

# The City College

NEW YORK 31, N. Y.

DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

January 21, 1960

Vincenzo Petruccio  
729 Sumner Avenue  
Syracuse 10, N.Y.

Dear Dr. Petruccio:

I am so glad to have heard from you - I did not know where to reach you before.

I have two papers which are attempting to get into print. One of them is on Yaruro ideology and appeared in abbreviated form in a symposium devoted to the same topic, cross-culturally. Its delay is largely that it is hard to get the entire symposium published. I have no copies of this at the moment, but I want to mimeograph some more and will send you ~~some~~ then. My findings there are in substantial agreement with yours with the following qualifications: a) each individual informant's recital of origin tales, each one's account of Kumã's land, varies according to his individual desire or view, within the over-all pattern, consequently there is considerable variation from Landaeta's stories; b) my group had myths of the origin of horticulture which appear to me totally aboriginal. This latter matter raises a great problem of course because of the horticulture. All Yaruro presently have gardens. Le Besnerais (J. Soc Amer. Paris, 1954) went from the mouth of the Capanaparo to the upper reaches of that river and its affluent the Riecito and every single village had conucos. I have been at two places on the Cunaviche and Caño el Medio both of which have conucos, and most of my field work was done on the Cinaruco river where they also had gardens. According to missionaries with whom I spoke who had been further upstream on the Cinaruco than where I was they too had gardens, although none of those Yaruro spoke any Spanish at all and were still undressed in any fashion. Kirchhoff refers in the Handbook to an 18th century source which points out they used corn green to eat (one should translate this to read, in my opinion, 'they were eating green corn at the time I, the missionary, observed them'). Your archeological remains, those few items I saw, the surrounding ethnology as seen from the missionary sources, related archeological materials - as at the Ronquin site, and the linguistic evidence (a. their relationship to Jivaro and Esmeraldas; b. their native words for corn and manioc which appear also in your texts, respectively pwe and hurariã pae and pae kana (the latter are sweet and bitter manioc) as opposed to clearly borrowed words for cane and bananas or plantains) all point to their always having had horticulture. My oldest informants - about 55 and 60 said their fathers had had horticulture too. Qualification must be made however, that the horticultural areas appear to be smallest on the Capanaparo, more especially downstream where the flooding is greater and the surrounding plain lower and flatter than further upstream and especially on the Cinaruco which looks quite different. Second, your group had just suffered the most severe acculturation shock imaginable - death of ~~the~~ 150 men at the hands of Venezuelans. While I was on the Cinaruco, 4 men were shot upstream on the Cinaruco. The immediate response to this was to abandon their homes and gardens, rush for the monte near the streams, run down stream and away from the open savanas altogether. Third, there appears to be a considerable seasonal transhumance - from 'winter' (i.e. rainy season) horticultural activity which takes up, on the Cinaruco, at least 70% of the food supply or more during that season, to 'summer' when gathering and river hunting are much more important. Incidentally, most Cinaruco Yaruro do not live on the river, but from a mile to several miles back from the river. Le Besnerais whose first trip had been in summer trip published an article in 1949 (which he does not mention at all in his later article, for good reason) in his 1954 article mentions that each village also had permanent houses of a type which is plainly

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aboriginal - a conical palm thatch hut about 20 feet long and 8-9 feet high - which correspond exactly to what I found at the Cinaruco. There is also a square type of house which the up-river people have, of which my village built an example, and which are said to exist by Thomas Rootes who spend 7 weeks on the Riecito. These are rarely occupied in summer because they are too hot and stuffy in that season. These are mostly built on higher places away from the river where they get maximum wind and minimum insects which are atrocious in winter. My own present opinion is that the situation you found was partly due to acute acculturation conditions; to the restricted ~~amount~~ amount of land available for gardens on the lower Capanaparo; to the availability of a much richer amount of water foods - turtles, etc., - than further upstream. The latter notion is also confirmed by the early literature in general and more specifically on those groups, non-Yaruro, who lived on the Orinoco of that region. Incidentally, the gardens are not at all easy to see, even on arial photos. Incidentally, again, the Guahibo who were also reported to be 'hunters-and-gatherers' (an unfortunate term) have conucos at least on some of the rivers they live on. Reichel-Dolmatoff who worked with them before 1943, the date of his publication on their material culture, reports conucos among them even then.

The group I visited on the Cinaruco was still outside Venezuelan culture boundaries although they carried on some trade and had one or two friends there, or 'pseudo-friends'. All but one of the men of my village had worked here and there on plantations, but all had come back to the village to stay permanently. None of the women spoke any Spanish. There were 24 permanent residents of the village and a great many visitings between villages. I met at least 35 people from up and down stream, as well as, later, another half-dozen from still further upstream and several men from the Capanaparo area. I also spent some weeks at Palmarito near Guachara where there are about 165 Yaruro in a single village. Here I was able to pick the brains of a missionary couple as well as Rootes' who had worked with this group for several months on linguistics, as well as doing my own field work. This group is a tiny enclave, geographically in a sea of Venezuelan hatos; they are subject to government and even enter into some juridical processes. They are also considerably involved in the economy of Venezuela in their own small way. One man is a well-digger for the whole area and makes considerable money. The two groups, plus apparently the intermediate group on the upper Capanaparo make a most interesting ~~multimum~~ acculturational continuum. Monogamy prevails at Palmarito; Polygamy is found in the other two places, but the Capanaparo is much more integrated into the economy than is the Cinaruco.

It is curious that Kirchhoff did not check with you - as curious as the fact that Steward did not check with me though he was the one who suggested I go to the Yaruro! It is absolutely certain - insofar as anything is certain with the Yaruro - that Kuma<sup>✓</sup> is not conceived of as a moon-goddess. My Indians also spoke of India Rosa but in my group claimed that this was Kuma - the Venezuelan name for her. At Palmarito on the other hand they sometimes identified her, some times saw her as a distinct being. Incidentally, there is note in Lodares that Yaruro were rounded up in reducciones and some where taken up as slaves to Caracas where they passed years on end. There is increasing evidence of heavy and continual deculturation - my group no longer uses the painting sticks; I was able to get only 3 asabaches. Acosta Saignes from some obscure source reports a tongue-piercing and blood smearing ceremony for illness which neither of us observed.

I estimate about 1000 Yaruro or more living presently in various stages of acculturation. Le Besnerais counted 519 in 1949, though they were dying from diseases at a

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greater rate than they were being replaced. On the Cinaruco there are presently about 150. Palmarito ca. 165. On the Arauca and in other Cunaviche villages probably another 200 or more. Palmartienos are nominally Catholic and few evangelicals but practice all their original ceremonies. There is some Catholic content has seeped into the ideology. In Apure they still think of the Yaruro as braba, a more inappropriate designation being hard to imagine.

My capitan, Joseito, had been out of his village for 9 years, starting about 1932 when he was about 16 - he had been to Apure and up and down the rivers. He had been to Apure on forced labor along with men from Palmarito and from the Capanaparo. It is hard to imagine that your group was missed in this and, in fact, I think I recall Joseito's saying that he had first met Landaeta on that trip. Landaeta had also been to my part of the Cinaruco (Landaeta and his people son de la familia de nosotros) and the two shamans in my village were both classificatory sons of his and had sat behind him during the tonghe.

Le Besnerais has a phonograph recording of a tonghe session put out by the Musée de l'Homme where it can be purchased for \$6.50. Wonderful music, isn't it, although hard to wake through it for 10 hours. We had a tonghe every 5 days! including two with dances.

Mr. Thomas Rootes, a PhD candidate at Columbia in linguistics, has spent a total of 10 months with the Yaruro. Since he works very slowly he has precious little to show for those 10 months but he does have a number of lengthy tonghe texts, a good deal of lexicon and all the materials for a grammar which he is working on. He asked me to ask you in view of his and my interest in dialect variations among the Yaruro how you actually went about taking the texts you published. Did the informant give you the total sentence or did the informant give you the text word by word afterwards or while he was reciting, or did he interpret as he sang and then later give it again? I had great difficulty with texts because I found that they never repeated a sentence when I wanted to hear it again, but they always varied it in some way. Rootes is working at the Haskins Laboratories at 305 E. 43 St. N.Y. should you want to get in touch with him.

For my own part I should like to ask you, if you have time, to write me a description in as great detail as possible of the topography, soils, plants, dunes, rivers and streams of the area you saw, preferably with some sort of sketch map and photos if you have any. The enclosed copy of my second Yaruro paper which deals with ecology will indicate the kind of data I would like to have. I was deliberately mum on the other Yaruro groups because I don't know their ecology that well. There are some marked differences also with Rootes' Riecito group which may breed local social organization differences. We have some differences on terminology too but since I am not satisfied that mine is definitive, I will not go into here. A friend of mine, Johannes Wilbert, who lives in Venezuela, a highly competent ethnographer, will be with the Yaruro on Jan 28th et. seq. for a few days and is going to check the entire terminology. Both sets of terminology suggest a once-active Crow system with matrilineal clans. I am certain that the matrilineal clans are not now extant, and I'm fairly sure they were not active among the group you studied either but were even then remnants of a previously existing organization. The depopulation has made them impossible to maintain - requiring marriages of all sorts, such as you described which would break up any clan system. My group has a straight Hawaiian cousin terminology which is a typical bilateral end result of such a process. Incidentally there are remnants in a great many villages of a dual division - the villages have two halves.

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I hope to return to the Yaruro within a year, but so equipped with time, money, and apparatus that I can travel the entire area and also stay for 6-8 months; learn the language fully - I have some grasp of lexicon now and also of how the language is constructed; and thus do a proper job while they still exist more or less as Yaruro. I must say my 12 1/2 weeks with them was one of the happiest times of my life. My health was as good or better than it has ever been and I was fortunate to come into Venezuela just after the more or less popular revolution which through out Perez Jimenez - an event which affected the psyche of everybody quite favorably.

In conclusions, I would classify the Yaruro as a horticultural Tropical Forest group at a somewhat low level of development originating somewhere to the southwest where their linguistic, and a good many of their cultural trait, affinities lie. As yet we have absolutely no time depth for their period of entry, but my guess would be well over a thousand years.

Please let me hear from you again. As soon as I have more material in a readable form, I shall send it along to you for comment, which I would greatly appreciate. If you should come to town my address and phone number are as below. I should like to meet you. I hope to go to the meetings in Paris this summer where perhaps I will have a chance to talk with Le Besnerais.

Sincerely yours,



Anthony Leeds,  
Assistant Professor of  
Anthropology

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*The enclosed paper needs some considerable revision which I shall be doing in the next weeks. I shall send you a finished copy*

1 Paper delivered at The 1959 Annual Meeting of the Amer. Anthrop. Assoc., Mexico City. Symposium "Evol. & Agricultural Systems in Aboriginal S. America" Caracas, Venezuela

Yaruro Incipient Tropical Forest Horticulture - Possibilities and Limits  
by Anthony Leeds

The primary concern of this symposium is the interaction between human populations and their habitats through the agency of horticulture insofar as factors in this interaction result in the evolution of culture. For present purposes we may understand by evolution two things. First, we may understand the term to refer to linear, though not necessarily orthogenetic, sequences of forms; the linearity or irreversibility of total culture sequences being based on the cumulative character of culture. Under this conception, one may examine any specific morphological or chronological series of events which may appear relevant. A morphological series, which is also, in a general way, a chronological series of this sort has governed the organization of the symposium. Second, we may understand the term evolution to refer to all processes, great or small, whose stadal results are observed in known historical sequences. Though some of the processes which enter into the evolutionary process apparently may be random, as for example variations within a pattern, the results of these processes are not random, because of the mechanisms of selection and, again, because of the cumulation of culture content. We assume that, with regard to cultural evolution, certain aspects of culture, and processes operating upon them, are in some real sense prior to, or more important than, other aspects of culture. One such aspect is subsistence, since it is with the differential effectiveness of food producing technologies that significant sociocultural differences are correlated. For this reason, we have selected the wide range of horticultural technologies found in a set of closely related culture areas - aboriginal South America - for investigation. We have not considered exclusively hunting and gathering technologies since they involve quite independent systems of technology, the transition from which to horticulture is a problem of an entirely different sort from that of the stadal development of horticulture and its concomitants. In some cases, the observed stages of horticultural development appear to be inherent in the very nature of the preceding horticultural systems, whereas in others, the observed horticulture appears to have become paralyzed at a certain

level. The symposium hopes to illuminate this problem.

