THE YANOMAMA

An American Indian tribe
Upper Orinoco, Venezuela

Photo gallery and Introduction
Based on my 1974 visit

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Contents

AN INTRODUCTION TO THE YANOMAMA

This introduction to the Yanomama is in support of the photo gallery of my visit to their area in July 1974 and based on my observations and information from anthropological studies of this tribe, listed in the References.

Background

The Yanomama, a native American Indian tribe, live in the Territorio Federal Amazonas in the southern part of the upper Orinoco basin in South Venezuela and in the adjacent west side of the most northern part of Brazil, embedded between Venezuela and the Guineas. In the early 1970s, the total Yanomama population was estimated at some 20 000 persons living in Venezuela and Brazil. The Yanomama still live in the Stone Age. The only metal objects they know are a few steel axes, machetes and aluminum pots and pans they recently received from the missionaries. Their technology is simple but adequate and they are able to collect all necessary items from the forest to make the different types of tools needed in their daily life.

Yanomama do not wear clothing, except waist cords which are worn both by men and women. Men tie the foreskins of their penises to these waist cords. Women only wear strings around their middle. Yanomama often paint their bodies with onoto, a red paste, which they apply in serpentine and circular designs. Their thick black hair is cut in a regular bowl fashion, sometimes tonsured. Body hair is sparse. Girls and women adorn their faces by inserting slender sticks through holes in the lower lip at either side of the mouth and in the middle and through pierced nasal septum. Except for this they do not practice bodily mutation.

Yanomama do not have a written language while their numerical system is limited to: “one”, “two”, “many”, yet anthropologists familiar with their language, report a rich and expressive vocabulary.

Possible origin of the Yanomama

Regarding the origin of the Yanomama, archeologists assume that all traditional human groups who ever lived or are living in the Americans have originally immigrated from the Asian continent, probably crossing the Bering land bridges during periods when sea levels were much lower than today. There have been two main waves of people crossing the Bering land bridge, the first of archaic Caucasians about 20-25000 years ago followed around 10-15000 years ago by Mongoloids, which dates were confirmed by the C14 radio-carbon analysis method.

Archeologists assume that the Yanomama immigrated to the Americas during the first wave of archaic Caucasians as their facial features have mainly Caucasian features and are definitely not Mongoloids such as found among other native American Indians tribes. Furthermore their culture and technologies are from the archaic Stone Age while their concepts of the cosmos and shamanism are closely related to similar concepts held by their archaic Caucasian ancestors, of which there are still some groups living in Asia, such as the Ainu in northern Japan and the Vedda of Sri Lanka. In addition, physical surveys by blood geneticists from Michigan University carried out during the 1960s show that some isolated groups of native American Indian tribes, among which the Yanomama, are marked by a specific blood gene, called the Diego Factor, which is only present today in Caucasians and in tribes such as the Yanomama, while most of the North American native Indian tribes do not have this gene as they are probably descendants of the later waves of Mongoloids.

The above thus suggests that the Yanomama may have arrived in the Americas with the first wave of hunters, some 20 -25 000 years ago. These hunters moved gradually southwards following the herds of large game animals: mammoth, buffalo and other large game. After this large game became extinct, they were forced to shift their outlook to small-game hunting and collecting forest products for subsistence and ultimately to develop crop cultivation. It is further assumed that later waves of Mongoloid immigrants forced the more archaic Yanomama and similar groups to the South Americas. The Yanomama ultimately found a safe heaven in the remote Upper Orinoco forest zone, which was difficult to penetrate and probably less attractive to the later Mongoloid immigrants.

Source: Uriji jami by I. Steinvorth Goetz 1969

Yanomama Farming Practices

I carefully surveyed the local village farm in each of the six Yanomama village visited. This was in all cases nearby the actual village site, often less than a few hundreds of meters away.
My first observation was that the Yanomama farms are very similar to the traditional upland farms under shifting cultivation which I studied for my work elsewhere in the humid tropics in South and Center America; Africa and Asia. For details I refer to my website: www.cvsanten.net. The carefulness with which the forest is cleared and crops planted and maintained indicates that Yanomama upland farming practices were established many generations ago and date probably from long before Pre-Columbian times.

