# CONTACT BEFORE CONTACT: TYPOLOGY OF POST-COLOMBIAN INTERACTION WITH NORTHERN KAYAPÓ OF THE AMAZON BASIN[1]

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*RESUMO. Geralmente o "contato inicial" com tribos indígenas é considerado quando o primeiro encontro face-a-face ocorre entre os nativos e os "brancos". Este trabalho tenta mostrar, porém, que de um modo geral as tribos já haviam tido contato com brancos, bem antes dos primeiros contatos diretos, através de doenças européias, as quais foram transmitidas pelos "intermediários" quer tenham sido humanos ou animais. Caminhos aborígines de comércio, por exemplo, ligavam extensas áreas e colocavam em contato "indireto" os índios com as doenças dos brancos, sem ao menos estes últimos nunca terem sido vistos pelos indígenas. Uma tipologia de contato é apresentada utilizando os índios Kayapó como um exemplo, mostrando como as doenças provocavam fissão entre os subgrupos, criando assim hostilidade e nomadismo. Conclui-se que haja necessidade de se reinterpretar a etnohistória dos ameríndios, procurando os efeitos devastadores epidemiológicos que já tinham ocorrido antes do "contato inicial" e direto com a sociedade colonizadora.*

*ABSTRACT. Mechanisms whereby European influences were felt prior to presumed "initial contact" with the northern Kayapó Indians of Central Brazil are summarized in a typology of contact situations. A model of social/cultural degradation explaining group schisms and mutual hostility in relation to*

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1 Field research for this project was carried out over a 14-month period (1977-78) and was funded by the Wenner-Gren Foundation for Anthropological Research. Archival research was carried out at the Newberry Library (Chicago, Illinois) under a grant from the Newberry Library and at the Arquivo Nacional (Torre de Tombo, Lisboa) by the American Philosophical Society (Philadelphia, U.S.A.).

*epidemiological factors is offered. It is concluded that assumptions by scholars about indigenous populations at presumed first contact are often misleading, underestimating aboriginal populations, while over-emphasizing intergroup warfare and hostility.*

## INTRODUCTION

Studies suggest that aboriginal populations in the New World tropics were considerably larger than previously assumed (Dobyns, 1966; Denevan, 1976; Lathrap, 1968; Hemming, 1978). Indigenous agricultural and ecological management systems have likewise been shown to be more sophisticated and productive than expected, and, consequently, offer a higher aboriginal population potential (Posey & Hecht, 1988; Barbira-Scazzochio, 1981; Moran, 1981). Other prevailing misconceptions have also been undermined; for example, it is no longer accepted that indigenous agricultural systems were simple and poorly developed or "marginal" (Meggers, 1971; Goodland & Irwin, 1975); nor that all tropical ecological zones are insufficiently fertile to support substantial human populations (Moran, 1979, 1981; Smith, 1980).

My own research, for example, has pointed out that scientists have grossly underestimated the importance of gathered products and obscure sources of protein like insects and nuts (Posey, 1978, 1987a, c.). Completely overlooked are extensive categories of semi-domesticated plants and animals, wide-range utilization of secondary reforestation vegetation in so-called "abandoned fields", and a complex system of "nomadic agriculture" in manipulated "forest field" (Posey, 1983, 1986)[2]. Thus it is evident that the long-standing debates concerning "carrying capacity" and "protein capture" are far from over as new data continue to support higher and higher figures for potential aboriginal and historical indigenous populations[3].

Existing indigenous peoples in Brazil offer a tremendous source of information about tropical ecology, ecological zones, complex plant-animal-

2 Transitional ecological zones form major resource areas for the Kayapó Indians. Within various zones are "resource islands", i.e., areas of high resource concentration. Some resource islands are natural; others are created by the Kayapó, who gather selected useful plants over a wide geographical area and replant them near camp and village sites. This type of species manipulation or semi-domestication forms the basis for "nomadic agriculture" (cf. Posey, 1986).

3 Understanding of resource utilization by tropical peoples is still rudimentary. The more we know about indigenous and aboriginal subsistence patterns, the less adequate are our data to make pronuncements about potential population growth. Ignorance of "nomadic agriculture", inadequate understanding of gathered products as nutritional sources, and lack of appreciation for the use of "abandoned fields" make totally invalid current arguments about "carrying capacity" and "protein capture" (e.g., Gross, 1975; Ross, 1978).

man relationships or "co-evolutionary complexes", as well as a myriad of plants and animals for potential large-scale explotation (Posey, 1986, 1987b, 1988). In other words, the indigenous "experts", whose cultures reflect thousands of years of adaptation to and information about Amazonia, may hold the urgently needed key that will allow for new strategies for sustained productivity and development in the Amazon without the senseless ecological and social destruction that is now underway. Why not development of the Amazon based on indigenous ecological knowledge?

