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A Cruel Peace: The Barí Epidemics after Contact

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ARTICLE

Cruel Peace after Contact with the Europeans and Criollos: The Barí History of Epidemics in Venezuela and Colombia

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Introduction

Besides acts of violence with outsiders (Beckerman and Lizarralde 1995, R. Lizarralde 2004, M. Lizarralde 2008), the major cause of mortality among the Barí people of Venezuela was the accidental introduction of epidemic diseases, producing a tragic loss of the population in different times and locations. After the peaceful contact in 1960, this left an especially sour note since it produced a higher mortality than the violence did before. Between 1960 and 1966, the Barí lost 60.1% of the population, but the territorial group in the southern region of the Barí territory was as high as 79% of the total population lost, in comparison to the north with 21% mortality rate. Territory size changes and the impact of settlement and subsistence patterns produced ideal conditions for other epidemic diseases to attack. The primary culprit overwhelmingly was measles, but common cold, malaria, tuberculosis and two types of hepatitis (B and delta) also contributed to many health related problems. The ethnoepidemiological case of the Barí is an excellent example of ecosyndemic effects of diseases on a population. Ecosyndemics is a theoretical approach to expound the effect of compounded epidemic diseases and their catalytic effect with the environmental changes over a human population (Singer 2009).

Newson (1998) implements a historical ecological theoretical perspective about the nature of these high mortalities among indigenous groups in South America. One is that the susceptibility to epidemic diseases is associated with the genetic body of a population. According to Newson (1998) and Black (1990, 1992) the Amerindian population has the lowest genetic diversity caused by the reduced number of migrations on narrow routes from Siberia through two major funnels, the Bering Straits and Panama, that limited the number of people passing by South America. This produced a population that had a high susceptibility caused by the 28% homogeneity of the immunologic system in the New World, compared to the 2% for population in the Old World (Black 1990:65-68, Black 1992:4-5, cited by Newson 1998:46). Applying this theoretical framework with a historical ecological perspective, we can elucidate the nature of Barí epidemic mortality. We know that it was quite high but the cause of it was not documented clearly at that time and no decent explanation for this high mortality was provided.

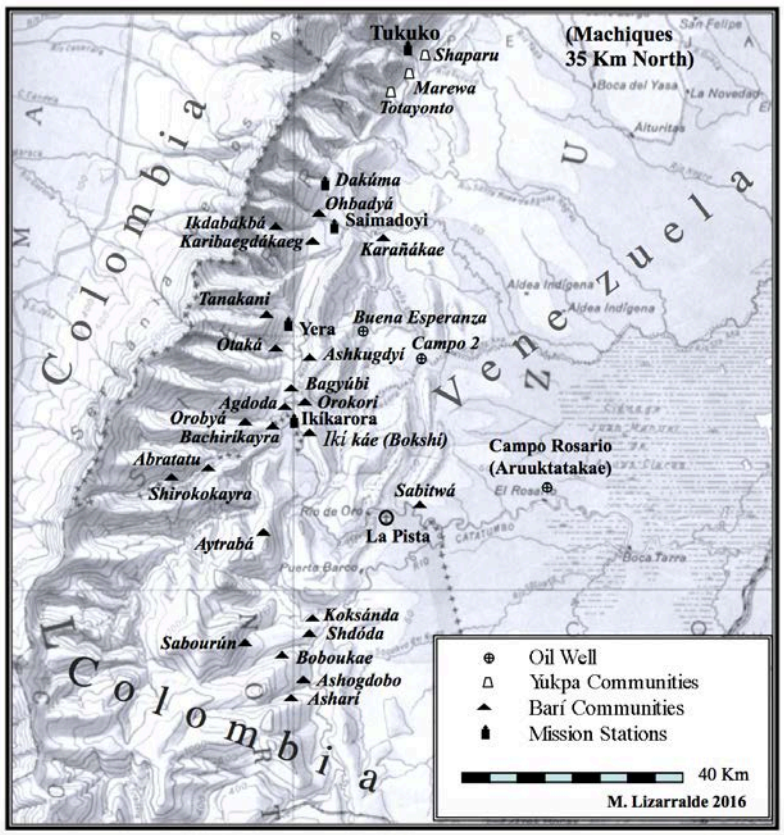
Also, according to Newson, where there are small populations that are dispersed and that have low density like tribal societies, the susceptibility decreases, the spread of disease is slow and they tend to disappear (1998:49). This can explain why the Barí did not get sick before the contact in 1960; the Barí communities were quite spread out and were generally small, with less than 50 people over a large territory of several hundred square kilometers. The Barí have often told to outsiders (many elders in several villages repeated this to us many times in the last 20 years) that before the contact they did not get as sick as they do now. In reality, their territory was much more extensive (31,000 km^2 in 1700s) and settlements were more dispersed than current ones (2,334 km^2) and those since the 1960s (see M. Lizarralde and R. Lizarralde 2015:736-738; and R. Lizarralde and M. Lizarralde 2010).

Another example of what the Barí experienced was clearly illustrated in Hawaii and New Zealand, where the expropriation of land from native populations and the destruction of the

native subsistence production increased the susceptibility of diseases at the beginning of the colonization of these regions (Kunitz 1994:51, cited by Newson 1998:53). In the case of the Barí, their territory decreased to 7.5% of its 1700s original size which compromised the quality of their diet since their subsistence was not longer sustainable nor sufficient (M. Lizarralde in press; M. Lizarralde and R. Lizarralde 2015; Beckerman and R. Lizarralde 2013).

James Neel and others observed that the community life of the Yanomamï collapsed when the epidemic of measles was introduced in the 1960s (Neel *et al.* 1970:427, cited by Newson 1998:53). This collapse caused problems in the social political organization as well as in the reproduction and production of food of the group. The number of potential marriageable partners were significantly reduced, which was also observed among the northeastern territorial group of the Barí where many men were not able to marry or have children (Lizarralde and Lizarralde 1991) and the southern Barí could not produce or obtain the food to save them. Without the help of their white allies, it is likely that small societies such as the Barí would faced possible risk of cultural and societal disappearance shortly after the mid-1960s, as discussed later in this paper by one of the local *criollos* (a term that means Venezuelans of European descent, often with African and or Amerindian ancestry).

With the recent process of colonization, the Barí suffered other changes besides their acculturation and adoption of western values. The diseases originated by the contact with the whites or "criollos" (called *labagdóu* by the Barí) generated deep demographic changes, as well as the positive effects of the introduction of western medicine. Another important change in the occurrence of diseases was the sedentarization of communities and subsequent high concentrations of people, producing a high level of morbidity that the Barí had never experienced before. This was more obvious in *Saimadoyi* (see Map 1. for locations of communities mentioned) by various medical studies, where high occurrences of many kinds of intestinal and viral diseases were associated with the large size (nearly 16%) of the Barí population (R. Lizarralde and M. Lizarralde 2010).



Map 1. Locations of the cited Barí longhouses, missions and oil wells.

In this paper, we would like to explain the Barí history of epidemics describing the relevant aspects of changes, including settlement patterns, ecological context, population, demography, territory and population density. We are also applying a theoretical approach based on historical ecology. The most important aspect of this paper is the different proportion of mortality based on the absence or presence of colonial contact with European populations among different Barí territorial groups. Also, we will briefly discuss changes in health, medical evaluations, different epidemics (measles, malaria and hepatitis), morbidity and mortality. This paper will focus primarily on measles, malaria, hepatitis and *Flavivirus* fever cases (yellow fever, dengue, chikunkunya and zica) from 1960s to the present.

Changes In Settlement Patterns

Until 1961, the entire Barí population (formaly known as the *Motilones* or *Motilones Bravos,* and often confused with the Yukpas, who were called *Motilomes Mansos* and also *Motilones*) of Venezuela and Colombia, lived in their traditional *swaikaeg* (communal houses known as *bohios* in Spanish, R. Lizarralde 1991). This situation changed quickly in Venezuela with the arrival of Capuchin missionaries in the Barí territory. In 1960, the Capuchin mision created the Barí parish, which was assigned to Father Adolfo de Villamañán, who took the responsibility of mission politics and development in the land of these societies.

According to the plan designed by Father de Villamañán, the missionaries managed to convince the Barí to abandon their longhouses and move to the four mission stations. All these mission stations were designed in a uniform manner, with a chapel next to a storage building, and a kitchen-cafeteria, both in front of two rows of multifamiliar houses for the Barí. In each station, food (mostly donated by the help of the Kennedy administration in the United States) was distributed, along with tools, clothing, blankets and medicine. Food and other Western goods were obviously a strong incentive to attract the Barí to leave their longhouses and settle in the missions, but the speed of this transition was surprising to everyone, including the anthropologists.