To the observer unfamiliar with traditional upland farming systems, these farms appear as a chaotic mixture of different crops grown together in an apparently unorganized at random pattern. However, to the traditional upland farmer, the apparent haphazard staggered way of planting is done purposely. It is based on an inherited intuition of how to maintain optimal management conditions of soil fertility and pest and disease control. It also considers spacing, to allow harvesting over time to safeguard the family's continuing subsistence needs over time.

Yanomama farm individual family farms and each family plot contained a field with plantains, surrounded by a number of smaller patches planted with other crops, such as cassava, maize, sweet potatoes, bananas, melons, gourds, cucumbers and snake gourds, cotton, tobacco, medical herbs and onoto, for the making of red dye. Reviewing the different crops, I realized that some of these species were originally from South and Middle America, while other plant species came originally from the Asian continent. The most outstanding example of this was the plantain, a Musaceae, which originates from South India.

NB. The genetic center of a plant species is that area in which the largest variability of genetic types of this specific species is found. It is based on the theory of the centers of origins of plant species, first formulated in 1925 by N. Vavilov 1887-1943
Source: Plant Genetic Resource Letter – 124:23-32, 1995

I therefore prepared the following list of all the crops found in the Yanamama farms, listing their genetic centers:

Crops found in Yanomama farms, their origin/genetic center and use

Crop/ Genetic origin	Scientific Name	Genetic Center	Use
Americas			
A Food crops			
1.Cassava	Manihot Esculenta	N E Brazil, Mexico	Flour, pancakes
2.Sweet potato	Ipomoea batata L.	C & S America, Mexico	Cooked as potato
3.Maize	Zea mays L.	C America	Unleavened pancakes
4.Taro	Xanthosoma Sagitti.f	S America	Flour, pancakes
5.Arrow root	Marantacea	S America	Flour – biscuits
B.Non food crops			
1.Cotton	Gossypium barbadense & G.Hirsutum	Americas	Fiber for making hammocks
2.Bottle gourd	Lagenaria siceraria	Peru	Container/bowl/ bottle
3.Tabacco	Nicotiana rustica L	Andes, Peru	Drug
4.Onoto	Bica orellana Bixacaea	S. America	Dye for body
5.Ebena-yopo	Mimosa acaciodes Piptadenia	S. America	Drug causing hallucination
Fruits			
1.Pineapple	Ananas comosus	S. America	Fruit
2.Papaya	Caricacea papaya	S. America	Fruit
3.Peach palm	Guielema Gasipaes	S. America	Fruit
4.Pumpkin	Cucurbitacea	Mexico, Peru	Fruit
5.Advocado	Persea Americana	S. America	Fruit
Asia			
Crops in Yanomama farms with genetic origin from Asia			
1.Plantain	Musaceae Musa cvs	Southern India	Fruit
2.Banana	Musacea	Asia	Fruit
4.Cucumber	Cucurbitacea	India	Vegetable
5.Sugar cane	Saccharum L	India	Sugar
6.Pepper	Piper nigrum	Malaysia	Condiment

Source: Purseglove J.W. 1968 Tropical Crops, Longman, London

The introduction of Asian crops in the Americas

The above table shows that in addition to plantains also bananas, cucumbers, peppers and sugarcane came originally from Asia and have at one stage been introduced to the Americas.

An interesting question is, how and when were these crops introduced in the Americas and how were these adapted by the Yanomama, living in the Upper Orinoco basin?

Several possibilities have been suggested about the time and mode of their introduction into the Americas:

1. By the Portuguese & Spanish conquers of the Americas during 15-16 e century.

2. By the fleets of the Chinese Ming Emperor Zhu Di, as suggested by Gavin Menzies in his 1421: The Year China Discovered America.