This basic suggestion is always met with a powerful retort: "nice idea, but what can Indians who live in villages of 200 to 300 tell us that is relevant? Today there must be planning for towns much larger!" In response, ethnohistorical research about the nature of aboriginal populations and, specifically, the nature of "contact" with Europeans, is critical.

"Initial contact" is frequently assumed to be first recorded episode of actual face-to-face interaction. A mistaken corollary is that what was observed during initial contact was a virgin, pristine Indian population, living in an isolated society free from European influence. Descriptions of social and political organization, rituals and artifacts, as well as population estimates, are made based upon this assumption. My work with the Gorotire Kayapó of Brazil (see Map), with whom "initial contact" was made only in 1936 (Ribeiro, 1970), soon revealed, however, that considerable interaction had already occurred with Europeans well prior to, 1936 (Verswijver, 1986: 41). By the time the first observer arrived to describer the Gorotire Kayapó, they were in fact, greatly weakened due to devastating depopulation that provoked the formation of mutually hostile splinter groups. This paper explores some of the mechanisms whereby European influence was felt prior to presumed "initial contact". A model of social/cultural degradation and schismatic group hostility is offered for the northern Kayapó within this century.

## CONTACT AND HISTORY

The Kayapó are part of the Macro-Jê peoples (Greenberg, 1960) that stretched in a great interior crescent from near Belém in the Amazon Basin to Ilhéus on the South Atlantic coast of Brazil. The southern Kayapó branch that extends to Santa Catarina was encountered by the Portuguese shortly after Cabral discovered Brazil in 1500[4]. Numerous wars were waged with these southern Kayapó by the early colonists. The royal governors of São Paulo sent

4 "The historical relationships between the southern Kayapó (also spelled Caiapó and Cayapó) and the northern Kayapó of this study remain unclear. Cunha Matos originally applied the name "Caiapó" to northern Jê-speakers, but Nimuendajú (1952:427) established the ethnographic distinction between groups. Both groups speak a Jê language, but Wilbert (1962: 22) and Turner