We have suggested a number of developmental levels of horticulture which will not be fully discussed in these papers although they are implicit in their arrangement. The simplest is a migratory slash-and-burn horticulture which we have named Incipient Tropical Forest and which may be exemplified by the Sirionó, the Nambicuara, the Bororo, and the Sherente. This stage is morphologically followed by the Intermediate and Advanced Tropical Forest levels, respectively represented by such tribes as the Tapirapé, Terena, and Barama River Carib for the former, and Jívaro and Kuikuru to be discussed in a later paper for the latter. The next levels of development are constituted by emergent and then fully-developed irrigation horticultures designated respectively Circum-Caribbean, Sub-Andean, and Andean. The names also imply concomitant sociocultural systems.

The present paper discusses Incipient Tropical Forest slash-and-burn horticulture as exemplified by the Yaruro of Venezuela, making comparisons with other cultures of this type in order to show what kinds of upper limits were set upon the development of these groups by their technologies, habitats, or both, and what sorts of conditions within the relatively limiting conditions of incipient tropical forest horticulture provided a foundation for evolution to a more developed stage. For each of the tribes listed above as being of the incipient type, slash-and-burn horticulture plays a considerable if varying role in the total food procurement process. The Sirionó might almost be considered pre-incipient, whereas the Yaruro fall between incipient and intermediate tropical forest. However, what pertains to the Yaruro, in a general way, applies to the rest of the type.

Peoples in both tropical and temperate forested areas of the world have practiced and still practice slash-and-burn horticulture, also called swidden, milpa,<sup>1</sup> and shifting agriculture. The procedure, in general, is as follows. A garden site is chosen in virgin forest or preferably in second growth. During the dry season, the underbrush is first cut and then the larger trees are felled by a variety of techniques including the use of machetes, axes, or girdling. The cut trees and

brush are left to dry during the remainder of the dry season. Just as the first rains are approaching, these logs, along with whatever smaller underbrush may be standing, are set afire. The smaller materials largely burn up while the charred remnants of large trees lie scattered about. Burning partially destroys the humus,<sup>2</sup> as does removal of the forest cover, and to a degree disturbs the soil structure consequently speeding the decline of soil fertility despite the addition of organic material from the rotting of partially burned tree boles. Also ash from the burned wood contributes some fertilizing minerals to the soil, thus increasing the short-term fertility of the soil before it is exhausted by man, plants, and rain.

The destruction of the forest cover and of the humus layers exposes the plots to more drastic leaching or erosion by tropical rains. This fact, together with a decrease in fertility from continual replanting and harvesting in unweeded and uncultivated soils, accompanied by the gradual invasion by weeds and grasses, makes further use of the plot uneconomical at best and impossible at worst. It is abandoned in favor of some entirely new plot or one which has been reconstituted by long fallowing. Abandoned plots overgrown by weeds and grasses, though they may soon recover their fertility, are so difficult to work with characteristic widened horticultural tools,<sup>3</sup> the digging stick and the hoe, that they generally cannot be recultivated until a new forest cover has grown up and shaded out smaller vegetation. This usually takes a number of years, in general a minimum of 10 to 20 years, and often ranging well upward of that period.

Planting is carried out beginning just before or just at the inception of the rains and just after the burning. It may be continued at intervals during the rainy season in order to stagger the harvests. Plantings may be staggered through part or all of the dry season, if climate and horticultural conditions permit, to create an even-normal crop, as it were, and the probability of a correspondingly higher annual productivity per capita and per land area. Where marked differences between seasons are not found, the entire process may be more or less continuous throughout the year. Irrigation, terracing, and fertilization (other than natural

fertilization resulting from silting) are not used.

Using slash-and-burn horticulture, arable land exhausts at a rate greater than it recovers. The proportion of land held in reserve for future cultivation must be several times greater than that under cultivation at any given moment, the proportion varying with such factors as the rate of fertility recovery, the type of weed and grass invasion, the rate of growth of secondary forest, the rate of mechanical reconstruction of the soil, and so on. Thus, of the total amount of land potentially available in a given expanse of territory, only a part can be horticulturally exploited at any one time. Where the total, potentially arable land in a given expanse is itself only a small proportion of the total area, the amount of land available for cultivation at any one moment is, of course, minute.

With given technologies, here specifically swidden technology, upper limits to territorial, socio-economic, or cultural expansion, and limits to changes in socio-cultural forms are set by particular relationships between a given swidden technology and the peculiar habitat conditions in which it operates. Any such unique relationship may be treated as an exemplar of a type which may be logically arranged in sequences with respect to other types similarly established. This we have done with regard to the order of papers in the symposium. With the dimensions of swidden horticulture before us, we may now consider the swiddening of the Yaruro Indians of the southern llanos of Venezuela. We will show how its characteristics provide us a model for our incipient tropical forest stage and at the same time demonstrate how its special ecological conditions prevented its further evolution into the more advanced intermediate stage.

The Venezuelan llanos stretch as a low inland plain from the Orinoco delta, W by WSW, 750-800 miles inland, to the edges of the Andes in the far west of the state of Apure and into Eastern Columbia. The Yaruro are found between 450 and 600 miles from the mouth of the Orinoco, but still inside Venezuelan boundaries. They are found on all the rivers from the Arauca to the Cinaruco inclusive, a distance of about 90 miles from north to south.

As one goes inland from the coast and westward through Yaruro territory, the land slowly rises so that the town of San Fernando de Apure is about 100 feet above sea level; Palmarito de Guachara, about 60 miles southwest, is about 145 ft; and the Cinaruco river about 100 miles south-south-west is about 190-200 feet. From the middle Cinaruco, the site of the writer's field work, to the sea, the average slope is about 0.007% or 4 1/2 inches/ mile, but the slope increases gradually as one goes west till about 200 miles to the west, the plains abut on the Andes where within a space of about 50 miles, the land rises from about 650 feet to about 12,000.

The slope of the land is paralleled by a gradual increase in total annual rainfall and length of rainy season, respectively averaging for the region as a whole about 1600 mm (63")<sup>4</sup> annually and about 5 months of heavy rains with 2-3 transitional months of unsettled weather with considerable rain. The slope and climatic gradations are paralleled, furthermore, by an orderly series of soil and vegetation types. As one moves steadily nearer the mountains, the soils change from muds, as at San Fernando, to muddy and sandy loams at Guachara, to sands and sandy loams in the central Cinaruco, and increasingly to sands and pebbly areas. These micro-ecological differences appear to determine micro-cultural differences among various groups of Yaruro as one goes westwards, for example in the specific content of the cosmology. Space only permits us, here to deal with the Cinaruco area.

The dip of the strata, hence drainage, is from West to East. The slope of the dip is so small, as we have noted, that at the first sizable rains, the flow exceeds the carrying capacity of the stream beds and flooding occurs. Thus during the rainy season from May through September, during which from 85-90% of the annual rain occurs, there is a constant tendency to flood, while during the driest months from December through March, not more than a total of 3 inches falls, and the rivers and landscape dry up often totally, presenting desert-like conditions. Because the topography of the central Cinaruco area is not level in large areas, and even in the flat parts, is raised above the level of the streams, flooding oc-

curs more because of accumulated rain in low spots where it cannot drain than from overflow from streams. The streams themselves are swollen and in places overflow their banks for short distances before they are enclosed by the higher terrain.

H The west-east dip of the land and the east-west prevailing winds combine to make surface land forms, such as sand dunes and creeks, called caños (Y. doró) run east and west also.

In the central Cinaruco area, the creeks on the north side of the river are contained in a sort of basin formed by a row of dunes, perhaps as high as 100 feet above the neighboring savanas, almost 300 feet above sea level, running east and west for many miles at a distance of 3-5 miles from the Cinaruco. On the south side of such "ranges" of dunes, a creek like the Totudoro is likely to be found. On its right bank, sometimes at some distance back from the normal high water mark it is contained by the edge of the flat savana, which is marked by a continuous narrow band of soft, red-brown, heavy pebbles, sometimes agglomerated into chunks as large as a man's head. These, the only stones of this area, are entirely absent to the north-east and are technologically useless. Between these bands, which appear to represent flood levels or banks of older streams into which the present beds have been incised, and the streams themselves, low-lying areas are found which are soggy to a depth of a couple of inches above a clayey-sandy <sup>d</sup>harpan, and are covered with a sleazy layer of organic remnants. Grasses appear slightly less barren here than in the areas beyond the pebble banks, the savanas proper.

The savanas run east-west for miles and may be one or more miles wide, broken here and there by either strips of dunes or patches of woods, called montes (Y. hōi), growing in somewhat saucered hollows which may once have been parts of stream beds. On the upper level savanas (Y. cirí), the soil is largely sandy, with occasional scatterings of pebbles at the juncture with the lower savana level 12 to 15 feet below it. Grasses are coarse, tough, long-rooted, and sparse, giving a barren, yellow appearance even in mid-rainy season. Only a few scrubby trees are seen on the open moors, mostly in wetter spots. These sandy savanas have long since

been leached of practically all mineral content, as soil tests show.<sup>5</sup> The savanas constantly tend to lose their finer particles of soils, which are deposited near the streams where the latter have cut down a few feet into the surface of the savana. Thick and rich soil layers are thus created. It is in such layers that soils mechanically more suitable for horticulture combine with a water supply which suffices not only in the wet season, but also provides a dry-season water table accessible to long-rooted flora. This combination fosters the growth of gallery forests, here, which constantly add humus to the very limited areas of better soils provided in this habitat. The width of these layers depends on the depth of the stream's incision and the amount of flow as well as on the presence and relative distance of the dunes and the high and low savanas from the streams, and on the slope and width of the low savana next to the stream. Maximum width of layers occurs where the streams are more incised and the slope from the higher savana to the streams is a steady descent, so that drainage occurs without flooding and waterlogging, while the dry-season water-table is not too far below. Under any other conditions, these places are narrow, or may almost disappear. Thus, the mouths of caños have narrow or no strips of gallery forest since the level of the savana is little above that of the stream, and little soil accumulates at the same time that flooding is heavy. On the upper reaches of streams, caños are little incised, the slope from the high savana is insufficient to have deposited much soil, and the forest again disappears. Thus only the medium stretches of streams are well-forested and it is only in these areas that horticultural soils are available. Only the montes, those depressions in the savana surfaces, which, though above permanent water, nevertheless are nearer the water table than the surrounding savana, provide other suitable, if dry, areas for planting. Here too are found tall tropical hardwood forests which somewhat enrich their own soils by a very thin layer of humus deposit.

The remaining land surface presents resource areas of various types. In passing, it should be noted, though it is too often thought to be self-evident and consequently not specified, that what constitutes a resource area is only such in

reference to the presence of given technology. The presence of such a technology is not guaranteed in any particular culture by any historical, evolutionary, geographical, or ecological necessity. Its presence may entail a particular historical explanation or a general evolutionary one. In any case, its absence entails the absence of the use of certain resources whose presence we can observe only in retrospect.