> NB.Zhu di's admiral Zheng He commanded a fleet of 317 ships. Two of Zeng He fleets lead by his admirals Hong Bao and Zhou man sailed to the Americas around 1421 and made their first landfall in South America in the Orinoco Delta.The 60 largest vessels of Zheng Ho's fleet, were called treasure ships, each measuring 120 meters long by 50 meters wide, with nine masts and sails covering 4 000 sq m. These treasure ships were built of teak, had a displacement of 3000 tons, holds for over 2000 tons of cargo and carrying a crew of some 800 to 1000 including sailors, soldiers, craftsmen, herbalists, astrologers, meteorologist, cartographers, a geomancer, nearly 200 physicians and a historian and Arabic interpreter Ma Huan whose account, published in 1433: "Overall Survey of the Western Shores" was preserved and was used for this survey. At that time the Chinese sailors had at least over six centuries experiences with ocean navigation, were already using a type of magnetic compass and could determine latitude and longitude of the position of their ships any where on earth. These treasure ships carried apart from trade goods such as lacquers, porcelain and silk many other goods including seedlings of useful Asian plants and livestock, probably including plantains, bananas and sugarcane, of which some were later exchanged for local plants and animals in the Americas.

3. During one of the many Chinese expeditions to the Americas in the period 2205BC-400 AD as suggested by Hendon M. Harris, Jr. an American missionary who worked in China and Korea during the 1930s.

> NB. Harris found in 1972 a series of old Chinese World maps of which the original map was based on a royal world survey, named:" The record of Shan Hai Jing by Emperor Yao", which was conducted under direction of Prince Yu and Prince Y, approximately 2250 BC. The Americas, Fu Sang- The land to the East, on this map was correctly located at a distance of 20,000 li or approximately 10 000 km east of Japan. The survey of Shan Hai Jing, gave an accurate description of the people, animals and geography of the Americas, including specific landmarks, such as the Grand Canyons in California. Records show that during this period many Chinese immigrated to the Americas. The Asiatic blood of several tribes of Native American Indians, among which the Pueblo Indians-New Mexico, Hopi, Navajo, Sioux and Maya of Yucatan-Mexico and the Mapuchis of Chile was confirmed by medical studies by W. C. Boyd, 1950– Genetics and the Races of Man. Other studies show that many words and customs among these groups of Indians appear to have a Chinese origin. Harris also points to existence of sea currents which make it quiet feasible for ships departing from China, Province of Leao-Tong to reach the Americas. Similarly Harris quotes several sources, which indicate that Japanese explorers discovered and colonized Peru and that the Incas of Peru are descendants of Japanese explorers.

After specimen of these crops were given by the Chinese to coastal tribes these crops were gradually introduced via a chain of many different neighboring tribes till these crops ultimately reached the Yanomama tribes probably after several generations. The implication of either one of the three above hypotheses is that the Yanomama most likely had more contacts in the past with other tribal groups than sometimes is assumed.

Today the plantain is the dominant food crop of the Yanomama. Yet, one may assume that cassava and probably sweet potatoes were the Yanomama staple food before the introduction of the plantain, as the genetic center of cassava and sweet potatoes is located in North Eastern Brazil.

Why did the Yanomama change their main food crops from cassava to plantain, in spite of a lower yield of plantain, per hectare per crop season, when compared with cassava? The probable reason is that the Yanomama found out that the processing of plantains is much easier when compared with cassava, while the taste of the plantain is superior. The plantain fruits, after being cut from the plantain plant are easily peeled by hand and can directly be cooked as porridge or grilled and fried. The plantain has a sweet and pleasant taste.

Processing of cassava is more complex. After the heavy work of uprooting the tubers, these are cleaned and peeled by knife. Following this the peeled tubers are grated to obtain cassava flour, from which cassava porridge, cassava flat bread or chips are made. There are two varieties of cassava, the sweet and the bitter variety. Before consumption of the bitter cassava an additional step is needed to remove the arsenic acid component. This involves thoroughly washing, squeezing and cooking the cassava flour before all arsenic acid is removed. People from most traditional cultures, I am familiar with, find food from cassava rather tasteless and use relishes to make this more palatable.

Farm development:
Yanomama operate individual family farms, as elsewhere in the tropics. Farms are usually cropped for three years. Most years, during the dry season, additional land is cleared, usually adjacent to the old farm, while the oldest part of the farm is left fallow after the third crop year. The location of farms is by preference near the village on typical well drained red colored and light sandy tropical soils, covered with only light vegetation and a few tall trees and without thorny bushes.