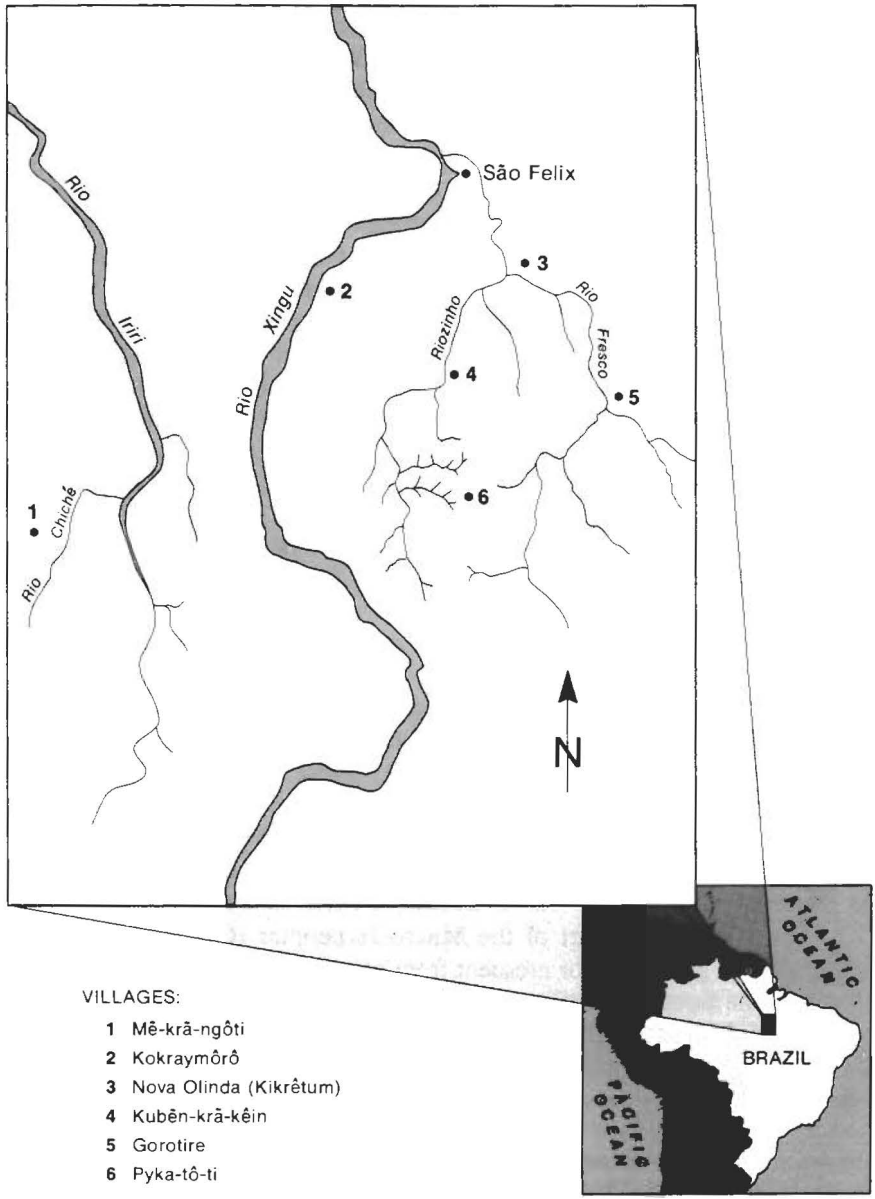


FIGURE 1. LOCATION OF PRINCIPAL KAYAPÓ VILLAGES

forth the colonial militia in the 16th and 17th Centuries to subdue the ferocious and hostile Kayapó "hordes". They met with considerable success and by 1720 a reasonably safe caravan route was opened to connect Cuiabá, the center of the interior gold trade, with the coast[5].

Although the southern Kayapó had been partially subdued by the colonial militia, more northerly Kayapó groups eluded Portuguese guns and were successful in carrying out numerous and regular raids on the gold caravans (Hemming, 1978: 385, 397, 399, 405-406). The northern Kayapó became famous for their hostility, daring raids, and barbarous manner of bludgeoning to death their victims (Sick, 1960: 205; Wagley, 1977: 39-40, 287; Baldus, 1960: 399). Because of their reputation for violence and because they lived north of the principal interior corridor of the Portuguese colony, the northern Kayapó did not have sustained relationships with Europeans until the, 19th Century (Nimuendajú, 1932). Frei Gil Vilanova, a Dominican, was the first man to have sustained friendly relations with a band of northern Kayapó located along the Araguaia River[6]. He established the Mission of Santa Anna Nova in 1860 and watched helplessly as this band of Pau d'Arco Kayapó, as they were called, died off due to successive epidemics (Krause, 1911). When Coudreau arrived at Mission in 1896, he found 5,000 Pau d'Arco Kayapó living in four villages, the largest of which had approximately 1,500 inhabitants (Coudreau, 1897). These population estimates have been routinely dismissed as being exaggerated. However, Coudreau was observing a population already with over 30 years of contact with European diseases and probably only observed a portion of the original Pau d'Arco population that had survived various waves of epidemics described by Frei Vilanova. This Kayapó group had insufficient immunity against European diseases and became extinct only 50 years after Coudreau's visit (Dobyns, 1966: 413-414; Vellard, 1956: 78-79).

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(1966: 2-5) argue that the groups are only remotely related linguistically and culturally. This hardly resolves the matter, however, for oral tradition and historical documents record raiding and wandering of northern Kayapó groups far to the south (Verswijver, 1986). It would come as little surprise, therefore, that some of the early manuscripts referring to Kayapó raids on gold caravans do indeed refer to northern rather than southern Kayapó groups.

5 Accounts of meetings with Caiapó are numerous. Hemming (1978) outlines numerous encounters. The best historical sketch of early Portuguese and Caiapó (southern Kayapó) relations is found in Southey's (1822), 19th Century history of Brazil. It deserves emphasis here that modern geographical distribution of Kayapó groups does not necessarily coincide with aboriginal pattern. Mobility of indigenous peoples in the Americas is much greater than previously assumed. The ancestors of the so-called "northern Kayapó" groups of today were most certainly encountered by the Portuguese colonials along the great gold caravan routes from São Paulo to both Goiás and Cuiabá (cf. Hemming, 1978: 405-408).

6 Various authors have surveyed in detail the historical documents specifically related to the northern Kayapó groups (see Dreyfus, 1963; Soares, 1942; Bamberger, 1967; Vidal, 1977; Verswijver, 1986).