This quick adoption of a new form of living coincided with the unexpected arrival of the epidemics of measles and malaria in various longhouses in 1961 during the construction of the *Dakúma* mission with workers brought by the missionaries (see Map 1.). This initiated the departure of a small group of Barí toward the remote hunting longhouses in the mountains of Perijá. The Barí associated epidemic as a result of the recent arrival of the white people (*labagdóu*), carrying diseases, and so they fled and isolated themselves temporarily in the mountains on the west. Also, R. Lizarralde suspected that the fear of these diseases had an influence on abandoning their longhouses too. For this reason they also decided to burn their largest longhouse, *karibaegdákaeg*, where the first epidemic took place in August of 1961 and which was the location of the first contact.

Another important impact produced by the relocation of the Barí settlements was the extreme reduction of their territory, that also forced them to abandon their traditional semisedentary habitation of well dispersed longhouses over a large territory of 60,000 hectares. These factors contributed in transforming the Barí into sedentary inhabitants in the new villages, because they now lacked the territory and could not have other settlements to disperse to as in previous times. Therefore, the Barí had to adapt to stay in only one location all year round. This change, associated with the constant growing of the settlements, generated a strong ecological impact in their immediate surroundings as they had to search at greater distances for their swidden garden locations, forest products and game hunting. These difficulties ended up forcing the Barí to build secondary houses (between 0.5 to 3 kilometers from their larger villages) to search for their limited food, house construction and material culture resources.

Population and Demography

The health of a population is dependant on its relationship to its ecological surroundings. The size of a human population in relation to the available resources is clearly determined by

not only the size of the territory but also the prescribed technology needed to process it. Our previous works (R. Lizarralde and M. Lizarralde 2010, M. Lizarralde and R. Lizarralde 2015, Beckerman and R. Lizarralde 2013) describe in detail these changes which are briefly summarized below.

The Barí population did decrease dramatically from its original size in the mid 1700s from nearly 3,000 people to 750 in 1964. Today its population is closer to 4,100, due partly to its annual high fertility rate (around 2.5%) but mostly by the positive influence of western medicine. On the other hand, the Barí territory did decrease significantly from its size in the mid 1700s of 31,000 km² to 2,334 km² in the present (M. Lizarralde and R. Lizarralde 2015:738, 754). This means that the Barí today have just 7.5% of the territory and an increase of 65 times their 1700's population density (from 0.097 to 1.75 person per km² but in reality it is 6.5 person per km² because most of the area that was left is not habitable due to the rough terrain of limed steep formation of the Sierra de Perijá). This decrease of available resources, especially food related, clearly would have had a negative impact on their health.

The other main problem is not only the reduction of the territory but also the impact of *criollos* on that territory. For example, the most important are commercial overfishing on the lower rivers, herbicide impact from the cattle ranchers on the fisheries down the river for the migratory fish like *bocachico* (*katú* or *bashiko* in Barí, *Prochilodus reticulatus reticulatus*) and market economy since the Barí need to sell more natural products to buy the over priced western goods, with especially bushmeat (mostly *paca*, *sáakba* in Barí, *Agouti paca paca)*. All these had significantly reduced the resources that the Barí depend the most. For example, their main source of fish and protein, *bocachico* is not available in some rivers and the catch has decreased to nearly 20% of what they used to catch in the 1970s (see figure 4.1 in Beckerman and Lizarralde 2013:121). This has been confirmed by the Barí in recent years; *bocachico* is not available in some rivers like Bachichida. Therefore, the current situation is even more difficult.

Health

When asked about their health, the Barí repeatedly stated that in the older times of the *Saimadodyi* (their ancestors) they did not get sick very often and they were much healthier than today. In 1963, another Barí told the French anthropologist Robert Jaulin, that in the longhouses before the contact, only one Barí used to get sick at the time, not like the epidemics they experienced with the arrival of *criollos* or *labaddóu* (Jaulin 1970:134). This could explain their lack of sophisticated phytophamacopeia (only 17 species of plants have been recorded to have any medicinal uses, M. Lizarralde and R. Lizarralde, in press) or specialized healers since they were not needed as much. In contrast with other similar groups, a total of 300 medicinal species were identified among the Matsigenka and 237 species among the Yora, with 81 species in common between the two pharmacopoeia (Shepard 2004: 254). Their traditional ways of life kept pathogens at bay and there was no urgent need to develop a complex pharmacopedic system.

Changes In Their Health

One of the first noticeable impacts of the contact of the Barí with the *labaddóu* was the epidemic, which moved from longhouse to longhouse since the first contact in July 1960. The first epidemic struck in March 1961 in the longhouses where the first contact happened and quickly spread to other longhouses. The consequences were quite tragic, and moved the local authorities to respond quickly to bring in doctors and to bring the sick Barí to clinics not only in the Misión del Tukuko but also to the city of Machiques (and even as far as the hospitals in Maracaibo). The local government and mission started to establish health clinics to be able to distribute medicines given by the government. Later, the health clinics in the

larger villages (in Saimadoyi and Bokshí) were tended by Barí trained as nurses and now their is a Barí doctor working in Bokshí.

Epidemics

It is well known that the contact with the Amerindian people of the New World, which had a relatively epidemiological isolation, with those from the Old World, ran the risk of compromising of their health, as happened to the Barí. The history of post-contact in the Americas provided copious examples of this catastrophic effect on the Amerindian populations throughout the continent which resulted in very high mortalities. Several historical documents (in the 1600s and 1700s) and diverse sources of information from the 1960s (Pacheco Maldonado 1637, Alfaro 1771, Guillén 1772, Guillén 1774 and Primo de Ribera 1792) show that the Barí are a good example of the effect of contact and its epidemic consequences.

Historically, four cases have been recorded regarding the impact of these first contacts of the Barí with outsiders and the mortality that resulted. In the early 1600s, the Spanish were able to capture 400 Barí on the south side of Lake Maracaibo, of which only 22 survived when they were being transported from the other side of the Andes to Barinas (Pacheco Maldonado 1637). In 1767, when 27 Barí were captured on the northeast part of their territory, only 5 survived a couple of weeks later when they were being relocated to Maracaibo (Alfaro 1771, Guillén 1772:142). In a manuscript dated July 24th, 1774, Sebastián Joseph Guillén, who managed a contact with the Barí, took 7 of them to the nearby town of Botijoque on July 20, where all contracted high fevers and were quite ill (Guillén 1774). In another document it was mentioned that in the foundation of the Capuchin mission of Santa Rosa settlement (20 km east of Santa Barbara) in the southern side of the Barí territory, that it was left desolated was due to a "grave epidemic" in 1787 (Primo de Ribera 1792, cited in Peña Vargas 1995:339). All these cases clearly show the high susceptibility the Barí had when in contact with Europeans.

After the war of independence and expulsion of the Capuchin missionaries from Venezuela in 1818, the Barí remained isolated and refused to have a peaceful contact with the outside world for nearly hundred fifty years due to the brutal treatment received by the Simón Bolivar's revolutionary forces. It was not until the 1960s, that the Barí opened the doors for a peaceful contact with outsiders. R. Lizarralde was allowed by the Barí to approach them on July 19th, 1960 (Figure 1.). In reality, the Barí were intending to pacify the *criollos*. Soon afterwards, they experienced another episode of epidemics and details of each follows below.

Figure 1. The early morning (9:30AM) of contact on July 19th, 1960 and the Barí of *Baridwá* were happy to pacify the whites. Unfortunately, the peace was cruel since 16 of them died nine months later due to measles and their contact with the *criollos* or *labaddóu*. (Photo by R. Lizarralde taken from an helicopter a few minutes before landing while the Barí were gesturing to come down).

Measles Chronology 1960-1962

In the last months of 1960, an epidemic of measles was raging in many cities of Zulia. Adjacent to the Barí territory, the Misión del Tukuko was compromised from this exposure. A group of visiting Barí were infected there and then brought it back in the longhouses to the northern territories. In his last helicopter tour of the Barí territory, the missionairy A. de Villamañán was able to observe in those longhouses in December of 1960 "a general spread of a disease with high fever" (Villamañán 1961b:100). Soon afterwards many deaths happened among the Barí of all ages. In March 1961, Father Villamañán visited the *Ohbadyá* longhouse and found out that 15 members had died. He was able to observe their remains hanging in their hammocks in the forest some 300 meters from the longhouse (Villamañán 1961a:100) (Figure 2.).