Farming includes the following activities:
-Cleaning the forest: The men slash the undergrowth, fell the large trees and burn the remains, using steel axes and machetes, introduced during the last few years. Before the availability of these modern tools, a ring was made around the bark by a sharp stone or by burning. The effect of this was that the tree gradually died. Sufficient light for crop growth came available after the tree shed its leaves.
-Planting the crops: Men and women together plant the crops, using root stock and plant cuttings from their farms from the previous years and planting maize seeds, saved from the previous harvest.
-Weeding: The crops are weeded by the women.
-Harvesting: Harvesting is done mainly by women. Maize is harvested three to six months after planting depending on the variety, while the first bunch of plantains and

bananas is usually harvested between 9 to 12 months after planting and the second and third bunches are harvested with a further six to nine months' interval. Cassava is harvested six to twelve months after planting, in accordance with family needs, after which it is replanted.

Non-food crops include tobacco, which after being curing, e.g. wind dried, is used by most Yanomama individuals. Tobacco is chewed and most individuals keep a wad of tobacco between their lower teeth and lips. They appear to be addicted to tobacco!

Cotton is also grown and mainly used to make strings for hammocks. No reports were found of cotton spinning into yarn for the weaving of cloth.

Ebena, a hallucinogen drug, is mainly used by the shamans in their rites to exhort illnesses.

The average cultivated farm area per capita ranged between 550 m2 in the low lands to 2400 m2 in the highlands with wide differences in areas between villages, which is in the typical farm size range for traditional upland farms in the humid tropics. (Source R. Hames, 1995)

Earlier reports, that the Yanomama were only hunters and gatherers, are incorrect and probably caused by rather superficial contacts and unprofessional observation methods of these travelers.

OTHER ASPECTS OF YANOMAMA LIFE

Village life and technology

The Yanomama live in communal round village buildings called "Shabono". The number of persons living per village varies from 30 to over 200 persons per village, with a typical average of between 50 to 140 persons per village, including all age groups. Some recently established villages are located along the banks of the Orinoco River or on one of its tributaries at about 200 meter above sea level. Other villages are more remotely located in the hills, up to 1 200 meter above sea level and at a distance of up to several days walking from the Orinoco River or its tributaries.

Anthropologists assume that originally most Yanomama lived in remote upland villages which may explain their isolation and lack of contact with other tribal people and why they are still living in the Stone Age development phase, while most other American Indian tribes have adopted more recent technologies over time.
One of the first western travelers to record contacts with the Yanomama was Alexander von Humboldt a famous nineteenth-century naturalist explorer.

During the 1970s the Yanomama technology was still very simple. All tools were made from wood, stone or animal teeth, such as knives from the canine teeth of wild pigs. The only exceptions were steel axes and machetes, aluminum containers and enamel pots obtained from the missionaries.

The Yanomama shabono or village building is a communal round building, built in an open place in the forest obtained after the forest vegetation had been cleared. It basically consists of a number of roofs with walls on the outside, placed in a circle with a large open space in the middle. The frame of the roofs is based on wooden poles, tied together with rattan ropes and closed off from the outside world with walls woven from leaves. Each nuclear family living in a specific shabono builds its own section of the roof and outside walls of about four meters width.

> NB. The only other example of traditional circular communal village buildings, known, is the traditional round communal village "earth" buildings of the Hakka in South China.

Personal belongings of the Yanomama are very limited. In each family corner one finds several hammocks woven from rattan or cotton. One further observes gourds and woven baskets filled with food and simple personal belongings, hung under the roof. On the floor one find a few worn aluminum pots and pans, several heaps of plantains and a few sets of arrows and bows. Under each hammock one can find a small fire place.

Other economic activities

Main economic activities of the Yanomama, in addition to farming, consist of hunting, fishing and gathering forest products. The Yanomama are forest people well adapted to the jungle, in which they are able to move fast. Even rivers and creeks can easily be crossed using jungle bridges made from lianas. Recently some of them have learned to make canoes from tree bark, which allow them to travel on the rivers.

Hunting

Hunting is done by the men and as there is no large game in their environment, consists mainly of small animals such as wild pigs, monkeys, tapir, armadillos or ant eaters, small size alligators, deer, rodents and occasionally snakes such as anacondas and boa constrictors. Birds hunted, include wild pheasants, turkeys and smaller birds. Preys are shot with 2 meter long arrows and bows. Yanomama are excellent marksmen and use different arrow points for different purposes: broad leaf-shaped blades for larger game and human enemies and long slender bamboo points, sometimes with bone hooks for small animals and snakes. Arrow points are often dipped in curare, a contact poison. Most Yanomama men carry a bamboo quiver containing arrow points, on their back.