**PRELIMINARIES**

It is necessary to emphasize the overriding effects of European diseases upon indigenous populations. The effects of our "childhood" diseases like mumps, measles, whooping, and flu, were disastrous (cf. McNeill, 1976; Davis, 1977; Crosby, 1972). It is not uncommon to find 85 to 90 percent of any given Indian group destroyed by a single epidemic (Dobyns, 1966; Hemming, 1978: 139, 492; Myers, 1974; Sweet, 1974: 78-80, 579-582). A rough calculation shows that 85 percent of the indigenous populations died from European diseases the first generation after "initial contact"[7]. In one epidemic of measles in a northern Kayapó village (Kokrajmoro), 34 percent of an inoculated population died within two weeks, and that included *everyone* over the age of 40, except two old women (Earl Trapp, personal communication; FUNAI archives). This particular epidemic took place in a village that had been officially contacted for nearly 20 years! One can only imagine what effects such epidemics had upon uninoculated populations. The immediate effect upon this particular Kayapó village was that there was no one to tend the crops nor even gather ripened produce. The village was weakened to the point that, had it not been for emergency medical aid from a missionary team, the entire group would have disappeared. The group did survive, but cultural and social systems came virtually to a halt because cultural transmission generally takes place between grandparents and grandchildren. There were no grandparents left, not a single elder male, to instruct in the essential rituals to insure healthy crops, nor anyone to perform the rituals of naming that perpetuate the uniquely Kayapó inheritance system. Furthermore, since ceremonial activities are highly differentiated with specialized roles being preformed by specific lineages, entire ceremonies and rituals disappeared with the death of senior lineage members. The village fell instantly into the throes of chaotic deculturation[8].

7 Some of the most accessible and accurate reports of the status of current Indian tribes comes via the anthropology Resource Center and Cultural Survival, Inc., Survival International and CEDI (Centro Ecumênico de Documentação e Informação).

8 When I visited the village of Kokrajmoro in 1979, one old couple (probably in their late 60's) had been enticed by relatives to move there from another Kayapó village (Kikretum). Their principal function was to instruct the youth of the village about the Kayapó ways. During my 22-days stay in Kokrajmoro, the old man would sit in front of his house every night to sing and tell stories. A considerable portion of the village would sit in concentric semi-circles facing the old man (*mẽ-bẽgnet* age grade) and listening attentively. Because of the specialized nature of ceremonial knowledge, however, the old man was only able to repeat that portion of the complete Kayapó ceremonial knowledge that he had inherited from his elder relatives. The number of festivals that could be performed was extremely limited since there were not people alive who knew how to, or had inherited the right to, perform the essential parts of the complex ceremonies.

Not just the previously mentioned viral diseases are important in the epidemiological history of the amazonian Indian. Typhus, yellow fever, and malaria are also written into the historical records (Dobyns, 1966; McNeill, 1976: 176-207; Crosby, 1972: 73-121). Indians seem to have a greater resistance to these diseases than do Europeans, indicating that they have had a longer time to develop resistance[9]. Yet these diseases are said not to be endemic to Amazonia. One is left to conclude that these diseases arrived often times centuries before the first person, white or Black, actually set foot in the village.

Diseases can be analyzed based upon the ways they are transmitted. This essentially epidemiological approach reveals that diseases do not always have to have direct human carriers, since epidemics can well precede initial face-to-face contact (Crosby, 1972: 51).

## CONTACT BEFORE CONTACT

From an epidemiological perspective, "contact" situations can be separated into three categories based on the nature of interaction between Indians and Europeans: (1) "Indirect Contact" (in which no human agent or carrier is responsible for disease transmission); (2) "Intermediate Contact" (in which disease transmission takes place via a few individuals who selectively spread diseases from social groups they either represent or visit); and (3) "Direct Contact" (in which diseases are transmitted through direct face-to-face contact between groups of people).

### 1. Indirect Contact

A. "*Silent Exchange*"

The Kayapó claim they used to trade with the Arara Indians before the Arara moved further to the northwest. The were bitter enemies of the Araras, however, and loathed their cannibalistic tendencies. Nonetheless, the Kayapó prized the yellow feather of a water bird found in the Arara's area and traded parrot feathers and eagle down for these coveted feathers. This prehistoric practice was said to have been done by leaving bamboo tubes filled with feathers and closed up with beeswax in designated camp sites; the Arara would reciprocate by leaving ibis feathers. Feathers alone are capable of carrying lice, as well as viral and bacterial organisms, that cause fatal disease. The Arara are known to have been in contact with the Portuguese and were exposed to European diseases in the early, 19th Century (Hemming, 1978: 426-437; Bernardino, 1874:

9 This is a controversial stance since malaria is assumed not to be endemic to the New World by many scholars. My demographic data, however, as well as those of missionaries of the Unevangelized Field Mission (MICEB), bear out that Indian mortality due to *P. vivax* malaria is lower than for whites.

65-67; 130-131); thus, contamination of Kayapó groups could have occurred via the Arara and similar groups through these trade exchanges.

