

AN ABSTRACT OF THE THESIS OF

Evan G. Schneider for the degree of Master of Arts
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1948 - 1980

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John A. Young

This thesis is an effort to formalize and document some of the changes occurring in the Warwar Valley of Gongola State, Nigeria, West Africa. The documentation will comprise a photographic study over time accompanied by an ethnographic narrative. Information gathered from photographic images, field notes and the anthropological record will then be applied to a cultural-ecological model based on the theory of Julian Steward.

The Mambilla people inhabiting the Warwar Valley are changing their traditional agricultural land use patterns and value system due to the influx of new ideas, notably the introduction of a cash economy. This cultural change has affected environmental change, observable in soil erosion.

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THE CHANGING CULTURAL ECOLOGY
OF THE WARWAR VALLEY -- 1948 - 1980

by

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This thesis is dedicated to Tom Hogg.
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were invaluable.

I would like to thank Gilbert Schneider for sharing his time, knowledge, and materials -- John Young for his guidance at all hours -- Bill Honey for his excellent advice -- Harrison Branch, Kay Fernald, and Jim Folts for photographic direction -- and Sheri for love and understanding throughout.

This study does not claim to document all aspects of change affecting the culture and environment but rather to address some of the major changes that have been recorded between the years 1948 - 1980.

Note:

Mambila ~ **Mambilla** are variant forms -- both spellings appear in published form. **Mambilla** is preferred by the inhabitants of the Warwar Valley.

Cameroon ~ **Cameroun** are also variant forms -- they represent English and French spelling traditions.

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THE CHANGING CULTURAL ECOLOGY
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INTRODUCTION

This thesis is an effort to formalize and document some of the changes occurring in the Warwar Valley of Gongola State, Nigeria, West Africa. The documentation will comprise a photographic study over time, accompanied by an ethnographic narrative. It does not claim to document all aspects of the cultural or environmental systems studied but rather to address some of the major changes that have occurred during the years 1948 - 1980.

The human inhabitants of the valley, as well as their environment have experienced major changes over this period. Documenting these changes was the initial motivation behind this thesis. However, in studying the information I became aware that the relationship between the inhabitants of the valley and their environment was also changing. Changes in world view seemed to affect environmental changes and vice versa. I began searching for a method and theory to explain this interdependent relationship between culture and environment.

The concept of culture is uniquely human and exists in time and space in a state of constant change. Changes

can be gradual in cases where the culture is isolated, or rapid if the culture is confronted with new ideas and technologies from other cultures. In the geographically isolated Warwar Valley, rapid change has occurred, due to contact with the outside world.

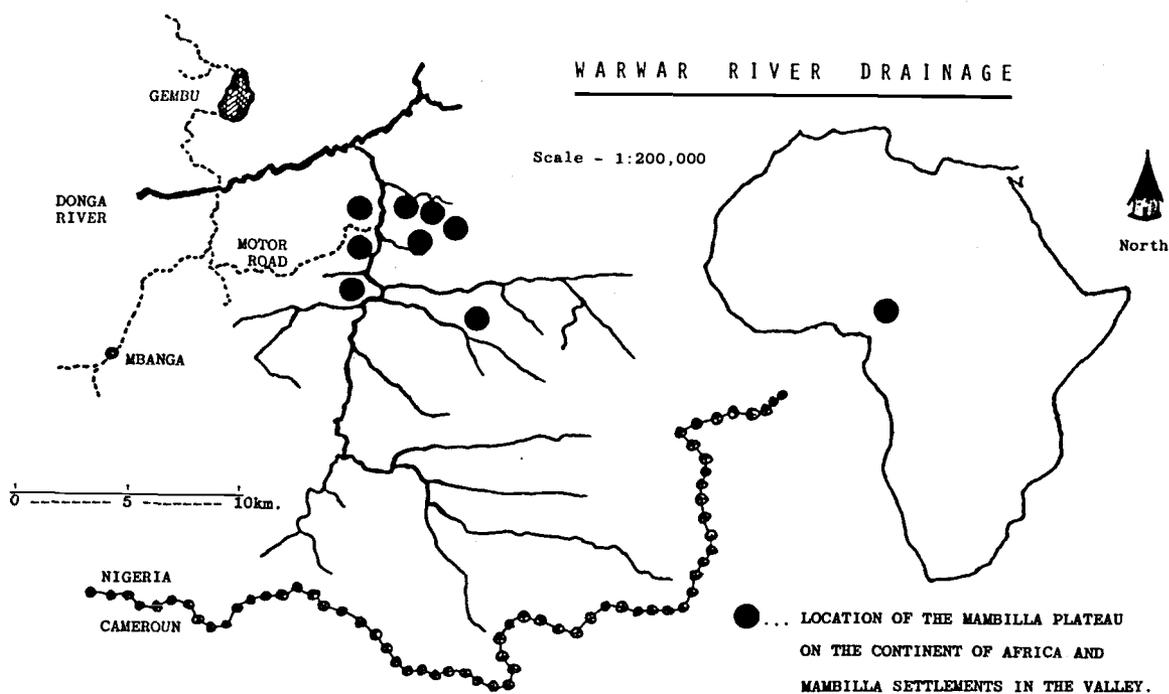


Fig. 1. WarWar River Drainage.

