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## **Social Networks and Cultivated Plants: Exchange of Planting Materials and Knowledge**

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During my research about the system of plant and crop classification used by the Wajãpi Indians, particularly for manioc, their staple food, the place of origin of cultivars kept recurring as a theme arousing women's interest.<sup>1</sup> Every time I asked the name of a root, fruit, seed or any other part of a plant found scattered around the village, inside someone's basket or in a cultivated field, the name would invariably be volunteered along with a short history of its origin and of how it had arrived there. This is why the circumstances in which new cultivars are introduced in a village and the wider social context came to form an important part of my investigation. As I started to map out the sociological origins of cultivated species, I began to collect histories of intra- and interrelationships between various Wajãpi sub-groups, between Wajãpi people and other tribes encountered during displacement, and between Wajãpi and Brazilian nationals with whom they had had some contact. It is by following these narratives across space and time that I was led to meander, so to speak, through part of Wajãpi history of interrelationships. In other words, it is by embarking on an unplanned journey following an oblique path that I came to learn not only Wajãpi plant classification system, but also Wajãpi sociology, as the latter is an essential component of the classification system they use for cultivated plants. In addition, this approach has allowed me to collect new information about migration processes, parenthood and social organization (Gallois 1986; Cabalzar 1997).

### **ABOUT THE WAJÃPI**

After a long migratory process involving several local groups, the Wajãpi finally settled in the two main regions they currently inhabit:

the area comprised between the Oiapoque and the Camopi rivers in the French Guyana, and that between the Jari and Amapari rivers in the state of Amapá, Brazil. It is in the latter region that I carried out my master field research.

Historically the Wajāpi lived along the upper Xingu River, from where they moved north, escaping the front of colonization. The migrations occurred in successive waves gradually moving north from river to river up to the regions occupied today (Gallois 1986). Local groups, which form the basis of Wajāpi society, are called *wanā kō* (“those who live together”). Although they belong to territorially-based, socially independent units, members of local groups nevertheless travel a great deal throughout the two larger regions (Oiapoque/Camopi and Jari/Amapari) mentioned above, and they maintain strong links across sub-group boundaries, which the exchange of seeds, stem cuttings and tubers renders as visible and material as footsteps.

## EXCHANGE OF PLANTING MATERIALS AND SOCIAL NETWORKS

In many cases, the social origin of cultivars can be inferred directly from the nomenclature of named varieties. For instance, *karaimani'o* is literally translated as “white’s man cassava;” *pakokajāna* as “banana from Cayena”—the capital of French Guyana; *pypyikashinarwa* as *pupunha*, which is the Kashinawa word for peach palm fruit; *karaiasikaru'y* as “sugar cane from the white men,” and so on. In most cases, however, the origin of a plant variety cannot be directly inferred from its name,<sup>2</sup> although any female cultivator will know exactly how a particular plant got introduced into her garden.

Among all the women I had contact with, Sare and Werena were often mentioned as having played a particularly important role in introducing new cultivars to the village. To understand why these two women were so instrumental as vectors of plant introductions in the Wajāpi group from the Jari/Amapari region where I was working, it is necessary to broaden the analysis, and include wider social considerations. Neither Werena nor Sare belong to the *wanā kō* (local groups) of the Amapari/Jari region. As Werena married a man from the Amapari/Jari region at a time when this group had strong relations with those living along the Cuc River in the Upper Jari, she is known as a *kuu wanā kō* (Cuc group). Sare, on the other hand, is considered a *kamopi wanā kō* (Camopí group) because of her relationship with local groups from the Amapari/Jari, which pre-date the relocation of these groups in French Guyana. Despite the fact that the two women belong to two different groups (*kuu wanā kō* and *kamopi wanā kō*),