Figure 2. One of the measles victims of the *Ohbadyá* longhouse in April 1961. Normally the Barí would bury their dead, but because they were so ill they could only build a simple lean-to shelter measuring 2m x 3m. and leave this old woman with all her belonging 500 meters south of Dakuma. They wished her to go to the world of the spirits above the clouds where happines and food is abundant. Her body was eventually consumed by wild animals (Photo by R. Lizarralde, May 18th, 1961).

In April 1961, almost all 42 members of the *Ohbadyá* longhouse were sick with breathing problems, coughing and constant spitting. This was directly observed by R. Lizarralde when he was visiting this longhouse. One of them died from pneumonia with the added complication of measles. The Barí started to blame the missionaries and other "*labagdóu*" to be the cause of their illnesess. Some of them suggested that it was a punishment from their creator, *Sabaseba*, and the forest spirits, *Ichigbarí*, for allowing the peaceful and forbidden contact with outsiders.

Already several months before, other members of that longhouse had decided to take refuge in the remote areas of the sierra far from the contact with the visitors. This group was led by their headman, Akuero, with a group of 23 adults and their children. They moved from *Ohbadyá* to the *Ikdabakbai* longhouse (at 800 meters altitude), in the valley of the *Bakbishí* river (10 km northwest of *Ohbadyá*), where they lasted for two years in isolation. It was then when the Barí of the large longhouse, *Karibaegdákaeg* abandoned and burned it. They too believed this longhouse was now a center of diseases and blamed this on the white men. Although the missionaries and local health authorities managed to begin controlling the spread of measles in 1961, then it was even worse in the Barí northern territory the following year.

March of 1962 began the next massive onslaught of the disease that the Barí had experienced since the year before. Those Barí who were most affected were the members of the *Ohbadyá* and *Karibaegdákaeg* longhouses. Measles attacked their new longhouses swiftly and before the doctors were able to take care of them on March 14, eight had already died (see Figure 3). The next day, health authorities managed to transport 86 Barí to Machiques with the use of trucks and ambulances, where doctors and nurses attended to them under an

improvised palm-thatched structure. However, four more died a few days later and another four were in such critical condition that it was necessary to transport them to a hospital in Maracaibo. It was recorded that a minimum of 16 Barí passed away, adults and children of both sexes, but mortality was probably higher since the details were lost in a lack of ability to speak each other's languages. To our knowledge, the measles epidemic did not extend beyond these two longhouse groups in this episode.

Figure 3. This boy, Kaí'rah, and his 8 year old sister Aroshí, mother Atarú, and father Ishídya, were among the fatalities of the March 1962 epidemic of measles in the *Karibaegdákaeg* longhouses (Photo by R. Lizarralde 15th May 1961).

It is important to note that the effects of a debilitating disease like measles will influence the subsistence economy of the longhouse communities, in terms of halting such basic chores as getting water, firewood and food. Without the access to prompt external help, those who could have survived the measles virus, would have more likely died of thirst or hunger in the midst of an outbreak; without aid, it is probable that the mortality would have been much higher. It should be noted that besides the deaths that were accounted for, it is likely that a number of people were not included because they would have died farther away in their longhouses during the epidemic or they did not leave any living members of the family old enough to remember these. Therefore, we suspect the numbers could be higher for this epidemic.

Measles Chronology 1964-1966

Two years of relative calm passed until October 1964, when measles suddenly made a reappearance, causing another disaster on the southern side of the Barí territory, in Venezuela and Colombia. It is important to indicate that in contrast to the Barí of Venezuela, the southwest Barí on the Catatumbo river zone were only contacted by the end of December 1963. As soon as contact was established with the *criollo* population in the

beginning of 1964, it took little time for the sickness to spread to the other Barí next to the national frontier lines.

Figure 4. Members of the *Orobyá* longhouse on Río Oro. Many of these Barí died the following year (Photo by R. Lizarralde May of 1964).

Previously, R. Lizarralde visited the Campo Rosario station of the Shell company (now Arúutatakae) located on the shores of the lower Catatumbo River on February 1964, where he found 47 Barí that came from their new longhouse of *Bagyúbi* (5km north of *Agdóda*, see Map 1. for location). This group of Barí stayed there a for few weeks enjoying the hospitality of the oil company. They were in good physical condition before returning to their longhouse. Later, R. Lizarralde made a tour of the Barí territory on the Colombian border from April to June of 1964. On that trip, he was in contact with the inhabitants of four longhouses (*Tanakani*, *Otaká*, *Ashkugdyí*, and *Orobyá*), and found them all in good health (Figure 4.).

A primary source of what happened there in the second part of 1964 is available due to the work of two French anthropologists, Robert Jaulin and Solange Pinton (researchers of the Barí border regions in 1964), and additional witnesses of the events associated with the measles epidemic of the Río de Oro region. Jaulin remembered the time he had encountered the group of *Bagyubi* longhouse inhabitants when they were descending the Río de Oro on two enormous balsawood rafts in July 1964. These groups settled a bit further than the COLPET station (a national Colombian Petroleum company on the place known as "La Pista", a dirt runway for small company planes), on the shores of the *Sabitwá* stream. In August they built a very large longhouse (Jauling 1967:57) with the participation of the recently arrived group of *Abratatu* (then associated to the *Aytrabá* group on the same territorial group) from the COLPET. The Barí were divided into 8 different territorial groups in the 1950s and the one on the Catatumbo and lower Rio de Oro belongs to a single large group. Under the roof of this enormous structure that some Barí claimed to be close to one hundred meters long, the 23 families, with a population of around 200 people, took shelter (Pinton 1965:330) (Table 1.).

The group of *Aytrabá*, which constituted one hundred Barí, probably came from the *Bachiríkayra* longhouse located between the Oro and Antray rivers, in the Colombian territory (Pinton 1965:329). They relocated at the beginning of October 1964 by first moving to the longhouse on the *Okbabú* creek (Caño Tomás), and shortly restablished themselves at the shore where this creek meets the Oro river (Jaulin 1967:53).

Similarly, at the beginning of August, some 37 inhabitants (out of the 70 of this group) of the *Orobyá* longhouse decided to leave down river, in the company of 14 visitors recently arrived from the distant longhouse of *Shirokókayra*. They all climbed on three balsawood rafts to descend the Oro river to "La Pista". Next to it, they reestablished themselves under a provisional thatched structure. But in September the visitors of *Shirokokayra* left, returning to their longhouse (Pinton 1965:329).

Obviously, in all these months of post-contact, the movements of Barí people from several communities reacted to the irresistible attraction to large amounts of "presents" (machetes, axes, knives, food, clothing, etc.) distributed by the *labagdóu*. The Barí were frequent visitors to the *criollo*'s settlements where they were now well received. These demonstrations of friendship by the *labagdóu* were clearly a response of happiness to celebrate the peace which was quite desired with their most recently feared enemies.

On the Catatumbo river zone, where the first Colombian contact previously mentioned in December 1963 happened, members of four longhouses, from respectively the *Agsharí* longhouse of the *Bakú* creek (Caño Martillo), *Sabourún* from the *Karikachá* creek (Caño Brandy), *Koksánda* longhouse from the *Dunkú* creek (Caño San Miguel), and the *Shdóda* longhouse near the entrance of the *Bedda* creek (Caño Barranca), all relocated. These groups settled down near the Catatumbo river mid-1964. The ones from *Agsharí* settled at the site of *Ashgdobo*. On the other side of the river, based on the recommendations of the Hermanas Lauras (a Catholic Order of the *María Inmaculada* run by nuns), the Barí of *Sabourun* and of another longhouse (possibly *Koksánda*), built two houses next to each other (called *Bobokwâ*) near a place where the Hermanas Lauras had founded a mission (Pinton 1965:327); which was later named *Catalaura*.

Therefore, by mid-1964, the different groups of Barí that inhabited the southern territory, both in Venezuela and Colombia, were now distributed on the shores of the Oro and Catatumbo rivers. They were totally unaware of the dangers they were exposing themselves to in those places. In fact, they did not know that the presence of the measles virus which was present in that region would strike them viciously.

Measles suddenly appeared in these Barí communities in October 1964 when the inhabitants became ill one after another and from one longhouse to another, with a massive impact along the Oro and Catatumbo rivers. None of the Barí were spared from the grip of measles, and many succumbed to death. These levels of mortality witnessed in their longhouses were brutal and unexpected.

The group of *Aytrabá*, in their sheltered place on the shores of the Oro river where it meets the *Okdabú* creek, was one of the first to contract measles. Their hundred inhabitants continued weakening, until 75% of them perished. After a group of survivors left, only 25 members of the original group managed to survive (Jaulin 1967:53).