Besides horticulture, the Yaruro have hunting, gathering, and fishing technologies, as well as recently acquired animal husbandry in the form of pig-herding. Hunted animals include deer, armadillo, capybara, paca, peccary (?), iguana, and a number of birds (see chart). These are variously distributed spatially according to the specific ecological niches for which they are adapted. Thus deer are apparently usually found dispersed in the somewhat damper, low-lying savanas where grass is greener and water more available away from the scene of human activity. Armadillo are found distributed throughout the savana. Other species, however, such as the capybara live near the edge of permanent waters, mainly the rivers. Alligators also live only in the rivers. The carrying capacity of the savanas appears to be quite low in the Cinaruco llanos since foraging foods for larger game animals are sparse. It is important to note that not only is the overall carrying capacity governed by the minimum average food supply of the savanas in the florally more restricted dry season, but the distribution of animals varies considerably from the wet to the dry season. In the latter, animals tend to cluster nearer the rivers or the widely dispersed water holes. Consequently, the locus of hunting activities must also shift seasonally. Savana hunting techniques are necessarily different from those used in procuring food in the rivers, whether hunting alligator or capybara, or, of course, fishing. There is some seasonal variation in the locus of fishing too, although this is much less marked on the Cinaruco than on the freely-flooding streams of the flatter, more north-easterly savanas of the Apure llanos. Fish move up the larger streams into somewhat shallower waters where more plant and insect food is available to them. However, they are apparently unable to

move up smaller streams which often have rapids-like stretches interrupting their course. Thus fishing activities in the rainy season are directed towards the larger creeks and away from the smaller creeks as well the river itself, where the water has become too deep for successful fishing since the fish are scarcer and more difficult to see in the deep, swift currents of winter. In respect to animal husbandry, recently introduced pigs are pastured anywhere in the savanas but preferably next to the village or quite at a distance away from it, in either case far from the nearest gardens (Sp. conuco, Y. ladó), an effort which is rarely successful, since the pigs, in their wisdom, are among the main predators on the garden crops. Gathering may be carried out in the dry or the wet savana depending upon the plant food to be gathered, or it may be carried out near the creeks especially for the fruit of the moriche palm. The rivers do not appear to be used in gathering.

In short, the habitat conditions are as follows, given that the Cinaruco Yaruro have a technology including hunting, gathering, fishing, animal husbandry, and horticulture. All resources are found within a narrow band of about 4-5 miles between the Cinaruco river and the high sand dunes occurring in the interfluvium to the north, in which only an occasional deer is found. Within this space there are three major resource areas distinguishable. 1) the open savanas for hunting and gathering, the former involving much greater dispersion of resources than the latter and consequently quite different techno-social conditions. Both activities change location markedly with the seasons. 2) The rivers and caños are used for water-animal hunting and for fishing. Fishing also displays a seasonal shift back and forth between river and caño, whereas river hunting for alligator and turtle becomes totally impracticable <sup>in the wet season</sup>. The wooded areas, themselves dispersed, include the gallery forests of smaller streams where flooding is limited but water and soil abundant and the montes occurring here and there in mid-savana. These areas provide the Yaruro with garden sites. Away from the streams, there are also occasional tiny patches of suitable soils not close enough to the water table for dry season use, but which get enough rain to be used for planting of seasonal crops in the wet season. Schematically, the situation is shown on the accompanying charts: I, a list of the foods entering into Yaruro economy

and their relative seasonal occurrences, and, II, two maps of the seasonal locations of these resources.

The Yaruro are in no position to increase the carrying capacity of land or water for plant or animal species. With regard to this entire habitat, we may say, in Harris's words, "Limitations imposed by the manner in which plants and animals convert solar energy into comestible material in combination with the availability of land and water resources, the rate of reproduction of the natural biota, and the total ecological balance, furnish conditions unalterable by individual or collective whim"<sup>7</sup>, at least at the stage of technological development of the Yaruro. That these limitations exist for their horticultural activities is plain and is recognized by the Yaruro themselves to some extent. First, they recognize that, given the types of soils extant in the habitat, only certain kinds of crops can be used in certain places. Their knowledge in this regard seems to be quite accurate and, of course determines where a garden will be prepared at any given time according to projected needs, existing resources, and past exploitations. Again, they know that a swidden lasts three years, a fact not only confirmed by the evidence of conditions in recently abandoned patches but also by results of soil analyses.<sup>8</sup> After the three years, they say, the swidden (Sp. conuco, Y. tadó) must be allowed to fallow for a number of years. They used the word 'five', but the writer believes 'five' is intended to mean 'some' years. The conditions of abandoned gardens, with their rank growth of lush grasses, unmanageable with dibble or machete, and of the places chosen for preparing new gardens, all cut out of relatively large second growth, suggest that the fallow period should be read as at least fifteen years if not upwards. We shall use fifteen years as a basis for calculations below, since after such a time, the shade has driven out the succulent grasses which are replaced by herbaceous plants or woody underbrush. Thus, Yaruro horticultural practices, which conform in detail to our generalized description given above, have been adapted to the particular soil and water conditions of their habitat on the basis of explicit recognition of these conditions.

Without basic change in their technology, the balance between the Yaruro's present technology and the habitat conditions just described set real upper limits both on production and on productivity, the latter defined as production per capita per year, and therefore set limits on the absolute size and the form of the society. Let us suppose optimal population conditions unlike the present continuing depopulation due to western diseases and massacres by Venezuelan citizenry were present. The tendency of any plant or animal population is to increase until it balances in a stable equilibrium with the available nutritional resources, other factors constant. If the population increases beyond this point, either a portion of the population must seek elsewhere for its food, or a portion must die, or the population will exploit the resources so as temporarily or permanently to reduce them to lower potentials, as in the case of cattle overgrazing pastures. A new land-population equilibrium is then reached at a somewhat lower level. The only other possibility is to innovate new forms of exploitation, a point we return to below.

Under optimal conditions, then, we may estimate maximum Yaruro population within the boundaries of such a territory as presently occupied by the Caño Totúdor Yaruro of the Central Cinaruco, a territory bounded for all practical purposes by walking-and-working distance from the village. Within this area of about 65 sq. mi. a maximum of about 800 acres, or 2% of the area, contains all tillable land. However within these 800 acres, much is occupied by the streams, calculated at their flood maxima which define non-gardenable areas, while other parts are inadequate in soils or water for use as gardens. Consequently the actually tillable areas comprise a maximum of about 200 acres or about 0.5% of the land surface. It should be noted of course, that all these 200 acres are not usable for all crops since those in the montes cannot be used for cane and bananas, while the wet areas nearest the streams cannot be used for corn or manioc. Thus the maximum area for the staple crops, manioc, corn, and bananas, is about 145 acres (see Table I).

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Using Carneiro's equations, we may estimate the maximum population which would be in equilibrium with this acreage, estimating .5 acres as an approximate

amount of land required to provide the average person with the food he ordinarily derives from cultivated plants per year. The calculation gives us 67 persons, (see Fig. 1). We may also estimate the number of years (L) the group may stay in the present locality with its present population before wearing out the available tillable land so that they would have to move (see Fig. 2). This would be 50 years. Since

$$P = \frac{T}{(R+Y)} \times Y$$

$$P = \frac{200}{(15+3)} \times 3$$

$$P = 57 \quad (= 92 \text{ if } R \text{ is } 10)$$

$$L = \frac{T}{P \times A}$$

$$L = \frac{200}{24 \times .5}$$

$$L = 50 \text{ years}$$

R = years of fallow

Y = years of productivity

A = land used to provide plant food for one person in year

T = total tillable land within walking distance of village

P = population

Fig. 1

Fig. 2

the entire fallow and planting cycle of any piece of land is only 18 years, under present circumstances, the Totúgoro Yaruro will not have to move from their present territory at all, in view of their small and decreasing population of only 24 persons.

The ideal figures given above would be somewhat modified upwards by the additional foods provided by fishing, hunting, and gathering which, in the wet season, constitute about 30% of the diet and the dry perhaps 50% of the diet. The ideal figures would again be reduced, on the other hand, by allowing for the predations on gardens of animals, especially the pigs, which eat manioc and corn, the Guahibo Indians who allegedly steal sugar cane, and insect losses. Our figures, then, will be modified only a few units by the additional sources of foods. We may thus revise our population figures to between 75 and 80 (or, if a 10 year fallow period is assumed, the figure would be 100-105), figures which correspond to the Yaruros' own ideal of what a proper population for this area should be. If the population increased beyond this number of people, the Yaruro would have to exploit their gardens at a rate greater than the rate of land reconstitution, and also expand hunting, fishing, and gathering beyond the average long-term carrying capacity of the savanas and the rivers thus reducing their potential productivity. Adding together the maximum population supportable by these food resources, as well as by the recently introduced pigs, a figure approximating 100-125 persons might be reasonable for the territory. This

gives a density of 1.5 persons per square mile, a characteristic figure for tropical forest tribes.

If the population rose beyond this maximum capacity of the land-technology relationship, groups would either have to fission off, go on the warpath, regulate population by any of a number of internal institutions such as infanticide, or die either from extreme famines or from steady nutritional deficiency. Under present population conditions none of these is necessary, yet both fissioning and population regulation by contraception occur. Fissioning appears to be fostered by the search for settlement locations requiring minimum labor for maximum return and also to establish community authority under the person leading the fissioning group independent of that exercised by the community from which fissioning took place. Contraception appears to be a matter of choice revolving about maintaining a certain freedom from the cares of motherhood until such time as the marriage partners are reasonably convinced of the permanency of the marriage. Indirectly this contributes to the distribution of more effective female producers among the more effective male producers in the most productive areas, since a second marriage often involves shifting to a generally more effective husband whereas a shift to a less effective husband is scarcely to be found. Both fissioning and contraception, however, give evidence of techniques which were developed to handle the man-food balance in happier days.

A number of formal characteristics of any ecology may permit us to deduce the form of society which would be expected on the basis of such characteristics. In so far as the ecological forms were to remain essentially unchanged over great periods of time, no changes in the forms of the social order attached to the ecological conditions would be expected. An internal equilibrium is maintained until such time as a dynamic imbalance occurs because of changes from internal or external sources. It is essential to examine to what extent the internal equilibrium prevents or fosters the occurrence of dynamic imbalances in any particular ecological setting. We shall return to this question after the following itemization of Yaruro ecologi-

cal forms.

First, through time, the gardens tend to radiate further and further away from any given residence point since, given the 18-year planting-fallow cycle, plots near the village will have been exhausted. Since the major garden resource areas lie in a crudely east to west direction, there will be a slow westward migration of the geographic center of garden activities, enough so that at some point, the village is suspended, as it were, among distant resource points (see maps), enhanced by the dispersed nature of the hunting and fishing, and to some extent the gathering, areas. If the "suspension" is weighted more in one direction than another there will be some tendency either to move the village or to send out temporary or permanent branches of it, respectively in the form of work cottages in the swiddens or in larger long-term house groups which are intermittently occupied. This process is easily observed in existent and abandoned house and subsidiary village sites scattered over the whole territory. Similarly, the locus of gathering, so important in summer, moves further and further from the village. This, together with the considerable shift to fishing and river-hunting in summer, as well as the need for water, causes an extensive seasonal transhumance to occur within the territory. These factors contribute to fissioning as well as to inhibiting the development of permanently located villages, let alone larger aggregations. Thus a degree of group dispersion and geographical mobility within the territory is characteristic.

Second, if one examines the location of resources it will be seen that, taken together, they constantly enjoin a dispersal of the labor force in all directions, regardless of season, so that more or less equivalent quantities of labor are being used at the same time in many varying kinds of productive activity independently of each other - at the peripheries of the territory, in areas between, or in the village centers themselves, where the women are constantly doing the significantly important work of converting otherwise unusable food resources, like raw bitter manioc or uncooked corn, into edibles.

Third, it will be noted that none of the Yaruro technological processes re-

quire cooperative work, even when they may permit it, if it were so desired. On the whole, the productive activities might be described as dispersive of labor whether it is individuals or small groups of twos or threes who go out to keep each other company. Even the work of preparing the swiddens is carried out individually though two or three men may work as neighbors in what appears as a single plot. Further, the technology is such as to require no highly specific and difficult or esoteric skills. The most difficult skill to acquire is the knowledge of the soil types and appropriate planting procedures attached to each. Thus each adult is in a position to learn the inventory of technological knowledge appropriate to his or her sex, and somewhat of that belonging to the other sex as well, and to apply it by himself whenever he wants or has to. A man well-introduced into Yaruro technology could probably subsist alone successfully for long periods of time. One divorced adult man, although he was largely fed by his mother's and sister's households, nevertheless hunted and harvested for himself and often cooked for himself meals of the type usually cooked by the women.