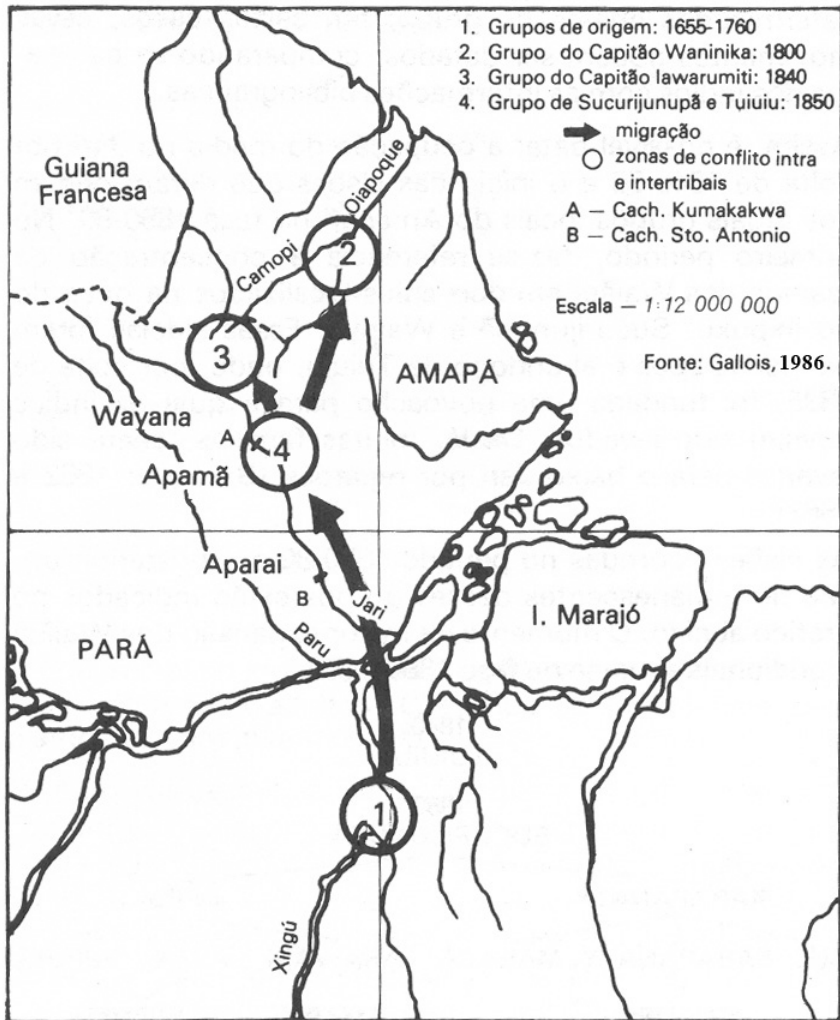


Figure 1

and given that the actual *kamopi* group originates, at least in part, from the *kuu* group, this difference should be interpreted as temporal and spatial, rather than as social. The groups that currently live in French Guyana in the Upper Oiapoque River probably originated from groups that migrated north and reached the Upper Jari and Oiapoque rivers via the Cuc River. It is possible that two main groups originally lived there, one on the river Cuc the other on the river Oiapoque. Later on, and due to contacts with other indigenous and non-indigenous people, the two groups may have united at the Oiapoque, to make up the groups that are today referred to as *kamopi wanã* by the Wajãpi from the Amapari/Jari region.

To sum up, the prominent role played by Sare and Werena in the plant cultivars network is not surprising. It is linked to the fact that they brought with them from where they come seeds, manioc cuttings and tubers, and that they regularly take back a number of new varieties to their village of origin. Sare, for instance, has brought several cultivars from relatives living in *Mariry* (Amapari region). She has also “exported” local varieties to the *Kamopi*. In fact, every time she travels from one village to another, she carries in her basket seeds of pupunha, maize and cotton, as well as cuttings of cassava and roots of potatoes and yams. The exchange network through which cultivated plants are circulated is thus closely associated with other social networks. The ways in which new families are constituted and cultivated plots prepared clearly reveal the existence of such networks of social relationships.

As Wajãpi residence is matrilocal,<sup>3</sup> a young bride obtains the seeds, roots and cuttings she needs to establish her first cultivated field from her mother’s garden. Over the course of her married life, and through regular visits to her husband’s village, she will progressively enrich her stock of cultivars with varieties obtained from her mother-in-law’s fields. Even in the cases where the rule of residence is not matrilocal and women move to their husbands’ villages, young wives still operate an exchange network by which they combine cultivars from both sides, the only difference being that in the latter case, the founding cultivars are obtained from the mother-in-law, the stock being progressively enriched with cultivars from the mother. In cases of virilocal residence, including Werena’s and Sare’s cases, in-coming women appear to gain in status and prominence as out-group individuals who bring new and different planting materials to the community. To conclude, a woman establishes her own collection of cultivars by activating the dynamic interplay between affinity and consanguinity, resulting in unique gardens, each with its own distinct array of cultivars, and all contributing to keep a high biodiversity of cultivated plants in the region.