The group of *Orobyá* (Figure 4.), on the other side of La Pista, was another group affected in the first days of October 1964. Similarly, their people became sick quickly and soon 10 members died, followed by 10 more. Approximately 50% of the inhabitants of *Orobyá* ended up surrendering to measles (Jaulin 1967:54). An American missionary, Bruce Olson, rescued the eighteen survivors and relocated them to his *Ikikarora* station at the junction of the creek with the same name (Pinton 1965:329). Several returned later to the *Orobyá* longhouse.

At the same time in those first days of October, on the opposite side of the river and at short distance from the COLPET's La Pista, the group of *Abratatu* and the *Bagyúbi* started to suffer from the measles infecting their *Sabitwá* longhouse. The mortality of its people soon became massive. Close to one hundred Barí died in *Sabitwá* out of the 220 inhabitants. The survivors defenseless, most of them sick, assembled a raft with the hope of finding help and travelled down the Oro and Catatumbo rivers. On the trip, eight more Barí died. One hundred and twenty managed to reach the settlement of Encontrados (located on the shore of the Catatumbo with confluence of Zulia river 70 km from their longhouse), of which 58 were critically ill; they were transported to the Santa Bárbara Hospital, and yet five more perished. Later, 32 of this group were released and the local authorities transported them back to Río de Oro in large canoes (called "bongos"). These Barí, apparently, formed part of the *Abratatu* group. One dozen opted to settle in a small longhouse called *Ikíkayra,* where they joined 25 inhabitants from *Otaká* (which also just lost several members due to measles).

The rest of the *Sabitwá* victims, mostly from the *Bagyúbi* group, that were lucky to recover in the town of Encontrados and Santa Bárbara, decided to settle in an abandoned oil field called Campo Rosario (recently renamed *Aruuktatakae*) a few weeks later, where they have stayed until the present.

In the following pages, we present the testimony of two people who arrived at *Sabitwá* in the midst of the epidemic, where they experienced dramatic scenes that for many of us will be overwhelmingly distressful. The two interviews were from *criollos*, natives of the region, that participated in the rescue mission to save the Barí, that were then decimated by this terrible measle epidemic. The location was a large Barí longhouse built just before the *Sabitwás* creek on the Venezuelan side of the Oro river, a place known in the maps as "Cerro La Necesidad" (which translates, not surprisingly, as *Hill of the Needed*). The experience was described to Roberto Lizarralde in September of 1986 by two witnesses that saw this event with their own eyes when they descended from the boats and walked to the longhouse; it recreated the moments they personally experienced. Luis Angel Romero participated in the first visit, and described the events of his journey on the Oro river and to the *Sabitwá* longhouse:

> *In the year of 1964, I was the President of the Lion's Club in the town of Eoncontrados. I learned that in October of that year, after the pacification of the Motilones [Barí], that these indians were very sick, and some were stating that they were about to become extinct. Then I assembled a meeting of the Lions, and from there we decided to save this race, the first one that populated our region. Food, clothing and medicine was collected, which was placed on two boats and a group of people formed that included a student about to graduate in medicine and a professional nurse. The boat left Encontrados, going upriver on the Catatumbo and, later, Oro rivers, to arrive at a longhouse [Sabitwá] which was shown by others, located on the shores of this river, on which there were lots of sick people. I do remember that our boat, passing a turn of the river [Oro], suddenly we found a large group of Barí that were fishing on the river. But when the indians saw the boats, they all ran toward the forest. After landing our boats, we all came down and climbed on a trail toward the longhouse. There, when they saw us coming, the indians appeared frightened. The women and children hid in the longhouse; but later, they came out came out of the house a few at the time. The scene in the longhouse was disastrous. It was like a real hospital, full of sick people. Then we gave away the food, machetes and took care of the sick with our medicine. I remember that we stayed in the longhouse until the afternoon, about 4 or 5pm. When we left, and I was the last one to leave, the headman of the longhouse crossed me with his arm to cut my exit. I got scared. But then, the headman took from the ceiling of the longhouse a bow and a handfull of arrows, which he handed to me as a present, in gratitude. A few days later a large group of indians, about 120 Motilones, arrived in a few rafts to Encontrados. They were all sick. Some of the kids were dying in their arms while getting them out of the raft. They were lodged at the government buildings, to later transport them to the Santa Bárbara hospital. Many died.* (Luis Angel Romero, personal communication to R. Lizarralde, in Los Encontrados, 8 September 1986).

A few days after the previous visit, another man, Luis Emiro Navarro, operated the boat that was sent to the same longhouse, *Sabitwá,* on the Oro river. What he saw revealed the terrible impact of the epidemic on the inhabitants of this longhouse:

> *I do remember, a few years after their pacification, when the Motilones Indians were victims of a big epidemic in 1964, and it was known that they all were very sick. The mayor of Santa Bárbara, whose last name was Ríos, contacted then Roberto Quijano [a rancher of lower Catatumbo river] to hire a large canoe that this person had, which was equipped with a large tarp. Then we went upriver on the Catatumbo, and later Oro River. And we arrived at the Motilones longhouse, of which they had been previously in Campo Rosario [from Bagyúbi group]. These, after leaving toward the "sierra"[the hilly or mountain regions up river], having descended at the Oro River, and settled a longhouse at the foot of the Cerro La Necesidad, near the river. We descended to this place, and walked to the longhouse. There, we were received by 40 Indians. We observed lots of vultures about 20 meters from the longhouse. We got close to see and found that these vultures were standing near a large number of corpses, around 30, of men, women and*

> *children just laying on the ground. The corpses had on their wrists and ankles fibers of plants tied to drag them out of the longhouse. The vultures did not move since they were full of flesh. The first that they ate was the eyes. I remember that we took some 40 to the canoe. One women with a child in her arms said [shingbá/semurio] he just died in that moment. Another child just died too. Further when we navigated down the Oro River, three more Indians died, whose bodies were tossed on a banana plantation. We continued down and when we reached the Campo Rosario port, two more died, boys around 12 years old. Finally, we arrived at Encontrados, where all the Indians disembarked. And we had to get rid of the tarp, where the Indians were leaning, which was too dirty. There I was hired to find food to give to these people. Later, they were taken to the Santa Bárbara hospital. Weeks later, when they came back from Santa Bárbara, they were all healthy and fat. And these are the ones that settled in Campo Rosario.* (Luis Emiro Navarro, personal communication to R. Lizarralde, in El Cruce, 9 September 1986).

These details from firsthand witnesses are a few that were recorded with descriptions of the measle epidemic impact along the Oro river. They provide valuable details from people who did directly see *in situ* how this epidemic devastated a Barí community. We can only imagine what could have happened to the unrecorded Barí communities that were isolated and that did not have the good fortune to be rescued.

The groups that moved to various locations near the shores of the Catatumbo river (*Ashogdobo*, *Bobokwá*, *Shdóda*) in Colombia, were not spared the effects of the deadly measles. They also were under the disease's attack since October 1964. The longhouses of *Ashogdobo* and *Bobokwá* were the first ones to be affected and, even with the attention provided by the Hermanas Lauras, as well by the French anthropologists Robert Jaulin and Solange Pinton, a great number of them still passed away in few weeks (possibly up to 20% mortality). Sadly, measles came back to the Barí community on the Catatumbo shores. Since the group of *Dukú* creek (San Miguel) joined the *Bobokwá* group at the end of 1964, they were victims of this disease in March 1965. Again, more of them died (Jaulin 1967:59); 46 according to the newspapers (*El Espectador*, 12 March 1965). And even more died in December 1965, according to the Hermanas Lauras (Personal communication, August 1966).

Almost simultaneously, the Barí that had been recently established in the *Yera* missionairy station founded by Villamañán (a group of 30 persons from the vicinity of *Tanakani* and *Otaká* longhouses) were stricken by measles in mid-1965. A total of 13 members (42%) of this group passed away (Villamañán 1965:317).

Just a year had passed in the area of Catatumbo when measles returned to attack with strength to the same Barí in June 1966. Twenty-eight in the *Bobokwá* group were reported dead, and also some 50 of the 70 members of the *Dukú* group. Some 44 sick Barí were transported on 3 June to the Cúcuta hospital, of which 15 did not survive. Then on June 16th, the Governor of the department traveled to the Barí territory and verified that a total of 154 indigenous people had died in the sector of Catatumbo until that date (Jaulin 1970:216). In this region, the Hermanas Lauras reported to have censused in 1964 before the measles epidemic for a total of 170 Barí population in the two groups of *Sabourun-Bobokwá* y *Agsharí-Ashogdobo*, and 70 in the *Dukú* group. Afterwards, it was reported that 190 died (79%) by the end of the 1966 epidemic. In their own words, only "fifty and some" survived (Personal communication, August 1966).