B. *Insect vectors and animal reservoirs*

Yellow fever can be carried in primate reservoirs (Pavlovsky, 1966; Hull, 1963; Dunn, 1965). Monkeys were, and remain today, one of the important trade commodities between the Kayapó and other Indian groups or with Europeans. Also, plague has been reported as early as 1536 in Brazil (Dobyns, 1966; Asburn, 1947) and may have spread to the interior along established trade routes that dealt in pelt exchange, the furs being vehicles for the flea vectors. Typhus is likewise transported (Posey, 1978, 1980). Thus, human carriers are not necessary for the immediate spread of disease, if these maladies have already been introduced into animal populations from human sources.

Myers (1981) and Lyon (1981) have begun to trace what was an extensive and well developed network of trade routes throughout the Americas. There is now evidence that highland Andean and lowland Amazonian regions were connected by trade routes that also interlaced the coastal regions of Brazil with internal commercial systems.

**2. Intermediate Contact**

A. *Trade Exchanges*

1. *With Europeans* – The Txucahamai Kayapó were already in possession of numerous European trade goods when they were first contacted by the Villas-Boas brothers in 1968 (Villas-Boas, 1968)[10]. Friendly contacts and exchanges by Europeans with the northern Kayapó groups were recorded in 1810, 1896 and, 1908, and certainly included disease transmission as well[11].

2. *"Go-Betweens"* – Runaway Indian slaves as well as "trade specialists" from the aboriginal population centers of Brazil often served as "go-betweens" in trading between the Portuguese and "wild" Indians[12]. It is not certain if the Kayapó traded in this manner, but their vast territory extended to areas along the Araguaia, Tocantins, Xingu and Tapajós Rivers, all of which were accessible to this type of trade. These travellers penetrated deep into Amazonia and carried

10 Horace Banner in his unpublished account of his first direct contact with the Kayapó also reports that the Gorotire were already in possession of European clothing, guns and beads.

11 See Prince Aldabert's (1849) accounts of his travels in the Xingu (pp. 310-311), as well as Henderson's (1821) *History of Brazil* (pp. 241-242) for accounts of early contact with the Kayapó.

12 Special "go-betweens" connected the European colonists with remote parts of the interior. "Free Indian traders" are discussed by Magalhães (1922: 150 ff.). Indian "go-betweens" are common in historical accounts, e.g., Prince Aldabert (1899: 275-276).

contagious diseases to many indigenous groups for which no contact was recorded for decades, even centuries, after these initial encounters.

3. *Trade with other Indians* – The Kayapó continue to trade among village groups today and traded with other Indians in the past – notably the Karajá, the Mundurucu, the Araras, the Xikrin and the Tapirapé (cf. Wagley, 1977: 215, 29-31, 101; Bernardino, 1874: 231). The principal trade items were: feathers, beads, moneys, skins and pelts, reeds for arrows, and various types of palm fiber for weaving. These items are conducive to the transmission of viral and bacterial diseases[13].

Based on oral tradition, the Kayapó were tied into a vast network of Jê, Tupi, Carib, Arawak, Karajá, and Guarani trade routes. These aboriginal networks extended into the Amazon and its major tributaries to the north of the Kayapó (Myers, 1981); other networks ran along the Plata and Paraguay River Basins (Lyon, 1981) and perhaps extended into the Xingu Basin in the heart of Kayapó lands.

B. *"Regatões"*

The early Bishops of Belém employed and otherwise encouraged a group of boat captains (*regatões*) to explore the hinterlands. These *regatões* traded with Indians in an effort to insure good relations and to learn the Indian languages. They penetrated deep into the river tributaries of Amazonia. They were expected to return to the Bishop with their reports, then serve as interpreters and guides for subsequent voyages to convert the Indians. These people are known to have reached the Araguaia and lower Xingu, well within the range of traditional Kayapó treks[14].

C. *Rubber Tappers*

The quest for rubber and cacao led the legendary "sertanistas" and "seringueiros" deep into the interior of the Amazon Basin. The Kayapó tell of the intrusion of many of these outsiders (*kuben*); few of the rubber-tappers and cacao-gatherers, however, lived to tell about the inhospitable Kayapó[15]. Neither did Colonel Fawcett, for that matter.

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13 Historical accounts of trade by and with the northern Kayapó confirm the extensive aboriginal interaction between Brazilian Indian groups. For example, see Bernardino (1874: 3) for an account of Kayapó-Mundurucu exchanges. Prince Aldabert describes the typical trade items he used in his Xingu expedition (1849: 221, 275-276), which are practically the same as modern trade items.

14 "Regatões" were known as "the scourge of the Amazon" by early residents of Grão Pará. There was little they would not do for profit at the expense of Indians or colonials (see Henderson, 1821: 132-134).

15 The penetration of most remote areas by rubber-tappers is a staggering record in bravery (or stupidity). See Weinstein's (1980) thesis on rubber-tapping in Pará as testimony to the tenacity of the "seringueiros".