It should be emphatically noted here that it is *women* who play a central role in the exchange of cultivated plant materials, which is not surprising, given the prominent role they play in food preparation and agriculture, both considered to be female responsibilities. This does not mean that men never take part in the import or export of agriculture products, as I discuss further below.

When kinship ties are more distant, the acquisition of agricultural products, which never involves money, may take the form of barter, with one particular vegetable being exchanged for another, or for various kinds of objects, such as a bow and arrows, a piece of a fabric, or a knife. For

instance, a group composed of people from different villages with which I traveled once visited a distant village of the Amapari/Jari region. During the visit, two female visitors obtained a variety of yam, and promised, in pure Maussian fashion, to send some fabric to their exchange partner in return (Mauss 1974). The obligation to reciprocate, however, does not seem to occur with non-indigenous people, whose fields are simply raided for desired varieties.

## EXCHANGE OF PLANTING MATERIALS AND CLASSIFICATION

The overlapping of the two networks of cultivated plants and of people can also be seen through the classification system based on the origin of each cultivar history. In the same way as people are classified according to their local groups, crops are classified according to their place of origin and their introduction pathway. It is important to note that manioc varieties—and other cultivars—are classified according to morphological discontinuities in a basic, elementary fashion. For instance, they may be classified according to a combination of traits such as: stem color; the format and color of leaves; the color and hardness of tubers, and so forth (Oliveira 2006). Thanks to such characteristics, the continuum of manioc varieties can be split in discrete units.<sup>4</sup> These basic morphological classifications can then become templates for other types, such as, for instance, the classification of varieties based on sociological origins, which is the focus of this paper. For example, while the manioc varieties brought to the village by Werena are classified as *mani'ò kuu wanā kō* (manioc from the Cuc group), the varieties brought by Sare are *mani'ò kamopi wanā kō* (manioc from Camopi group), and so on. In this way, all the varieties of cultivars can be classified according to their sociological origins, and included in more inclusive categories that refer not only to Wajāpi local groups, but to other Indian groups and Brazilian nationals as well. For example, varieties obtained from other tribes are designated as *zo'è wanā kō* (from Zo'e Indians), *xĩgu wanā kō* (from the Xingu Park) and so on; those obtained from non-Indians are called *karairemi'õ'y* (Brazilian crops). There is no geographic boundary to the acquisition of cultivars. Every trip, regardless of the purpose, including those motivated by national indigenous politics or health problems, becomes an opportunity to obtain new cultivars.<sup>5</sup>

The main point of this sociological classification of cultivated plants is that its practice is not absolute, but contextual. In other words, the

same variety can be classified in more than one way. This multiplicity of classification derives from the fact that each woman classifies her varieties depending on the state of her personal relationships, and in accordance with her own perspective of the network. For Werena's daughter, the variety *mani'ò kusiuru* brought back to the village by her mother from Cuc is classified as *mani'ò kuu wanā* (manioc from Cuc); but Sare's sisters-in-law, who also received this cultivar (*mani'ò kusiuru*), classify it as *mani'ò kamopi wanā kō* (manioc from Camopi). This difference is illustrated in figure 2.