Fishing

It is reported that Yanomama may spent up to twenty-five percent of their time on fishing, but as fish is relatively scarce in the area, only small catches of fish are made.

Collection of forest products

The collection of forest products is the task of the women. The most important task under this heading is the collection of firewood which may take up over 20 percent of women's time. Gathering other forest products includes palm fruits, Brazil- and other nuts, various tubers, mushrooms and when available wild honey, which is considered to be a special treat. Another treat collected from the forest are grubs, caterpillars, ants and spiders, to supplement the animal protein intake.

Food Consumption

The main staple of the Yanomama is plantain porridge, sometimes replaced by maize or cassava porridge or cassava flat bread. Meat is consumed when available. It is reported that animals are cooked in their skins, which are only removed after cooking: Yanomama only consume meat which is very well cooked. Grubs, insects, caterpillars and garden and forest fruits are eaten as snacks. Men take a major role in Yanomama cooking!

Food intake surveys by Lizot show that between 72 to 85 percent of the Yanomama food intake is from their farms, mainly from plantains and that the Yanomama diet under normal circumstances is very adequate with a sufficient daily amount of calories and protein. Furthermore visiting physicians reported that the Yanomama's health is very good in general, unless attacked by modern diseases, for which they have not yet built up resistance.

Cultural aspects Yanomama beliefs.

Illness: The Yanomama believe that all illnesses are caused by bad spirits, which can only by cured by the village shaman, who applies magic and exorcises bad spirits. Other spirits are the hekura, which men will see after using a hallucinogenic drug called Ebena or Yopo.

The cosmos: The Yanomama cosmos consists of four parallel layers of spheres, whereby the present living Yanomama are living in the third sphere, below the sphere in which the deceased Yanomama live and which appears similar to the sphere of the living, while the lowest sphere is the underworld sphere, where the bad people live.

Myths: The Yanomama possess many myths, of which the Jaguar myths appear to be the most dominant.

Relations with other villages: The Yanomama spent much time on social activities, including feasts and visits to neighboring villages. Also much time is spent solving conflicts provoked by jealousy, illicit affairs, infidelity and other matters related to sexual issues: warfare often occurs. Another important aspect is "trading", which is an exchange of goods between groups of villagers, for example, a set of arrow and bows against a set of axes.

THE YANOMAMA ARE THEY FIERCE PEOPLE?
A discussion among anthropologists and others

There are following schools:

A The fierce Yanomama
Proponents and advocates of this school, Chagnon and supporters:
In their view the Yanomama are fierce people by natural disposition. Many activities focus on conflicts related to sex and power and the Yanomama explain war as a revenge for harm caused by their enemies. The Yanomama culture is male dominated and there are many fights about women. Chagnon estimates that at least 25 % of the Yanomama die through warfare.

B.Insufficient protein as explanation for the fierce behavior of the Yanomama
The anthropologist Marvin Harris formulated a theory explaining the Yanomamas' excessive involvement in warfare. In his opinion, the absence of large game in the Amazon Basin resulted in insufficient protein in the diets of the Yanomama, which forced them to fight each other to obtain additional protein. This absence of protein would also explain the practice of female infanticide, e.g. the killing of female babies at birth to restrict population growth. Several follow up studies, by Lizot and Good recorded very high levels of protein intake by most of the Yanomama, therewith rejecting the Harris theory completely. One anthropologist, who actually discussed this theory with a group of Yanaomama, was told that though Yanomama "like meat very much, they like women a lot more", which may explain the many fights about women.

C The noble savage concept
The "Noble savage" concept first introduced by Jean Jacques Rousseau 1712-1778. Several of the students of the Yanomama society are proponents and advocates of this concept, including P Tierney, and L. Sponsel. According to them Yanomama are kind and peaceful people who take care of the weaker individuals in their society, while conflicts were rare, which situation, according to the proponents of this interpretation, was common in most tribes before civilization was developed.