D. *Run-away Slaves*

The Portuguese were plagued constantly with runaway slaves – both Black and Indian[16]. It is impossible to know if any such runaways made it as far into the interior as the modern-day northern Kayapó; however, there is considerable evidence of varied genetic mixture in modern Kayapó cultures (Black, 1977).

E. *Portuguese Exploration*

1. *For Gold and Gems* – In the early 17th Century the Portuguese began their search for gold in the Mato Grosso interior. Rich supplies were found near Cuiabá and a caravan route was established to connect the mines with the coast. These routes penetrated the southern edge of the Kayapó country and resulted in some friendly, but mostly hostile, interactions between the Indians and the fortune-hunters (Henderson, 1821: 241, 453; Ayres de Cazal, 1817: 330; Magalhães, 1817: 101).

2. *Wars Against Indians* – The colonial government sent various armies forth to subdue the Kayapó. Most of the raids were carried out against southern Kayapó groups. The Portuguese militia penetrated into northern Mato Grosso, however, which was northern Kayapó territory in historic times (Hemming, 1978: 407-408). Although friendly contact was not common, prisoners were taken, and even sporadic contact was sufficient to contaminate Indian warriors.

3. *Religious Expeditions* – In 1810, Dom João Ferreira, Treasurer of the Cathedral of São Paulo, contacted the Kayapó at the great rapids of Urubú-Punga. There was a friendly exchange that lasted several days. Dom João even took several Kayapó back with him to São Paulo (Ayres de Cazal, 1817; Henderson, 1821: 453). We do not know if these "hostages" were ever returned.

**3. Direct Contact**

A. *Raids for Material Objects*

The Kayapó were well-known for their raids on their Indian groups as well as "civilizados" in order to take such things as baskets, masks, pets, feathers, guns, metal tools and ornaments (Coudreau, 1897: 197; Posey, 1983).

B. *Raids for Hostages*

The Kayapó have an ancient tradition of raiding for hostages (Henderson, 1821: 210). They take small children, whom they know they can raise as culturally Kayapó. Approximately 15 percent of the modern village of Gorotire is composed of such individuals (Posey, 1979a). Genetic research with the Kayapó

16 The history of Grão Pará and Maranhão is filled with accounts of slave revolts (e.g., Aldabert, 1849: 267; Magalhães, 1922: 149, 151, 165), as well as example of Indians selling other Indians as slaves (e.g., Magalhães, 1922: 175; Smith, 1880: 68-69, 592-593).

groups confirms the ancient nature of this practice (Black *et al.*, n.d.; Salzano *et al.*, 1977).

C. *Warfare for Revenge*

The Kayapó are famed for their ferocious nature. They have made war against the Portuguese as soon as the Portuguese had penetrated the areas near the Araguaia, Tocantins, Xingu and even the Tapajós River (Vidal, 1977: 13-15). Similar wars were waged against Indian neighbors – both Kayapó and non-Kayapó (Verswijver, 1978, 1986). These were frequently provoked by killings of Kayapó by a "civilizado" or another Indian, although accusations of sorcery (*udjy*) against other tribes or groups were usually sufficient to stir the Kayapó to revenge (Turner, 1966).

Although not a complete typology, this hopefully serves to illustrate that the Kayapó were in contact with Europeans and European diseases – both directly and indirectly – in a variety of ways long before "initial" contact. A specific epidemiological profile is impossible. Given the oral history of the Kayapó, the model of village and group dispersal, and knowledge of epidemic disease devastation, one can certainly conclude that the aboriginal Kayapó culture was quite different from what was described at first contact.

## DISEASE AND DISPERSAL

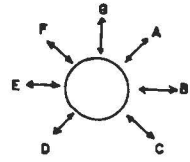
Since, 1977, the author has collected oral tradition about Kayapó society, social structure and concepts of history. Their tradition is laden with examples of fights, fissions and sorcery, most of which were associated with epidemics of diseases (*kanê,* or fever, and *jarop ratx*, or flu).

Present-day northern Kayapó groups lived in one ancestral village at the beginning of this century (see Figure 2). This village of *Pyka-tô-ti* (or sometimes just called the "Great" or "Beautiful Village", *Kri-mex*) was said to have had "streets" and so many houses that one could only know one's relatives and followers of one's chief. There were two men's houses, each headed by a "strong chief" (*benadjwyrà ratx*) and subdivided into many subgroups with their own chiefs. Complementary female chiefs and organizations mirrored those of the men (Verswijver, 1986; Posey, 1986).