Roberto Lizarralde visited the Catalaura mission in August and September 1966, after the terrible catastrophe of June 1966, and was able to take a census of the survivors in the three groups then settled in that mission. A total of 61 people were listed: 27 members of the *Sabourun* group, 24 of *Agsharí*, and 10 of the *Dukú* group. Ten children needed to be added to this list who were orphans placed in the towns of Tibú and Cúcuta, which the Hermanas Lauras were protecting to bring back to the *Catalaura* mission. This means that the total number, more or less exact, of the survivers listed in August of 1966 was 71 people, or 30% of the original population of the 240 Barí representing the three groups of Catatumbo. In other words, this population actually suffered a mortality rate of 70% in the periods from 1964 to 1966.

In conclusion, the mortality produced during the 1960-1966 period by the successive waves of measles in the Barí communities of Venezuela and Colombia was excessively high. If we look back in time to the first contact with the Barí in 1960, it is remarkable that neither

the Capuchin Missionaires nor the researchers made any mention about diseases among the Barí. The first to reference about were medical doctors Drs. Antonio Borjas Romero (1960) and Adolfo Pons (1962), of the Universidad del Zulia. The diseases observed by them were limited to a few cases of leprosy, leishmaniasis, cataracts, pruritus, conjunctivitis, and half a dozen abdominal parasites, excluding even tuberculosis and malaria that was not confirmed among the Barí visited.

It is evident that, in epidemiological terms, with the evidence of long periods of isolation, especially from the initial period of contact around 1769-1818 (described above), the Barí constituted to be a vulnerable population in 1960. The history described above of epidemics, especially those like the measles that affected the Barí between 1960 and 1966, shows the terrible effects of high mortality and drastic reduction of population. This happened in the region of Oro and Catatumbo, due partly by the lack of medical attention, and measles devastated and ended up causing 40-75% death among its inhabitants. The Colombian Barí population was the most affected of all.

There is a lack of precise and reliable information in respect to the state of the Barí that inhabited the more isolated areas, especially those in the upper Oro river on the Colombian side. Some of the inhabitants from *Shirokokayra* were in contact with their relatives in the lower Oro River in 1964. In 1966, it was reported that 22 Barí were found dead in a longhouse visited by helicopter, after receiving news of extensive number of sick people in the distant longhouses. Certainly more Barí passed away from those longhouses that stayed out of the reach of the limited medical attention then available in the lower zones of Oro and Catatumbo river since not all the longhouses were known to outsiders.

One question that we might have is: Why was the mortality in the Barí population from the Catatumbo and Oro river much higher than the Northern groups (of Aricuaisa and Bachichida rivers)? One possible explanation is that this group maintained more isolation and was more remotely located to colonial contact with the Europeans. There was evidence of animosity recorded from one 18th century historical document describing the Barí people on the upper Catatumbo river refusing to come down river because they were afraid to be killed by the other Barí (Fr. Victoria 1792; cited by Armellada 1960:231). The isolation of this group is also evident even in the language among the most common words. From example, those up river call howler monkeys *kamashkougda* or avocado *akuru,* while the other Barí uses the word *borou* and *kokwachi*. These Barí did have little contact with the other Barí that even maintained a greater territorial endogamy before the contact (69% vs. 6%, M. Lizarralde and R. Lizarralde 1991). It is clear that the Barí of the upper Catatumbo river did not have much or very little contact in colonial times with *criollos* and Europeans. Thus, by not having been exposed to previous epidemics like the other Barí, it made them more susceptible to this epidemic with a mortality of 79% for their territorial group and 100% for some of their isolated communities. Therefore, this is the only explanation we have for their higher mortality rate.

To conclude with a summary of the measles epidemic, based on the census, observations and information collected by various sources among the Barí (R. Lizarralde, Jaulin, Pinton, Villamañán, Hermanas Lauras), the number of deceased was calculated to be near 50% of their population during the period of post-contact from 1960 to 1966. In effect, of the 1,500 estimated Barí at the time of the contact in 1960 that existed in their Colombian-Venezuelan territory, based on the post-epidemic population that was calculated (750 approximately, under 200 in Colombia and 543 in Venzuela). This figure is considered a best approximate since not all Barí community of that time were monitored by outsiders. Clearly, "the peace was cruel for the Barí" (our translation from Jaulin 1967:70).

Malaria

The sudden arrival of malaria in some of the Barí communities in the second quarter of 1961 was rather surprising, and was a sign for the Malaria division of the Health Minister in the region to immediately initiate an investigation to determine its origin. In fact, the previous year, Dr. Adolfo Pons (head of the Tropical Medicine school at the Universidad del Zulia) and his team, had made some clinical observations of the Barí in various communities September 1960 and had confirmed that "between them malaria did not exist" (Pons et al. 1962:127). This was confirmed by the Malaria Division personel in December of 1960 by records stating "proof of the nonexistence of malaria among the Motilones" (translated from Villamañán 1961b:81).

The investigation directed by Dr. Catellani, chief of the regional División de Malariología in the state of Zulia, managed to discover the origin of the recent case of malaria in the Perijá region. It originated when a Colombian carrying the *Plasmodium vivax* virus arrived by interior trails to the Tukuko mission, where he was employed as a worker. There, he transmitted the virus to the Yukpa Amerindians. Some of these were hired as guides and helpers to transport materials and food from Tukuko to the Barí longhouse, where they exposed the virus to their inhabitants, including R. Lizarralde, who was there at that time in April of 1961 (Figure 5.).

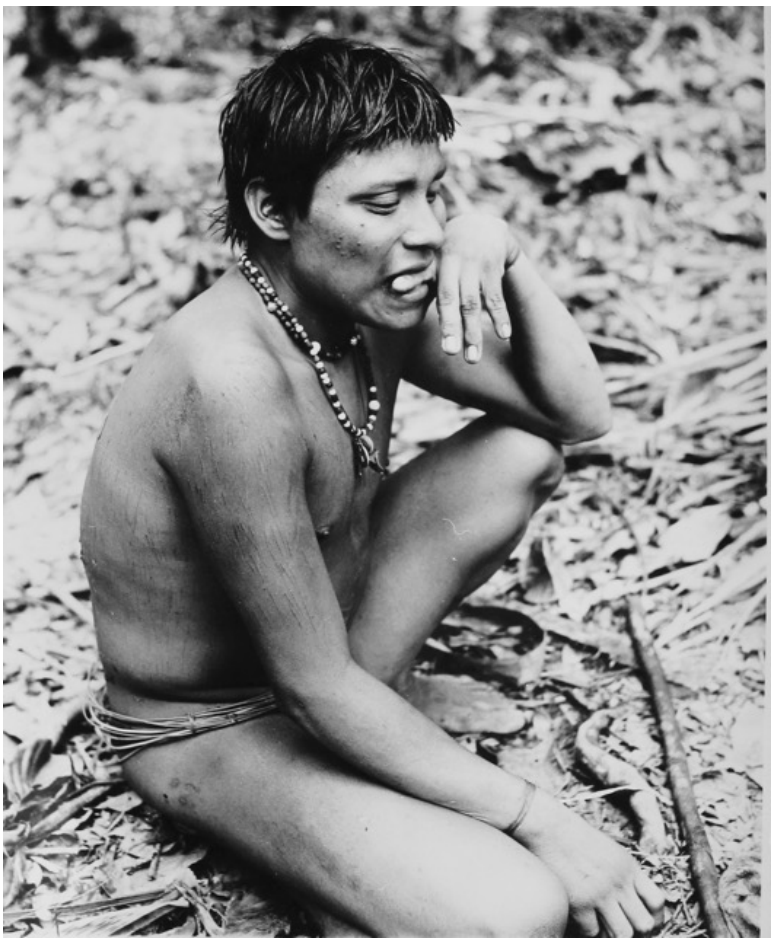


Figure 5. One of the first Barí victims of Malaria. This very sick man, Abuyokbá, could barely walk and had to sit regularly to rest. He had a fever and was shaking very much. Notice the cuts on his arms, torso and forehead to increase bleeding and reduce fever according to Barí traditional medicinal practices. (Photo by R. Lizarralde 17 May 1961).