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The forms and characteristics of surpluses, as defined by Harris, shed further illumination. The technological surplus, defined as the difference between total calories annually produced by any definable group and the calories used to produce them, or as the ratio between these two figures, may be estimated at about 8 or 9 to 1 as compared with Harris's estimated figures of 2:1 for the Sirionó or 33:1 for the Pencuyut Maya.<sup>15</sup> Since as Harris remarks, the degree of social stratification in a large number of cases correlates with the size of the technological surplus, we would scarcely expect to find social stratification among the Yaruro, nor even any significant ranking. Where the technological surplus is low, the producer's surplus defined as the difference between total calories produced by any given group and the total calories used by the producers must also be low. Therefore the number of persons other than producers who can be supported by the producers is also limited. The producers' surplus may provide an index of the degree of specialization which might be expected. In the case of the Yaruro one would expect no, or very low, speciali-

zation. Again, with a low producers' surplus, one would expect to find a greater proportion of the group to be involved in production than where such surpluses are high for otherwise there would be insufficient calories to support more than a few people other than the producers. With a low producers' surplus, one would expect, in general, to find a greater proportion of both sexes engaged in the food quest. This is, of course, born out in the case of the Yaruro. Finally, Harris's harvest surplus is defined as the difference between the amount produced at any given moment, especially at seasonal maxima, and the amount consumed at that time. The actual amount consumable is governed by the seasonal minima, since the population cannot rise higher than the food supply at minimum periods permits unless special technological features such as storage, are present. Where the harvest surpluses are of non-storable goods, the population level is in equilibrium with the absolute minima of the harvests. The greater the degree of storability through a non-productive season, or the less marked a crop is by seasonality, the higher the level to which the minimum population can be raised. Storability, however, is only one dimension of the harvest surplus. Absolute size of the peak surpluses, their regularity over the years, their distribution in space and time in the annual cycle, their utility in raw form, and the proportion of labor needed to harvest them relative to the time allotted for the harvest are all important aspects. Thus, manioc, the Yaruros' chief food resource has no clear peak, is regular over the years (the Yaruro disclaim any famines), is storable both in raw form and in prepared forms, is so located as not to permit of a concentration of labor at any one time and needs no massive labor for harvesting because of short harvest periods. Thus in the very nature of manioc as a crop and in the labor requisites for it, no centralized authority is needed or even possible for the management of production or distribution of the harvest. The same may be said, on the whole, for all the hunting, fishing, and gathering harvests, a notable and probably permanent feature of their particular ecology. Perhaps the only crop which has a marked seasonality is corn, but its absolute size in the total production, its geographical distribution in production, and its position relative to all other harvests renders it insignificant as an effective promoter of managerial functions and

formal arrangements of social stratification. It is unlikely, given Yaruro ecology that the forms of surplus would change; consequently their concomitants in social structure would remain constant.

On the basis of the formal characteristics of the <sup>e</sup>ecology and of the surpluses one may deduce an essentially egalitarian social organization, with minimal leadership and with dispersion of economic distribution among a number of adult <sup>or females</sup> males any one of whom may produce a small <sup>harvest</sup> surplus at any time. With a relatively steady and reasonably comfortable total subsistence base, no necessity exists for stringent rules of exogamy as an institution to regulate the labor force by pushing some members of the community out and attracting other, desirable members in. One would expect frequent marrying in the village according to the convenience of the contractors, and out-marriages to occur either as economic opportunity offered elsewhere or lack of women at home urged one out. The combined biological and productive role of women, with their particularly important technical roles in gathering and in food preparation, suggest sedentary communities and a matrifocal emphasis in the rules of residence. However, the importance and location of the men's economic contribution might be expected to balance this to a degree so that one might deduce matrilocal residence but with other subsidiary patterns. This in fact occurs, occasional sororilocality or patrilocality comprising the subsidiary residence rules. The flexibility of village and kin-group marriage regulations suggest a bilateral kin organization and terminology. Political authority would be vested in the community, mainly among its elders, since no ranking or stratification is to be expected. In fact, Yaruro socio-political forms, in general, conform to all of these deduced conditions. They represent a model for any society based on the kinds of ecological conditions we have described. Where our analysis permits us to predict about the course of the ecological conditions, we can also extend this prediction to the social structure. Since, under the given ecology, we can establish a maximum population for each Yaruro socio-cultural unit, and under the given technology we would expect no significant change in the ecology, no significant change of form in Yaruro society

would be possible. Changes could occur only by virtue of a changed technology derived either from internal developments or diffusion.

It is justified to assert, I believe, that, given the technological and ecological conditions of the Yaruro, internal developments of an evolutionary sort would be most unlikely, or, at best, exceedingly slow. It seems to the writer, that the nature of the wet and dry savana soils precludes any possibility of cropping by means of slash-and-burn horticulture, or even, to any extent, by modern agricultural means. Therefore development would have been restricted to improvements in existing technology such as the domestication of new plants or the improvement of old ones grown in the restricted areas along the streams. Maximum surpluses would still have been restricted, and the singular ecological relations of this region would nevertheless have been maintained. Improved fishing techniques might have increased output - the weir, the trap, poisons, nets and seines, fish pools would have increased the fish intake, but there are no salmon runs or the like, here, so that a maximum would very soon have been reached in fishing too.

Of introduced food plants and animals, the same may be said, unless some plant growing with notable success in the dry sandy savana soils had appeared. However, no such plant was available from any surrounding source and still is not. It is highly doubtful whether techniques of fertilization could either have been internally evolved or brought in from other peoples which would have made any significant difference to production. In fact, even with a modern agronomical technology, as well as better soils than possessed by either the Cinaruco or Capanaparo Yaruro, the problem of fertilization of their savana lands has not been solved even by contemporary Venezuelans. Had it been possible to develop any form of fertilizer under native conditions, the best it could have done would have been to raise the swidden productivity somewhat, thus raising the population. However, it is doubtful if it would have changed the forms of surplus, the ecology, or social structure.

Among the Yaruro, water control would have been impossible, because the small streams, and even the larger caños, dry up in summer altogether while the rivers

are reduced to relative trickles. Any significant irrigation system would have had to have been on such a scale as only a major state could undertake, a state of greater proportions and wealth than contemporary Venezuela for example. Even had such been possible, it is doubtful whether irrigation would have helped the sandy savanas of the Cinaruco, so heavily leached by rain, though water control might well permit a large increase in agricultural productivity in the loamier parts of the llanos. Thus, a major agricultural technique known to relatively near neighbors of the Yaruro was for ecological and social reasons not diffusible.








Finally, warfare, which might have elicited a more hierarchical form of social organization, was apparently never a Yaruro culture trait. In the first place, the ecological conditions to the north, west, and south were, if anything, more severe than their own, so that there was little advantage to gain by warring in these areas. To the east were the Orinocco highlands, mountainous and heavily wooded country, an ecology quite different from, and probably as difficult as, their own.

We may conclude then, that, with the given technology, and under the given ecological conditions peculiar to the Yaruro region, there was no possibility of evolving to an advanced tropical forest type like the Kuikuru. Second, there was no possibility of circumventing this development by directly taking on Circum-Caribbean traits from nearby groups. The Yaruro had to remain, under native systems of subsistence which did not include the European-derived cattle herding now found in the llanos, at a fixed level of technology, with a fixed ecology, and hence with a fixed form of social structure. Only the recent exposure to cattle herding is breaking up the fundamental form of their economy.

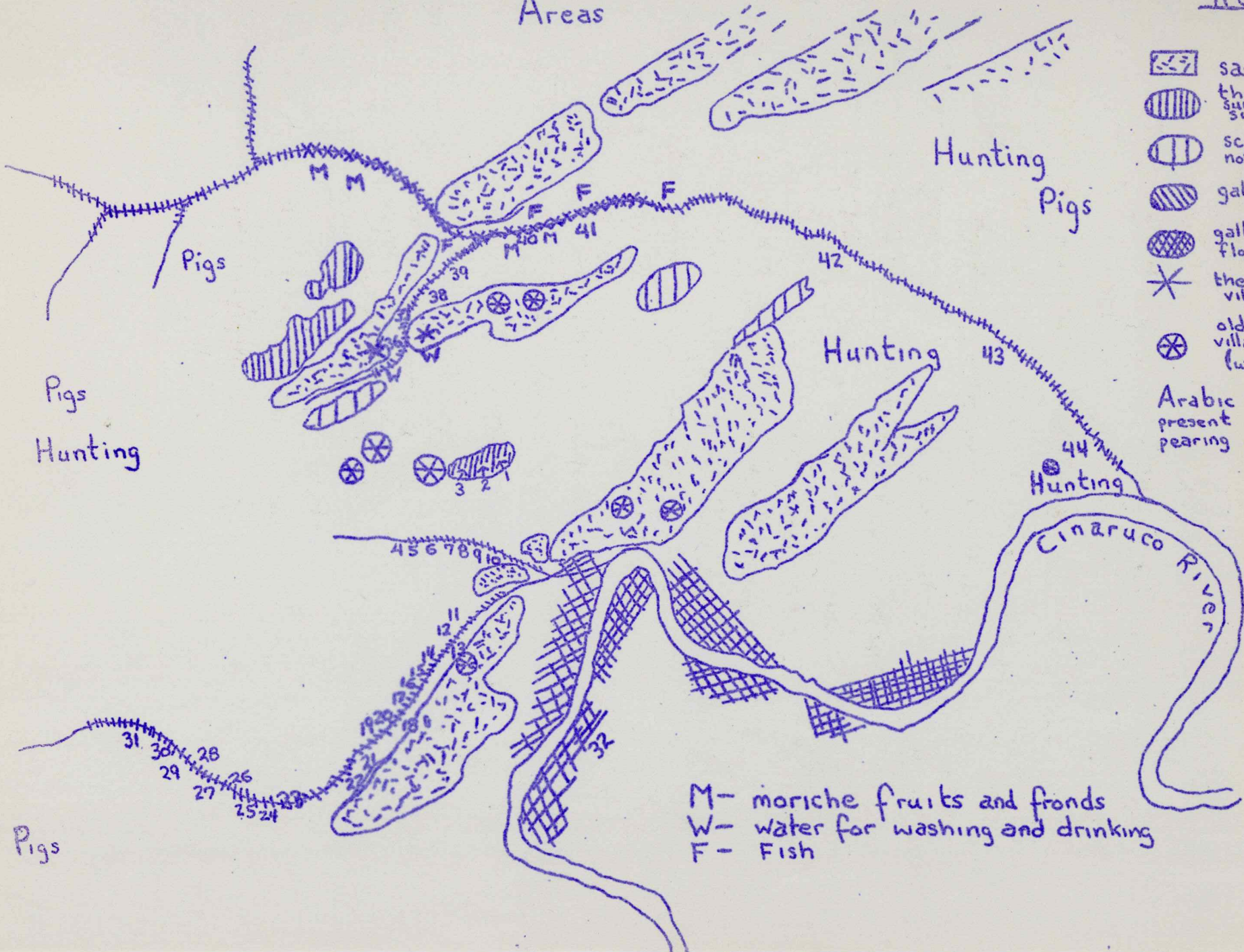
Under any conceivable native conditions, the basic ecological relationships and forms would have had to remain essentially unchanged. We may therefore deduce that the concomitant socio-cultural structure would have had to remain unchanged. Yaruro society was, for geographical reasons, at an evolutionary dead end.