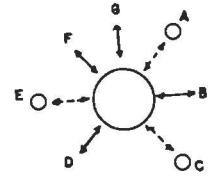
Figure 2 A represents the composition of *Pyka-tô-ti* as a permanent village with trekking groups dispersing to different geographical areas. *Pyka-tô-ti* was probably intact until about 1900.

When all *mẽ-bêngôkre* (the Kayapó autonym) lived in this village, the men would leave the village for six to eight weeks or longer to carry out raids on other Indians or "civilizados" (*kuben*). The men would return to the village with captives, valuable feathers and booty, and with abundant meat for the festivals and ceremonies that inevitably followed (and often prompted) such treks. *Pyka-*

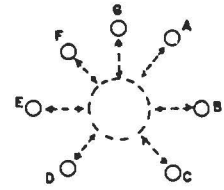
A. Main village in tact and organized under "strong" chiefs, with numerous trekking groups (a, b, c, d, e, f, g) under sub-chiefs.



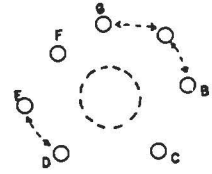

B. The main village remains permanently occupied. Some sub-groups, however, have formed separate villages (a, c, e) and return to the ancestral village for ceremonial purposes only.




C. The main village is abandoned, except for periodic reunions of some sub-groups ceremonial purposes.




D. The ancestral village is totally abandoned. Certain sub-groups reunite temporarily for ceremonial purposes at other sites.




E. Village sub-groups disperse and mutual hostility prevents reunions. Further fission occurs (h, i, j, k, l, m).

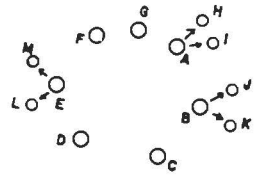



FIGURE 2. MODEL OF VILLAGE FISSION OF THE NORTHERN KAYAPÓ

*tô-ti* would swell with inhabitants during these ceremonial periods, often utilizing structures in all three of its concentric circles. When I visited the *Pyka-tô-ti* site in 1978, only the outline of the circular village was still visible; the diameter of the outer circle was 1,050 meters. A population of perhaps 3,500 to 5,000 has been estimated (Posey, 1979b)[17].

Due to sorcery (*udjy)* and disease (*kanê*), some of the chiefs left the Great Village with their followers to live a short distance away because they feared the spirits (*karõn*) of the many who had died from disease epidemics: "the land had become bad" (*arup pyka punu*) and haunted by dangerous spirits (*karõn punu*). Some of the original population of *Pyka-tô-ti* remained in the village, however, to maintain their fields. The various dispersed groups returned to the Great Village for some important annual and name-giving ceremonies (see Figure 2 B).

Eventually (probably by 1919), *Pyka-tô-ti* was totally abandoned. The fission groups formed their own villages, not yet totally separated ceremonially. Kayapó informants explain that various village groups would re-convene at the old village site at appointed times to reenact jointly the important ceremonies (see Figure 2 C). Schismatic groups joined together in various combinations, in order to being together the scattered specialists necessary for the effecting of complex rituals (see Figure 2 D).[18]

Finally, by the time Horace Banner had contacted the Gorotire Kayapó group in 1936, the village had broken up completely and dispersed into mutually hostile sub-groups scattered in various directions from the ancestral *Pyka-tô-ti* (see Figure 2 E). What he and later "sertanistas" (those who contact Indians) saw was a fragmented and disintegrated remnant of what had until recently been a populous, highly-organized aboriginal society. Banner spoke fluent Kayapó and understood the chaotic state of "his" Indians. His journals are filled with numerous accounts of intergroup raids, counter-raids, fear and preparation for raids. Numerous massacres of reprisal for death from illness "caused" by rival lineage or village groups reinforced anxiety of hostility from former neighbors and

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17 Residents of Gorotire over 60 years of age (of which there were at least 18 in 1979) still remember living in *Pyka-tô-ti*. Accounts of its size and population are consistent and, although data is sparse, there is sufficient evidence to merit urgent archaeological excavation. Likewise, the *Casa de Pedra* with is rock drawings will be made easily accessible next year by a new road. Excavations at this site could help to resolve questions about the antiquity of Kayapó occupancy of the Xingu valley.

18 This pattern was still preserved in *Kubẽn-krã-kein*. In 1977-79 several chiefs had followers who lived much of the year in dispersed circular villages near their fields. During ceremonial periods, however, they convened at the main village site to enact important name-giving and agricultural rituals. Airplane travel is now used to bring together dispersed specialists from different groups in order to recreate "lost" rituals and reinstate disappearing names.

ceremonial compatriots[19]. Apprehension of reprisals continues today, as two or three groups of "non-contacted" Kayapó still flee their "pacified" relatives for fear of these old hostilities.