Through frequent visits and a regular control, the Malaria Division immediately began an operation to fumigate Barí houses with DDT and administer medicine (Aralen pills) in all their settlements. In the beginning, the *Malariología* workers were diligent and walked by foot on the Barí forest paths with their equipment on their shoulder through forest and river obstacles. They would arrive at the Barí longhouses after many hours. We witnessed their admirable spirit for their laborious work. When trails were later widened, they used mules and horses, and finally, cars.

Apparently, malaria was introduced in the northern territory of the Barí and did not spread inmediately to the south. Jaulin stated that malaria did not exist in May 1964 in the Barí community of Orobyá, on the shores of the Intermedio river on the border. This was proven by samples of blood taken there by the Malaria Division. However, in September of that year, it was discovered that 20 to 30% of their population was infected by the virus (Jaulin 1967:12).

The Río de Oro region was stricken by malaria at the same time that the measles infestations were spreading among its people. It was concurrent to the colonization of that region by poor Colombian peasants from north of Santander regions, attracted by the news of the Barí pacification that finally allowed them to enter their territory. The colonizers dispersed rapidly on the Catatumbo and Oro rivers starting in 1964. The origin of the infections was obvious and malaria became quickly endemic in the region. According to a study conducted in 1969-1970 between the peasant populations of the Oro and Catatumbo region in Colombia, malaria was revealed as a serious health problem confronted by its inhabitants (INCORA/INDEC 1971, Vol. 1:205).

Currently, even though the Malaria operation had been continuing into the present in the Perijá region, their success had an effect even with their reduced budget and personnel. We can say that they did have positive results in Venezuela. However, since the Barí territory is on the frontier zone with Colombia, the constant introduction of *Plasmodium* virus from the neighboring country demanded that the Malaria division expand their services. They developed an agreement with Colombians, to extend from Venezuela the frequently needed services to the given region, which resulted in quite satisfactory results given the logistical and geographical limitations. In an early 1990s study, it detailed that around 50% of the population (32% for Arúutatakae-Campo Rosario and 82% Saimadoyi) carry malaria antibodies in their blood (Holms and Scorza 1993:137). Although the Venezuelan Barí communities kept finding cases as carriers of the *Plasmodium vivax* virus, and now also *Plasmodium falciparum*, because they regularly visited their fellow Barí in Colombian and vice versa, it has been a minor problem for the Barí, unlike hepatitis.

Hepatitis

In 1978, a sudden outbreak of an icterus hemorrhagic syndrome appeared in the Yukpa community of *Totayonto* (8km north of the Barí territory). The outbreak was described as many cases of jaundice, and in some cases hemorrhage. From the Machiques hospital, some of the patients were transported to the General del Sur hospital in Maracaibo where Dra. María Alcalá de Monzón worked as an epidemiologist. Then, Dra. Monzón initiated her investigation in the region between 1978 and 1979 with the help of her assistants (Drs. A. Bracho and D. Rivero), where 18 deaths were registered by February 1979. Later another massive outbreak occurred in the *Marewa* community, causing the mortality of 34 Yukpa indians in 149 hepatitis cases. Originally, it was thought these were yellow fever cases or a form of hepatitis. By February of 1980, a team of researchers under the direction of Dra. Monzón discovered that hepatitis virus B (HVB) caused these mortalities.

As the local doctor treating the cases in Maracaibo, Monzón alerted the local authorities of its danger but received no positive responses to stop this epidemic. Later, after observing the apathy of the local authorities, she alerted international organizations like the UN, Organization of American States (OAS) and formal research was initiated with the help of the Pan American Health Organization and the Center of Disease Control in Atlanta (CDC).

Research was finally initiated between July of 1981 and March of 1982 (Hadler et al. 1984:339).

Shortly afterward, a study done by the CDC detected and confirmed the presence of the HVB. In addition, it was discovered that another virus which only develops with the presence of the hepatitis virus B, developed into a particular viral infection that replicates HVD. This virus is an opportunistic one that only occurs when HVB is present. Bioassays and autopsies were done at a Maracaibo hospital, The General Sur, and were sent to the late Dr. Hans Popper, an American, authority of anatomical pathology and expert of liver diseases. He classified the hepatitis icteruspathology in consultation with other specialists, including the two Italian doctors M. Rizzetto and A. Ponzetto, who were the first to detect and describe the hepatitis Delta virus in 1977 (Popper et al. 1983).

Later, after the discovery of this epidemic, in March of 1983, it was noticed that many cases originated in the Barí territory had hepatomas (enlargement of the abdomen caused by cirrhosis or liver cancer). In reality, among the first victims in the Yukpa population, was a 30-year-old Barí man (the oldest of all victims), that also had HVD (Popper et a. 1983:907). An initial study of medical samples showed results that were rather surprising: 99% of the Barí had already been infected with HVB. Only the newborns were not exposed. It was then that a program of vaccination and treatment was organized for the Barí against hepatitis B. This campaign to take care of the Barí and Yukpa population with specialized doctors has been developing since the 1980s very efficiently, even with the high number of infected people (Table 2.). It was financed with the technical help of Dr. Stephen Hadler from the CDC. Two local doctors, Drs. Monzón and Dalia Rivero began these studies with international doctors to vaccinate patients; studies were documented with various papers covering important details on the topic (Hadler 1984, 1989, 1992 and Popper 1983).

In the search for the origin of this epidemic, which was originally thought to be endemic in the Yukpa region, it was later identified to be endemically Barí. In recent interviews, Dra. Monzón suspected that it appeared many years ago in the oil fields on the Barí territory. The true origin of hepatitis B is northeast of Asia and was brought potentially by the staff working on the oil rigs of Chinese origin working as cooks and washing the laundry of the American engineers (Monzón, personal communication, 02/06/2008).

This was actually confirmed by Edward Edwards (n.d.) since he reported having two Chinese cooks who also did his laundry in Campo Buena Esperanza. One Barí, *Akaragdou* (Figure 6.) was one of the attackers, apparently acquiring the virus by handling his victim's bodies with his wounded hands from the battles and dying with symptoms of HVB/HVD (enlarged abdomen with inflamation of the liver according to Lorenzo *Aishidu*, personal communication, June 1988). *Akaragdou* was the oldest victim of HVB. Also, the Barí reported to the authors of this paper that many Barí had been dying of a strange disease causing liver cancer in the 1980s, among them Luis Acebo, Mariano Aboriktá, Marina Mandabó and Manuel Abokósaiya, causing hyperinflamation of the liver that is associated with HVB/HVD.

By observing the percentages of positive cases between ten different Barí communities (Table 2.), it was found that *Saimadoyi* had 97% of the cases in 1985-86 and *Bokshí* had 95.5%, in contrast to those communities in the east and lowlands (51% for *Aríutatakae* and 49% for *Kumagda*). The higher frequency was found in the communities at the foot of the Sierra de Perijá (*Saimadoyi*, *Dakuma*, *Someme*, *Bokshí* and *Yera*). The lower frequency was on the lowlands in the east (*Aríutatakae*-Campo Rosario, *Kumagda* and *Bolibon*). Therefore, the difference in infection levels does indicate that it first occurred in the western villages of the Sierra which later extended to the lowlands and the east.

The antibody of HVB (=Ag-HBs) indicates the body (or "core") of the virus which allows one to confirm the diagnosis of HVB. A high frequency of this antibody was observedin practically all communities (Table 2.). Those not exposed to the virus, are susceptible and therefore vulnerable to contract it and need to be vaccinated.

Hepatitis in an aggressive epidemic disease and this B virus can survive for 7 days in the dried blood or clothing of a victim, facilitating its transmission from one person to another, by blood, saliva or other fluids humans transmit sexually (Monzón 2004a). In the case of the Yukpas, this virus had the tendency to fatally affect more men than women and also those very young or elderly. The annual mortality is 3.5 per 1,000 persons for those who are not

carrying the virus hepatitis B (HVB), but 69 to 88 for those infected with Delta (HVD) (Hadler et al 1992:1513-1514). The average age of the victims was 13.8 years between 3 and 25 years of age (Popper 1983:907).

Between 1985 and 2005, Dra. Monzón lead a group of doctors with national and international funding (CDC) that provided a very aggressive program to control the HVB and HVD epidemic by testing most Barí in the larger communities as well as providing nearly three thousand vaccines. As a result, there has been a decrease of those exposed to HVB and HVD as well as those who are susceptible to either virus (Tables 2. and 3.). After many years of treatment, the situation continues to be serious in various Barí communities by 2005 (Table 3.). In particular, the prevalence of HVB and HVD continues in approximately 87% of the samples collected in the eleven communities by looking at the sample of those who are susceptible (Table 3.).