# Map I - Winter Resource Areas

## Key

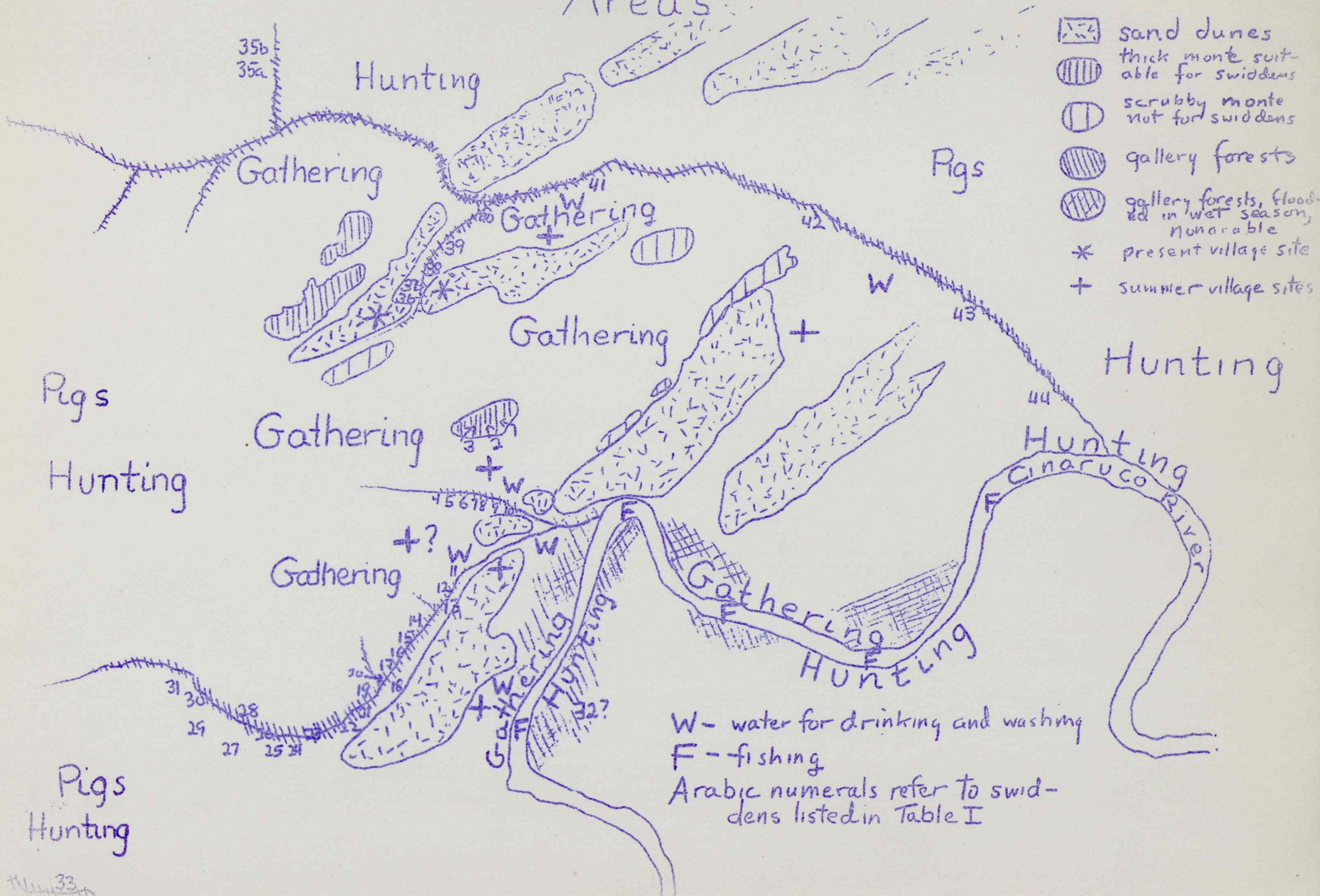
-  sand dunes
-  thick monte suitable for swiddens
-  scrubby monte not for swiddens
-  gallery forests
-  gallery forests flooded, nonarable
-  the present village
-  old or unused village sites (winter houses)

Arabic numerals represent swiddens appearing in Table I



M - moriiche fruits and fronds  
 W - water for washing and drinking  
 F - Fish

# Map II - Summer Resource Areas





Number, Size, and Crop Areas of Gardens of Totúdoró Yaruro

%<sup>1</sup> garden planted to each crop<sup>2</sup> and areas in acres

Gardens #	Sq. Ft	Acres	Manioc % Acres	Corn % Acres	Bananas % Acres	Cane % Acres	Squashes % Acres	Mayana % Acres	Other <sup>3</sup>	
MATURE: 2nd & 3rd years										
1.	60,000	1.40	100	1.40	-	-	-	-	-	
4.	3,000	0.07	90	.06	-	-	-	10	.02	
5.	7,000	0.18	80	.14	-	-	-	-	-	
7.	6,000	0.14	-	-	20	.04	-	-	-	
7.	6,000	0.14	-	-	20	.03 <sup>5</sup>	80	.11	-	
9.	50,000	1.16	60	.70	10	.12	25	.29	5	
10.	1,000	0.02	-	-	-	-	sparse	-	-	
13.	25,000	0.58	40	.23	25	.15	35	.20	-	
15.	16,000	0.37	-	-	30	.11	70	.26	-	
23.	20,000	0.47	25	.12	30	.14	45	.21	-	
26.	10,000	0.23	-	-	20	.05	80	.18	-	
28.	40,000	0.93±	50	.47	10	.09	40	.37	-	
31.	30,000	0.70	100	.70	-	-	-	-	-	
34.	13,000	0.30	100	.30	-	-	-	-	-	
35a.	10,000	0.23+	55	.13	30	.07	10	.02	5	
									.01	
Tot.	294,000	6.78	11.34	4.25		0.80	1.64	0.01	0.08	Acres

Gardens #	Sq. Ft Acres		Manioc % Acres	Corn % Acres	Bananas % Acres	Cane % Acres	Squashes % Acres	Inyame % Acres	Other <sup>3</sup>
NEW: First year									
14.	14,000	0.32	-	-	-	100	.33	-	-
17.	6,000	0.14	35	.05	20	.03	35	.05	10 .01
18.	6,000	0.14	45	.06	45	.06	-	-	10 .02
19.	6,500	0.15	35	.05	35	.05	10	.02	15 .03 5 .01
22.	8,000	0.18	-	-	35	.06	65	.12	-
24.	37,500	0.86	45	.39	35	.30	20	.17	-
25.	9,500	0.22	35	.08	20	.04	10	.02	200 <sup>8</sup>
27.	1,950	0.05	-	-	-	-	-	200 <sup>8</sup>	.10
29.	2,500	0.06	100	.06	100 <sup>9</sup>	.06	-	-	-
30.	15,000	0.35	80	.28	80 <sup>10</sup>	.28	20	.07	-
32.	13,000	0.30	-	-	-	-	100	.30	-
33.	13,000	0.30	55	.17	55 <sup>11</sup>	.17	20	.06	20 .06 10 <sup>12</sup> .03
35b.	10,000	0.23+	50	.12	60 <sup>13</sup>	.14	30	.07	10 .02 10 .02 + 14
Tot	142,950	3.31	14.65	1.26	.84	.64	1.10	.12	.06
IN PREPARATION									
2.	15,000	0.35	-	-	-	-	-	-	-
21.	20,000	0.47	-	-	-	-	-	-	-
	35,000	0.82	15.47						

1. These percents are highly approximate since crops were often distributed quite irregularly around gardens, often even interplanted. They represent impressionistic guesses.
- 2.
3. These include 'ocumo', pineapples, for the most part.
4. 'Sparse' means that trees are scattered here and there bearing lightly; 'negligible' refers to a few atrophied bunches in an entire patch; 'little' means a very small production, above sparse.
6. These were very sparse. 6. pineappless ocumo. 7. pineapples, pumpkins, ocumo.
8. Successively planted to melons and to squash in the same season. 9. Double cropped in same area.
10. Corn and manioc double cropped in same area. 11. Corn and manioc double cropped in same area.
12. Inyame interplanted among corn and manioc. 13. Double cropped with manioc.
14. Ocumo, pineapples, melons, pumpkins.

Foods: their Geographical Proveniences, Techniques and Seasons of Production; the Division of Labor in Production and Food Preparation

Symbols: S,F,W,S - summer, fall, winter, spring

M,F, - male, female

Q - evaluation of the quantitative importance of the food or raw material in Yaruro subsistence and productive activity: 5 - major staple or resource; 4 - major crop, but not a staple; 3 - important food (or other) resource, but a secondary crop; 2 - minor crop (or other resource) serving as a more or less regular but seasonal delicacy; 1 - mostly a delicacy for occasional enjoyment (very secondary resource)

# - indicates both presence, and by doubling or tripling, importance of crop or resource; three ###'s do not necessarily mean "3 times as important as 1 #", merely "of outstanding importance".

/ - sporadically or slightly present

d-m - December to March; a - April; m-s - May-September; o-m - October to November

Season of Prod. Division of Labor  
 S F W S Prod. Food Prep.  
 d-m a m-s o-n M F M F

Yaruro Spanish English Location and Techniques

CROPS PLANTED:

Yaruro	Spanish	English	Location and Techniques	S	F	W	S	Prod.	Food Prep.				
				d-m	a	m-s	o-n	M	F				
pae ka'ra	yuca amarga	bitter manioc	swiddens, cuttings, dibble	###	###	###	###	###	#	/	###		
1. p. taoca'ra	cachicama	" (variety?)	as above										
2. p. apunda'ki	saivita	" (light)	as above										
	bꝑrebꝑreia												
3. p. apunda'kika-saivita		" (dark)	as above										
	'na												
hurari pae	yuca dulce	sweet manioc	as above	##	##	##	##	##	#		##		
1. pae pꝑakwꝑ	niemeguebo	" (variety?)	as above										
2. pae.ici'kwꝑ	pasta zamuro	" (variety?)	as above										
3. p. valencia	valencia	" (" , introd)	as above										
pwꝑ	maiz	corn, maize	swiddens, hills, dibble					###	###	###	#	#	###
1. pume'pwꝑ	maiz yarura	Yaruro corn	as above (3 mo., 1 ear/stalk)										
2. hamburupwꝑ	maiz guahiba	Guahibo corn	as above (4 mo., 2 ears/" )										
3. p. kwꝑkwꝑia?	" amarillo	yellow corn	as above (5 mo., 1 ear/stalk)										
paratnã	plátano, topocho, banana	plantains, bananas	swiddens, machetes to cut, on specially prepared mounds, slips	##?	##?	###	##	##	/		##		
1.p. 'nã	plátano	plantain	as above (raw or cooked)								#		
2. p. wo'ko	topocho	plantain	as above (raw or cooked)								#		
3. p. to'kwĩ	dos militos	banana	as above (raw or cooked)								#		
4. p. waka'ru	?	plantain	as above (?)								?		
5. ececa'mꝑ	pineo	plantain	as above (raw or cooked)								#		
6. Ka'mure	camure	banana	as above (raw)								#		
hu'ra	name	yams	swiddens, dibble	##?	##?		#	##	/		##		