The principal force that lead to the disintegration of traditional Kayapó society was European disease. Surges of disease and mortality in a Kayapó village, such as Gorotire, still lead to accusations of sorcery (*udjy*). Turner (1966), Verswijver (1978, 1986), and Bamberger (1967: 35-9) have documented specific cases where individual Kayapó are accused of causing a disease outbreak. The accused must either flee the village with family and loyal relatives or face being killed. If one insists on innocence, then the accused and perhaps his extended kin group may choose to fight (*aben tàk*) the accuser and the accuser's extended kin. The losers in this dramatic, stylized, and deadly serious battle must leave the village. Thus major chunks of a village population were split due to accusations of *udjy* and fled from their hostile home village.

An important cultural mechanism that affects site occupation is fear of spirits (*karõn*). The Kayapó traditionally abandon a house if multiple deaths occur during a short period of time[20]. An entire village site will be abandoned if many deaths occur as during an epidemic. Village, missionary, Indian bureau records show that a death rate of 60 percent or more was common in Kayapó populations after settlement onto Indian posts.

Dispersal in the wake of epidemics is a very adaptive mechanism for social animals. Frequently we fail to recognize this in human populations because we do not understand the cultural mechanism for such dispersal. With the Kayapó, however, the evidence is convincing as shown by this model of fission.

Increased intra-group hostility occurred after disintegration of *Pyka-tô-ti*, making the Kayapó appear much more hostile and warlike to outsiders than they in fact had been prior to their decimation by epidemics. Older survivors today remember *Pyka-tô-ti* and speak of days before there was much sickness, when the

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[19] In 1980, I spent five months studying the journals, letters, and manuscripts of Horace Banner in his private library in Cheshire, England. I am very appreciative to his family, especially his widow "Dona Eva", for the courtesies and assistance so generously bestowed. Accounts in his 1949 and 1950 journals (just prior to contact with the *Kuben-krã-kêin* Kayapó) offer particularly vivid descriptions of fear of attack upon the Gorotire by neighboring groups.

During my stay with the Gorotire in 1977-78, there were constant rumors of raids by the *Ki-krê-tum* village down river. Gorotire had split in 1976 from the founder of this new village. Such anxiety seems much more imaginary than real, but nonetheless "cold war" remains an important part of modern Kayapó world view.

[20] The Gorotire still abandon a house if several deaths occur in it over a short period of time. For example, two deaths occurred in 1977 in Gorotire, all within a period of three months, causing a house to be abandoned.

Kayapó lived in peace with their neighbors. Today, they feel shame (*piá àm*) because of deaths due to warfare and intergroup hostility[21].

## CONCLUSION

Aboriginal population densities have been considerably underestimated because of scholars' failures to properly assess the effect of European diseases on Amerindian peoples. Likewise assumptions that observations made at "initial contact" reflect Indian societies unaffected by European influence ignore the various ways through which foreign trade items and diseases can anticipate face-to-face contact. For the Kayapó, European artifacts and epidemics arrived decades before the first missionaries made their first observations. Trade networks, warfare, raids, missionaries and explorers all introduce elements of change into the hinterlands. Indirect, intermediate, and direct contact in the Amazon Basin are the basis for a typology of contact perhaps generalizable to other parts of the Americas.

Oral tradition, historical documents and archaeological remains combine to provide a model for cultural disintegration. Rapid depopulation due to epidemics thrust the Kayapó society into chaos. Political structures disintegrated, social rules collapsed and ceremonial life disappeared as death took away knowledgeable elders with specialized ceremonial roles. The ancient village of *Pyka-tô-ti* fragmented through various stages into mutually hostile groups. Accusations of witchcraft flourished because of unexplainable deaths from unknown diseases and created enemies from neighbors; beliefs in spirits led to abandonment of houses or whole villages due to spiritual contamination by the dead.

The Kayapó thus appeared to outsiders unaccustomed to Kayapó history and culture (and with few communication skills to learn otherwise) to be unduly warlike and nomadic. This skewed impression of their true "aboriginal nature" has colored perceptions of the Kayapó and other indigenous peoples ever since.

We will never know the actual indigenous population density of the Americas nor the true nature of aboriginal societies, but a more accurate picture of pre-Colombian America is possible. We must dismiss the misconception that "initial contact" accounts reflect pristine aboriginal populations and be prepared to reevaluate historical and ethnographical accounts to reflect Indian societies already in the throes of societal devastation and chaos.

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21 *Piá àm* is a difficult word to translate from Kayapó. It is a type of "shame" or "social distancing" that comes from breaking social rules. Fighting between kinsmen and lineages produces *piá àm* and "much shame" is spoken of in terms of the hostile relationships that existed.

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