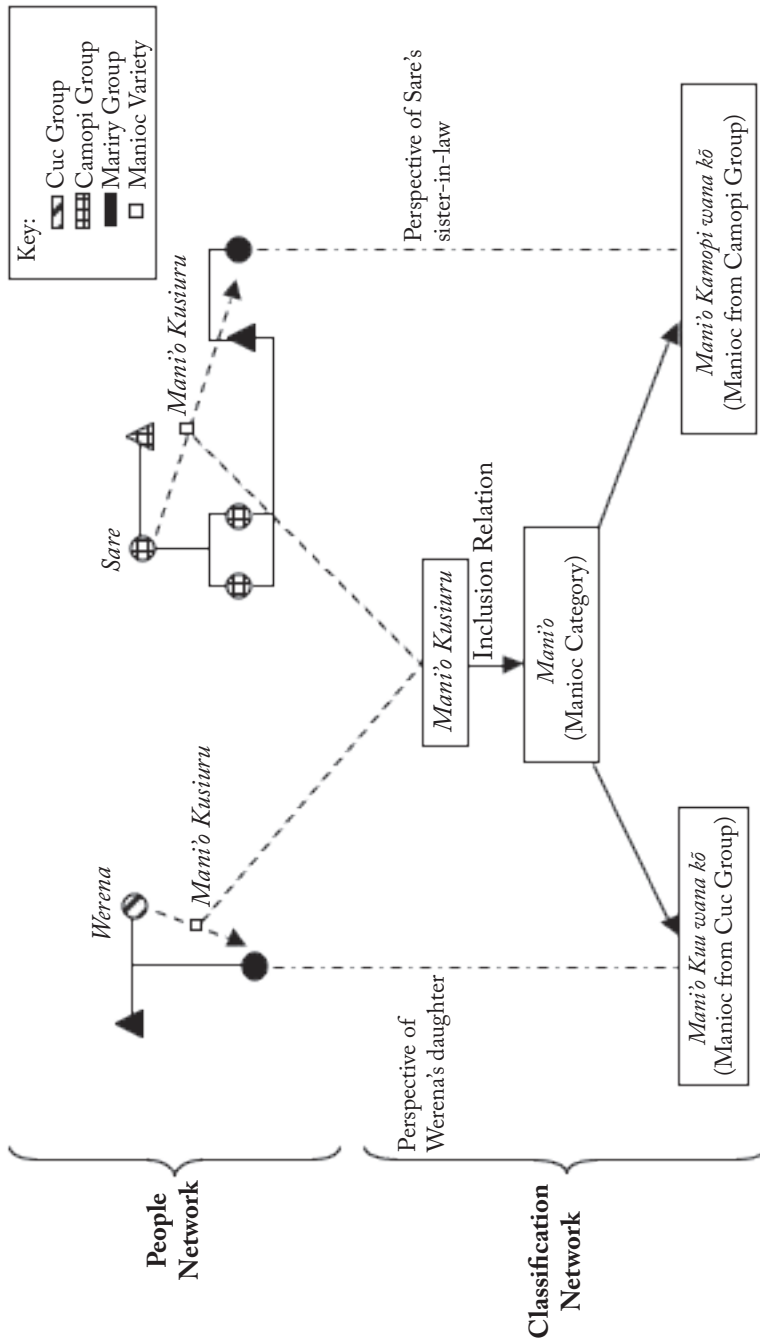
In some cases, the classification can incorporate a chain of exchanges, especially when the cultivar originated from a non-Wajāpi group or from Brazilians. An example of this is the case of the cotton variety *manēju tapupura*, which Kasawa (from Okora'yry village) obtained from her mother, an inhabitant of the Yvyrareta settlement, which, in turn, had got the seeds from her elder son, who had brought it back from a NGO visit in the Xingu Park. In this case, Kasawa classified the cotton variety as *xigu wanā kō* (from the Xingu Park).

In this way, not only does the collection of cultivars present in each garden facilitates the conservation in situ of a large pool of genetically diverse botanical specimens, but it also keeps alive the memory of a large body of social and kindred historical data. Moreover, as it probably occurs within any exchange network, once a variety is introduced at any point of the network, it can spread through the logic of kinship, which keeps the network moving. To go back to the story of the cotton cultivar mentioned earlier, the seeds brought back from the Xingu Park spread throughout the kingroup along son-to-mother and mother-to-daughter lines. To conclude, we find the aggregation of names and histories of origin in the saga of seeds, cuttings, roots, tubercles and plantlets. Of course, this does not constitute a complete history; it nevertheless retraces the history of the particular routes and tracks through which each specimen has traveled before ending up in a particular garden.

## FONDNESS OF DIVERSITY

This research amply shows that the Wajāpi are dedicated agriculturists, who can describe with great precision the histories of plant acquisition as well as the knowledge associated with them. Moreover, it makes abundantly clear that they had a rich network of cultivars exchange in the past, which is still very much alive today. So the question arises: What is it that, beyond the Wajāpi's vocation for agriculture, compels them to search for different cultivars and exchange them so extensively?





