American Ethnology. Washington, DC: Smithsonian Institution, 1915.

ROUSE, I.; CRUXENT, J. M. **Venezuelan Archaeology**. Caribbean Series 6. New Haven: Yale University Press, 1963.

SANDOVAL, J.; ACEVEDO-RODRIGUEZ, P. **Datasheet *Xanthosoma sagittifolium* (Elephant ear)**. Wallingford, UK: Centre for Agriculture and Bioscience International, 2018. 15 p.

SANOJA, Mario. **Las Culturas Formativas del Oriente de Venezuela**: La Tradicion Barrancas del Bajo Orinoco. Estudios, Monografias y Ensayos 6. Caracas: Biblioteca de la Academia Nactional de la Historia, 1979.

_____; VARGAS ARENAS, Iraida. **Gente de la Canoa**: Economia Politica de al Antigua Sociedad Apropriadora del Noroeaste de Venezuela. Caracas: Fondo Editorial Tropykos, Comision de Estudios de Postgrado, FACES – UCV, 1995.

SCHAAN, Denise P. **The Camutins Chiefdom**: Rise and Development of Complex Societies on Marajo Island, Brazilian Amazon. Ph.D. Dissertation, Department of Anthropology, University of Pittsburgh, 2004.

SCHNEE, Ludwig. **Plantas Comunes de Venezuela**. 3rd edition. Caracas: Universidade Central de Venezuela, Ediciones de la Biblioteca, 1984.

SCHOMBURGK, Richard. **Travels in British Guiana**. [1847-1848]. Walter E. Roth (transl. and ed.). 2 vols. Georgetown, BG: Daily Chronicle office, 1922-1923.

_____. **Botanical Reminiscences of British Guiana**. Adelaide: W. C. Cox, Government Printer, 1876.

_____. **Reisen in Britisch-Guiana in den Jahren 1840-1844**. In Auftrag Sr. Majestät des Königs von Preussen ausgeführt von R. Schomburgk. Nebst einer Fauna und Flora Guiana's, etc. Mit Abbildungen und einer Karte von Britisch-Guiana aufgenommen von Sir Robert Schomburgk. Leipzig: J. J. Weber, 1847-1848.

SCHOMBURGK, Robert H. **A Description of British Guiana**. London: Simpkin, Marshall, & Co., 1840.

SEIFART, Frank; HAMMARSTROM, Harald. Language isolates in South America. CAMPBELL, Lyle (ed.). **Language Isolates**. London: Routledge, 2017, p. 260-286.

SEMPLE, Kirk. AIDS runs rampant in Venezuela, Putting an ancient culture at risk. **New York Times**, May 7, 2018.

SMITH, Nigel. **Palms and People in the Amazon**. Geobotany Studies. Cham: Springer, 2015.

SMOLE, William J. **The Yanoama**: A Cultural Geography. Pan American Series. Austin: University of Texas Press, 1976.

STEEGE, H.; et al. Hyperdominance in the Amazonian tree flora. **Science**, 342: 1243092, p. 1-9, 2013.

STENBORG, Per (ed.). **In Pursuit of a Past Amazon**: Archaeological Researches in the Brazilian Guyana and in the Amazon Region by Curt Nimuendaju. Ethnological Studies. Goteborg, 2004.

STEWARD, Julian H.; FARON, Louis C. **Native Peoples of South America**. New York: McGraw-Hill Book Company, 1959.

SUAREZ, Maria Matilde. Terminology, alliance, and change in Warao society. **Niewe West-Indische Gids**, n. 1, p. 56-129, Gravenhage: Martinus Nijhoff, 1971.

_____. **Los Warao**. Caracas: Departamento de Antropologia, Instituto Venezolano de Investigaciones Cientificas, 1968.

VARGAS ARENAS, Iraida. **Investigaciones Arqueologicas en Parmana**: Los Sitios de la Gruta y Ronquin Estado Guarico, Venezuela. Estudios, Mongrafias, y Ensayos 20. Caracas: Biblioteca de la Academia Nacional de la Historia, 1981.

VERSTEEG, Aad. Barrancoid and Arauquinoid moundbuilders in coastal Suriname. In: SILVERMAN, Helaine; ISBELL, William (eds.). **The Handbook of South American Archaeology**. New York: Springer, 2008, p. 303-318.

VON HUMBOLDT, Alexander. **Aspects of Nature in Different Lands and Different Climates**. Translated by Mrs. Sabine. Philadelphia: Lea & Blanchard, 1850.

WHITEHEAD, N. (ed.). **Introduction to *The Discoverie of the Large, Rich, Bewtiful Empyre of Guiana by Sir Walter Raleigh***. N. Whitehead (ed.). The American Exploration and Travel Series. Norman: University of Oklahoma Press, 1997.

WILBERT, Johannes. **Mystic Endowment**: Religious Ethnography of the Warao Indians. Cambridge: Harvard University Press, 1993.

_____. **Tobacco and Shamanism in South America**. New Haven: Yale University Press, 1987.

_____. The Warao Indians of the Orinoco Delta. In: WILBERT, Johannes; LAYRISSE, Miguel (eds.). **Demographic and Biological Studies of the Warao Indians**. Los Angeles: University of California Latin American Center, 1980a, p. 3-12.

_____. Navigators of the Orinoco delta: A picture essay. In: WILBERT, Johannes; LAYRISSE, Miguel (eds.). **Demographic and Biological Studies of the Warao Indians**. Los Angeles: University of California Latin American Center, 1980b, p. 91-114.

_____. *Manicaria saccifera* and its cultural significance among the Warao ndians of Venezuela. **Botanical Museum Leaflet**, 24, p. 275-335, 1976.

_____. **Survivors of El Dorado**: Four Indian Cultures of South America. New York: Praeger, 1972.

_____. **Folk Literature of the Warao Indians**. Los Angeles: University of California Latin American Center, 1970. (Latin American Series, Vol. 15)
_____. Warao oral literature. **Memoria de la Sociedad de Ciencias Naturales La Salle**, n. 9, 1964. 199 p.
_____. Vestidos y ornamentos de los Indios Warao. **Antropologica**, 12, p. 6-26, 1963.
_____. Dibujos de Indios Venezolanos. **Antropologica**, 11, p. 45-60, 1962.
_____. Prologo. In: BARRAL, Basilio. **Diccionario Guarao-Espanol, Espanol-Guarao**. Sociedad de Ciencias Naturales La Salle. Caracas: Ediciones Sucre, 1957, p. 7-18. (Monografia 3)
_____. Rasgos culturales Circuncaribes etre los Warrao y sus inferencias. **Memoria de la Sociedad de Ciencias Naturales La Salle**. Vol. 16, n. 45, p. 237-257, 1956a.
_____. Los instrumentos musicales de os Warrau (Guarao-Guaraouno). **Antropologica**, 1, p. 1-22, 1956b.
WILBERT, J.; LAYRISSE, M. (eds.). **Demographic and Biological Studies of the Warao Indians**. UCLA Latin American Studies, Vol. 45. Los Angeles: University of California, 1980.
WILLIAMS, Denis. El Arcaico en el Noroeste de Guyana y los comienzos de la horticultura. In: MEGGERS, B. J. (ed.). **Prehistoria Sudamericana**. Washington, DC: Taraxacum, 1992, p. 233-251.
YUYAMA, L. K.; YUYAMA, K.; AGUIAR, J. P.L.; ALENCAR, F.H.; NAGAHAMA, D.; MARINHO, H. A. **Fruteiras da Amazônia**: Potencial Nutricional. Manaus: Instituto Nacional de Pesquisas da Amazônia (INPA), 2013.