Lastly, we would like to note that hepatitis C (HVC), called before "not A -not B", was caused by a virus in the family of *Flaviviridae* and associated to the yellow fever virus and dengue fever, which was transmitted exclusively through blood. Given the similarity in its form of transmission, it is possible that the dissemination of the HVC virus is similar to the one for HVB and HVD in the Barí population. For this reason, the Holmes and Scorza project (1993), a team of researchers recorded the widespread presence of the virus HVC among the Barí (Blitz de Dorfman and Monsalve 1993). Five hundred and fifty Barí were examined and serum of their blood was collected (116 from *Arúutatakae*, 200 *Karañakae-Bakugbarí-Bwashagdarí-Kumangda*-Rio Negro and 234 *Saimadoyi*). All these samples were HVC negative. The authors of this study consider that the absence of the HVC marker is an indication that this virus is absent in these Barí communities. (Blitz de Dorfman and Monsalve 1993:122-125). However, HVC has been detected amongs the Barí of *Saimadoyi* and *Bachichida* since 2000, possibly generated by the migration of Colombians. Carriers of HVC were found in the two Colombian families still living in *Bachichida*. Further, many cases of HVC were found in the community of El Cruce, on the sides of the La Fría-Maracaibo (and near by *Arúutatakae* and Barí reserve) which are mostly populated by displaced Colombians (Monzón 2008).

In summary, the existence of the HVB or HVD in the Barí community was diagnosed in 1980. In the previous two decades, none of the widespread viruses were diagnosed by the local sanitary authorities or other people who visited the Barí, but testing was not focused to detect them. These viruses have been causing serious health problems in these communities. However, this aggressive campaign to control this these HVD did not have positive effects in the region even though great efforts were undertaken by Dra. Monzón and her team by providing many vaccines (2,081 between 1985 and 1992, 860 in 1995 and several thousand more by 2004). Until then, studies indicated that the Barí (mostly from Saimadodyi and Bokshi) still had a very high proportion (96%) of the population with chronic form of hepatitis B and Delta (Monzón 2004b).

Yellow Fever, Dengue, Chikunkunya and Zika

Little is known about yellow fever or dengue in the region. But in 1967, a study by Ryder (1979), indicated that blood samples collected in a Barí northern neighbors with the Yukpa Indigenous people in the community of Tucuco were detected to have resistence to the *Flavivirus spp.* (21.62% of the blood samples). However, in February of 1924, a former worker (León Barroso, personal comunication to R. Lizarralde, 1987) and an American engineer (Edward Edwards 1926 and n.d.) reported the sudden death of 50 Venezuelan workers due to yellow fever in Campo 2 (Map 1), which was at that time in the middle of the Barí territory then (R. Lizarralde n.d. [2011]). We could wonder if the Barí (those who were reported by Barroso and Edwards watching these workers only about 50-70 meters away in the edge of the forest) got this fever or not (confirmed by *Akaragdou*, see Figure 5, personal communication, 1984). It is suspected that they did since two thirds of the Barí older than sixty show antibodies for *Flavivirus* spp. in their blood samples (Valero et al. 2004:341).

More recently, another study by Valero et al. (2004) collected blood samples of two Barí communities showing that 6% of the Barí samples with *flavivirus* antibodies. Sixty-three percent of the blood samples from people over 60 did show these antibodies. In the last few years, several Barí have reported a dramatic increase of dengue fever in the region but recent studies have not been carried out among the Barí. With the new arrival of Chikungunya in 2014 and Zika (both *Flavivirus* spp. related to Yellow fever and Dengue) this year as well of the great abundance of *Aedes aegypti* (Yellow Fever mosquitoes) and *Aedes albopictus (*Asian tiger mosquito) that we have observed in the Barí territory since the mid 1990s, the Barí are facing greater dangers that have been reported quite recently to M. Lizarralde by several Barí (Elizabeth Asigbera, personal communication, June 10th, 2015; Eddy Aseasabachi in June 27th, 2015; Hector Achirabu personal communication, February 19th, 2016). In the end of March of 2016, nine cases of Zika have already been recorded (five in the community of Bokshí and four for Saimadoyi (Elizabeth Asigbera, personal communication, March 21st, 2016; Hector Achirabu personal communication, March 30th, 2016; Emilio Aleobagdad personal communication, March 27th, 2016).

Mortality and Morbidity

Even though the Barí stated that they did not get sick before the contact, infant mortality in life histories of 122 women and their 962 children indicated that 18% of children died before reaching one year and close to 40% before reaching 10 years of age (Lizarralde and Lizarralde in press). The same rate of infant mortality was observed between the 1982 and 1992 census. However, in a random sample of mortality for Saimadodyi in 1993-1994, from a population of 340 people, out of five deaths, two were babies died due to bloody diarrhea, one young woman in childbirth, one 36-year-old woman from tuberculosis and an old woman by poisonous snake bite (Lizarralde and Lizarralde 2010:123). This illustrates proportionally the kind of mortality in the Barí population.

It is important to include some of the returning aggravation experienced by the Barí in reference to the epidemics. During the third measles epidemic in the region between 1967 and 1969, the Barí of the Colombian Catatumbo region in July of 1970 experienced another strong exposure. Three hundred cases were recorded but with only two fatalities. It is probable that at this time several factors were in favor of the Barí. For example, many Barí in the different communities had developed some level of immunity by previous exposure, although it was still dangerous for those who were not exposed to measles, since there were cases that appeared simultaneosly. Also, the experience acquired by the missionaries and the Hermanas Lauras durring the epidemic in the 1960s helped them to respond faster and more effectively. Then, the measles epidemic recorded in April 1975 in Tibú that affected the resident Barí that were visiting the Colombian town on the border only made ten children sick, which was clearly a sign that the adults were likely immune to it. Also, because of the propagation of the *poliomyelitis* epidemic (a viral disease that affect the nervous system) in November 1970 affecting the Colombian peasant communities along the Oro and Catatumbo rivers, the missionary Bruce Olson applied preventitive measures by giving the vaccine to 243 Barí. Fortunately, this epidemic did not reach the Barí territory (Lizarralde and Beckerman n.d. [1981]).

With respect to the current health of the Barí in the present, we can consider it ambiguously and with mixed conditions. It is probable that measles will continue as a children's disease and yet polio possibly was eliminated with the immunization programs applied in their communities. However, future generations will be required to get the treatment. Malaria is also a problem with half of the population showing antibodies in their blood and will continue to be a problem until the Barí have access to modern medicine (Holms and Scorza 1993:130-137). Unfortunately, it is not expected that the Barí will win the hard battle with a syndemic effect with malaria, tuberculosis and hepatitis until many further generations (Lizarralde and Beckerman n.d. [1981], Lizarralde and Lizarralde, in press).

Medical studies carried out in the 1980s and 1990s showed a rather high cases of

fourteen different pathogens (Tables 4. and 5., Holms and Scorza 1993). In the two communities included in the studies, there is also a very high proportion of intestinal parasites the population, 76% for Aruuktatakae and 92% for Saimadoyi (Table 5., Holms and Scorza 1993:76-80). This is due to the lack of clean water and fecal contaminations, although NGOs are providing funding to install toilets and access to clean water.

Actual Context And Ecologial Consequences

Unfortunately, the forest of the state of Zulia had been largely destroyed to allow development of cattle ranching and agricultural plantations, originated by the development of roads for the exploration and exploitation of oil fields. This region of Venezuela was devastated by severe deforestation in Venezuela; most of this region was completely forested in 1940. Recent aerial photographs and satellite images show the tragic reality that where once stood tropical rainforest now is mostly cattle pastures and palm oil plantations. An unrecorded disapearance of plants and animals species (M. Lizarralde 1997) are lost forever. Nearly three million hectares of primary old growth and very tall very humid tropical rainforest (some 50-75 meters) were lost in the last sixty years (R. Lizarralde and M. Lizarralde 2010:82) Therefore, the Barí did remind us several times that *a Barí without rainforest is a dead Barí*. Although is evident that the Barí still conserve part of their subsistence economy of swidden gardens, fishing, hunting and gathering, they are investing more time in cattle ranching (primarily horses and mules for transporting goods, and there is greater attention to cash crops (rice, maize, plantains and sweet manioc) that are transported to Machiques. Unfortunately, the Barí have been facing a serious ecosyndemic problem with many individuals being exposed to several diseases for the last 35 years that had negative impacts on their society with changes of the environment (Merrill 2009), which needs to be studied in detail in the near future. With human waste and garbage in their village, all these pathogens mentioned will continue to affect their health unless clean water and proper disposal of their garbage is implemented.