In an attempt to take this discussion in a wider context I refer to:

Our Inner Ape by Frans de Waal
In his book de Waal addresses our human species' place in nature. He compares human, chimpanzee and bonobo ape behavior referring to the fact that all primates, whether apes and humans have similar forefathers and are genetically very close to each other, which allows comparisons between behavioral characteristics of apes and humans. This shows that both humans and apes possess on the one hand aggressive behavior patterns, genetically determined, regarding power lust, sex drives and violence and on the other hand genetically determined behavior related to kindness and compassion towards others and reminds us that much of our human behavior is resulting from our genetic characteristics.

Returning to the Yanomama, we thus may expect that these people possess similar genetically determined behavior patterns like apes and other humans related to power lust, sex drives and violence as wells as to kindness and compassion to other individuals. This is confirmed by neutral accounts by Lizot, Good and Hames which show both the occurrence of aggression and compassion in the behavior of the Yanomama.

In my understanding therefore both interpretations are correct. During their visits to Yanomama villages, Chagnon and his supporters happened to observe aggressive behavior patterns related to power lust and sex drives, resulting in jealousy and warfare, while others visited different villages were behavior patterns related to kindness and compassion were more dominant.

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List of photographs of Yanomama 54 slides & 43 black and white photographs of the Charles E. van Santen Collection.

ANNEX

INVITATION TO TRAVEL TO THE YANOMAMA AREA

In June 1974, I was asked by the Salesian Mission at Isla Raton, South Venezuela, to prepare a request for financial assistance for the establishment of an agricultural school.

Visiting the Mission post on Isla Raton, I was impressed with the activities of the Missions' primary and vocational school, where local Native American Indian boys and girls were taught reading and writing and modern technical skills. Visiting some farms in the neighborhood, growing cassava, maize, vegetables, tobacco and cotton, I noticed low yields, possibly caused by marginal soils, high levels of plant pests and disease and less efficient agricultural practices.

Familiar with similar conditions elsewhere in the humid tropics I visualized the possibility of introducing some simple innovations to increase crop yields, which should be easily understood by the local farmers. A key element in this process would be a local team of extension workers, helping farmers to develop new technologies for increased agricultural productivity. For this purpose, an agricultural training institute and applied research centre would be very useful, and I accepted therefore the assignment.

Based on my observations I prepared a proposal for the agricultural school and centre for testing improved agricultural practices on their local suitability. After my return to the Netherlands I contacted CEBEMO, a Dutch development agency, which granted the Isla Raton Mission funds needed to establish the agricultural school and a team of agricultural extension workers.

During my stay, the leader of the Isla Raton Mission offered me the opportunity to join a trip to visit their Mission outposts, established for contact with the Yanomama, which American Indian tribe was living in the Upper Orinoco zone, a 500 kilometers, upstream from Isla Raton.

In the early 1970s the Yanomama were still living in the Stone Age. The Venezuelan Government, on recommendation of the Salesian Mission, had closed the area for the general public to safeguard the Yanomama and their culture. An official government permit was needed to enter the area, for which a recommendation of the Salesian Mission was required.

In view of my interest in traditional agriculture I gladly accepted the invitation to visit the Yanomama and traveled together with my sister and brother in-law, who several times had brought medical supplies to the Isla Raton Mission.

OUR BOAT TRIP TO THE YANOMAMA AREA JULY 1974

We flew from Caracas, the Venezuelan capital, to Puerto Ayacucho, the capital of Territorio Federal Amazonas, the Amazonas Territory and went from there by boat to the Salesian Mission on Isla Raton, an island in the Orinoco River. After a few days visiting nearby villages of the Piaroa, an American Indian tribe living in the area around Isla Raton, we took a three weeks' boat tour, traveling some 500 km up the Orinoco River. This included seven days to reach the area, ten days for visits within the Yanomama area and four days for the return trip to Isla Raton. We visited the Salesian mission posts at Esmaralda, Ocama, Mavaca and Platanal. At each mission we made short side trips and visited six Yanomama villages. From Platanal, the furthest mission post up river, we made an additional trip to the Guaharibo falls, several hours further upstream to visit another Yanomama village.

Our boat was a shallow bottomed river boat of ten meters length. It was powered by a strong outboard motor. We took our food and diesel fuel with us, as the area was uninhabited. At night we camped out on a small island or in one of the mission posts and slept in hammocks with a mosquito screen, as is the custom in the region.