Yaruro	Spanish	English	Location and Techniques	Season of Prod.				Division of Labor			
				S d-m	F a	W m-s	S o-n	Prod. M F	Food Prep. M F		
e'de	patilla	melons, pumpkins, squashes	dry swiddens, dibble	##	##?	#	##	##	/	##	3
1. kwεbo'hurari'xe.	"	water-melon	as above								
2. cumani'x e.	"	pumpkins	as above								
3. yako'da	"?	bottle gourd	as above								
ε'ni'a	cana	sugar cane	wet swiddens, dibble, machete	##?	##?	###	###	###	#	#	3
1. c. mo'ra	cana ?	" (variety ?)	as above								
2. c. berebre'ia	cana blanca	white cane	as above								
3. c. criollo	cana criollo	introd var.	as above								
ε'ramekwε	name	yams	swiddens, dibble	##?	##?	#	#	##	/	##	2
oari	batata	sweet potato	as above	##?		##?	#	##	/	##	2
δ	anana	pineapple	swiddens, dibble				#	#			1
iu	capacho	?	swiddens, ?				##?	#		?	1
ε'da(εakwε)	ocumo (yautia)	xanthosoma	swiddens, dibble	##?		#	#	#		#	2
(note an'a)	aji	chili pepper	doubtful if raised on Cinaruco)								
<b>FISHES CAUGHT:</b>											
yagu'pe	agua dulce	?	rivers, caños, hooks, arrows	#				#	/	#	2
ε (camaci'ro)	cachama	?	rivers, hooks, arrows	#				#	/	#	1
gui'tε	sardina	?	rivers, fish arrows, small hook	#	#	#	#	#	/	#	2
dap'we	guavina	?	caño, fishhooks	#			#	#	/	#	?
ho'no	palambre	?	rivers, caños, arrows, hooks	#	#	#	#	#	/	#	2
ipi'a	pinte tigre	?	rivers, caños, hooks	#	#	#	#	#	/	#	2
pacow'n'ti	bag(ue?)re	?	rivers, caños, hooks	#	#	#	#	#	/	#	2
'meδ'dakwε	viejita	?	as above	#	#	#	#	#	/	#	?
'coanda'yil	"	?	as above	#	#	#	#	#	/	#	?
ninda'o	"	?	caños, hooks, sardine bait	#	#	#	#	#	/	#	?
tojirika'nā	" negra	?	caños, hooks	#	#	#	#	#	/	#	?
u'ru-u'ru	detierra	?	rivers, hooks	#	#	#	#	#	/	#	?
da're	pavon	?	rivers, hooks, sardine bait	#	#	#	#	#	/	#	?
cu'me	"	?	rivers, caños, hooks, sardine bait, from platform	#				#	/	#	?
'yaka'ra	"	?	as above, also arrows	#	#	#	#	#	/	#	2
t'opok'e'ne	" colorado	?	rivers, caños, hooks	#	#	#	#	#	/	#	?
no	caribe blanca	white piranha	rivers, arrows, hooks with especially heavy cord	#				#	/	#	1



Yaruro	Spanish	English	Location and Technique	Season of Prod.				Division of Labor				
				S d-m	F a	W m-s	S o-n	Prod. M F	Food Prep. M F	Q		
pu'ri	lapa	paca	cano, monte, traps, all arrows	#	#	#	#	#		?	?	1?
ya'tutu'mi	iguana	water lizard	rivers, montes, fish arrow	#	#	#	#	#		?	?	1?
iga'ra	cachicama	armadillo	savanas, traps, sticks, hand	#	#	#	#	#		#	/	2-
'ipurime'sa	manto	?	savanas, traps, arrows	#	#	#	#	#		?	?	?
'yaca'n'ta	picure	? (aguti?)	monte, cano, fish arrow	#	#	#	#	#		?	?	?
'iku'ri	tortuga	tortoise	rivers, fishhooks; on Capana- paro, use detachable arrow	##			#	#		?	?	2
poda'me	terecai	terrapi?	rivers, fishhooks " "	##			#	#		?	?	2
goda'me	morrocoy	boxturtle	mata, by hand - doesn't run	#	#	#	#	#		?	?	1
ci'rida'me	galapago	river turtle	rivers, detachable arrow	##			#	##		?	?	2
(hoi) bwe'a	chacharo	peccary	doubtful if hunted on Cinaruco)									
(be'ri	manati	manatee	doubtful if hunted on Cinaruco)									

BIRDS HUNTED:

ha'we	cotua negro	duck species	rivers, cano, arrows	#				#		?	#	1
ha'na	caretero	?	rivers, lakes, arrows	#				#		?	#	1
andu'ra	garça moreno	grey heron	rivers, lakes, arrows	#				#		?	#	1
o'kara	garça blanca	white heron	lakes, arrows	#				#		?	#	1
'huidiga'ra	garça paleta	painted heron?	lakes, arrows	#				#		?	#	1
hue	gava (gaua?)	?	lakes, arrows, bird arrow	#				#		#	?	1-
kwinci'ni	perdiz	partridge?	savana, bird arrow (?)	#				#		#	?	2
hu'tuyu'ru	pavo	curassow	rivers, monte, arrows	#	#	#	#	#		#	?	2?
ta'ra	jivaro (?)	jivaro stork?	lakes, arrows, shotgun	#				#		?	?	?
noraha'te	pato real	duck species	lakes, arrows	##				#		?	?	2?
paba	cotua	duck species	rivers, canos, arrows	##	#	#	#	##		?	?	2?
(poa'na	pato	duck species	doubtfulif hunted on Cinaruco)									

MISCELLANEOUS MATERIALS COLLECTED FOR USE IN PRODUCTION:

ya'ro	capuruna	leaf to wrap & store corn sticks	savana, picking				#?		#		#	1
karam'ba	?	cigar wrapping	savana, picking	#	#	#	#	#?		#	#	1
am'bi	tabaco	tobacco	savana, picking	#	#	#	#	#	#	#	#	1
u'de	curagua, maca-	macanilla	near canos (?) for bows,	#	#	#	#	##		##	##	3
	nilla	palm	for string, fibres for objects	#	#	#	#	#		##	##	1-
ca'ra't'o	salau	canoe wood (?)	montes, for making canoes	#	#	#	#	##		##	##	4

Yaruro	Spanish	English	Location and Techniques	Season of Prod.				Division of Labor				Q
				S	F	W	S	Prod.	Food	Prep.		
				d-m	a	m-s	o-n	M	F	M	F	
citó't'o tu	caña braba moriche	cane for arrows moriche	near caños, for foreshafts near or in caños, used for making house roofs, baskets, cords, fibres, hammocks	#	#	#	#	##		##		4- 5
o	moriche frond	ditto	as above, often picked up from ground, or tree cut and fronds collected, last for years may be reused.									
biri'to-i im'bu e'ke e'ra	guasca cera de abeja miel peramán	bark strips beeswax honey tree wax	montes, caños, for lashing near caños, from large trees as above as above? fpr arrpws	# # # #?	# # # #?	# # # #	# # # #	## # # #		## # # #		3 1 1 2

COOKED DISHES AND THE DIVISION OF LABOR - CONVERSION OF FOODSTUFFS IN VILLAGE

	Spanish	English	Location and Techniques	Food Prep by	
				M	F
cam'pe	arepa	corn cakes	kernels crushed after shell- ing, fried in deep fat or boiled; grater often used	/	###
ui'ta	?	corn purée	crushed corn (after frying raw kernels in deep fat, or simply boiling) mixed with water; grater may be used for mashing	/	###
pwe-u'ni	?	corn powder	dry hard kernels grated on metal grater (men make holes with nails) and then eaten dry	/	###
iu po'no	? ?	corn on cob? corn kernels	boiled dry, relatively hard kernels are shelled from cob, then roasted in deep fat, salted, and eaten	#	##
ca'dε	capuruna	corn sticks	shelled kernels grated into mush, carefully wrapped in capuruna leaves, boiled; stored or eaten directly	/	###
pwe'e'ro	guarapo	corn juice	kernels are mashed to express juice, thick liquid	#	##
tambε	cassave	bitter manioc	manioc flower prepared by cutting, grating, squeezing in tipiti, etc		###
1. tam'be	cassave	m. cakes	flour prepared in flat cakes and roasted		###
2. tam'be-e'ro	guarapo	boiled m. juice	flour juice is boiled to break down prussic acid	/	##
3. tam'be ?	carato	fermented "	flour and juice added to corn juice, ferments ca. 12 hr	##	#
oka'raru - nε	huevos	chicken eggs	usually fried		#

6 Yaruro	Spanish	English	Techniques	Food Prep by	
				M	F
murari'pae	yuca dulce	sweet manioc		/	##
1. ?	?	fried slices	fried in relatively shallow fat		##
2. ?	?	deep fried	fried in deep fat		##
3. ?	?	boiled	boiled whole after peeling (as above)		##
paratana	platanos, topochos, bananas	plantains and bananas	many types often eaten raw; below are considered only those which are cooked	/	#
1. ?	?	boiled	peeled and put in water to boil till soft		##
2. ?	?	fried slices	peeled, sliced, put in deep fat till hard		##
o'bweia	marano	pork	most of the work of killing and preparing is done, as with most meats, by the men; only boiling is usually done by women who own pots	/	##
1. ?	?	boiled	small chunks boiled till almost mushy	##	##
2. ?	?	roasted	put on sticks over fire, facing it	##	##
3. ?	chicharones	cracklins	hide with thick layer of fat fried in its own fat till fat (and hide) are hard; stored for some time		##
4. ?	?	deep fried	meat parts are deep fried till almost crisp	###	##
5. weikap'ak'ito ?	?	blood sausages	blood carefully caught on slaughtering and saved in vessel till coagulated then stuffed into unwashed (?) intestines and cooked		###
cani'a-e'ro	guarapo de cana	cane juice	squeezed out on "chaqui-chaqui", a wooden hand press	#	/

NB Preparation of foods produced only in the dry summer months, such as changuango root and changuanito savanero root were not observed and are not included here. These roots are both boiled by the women. Most meats, unless boiled, are prepared by the men by roasting. Fish, in general are prepared by women. Most fruits and seeds which are not eaten directly upon collecting are cooked by women.

A. Leeds - Footnotes

1. The description here given is a composite of descriptions given by Carneiro, 1959; Conklin, 1957, pp. 49-71; Meggers, 1957, p. 80; Pelzel, 1945, Ch II and photos; as well as the writer's own observations in Brazil (Leeds, 1957, Ch III), and among the Yaruro.
2. Meggers, 1957, p. 80.
3. Lowie, 1940, p. 426, speaking of Canella horticulture points out that the district is "unfit to cope with the arid regions of their country". Cf. also Carneiro, 1950.
4. Ramia, 1959, charts, p. 19 and 21. Ramia's data was also useful in confirming the writer's observations summarized in the description of topography and plant life.
5. Soil tests on samples submitted by the writer made by Hugh Popenoe of the University of Florida College of Agriculture.
6. Cf. Woodbury, 1954, Ch 17.
7. Harris, 1959, p. 193.

8. Popenoe, personal communication. He gives the following data based on four samples from the central Cinaruco area. The samples were not collected by standard techniques, so are subject to considerable error, nevertheless the results are sufficiently suggestive to be of interest:

Description of Sample	Texture	Organic Matter	pH	CaO lbs/A	MgO lbs/A	P <sub>2</sub> O <sub>5</sub> lbs/A	K <sub>2</sub> O lbs/A	NO <sub>3</sub>
1. Sand dune	fine sand	low	4.9	73	10	3	25	low
2. Monte swidden	light fine	low	4.2	36	31	0	47	low
3. Abandoned 2nd-3rd year	sandy loam	high	3.9	36	41	1	152	high
4. Abandoned swidden, 5 yr.	muddy loam, fine sand	high	5.3	1231	576	13	367	high
active swidden								
Florida			higher	400	100-150	10	100-120	

Dr. Popenoe comments "For Florida soils, which are usually fairly sandy, we consider limiting amounts of the various nutrients to be about as given above... All of the pH values would be considered too low for good crop production in Florida but crops under tropical condition appear to tolerate lower pH values than in temperate climates."

9. See footnote 6.
10. The actual acreages presently in use are given in Table I. Of 200 acres only 1/6 could be in cultivation at any one time, or 33 1/3 A., which would support about 67 people. Only about a third of that number, 24, actually use the area now. Correspondingly, one would expect only about one third of the available area for any one year to be cropped or about 11.1 A. The actual figures on the Table add up to 10.09 which is also only an approximation, but the fit is close.
11. Carneiro, 1953.
12. Carneiro, 1957, pp 165-168; Barrau, J. 1958, p. 31, p. 82; Fauterau, 1952, p. 3. Carneiro gives .7, including peccary depredations which are very heavy in Kukuru gardens; Fauterau gives .2; Barrau reports .2-.3 and up.
13. Steward and Faron, 1959, p. 52-54

A. Leeds - Footnotes - 2

14. This discussion is based on the important works by Harris (1958, 1959). The writer has somewhat extended Harris's concept of the harvest surplus by suggesting the various dimensions discussed in the text, although some of these are implicit in the 1959 article.
15. Harris, 1958. The same figures that Harris used in calculating the technological surpluses for the cited groups have been used here: an average of about 150 calories for average labor per person per hour, times the number of hours of food-producing labor, times the number of workers, times 365. I have included in these very rough estimates the time to walk to and from the gardens as being a necessary part of the food-production routine. I have not included an average of about 80 C./hr./person for basal metabolism on the basis that the basal metabolism must be accounted for whether the person is working or not - only the calories above basal are actually to be accounted to the production process. The estimates though rough, are useful for comparative purposes.