## Figure 2



At the start of my fieldwork, I was very impressed by Gallois's and Macário's (2002) report that the Wajāpis name forty-five varieties of manioc. During fieldwork, however, I found an even greater diversity, amounting to more than one hundred names. My first reaction was to try to find some pragmatic or utilitarian reason for this remarkable fact. Varieties need to be differentiated for specific growing or utilization attributes. However, observation of cooking procedures and daily preparation of *kasiri* (a manioc-based fermented drink), *meiju* (a manioc-based flat bread) and starch porridge, among other foods, convinced me that particular varieties are not selected for specific purposes. Equal results are obtained through this versatile interchangeability. I reached the same conclusion for food items prepared out of different varieties of banana and corn, which are often mixed together.

Therefore, the buildup of such a large diversity of cultivars seems to have no apparent utilitarian purpose. Of course, my question remains unanswered and opened to other hypotheses. Why do people invest so much effort in planting, year after year, so many different manioc varieties in their gardens, if they end up mixing them all during food processing? It is of course ecologically rational to maintain a high degree of crop diversity, as higher diversity means that cultivars are more adapted to variable climatic conditions, less susceptible to pests, and more amenable to broader flexibility in the agricultural calendar. Higher diversity also enables the cultivator to maximize the utilization of nutrients, which, in turn, protects soil fertility (Emperaire 2005). Even so, and as a biologist would readily explain, twenty to forty varieties would be sufficient to achieve all these ecological benefits.

What do the Wajāpi have to say about their crop diversity? The answer they gave me was direct and simple, as all answers the Wajāpi give to silly questions from non-Indian people: "We like to have many different varieties of plants!" Their crop varietal diversity thus arises from and is maintained through fondness for what is diverse and different.

In connection with this observation, it is pertinent to report a short conversation I had in the field with Muru, who told me that he had brought a variety of bluish corn called *avasi komo* from the Xingu Park. As I had heard many other people call this particular variety *sa'i kō wereko* (from our grand-mothers), I asked him:

Joana: Didn't you have this corn here?

Muru: Yes, we had!

J: So, why did you bring the *avasi komo* from the Xingu?

M: Because we like to bring cultivars anyway. Sometimes they are a little different!

His answer well illustrates that the value of a variety is not only in its external (morphological) attributes, but also in its origin, that is, the fact that it comes from another place and that it is the product of a relation of alterity, which is highly valued and appreciated in and of itself. In this way, and if one of the roles of anthropology is to broaden concepts, one can say that agricultural diversity, in this context, is not exclusively a matter of genetics and phenotypic discontinuities, but also, and perhaps primarily, the outcome of attributing value to the social qualities embodied in each variety. The Wajāpis' real obsession for exogenous cultivars, which at times may have negative effects, as it is a source of pests and diseases, as well as of competition against good local varieties, is motivated by their "opening to the other" (Lévi-Strauss 1993:14), that is, their desire to interrelate with alterities. In this sense, cultivars assume the role of social capital that aggregates onto itself a whole range of social relationships. The Wajāpis' love for crop diversity can also be understood as one of the forces behind their large exchange networks and networks of relationships with other people. The exchange of cultivars, which enables a woman to establish her almost unique garden of crops and to design her own crop classification system, can therefore be analyzed as a central and dynamic mechanism in the configuration of Wajāpi agricultural knowing and doing.

## NOTES

1. I have selected manioc as an example of what happens with all crops, for manioc is not only the main food crop of the Wajāpi, but also the most important source of symbols. Moreover, manioc plants are used as indicators of plot maturation and as landmarks of forest occupation. Seed grown manioc is used as a "historical" marker, as the place where it grows is said to have been previously occupied by Wajāpi people.

2. The nomenclature system is based on a number of criteria in addition to the place of origin, such as morphological characters, similitude, no-analyzable lexemes, and others.

3. The kinship system is Amazon Dravidian (Cabalzar 1997).

4. Both sweet and bitter manioc varieties are included in the manioc generic category, where sweet manioc (*mani'o ja'u*, literally "eating manioc") is linguistically marked.

5. For more details on these routes, see Gallois (1986); for cultivar exchange in different contexts, see Oliveira (2006).

6. The Wajāpi open a new cultivation plot every year, where crops are planted according to a specific plan, and where each manioc variety is given a specific place.

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