Figure 6. Akaragdou is a paragon example, since he survived 50 years with several lead bullets in his body that he proudly showed to everyone under the skin of his shoulder, chest and back, possibly by Edward Edwards' men, losing his first wife and many childrens to epidemics in 1962, succumbing at age 86 in May 1988 to a combination of tuberculosiss and HVD. In the picture, he is with his two new 18 year old wives (twins) and many of this

kids. Some of this are orphans like the one without hair, Manuel, that Akaragdou adopted after the death of their parents due to the epidemics (Photo by R. Lizarralde in 1963).

Conclusion

As stated earlier, previous to contact, the Barí rarely tended to get very sick at all and only one person at the time. This was partly due to the precontact ecological and demographic conditions (low population density) as well as their semi-sedentary pattern of settlement which did help to prevent the development of most diseases. Also, they did maintain a relative isolation that kept them out of the reach of viral diseases. In the first 6 years of the contact, 65% of the population died because of measles. Malaria arrived in 1961 and did little damage in terms of mortality, but continues to be a problem today. Tuberculosis has been another major problem and by mid 1990s, the Barí had the highest rate of infection in Venezuela with nearly 5% for the largest community of Saimadoyi, where most of the elders suffered and were partially succumbed by it which we have observed in this village. In the late 70s, hepatitis mysteriously appeared and its morbidity was 99% for the northwestern communities (especially Saimadodyi) by the first studies in the early 1980s. Both the local health authorities and the CDC had provided twenty years of medical treatment and had reduced its mortality, but it still a serious health problem today. The other major problem in the bigger communities is the diversity of fifteen species of intestinal parasites caused by the lack of clean freshwater and toilets. The reduction of territory to its current 7% and increase of population density and sedentary settlements, decreased the natural resources and quality of their diet. This has clearly had an effect on their health and resistance to pathogens that needs to be studied. The Barí wanted this peaceful contact to have access to western goods as well as being tired of fighting the *labagdóu* who wanted their land for cattle and oil. The irony is that hamburgers and oil did consume their forest. Therefore, the contact brought a cruel peace for the Barí, primarily all due to the pathogens that came with it (Figure 6.).

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Barí Longhouse	Date	Population	Disease	Mortality N	Mortality %
Ohbadyá[1]	03 1961	57	Measles	15	26.3
Ohbadyá[1]	04 1961	42	Measles-Pneumonia	1	2.4
Karibaegdákaeg[1]	03 1961	94	Measles	16	17.0
Sabitwá (Abratatu + Baryúbi)	10 1964	220	Measles	100	45.5
Otaká	10 1964	30?	Measles	5?	16.7?
Aytrabá (Bachiríkayra?)	06 1964	100	Measles	75	75.0
Orobyá	10 1964	38	Measles	20	52.6
Ashogdobo + Bobokwá	10 1964	100?	Measles	50	50
Sabourún + Bobokwá	03 1965	100?	Measles	50	50
Yera (Tanakani + Otaká)	06 1965	30	Measles	13	43.3
Sabourun-Bobokwá	06 1966	52	Measles	35	67.3
Koksánda (Dukú)	06 1966	70	Measles	60	82.9
Sabourun-Bobokwá and Agsharí-Ashogdobo	06 1966	170	Measles	120	79
Chocokayra (Shirokokayra)	06 1966	22?	Measles	22	100?
Total		**979**		**588**	**60.1**

Table 1. Barí Mortality by longhouse between 1961-1966.

[1] Longhouses belonging to the Northern Territorial Group with colonial contact.

Community	Ag-HVBs	%	Anti-HVBs &/or core+	%	HVD +	%	Susceptibility (not carriers)	%	Total
Kugdayi	1	**100**	0	0	1	**100**	0	**0**	**1**
Bachichida	6	**12**	42	0	6	**12**	2	**4**	**50**
Dakuma	2	**25**	6	75	0	**0**	0	**0**	**8**
Saimadoyi	59	**22.4**	196	75	25	**42.4**	8	**3**	**263**
Someme	9	**47.4**	10	52.6	4	**44.4**	0	**0**	**19**
Yera	1	**33.3**	2	66.7	1	**100**	0	**0**	**3**
Bokshí	23	**34.3**	41	61.2	15	**22.4**	3	**4.5**	**67**
Bolibon	0	**0**	9	82	0	**0**	2	**18.2**	**11**
Kumagda	0	**0**	17	39	0	**0**	27	**61.4**	**44**
Arúuktatakae	6	**5.2**	53	45.7	2	**1.7**	57	**49.1**	**116**
Total	**117**	**20.1**	**376**	**65**	**54**	**9.3**	**99**	**17**	**582**

Table 2. Samples taken between 1985-1986 in Barí Communities. (Source: Dr. Dalia Rivera, Indigenous Health and Hepatitis Control Program, Venezuelan Health and Social Development Department). Ag-HVBs is the antibody of HV B for those infected with HVB; HVD+ is hepatitis Delta positive or carriers of the virus; Anti-HVBs y/o core+ is those with antibodies of the virus, and those who are positive is that the antibody is sign of the presence of the virus; and when they are positive, it is a product of the vaccine.

Community	Ag-HVBs	Ag-HVBs Mild	HVB Antibody Only	HVD	%	Susceptibility N	%	Total
Bachichida	7	20	7	6	12.3	2	**4.1**	**49**
Dakuma	2	3	1	0	0	0	**0**	**8**
Saimadodyi	58	88	27	24	9.5	2	**0.8**	**252**
Someme	10	8	3	6	18.2	0	**0**	**33**
Karañakaeg	6	63	0	0	0	44	**29.3**	**150**
Bokshí	22	9	0	15	22.4	3	**4.5**	**67**
Kokdakín kae	3	11	2	2	8.7	4	**17.4**	**23**
Kumangda	0	1	6	0	0	2	**18.2**	**11**
Seenkae	0	4	1	0	0	11	**61.1**	**18**
Bakugbarí	0	0	1	0	0	8	**88.9**	**9**
Aruuktatakae	5	22	7	3	2.4	50	**42**	**118**
Total	**113**	**229**	**48**	**56**	**7.6**	**126**	**17**	**738**
%	**15.3**	**31**	**6.5**	**7.6**	**-**	**17**	**-**	**100**

Table 3. Results of the HVB and HVD immunological study in the Barí Communities in 2005. (Source: Dr. Dalia Rivera, Indigenous Health and Hepatitis Control Program, Venezuelan Health and Social Development Department).

Disease	Aruutatakae n=191		Saimadodyi n=335	
	No.	%	No.	%
Malaria	27	14.1	51	15.2
Intestinal parasites	2	11.5	196	58.5
Hepatitis A	12	6.3	23	6.9
Hepatitis B	61	32	56	17.5
Chicken Pox	5	2.6	11	3.3
Tuberculosis	3	1.6	16	4.8
Bronchial asthma	3	1.6	1	0.3
Diarrhea with blood	2	1.5	114	34.0
Renal Litiasis	0	0	2	0.6
Blenorrea	2	1.1	0	0
Meningitis	1	0.5	0	0
Measles	0	0	4	1.2
Hyperthyroid	0	0	2	0.6
Pneumonia	0	0	2	0.6

Table 4. Frequency of diseasses in two Barí communities. (adapted from Holmes and Scorza 1992:65).

	Aruutatakae n=130		Saimadodyi n=303	
Species	**Infected People**	**%**	**Infected People**	**%**
Entamoeba histolytica	14	10.7	45	14.8
Entamoeba hartmanni	5	3.8	13	4.2
Entamoeba coli	43	33.0	121	39.9
Endolimax nana	20	15.3	51	16.8
Iadomoeba butschlii	6	4.6	19	6.3
Dientamoeba fragilis	1	0.7	6	1.9
Giardia lamblia	16	12.3	70	23.1
Trichomonas hominis	6	4.6	21	6.9
Chilomastix mesnili	3	2.3	8	2.6
Balantidium coli	1	0.7	2	0.7
Trichuris trichiura	36	27.6	95	31.3
Ascaris lumbricoides	44	33.8	146	48.1
Strongyloides stercoralis	15	11.5	18	5.9
Ancilostomídeos	33	25.3	37	12.2
Hymenolepis nana	6	4.6	26	8.5
Cases Parasite Infection	**99**	**76.1%**	**278**	**92%**

Table 5. Frequency of of intestinal parasites in two Barí communities. (adapted from Holmes and Scorza 1992:76-80).