As a preliminary estimate, I figure that the 9 men of the village average about 4 hours a day at food-producing work, though I suspect this figure is high. I allowed about 2.5 hours a day for the women, undoubtedly also high as a year-round average. I used an average calorie consumption for work of about 150 (see McLester, 1927, Ch II and III) per hour per person working on food production. Performing the calculation we find the daily calorie output for all food production is about 8000 C. This times 365 days gives 3 million. If we estimate average total calorie consumption per day per capita at 2750 (possibly even a low estimate considering the Yaruro corn-manioc-potatos-yams-sugar cane-pork diet) and multiply by 365 we get total calorie consumption as 24.06 million calories. If we make the further assumption that this latter figure, in the long run, is about equal to the calories produced, we find that the ratio of technological efficiency is minimally 8 to 1. Since our calorie use rates are probably high, and our measure of total calorie production per year probably low, the ratio might be as high as 9:1. If one adds in the 80 calories (probably high) per hour per person of the basal metabolism, the total calories used in production of calories amounts to 5 million, and the ratio of technological efficiency becomes 4.8:1, still about 3 times as great as that of the Sirionó. *The producers use about 18,650,000 C. leaving about 5.5 million C. for non-producers as a producer's surplus, or 22%.*

A. Leeds - Bibliography

- Barrau, J. Subsistence Agriculture in Melanesia. Bishop Museum Bulletin, 219.  
1958 Honolulu, Hawaii.
- Carneiro, R. Subsistence and Social Structure: An Ecological Study of the Kuikuru  
1957 Indians. PhD Thesis, Ann Arbor, University Microfilms.
- Carneiro, R. Slash-and-burn Agriculture: A Closer Look at Its Implications for Set-  
1956 tlement Patterns. Read at the Fifth International Congress of  
Anthropological and Ethnological Sciences, Philadelphia. September.
- Conklin, H.C. Hanunóo Agriculture, a Report on an Integral System of Shifting Cul-  
1957 tivation in the Philippines. Rome, United Nations, Food and Ag-  
ricultural Organization
- Harris, M. A Taxonomy of Significant Food Surpluses. Read at the Annual Meetings  
1958 of the American Anthropological Association, Washington, D.C.  
December
- Harris, M. The Economy Has No Surplus? American Anthropologist, 61, 2, April,  
1959 185-199.
- Leeds, A. Economic Cycles in Brazil, the Persistence of a Total Culture Pattern  
1957 Cacao and Other Cases. PhD Thesis, Ann Arbor, University Micro-  
films.
- Lowie, R.H. An Introduction to Cultural Anthropology. New York, Rinehart, Co.  
1940
- McLester, J.S. Nutrition and Diet in Health and Disease. Philadelphia & London, Saun-  
1927, 1946 ders.
- Megggers, B.J. Environment and Culture in the Amazon Basin: an Appraisal of the The-  
1957 ory of Environmental Determinism, in, Studies in Human Ecology,  
Social Science Monographs III. Washington D.C., Pan American  
Union.
- Pelzer, K.J. Pioneer Settlement in the Asiatic Tropics. New York, American Geogra-  
1945 phic Society, Special Publication, No. 29.
- Popence, Hugh Personal communication.  
1959
- Ramia, M. Las Sabanas de Apure. Caracas, Ministerio de Agricultura y Cria.  
1959
- Steward, J.H. Native Peoples of South America. New Yor, McGraw-Hill.  
& L.C. Faron  
1959
- Woodbury, A.M. Principles of General Ecology. New York, Blakiston.  
1954
- De Fauterau, E. Etudes d'Ecologie Humaine dans l'Aire Amazonienne. Fontsnay-Le Comte  
1952

(Not for Publication) With original  
A. Leeds

RELIGIOUS AND PHILOSOPHICAL BELIEFS OF THE YARURO INDIANS IN RELATION TO SOCIO-ECONOMIC ORGANIZATION

Read at American Anthropological Association Meetings, Washington DC 1958  
Anthony Leeds

The Yaruro Indians have been living in the savanas or llanos of southern Venezuela for an unknown number of centuries. They have developed a socio-economic life well-articulated to the geographical conditions of life. Their religion and philosophical beliefs have come to be closely fitted to the fundamental socio-economic characteristics. It is the purpose of this paper to show the correspondence between the principles of socio-economic organization and the ideology and to isolate some dimensions of ideology for comparative purposes.

The gross geographical characteristics of the alternately desert-like and flood-covered llanos cause all the best economic resources to be concentrated along the west-to-east flowing rivers in ribbons some kilometers wide. Most significant fauna and flora of economic use occur in these ribbons. This ecological distribution of resources governs subsistence activities whether they be mainly hunting, fishing, collecting, or horticulture.

Yaruro subsistence comprises all these activities. Horticulture in the rainy season appears considerably to outweigh all other sources of food together, but in the dry season, hunting, fishing, and collecting perhaps equal or outstrip horticulture. In any case, slash and burn gardening of manioc, corn, plantains, and a number of lesser crops is by far the single most important economic activity. The technology is exceedingly simple in all aspects of production, the main tools being the machete and digging stick. The most elaborate technology occurs in the conversion of food into edibles and in the manufacture of hammocks, pottery, objects of wood such as canoes, and woven containers of all types.

The economic organization displays a sharp division of labor between men's and women's work. Men do all hunting and fishing, make all objects of wood, haul lumber and householding materials, make hammocks, and carry out the heavy labor of gardening. Women do most of the collecting of roots, seeds, and fruits. Since collecting contributes a substantial portion of the food supply in summer, woman's contribution, here, is of considerable communal importance. Women's work, a continuous activity from dawn to dusk, is, first, the conversion of raw foodstuffs into edibles. Second, women make all pottery, mats and baskets, the manioc squeezers, and much of the cord used to make hammocks. Another important contribution of women is their help in harvesting in the gardens. Men sometimes help the women with the cookery.

Men may work alone, in groups of 2 or 3, or in larger groups on rare occasions. No occasion exists for all men to work at a single task since there is no technological need for it. Women's work groups for collecting or householding are of similar size. Work group alignments are often based on choice or accident but in other instances coresidence and kinship are determinants. The household, however, constitutes the only really necessary cooperative group for production. The man is a funnel for produce which the woman converts to make it usable. The need to eat makes woman's work more or less continuous, while the nature of production does not make man's work continuous. As long as there is food in the village, the man may rest, help his wife, or engage in non-food production such as canoe-making, as he chooses.

Objects used by men are men's property and are inherited by the men; objects used by women are women's property and are inherited in the women's line. Immovable property such as gardens and houses are said to be inherited by the decedent's children of both sexes. Male animals, such as bears and dogs, are owned by men, the females by women. Thus the division of property is as sharp as the division of labor, a fact reflected throughout the ideology.

No two producers produce the same quantity or inventory of goods, especially as each has great freedom to concentrate in the productive activities he prefers to the exclusion of others. Yet each producer contributes to household and community in what is felt to be equivalent value since most foods are considered good and of equal worth. Each household producing unit distributes supplies of raw or cooked foods to other households along the lines of coresidence and kinship. In this way, all villagers, as consumers, receive the same total amount of food and no one goes without. Thus all persons and households in the community are equivalent as producers, distributors, and consumers. All are tied together in a loosely formalized network of coordinate reciprocal exchanges and obligations in which scales of value are not necessary, since each person contributes approximately equally of all values. In this situation, accumulation of wealth by individuals is out of the question and management of production or of wealth distribution is unnecessary. Consequently, there are no economic status differentiations and no effective leadership among the Yaruro.

Similarly, no purely social differentiations based on status ranking occur in Yaruro society, except by casual deference to those of age and experience like shamans and village spokesmen, called 'capitans'. The status of women is coordinate with that of men. The complementary and coordinate units, a man and a woman, combine into a series of coordinate but semi-autonomous units, the households. A group of these constitute the Yaruro social unit, the neither endogamous nor exogamous (Murdock's "agamous") village. All these units are tied together by links of bilaterally traced kinship, with coordinate relations on both sides, the ultimate tie being the reciprocal marriage of cross-cousins. Marriage is ideally matrilocal, and occurs most frequently within the village. As a consequence, the most immediate kinship ties in the village are matrilineal, whereas kinship among the men is more diffuse. The villages themselves are tied together by kinship ties, real or imputed, as well as by marriage and visiting, but by no other ties of an all-tribal nature. People who are known to any particular village - to 'us' - are considered part of our village's family, since their kinship ties to our members can be discovered or invented freely. Persons recognized as being of our linguistic and cultural stock will be included under the general term pumé, but may not be considered 'of our family' unless the kinship ties are recognized. Thus there is a Yaruro people, but no Yaruro tribal unit. Even the persons included in 'our family' do not constitute a unit, since there are no cross-village unifying institutions other than real or imputed bilateral kinship ties. Even these vary from village to village, since each village constitutes a separate and independent center of relationships with neighboring villages and consequently has its own unique assortment of outside relationships, based partly on choice. This situation, like so many other aspects of the socio-economic organization is reflected in the cosmology.

According to the Yaruro, the cosmos originally lacked not only humans, but even gods. There existed only three, concentric, rigid, blue, celestial domes; below them, a flat, undifferentiated, vast savana all of sand; and a cold, dark, flat underworld. Beyond these there was, and is, nothing. Thunder, already then, was to be found between the upper celestial domes, while Sun, his wife, Moon, and their children, the stars, were already revolving between the lower two.

Into this cosmos were spontaneously born the primordial gods. The goddess Kumà, the grandmother of us all, who lives in a land to the west, out of the savana created the discrete lands of her fellow gods and of the Yaruro. She created the non-Yaruro peoples, the nivé, first, and the Yaruro, the pumé, last, which is why there are so few - there were few left to create. She ordered Kiberó, the female toad who lives in the dark underworld to give fire, which she belched from her belly. Kumà created the foods which are collected and the modes of preparing them. She instructed the men and the women in their crafts. She ordained the social order. Her husband, Poaná, the snake god, who lives in a land to the south, created the characteristic savana features: the rivers, the woods, the grasses for the animals to eat.

He taught men the technology of horticulture and gave them the seeds of the garden crops. He, with his fellow god, Iciai, who lives in a land to the north and was born a boy given to troublemaking though he later matured, then taught the arts of hunting and fishing. Poana's son, Hachawa, who lives in a land to the east, created only the ceremonial cigarettes. The four godly other-worlds lie beyond the Great Water which surrounds, but is not quite contiguous to, the Yaruro hither world. This geographical break in the cosmos is negligible, however, since the hither-world and the other-worlds become continuous in the thought and action of the Yaruro. The Great Water continues in an endless expanse beyond the four other-worlds, according to one interpretation, while in another, it is said to be enclosed by limitless, unpeopled and empty savanas. The four Yaruro other-worlds are also inhabited by a younger generation of gods all possessing Spanish names. Some interpreters identify these with the primordial gods. Others do not. According to some informants, they live in the same lands as the older gods. Others say they live in different lands. Such variations of religious interpretation occur frequently despite general agreement in all essentials. Individual freedom of choice and interpretation, already noted in connection with economic choice and social interrelationships, is also found in relation to ideology.

The godly other-worlds are generally described as idealized versions of the Yaruro habitat. This is true also of a fifth otherworld, one which is discontinuous geographically, conceptually, and behaviorally with the rest of the Yaruro worlds, though similar in form. This is the land of Dios, the God of Christian Venezuelans, which lies between the two lower celestial domes and existed prior to Kumà.

It is to be noted that Kumà was not responsible for creating her fellow primordial gods. She is not an omnipotent creator but is fundamentally limited to creating other-world and hither-world things familiar to the Yaruro. She exists in an independent but loosely coordinate status with other celestial beings or phenomena like Thunder, Sun, Moon, the stars, the rainbow, and possibly Dios - the prototype for personal status among the Yaruro. Furthermore, despite wide variation in creation myths, the fact stands out, too, that she must share almost equal honors with Poana in the creation of all that is vital to the Yaruro in the hither-world in a creation division of labor closely paralleling the division of labor found in the actual economy. Further, Kumà and Poana, by the link of marriage, provide a prototype for the essential productive and distributional unit, the household. Hachawa, their son according to some informants, and Iciai, Poana's sister's son, both boys at the time of the creation, contribute little and are as much nuisance as help until they have matured, an apt reflection of the position of children in Yaruro economy. Today Poana and Kumà seem preeminent in status among the gods, but at the same time are definitely merely primi inter pares, occupying the position of more experienced elders within the community of the gods, each of whom acts autonomously according to his own dictates.

The community of the gods is again prototypic for Yaruro hither-world life. Each god and his land constitutes a sort of village community populated by the god or gods, by dead pumé, by dead animals, and by the regular other-worldly animals population, especially jaguars in human form and dress. The human-like inhabitants of the other-world eat, drink, dance, have sex relations, and visit from god's land to god's land. They enter into the web of kinship which ties the gods to each other, to the dead Yaruro, and to the live pumé of the hither-world in complex, if varying, genealogical connections. Even the great jaguar god, Tio, whose balliwick is the first celestial dome and whose main task, under the general direction of Kuma, is to cure, is considered distantly related and of the family of Poana. A number of animal species are similarly distantly related, but like those Yaruro who cannot be fitted into the kinship system, are merely connected to us nominally. The gods, the dead, and the live pumé equally observe kinship obligations. Thus kinship and visits among the autonomous lands of the gods are the chief ties holding the four other-worlds together, a prototype for Yaruro village and social structure.

However, in relationship to the living, Kumà is 'our chief'. More than any other god, she is turned to for advice, for ethical reaffirmations, and for fulfillment of needs. It is first to Kumà's bright and golden land that the pumé go at death, during unconsciousness, in dreams, and during the religious ceremonies, the tANhés. The other lands are visited later and are less important in the other-worldly journeys made by the living. The dead of Kumà's land are the first to be called upon by the shaman when, during the tANhé, he arrives in the other-worlds. He asks them, as well as Kumà and the other gods, to return to earth and guide the community. In this manner, Kumà is a center of gravity of the Yaruro ideological life. She is the center of a communications network which ties the Yaruro of the hither-world, those of the other-worlds, and the gods all in one continuous system of personal and social relations. This is somewhat the position of the spokesman or 'capitan' in the community life of the Yaruro, though he has proportionally much less influence in his village than Kumà has in her universe.

In sum, the gods and the dead are conceptualized as continuous with those of us on earth. Conceptually they appear to constitute the two highest steps in the age levels: infant, child, young adult, elder, the dead, and the gods. The last four classes are increasingly instrumental in teaching the ethics of living in tranquility, of respect and deference to one's spouse and to all members of one's people, and in teaching the values of the community. They exhort but never compel the community to follow these ideals. These precepts are followed not only among the egalitarian gods in their autonomous other-world communities, but in the personal and social relations between the gods and the hither-world pumé. The relations between men and gods, the communication between the hither-and other-worlds, the cosmography itself, all show quite clearly that there is no separation of "natural" and "supernatural" as discrete classes of events. The cosmos, society, and man are a single system in Yaruro thought.

The nexus through which the flow of life in the other-world and the ongoing rhythm of daily life in the hither-world are meshed into a single system is the religious ceremony, the tANhé. Some description of the tANhé will afford us further insight into Yaruro ideology.

During the night-long tANhé, the entire community sits behind the shaman, ranged roughly by age levels. The women sit to his right, the men to his left. At dusk he begins to sing as he starts his journey to the land of Kumà through the dark, cold land of Kibero, the Toad who gave man fire. In hundreds of improvised verses and melodies, he describes his journey, and then, after his arrival about midnight, his adventures in the lands of Kuma and subsequently of the other gods. In each verse, the shaman sings an intonation which the entire community repeats in an identical antiphon. Thus the full experience of the shaman is transmitted to and shared by every member of the community. All is public; there is no secret knowledge. The shaman urges his people to sing with him and the other-worldly beings, to share in the responsibilities and joys of the community in supporting their individual members whether the shaman in his journey or the sick person for whom the tANhé may be being held. At the same time, in Kumà's land, he urges the other-worldly beings to come to advise his people and teach them. Later, the verses are no longer sung by the shaman, but rather by the dead and the gods who arrive in the husk of the shaman which he has left behind as a channel of communications for the other-worldly beings while his divisible self travels abroad. As these beings arrive in the shaman's husk, all members of the community may greet them by putting their arms around them or giving them cigarettes or drink. This is done separately by women, sometimes in groups, and by men. Throughout the ceremony the chief link between the sexually divided community is the shaman or the gods in the shaman's husk upon whom both sexes are focusing their attention. The shaman's position as link is emphasized by the fact that his wife invariably sits next to him during the tANhé to minister to him and to supply him cigarettes and drink. Thus, the socio-economic link of the household is also the unique link between the sexes in ceremonial life.

The various forms of socio-economic and ceremonial division of the sexes is even more remarkably underscored by the existence of female shamanism. As one might expect, shamanesses behave differently from shamans. Shamanesses sing only in the day-time. They, like Kumà, sing from hammocks whereas men sing sitting on the ground or dancing. Furthermore, messages transmitted to them from Kumà are sent only to them, though the men hear and understand them. The men listen to these messages with care and respect and with the air that there are things to be learned from them which they would otherwise not hear. The shamanesses cannot receive male gods or their messages. Female shamanism seems to be an affirmation of the kin-bonds of the matri-centered local group as well as a means of asserting the values and rights pertaining to the women's world. The women's experience ideologically, as well as socially and biologically, is recognized as being systematically distinct from men's experience in life.

Behavior in the tANhé is very relaxed. Villagers laugh, joke, sleep, play, get up, walk about. Sometimes persons may even fail to attend if they have chosen to go to work the next day. The only thing explicitly forbidden, because Kumà would consider it most indelicate, is sexual intercourse. Otherwise, the lack of formalism and freedom of individual behavior so often noted before is again found here.

The importance of the tANhé as the foremost way of reinforcing social relations and communal values as well as for curing is seen in several ways. First, when there has been no tANhé for several days, one begins to feel and hear a truiting for another tANhé. It is felt that much time has elapsed since the last tANhé. Some one asks what's wrong that we haven't had a tANhé in so long. Another says we need a tANhé. Rumors of tANhé begin to be heard. By the fifth or sixth day another tANhé is held and community bonds are again reasserted. Again, the sexual division of labor and social life observed in the other- and hither-worlds is systematically carried through into religious observances. We have mentioned the seating of men separate from women and the separate greetings given to the gods. This theme is carried still further in the exclusive women's shamanism and the equally exclusive capacity of men to do curing, either as shamans or as purely private individuals.

The tANhé illuminates much about Yaruro ideology. First, shamans both male and female are not considered authorities possessed of special gifts and prerogatives who interpret lore for the entire community. Rather they are considered merely the community religious spokesmen for the public expression of community values and for curing, who, by their own choice, enjoy and are willing to undertake the long, arduous work of training and practice. They reaffirm community bonds by repeating in endless verses the precepts and knowledge contained in the Yaruro ideology. All knowledge and all experience is, at least potentially, open to all members of the community and even the private or personal experience of each is made known to all. Any member of the community may do the shaman's work if he chooses, just as any can travel to the other-world or commune with the gods, although, because of age, temperament, or individual taste, not every one does so. There were, in fact, two shamans among the nine men of the writer's village, as well as a number of men who cured and who occasionally sang verse intonations in the tANhé although they were not shamans. The shamans are no more than respected community members outside the ceremony. Here again we observe the egalitarianism and individual self-determinism which is so much a pattern of this culture.

The tANhé also clearly shows the relationships which prevail between men and gods. The shamans and the other adults of the village converse with the gods in great mutual respect. They do not manipulate them nor minister to them, nor implore them. Before the gods, they are in a position corresponding to active and adept junior members of the village before their elders and especially their lineal ascendants. Furthermore, in a very real sense, no individual person, qua person, deals with the gods. The community, with its religious catalyst, the shaman, is

the unit of action. The only individual relations with the gods occur in dreams, unconsciousness, and death. Dreams about gods are made public by singing aloud in sleep, the experience of unconsciousness is recounted publicly, and death, too, becomes public because the dead man is accessible through the tANhé.

The directness of contact between men and gods again emphasizes the unity of cosmos, society, and man. Within this unity, the sharp division of a male sphere from a female sphere is found. These quite coordinate spheres, in the other-worlds as in the hither-world, in religion as in socio-economic life, are linked through the household.

In conclusion, I would like briefly to review the major dimensions of Yaruro ideology. We may state these as a set of propositions. It is hoped that they may be useful for comparative purposes in the discussion to follow.

1. The cosmos is static, limited, concrete, and internally continuous in that no barriers separate man and his society in the physical world from the non-physical world. The parts of the universe together form a rather rigid, symmetrical, architectonic structure. All parts are of roughly coordinate importance. The major motions of nature, such as thunder and lightning, the revolutions of sun and moon, are often embodied, personalized, and independently operating entities, moved by semi-human motivations.
2. Goodness inheres generally in the cosmos as a system. The goodness manifests itself in understood causes and in concretely and descriptably known parts of the cosmos which, whether places, persons, or things, are given exact locations. Conversely all known and localizable objects, persons, or places and understood causes are generally considered good.
3. Evil, which is not polar to good, finds its locus in specific persons, things, or events inside or outside the cosmos, and is manifest in specific results. The underlying causes of evil, however, are inaccessible to the senses or to understanding. For example, all cosmic or extra-cosmic personnel whose locations are variable, vague, or unknown, are capable of doing evil. Being neither known nor localizable, they are not part of the unified kin and cosmic structure in which gods, the dead, and men and their respective lands are tied together. They exist outside society, hence only loosely attached to, or even outside of, the cosmos. Goodness in the cosmos is maintained and evil effects reduced by the help of the gods through guidance, teaching, and curing.
4. In the good cosmos, the good society consists of kin-related gods, the dead, communities and individuals of largely coordinate and reciprocal statuses living in tranquility and sharing all things. Gods, community, and individuals are all actors knowing the general principles of the cosmic society. Such principles include kinship, hospitality, equivalent rights and privileges for all.
5. In the good society, action is guided by precept, suggestion, and by sensibility to the wants of others and of self, but compulsion and hostility are not permissible.
6. In the good society, precepts and principles are general rather than specific and prescriptive. The result is that patterns of behavior and thought in Yaruro society are quite unformalized, unritualized, and unspecified. All classes of behavior show a great range of variability and flexibility. The individual can choose to fulfill his obligations to the community, and the community to the cosmos in various ways.
7. The individual not only has a broad range of choice of actions but is not com

pelled by the nature of the cosmos nor by the personnel in it to follow any particular path. He has free will with regard to the ordained order of things. Each man is, in theory as in fact, to a remarkable degree self-determining in actions and thought. Except in extreme divergences, he need not account to anyone.

Several dimensions which appear as dualistic distinctions in western thought are conceptually single in Yaruro ideology. The self, as the experiences in shamanism, dreams, unconsciousness, and immediately after death show, is conceived as being undifferentiated and unitary, though divisible into like, but unequally active parts. No mind-body distinction is made. Again, in a static and limited universe within which, however, all parts, visible and invisible, sensible or not directly sensible, are in a flux of interaction, all things are equally real. The distinction 'real-unreal' is lacking among the Yaruro. Further, in this same universe, those parts which we might designate 'immaterial' are, to the Yaruro, quite as concrete and sensed as the so-called 'material' objects and events. The western distinction between 'material' and 'immaterial' is not a meaningful one to the Yaruro. Finally, the unity and continuity of what westerners would call 'natural' and 'supernatural' has been discussed above. Such a distinction is not made by the Yaruro.