Method and Theory

In exploring the complex relationships between the cultural and environmental systems, several established definitions and a theoretical model will provide a foundation. Information gathered from photographic images, anthropological records, and field notes will then be applied to this framework.

The method of analysis takes account of changes through time. A scholar of culture change in Africa, Melville Herskovits, emphasizes the value of studying cultures over time and in their historical context.

"Studies in comparative sociology have often been concerned with the analysis of data lying on a single time plate. In the theoretical and conceptual scheme underlying cultural research, however, the historical dimension of culture is held to be equally indispensable for an adequate understanding of human behavior. (Herskovits 1958:7)

He goes on to offer the term "ethnohistory" to describe the method of adding time-depth and assessing the processes of cultural stability and change. (Bascom, Herskovits 1959) Herskovits emphasizes that the study of cultural change is most effective when a base line is established, after which the course and extent of change can be plotted. (Herskovits 1958)

The cultural base line in this thesis will be established utilizing the photographic images, anthropological record, and field notes recorded by Gilbert D.

Schneider during 1947-1951. This base line information will then be compared with photographic images and observations made by the author during April 1980. Attempts to delineate changes to the cultural system over this thirty-year time frame will then be made, noting interaction with the environmental system.

The theoretical orientation will be made using a systems approach and a cultural ecological model. The classic definition of a system involves a set of components or objects with relationships between the objects and also among the set of objects and their attributes or properties. (Hall, Fagen in Buckley 1968)

Cultural and environmental systems comprise sets of objects and attributes existing in a state of dynamic reciprocity. A change to any of the attributes or properties of the system will affect the system as a whole. Reciprocally, a change in the system will affect its individual objects or components.

This thesis will document changes to the cultural and environmental system and use a theoretical model to illuminate the relationship that exists between the two systems.

The cultural ecological model is based on cultural evolutionary theory. This school of thought traces its start back to 1859 when Charles Darwin published The Origin of Species, a book which triggered anthropological

theories about cultural evolution and provided evidence for Darwin's theories of biological evolution.

Two twentieth-century American anthropologists, Julian Steward and Leslie White, are credited with refining the evolutionary theory of culture change and giving its application credence. Both Steward and White, however, developed their own separate terminology to describe their concepts.

White saw culture as being comprised of three dimensions: technological, social, and ideological. The technological component, he felt, was the key and determined the nature of the other two. White also believed that the relationship between technology and the other dimensions of culture determined the nature of the culture itself. The original concept has been further developed and is called "cultural materialism" by the followers of White who emphasize technology as the root cause of cultural change.

Julian Steward agreed with White's evolutionary view and the major role played by technology, but he went on to emphasize the role of environment. Steward introduced the term "cultural ecology" to describe the interaction between the cultural and environmental systems through time. He was careful to distance the theory of "cultural ecology" from that of "environmental determinism" which proposed that the environment best determines what type of culture exists in any given area.

Marvin Harris writing on the history of anthropological theory sums up the White-Steward relationship in the following paragraph:

"The attempt to reconcile Steward and White does not require further elaborations of typology of evolutionism. The central question is to what extent the strategy employed by Steward corresponds to the cultural-materialist formulation which underlies White's evolutionary and energetistic pronouncements. It can be shown that Steward has led his contemporaries in actually applying cultural-materialist principles to the solution of concrete questions concerning cultural differences and similarities. Unlike White, Steward has sought to identify the material condition of sociocultural life in terms of the articulation between production processes and habitat." (Harris 1969:654)

Steward's theory of cultural ecology has gained acceptance as a useful method of studying cultural-environmental change. Models based on his theories have provided useful frameworks with multidisciplinary applications. In a broad context these concepts can combine the sciences with the social sciences, enhancing the effectiveness of the study. An ethnography, for example, that includes information on soils, climate, hydrology, botany, medicine, etc. and relates them through time to the cultural system's behavior will greatly add to the depth and value of the study.

One direct approach to the use of Steward's model is in the area of social impact assessment reports. C.P. Wolf gives the following example:

"For example, although cultural ecology has been 'talked about' since the pioneering work of Steward

(1955) and others, until placed in an operational context [e.g. Honey and Hogg 1978] this amounts only to 'talking past' those officials and agencies whose responsibility it is to decide and act in pragmatic cultural impact situations." (Dickens, Hill 1978:179)

The 1975 environmental quality assessment report by William Honey entitled, The Willamette River Greenway: Cultural and Environmental Interplay also includes Steward's model. Honey and Thomas Hogg continued their use of the model in a 1976 social effects assessment of the proposed Days Creek Dam in Douglas County, Oregon entitled, Dam the River: the proposed Days Creek Dam and the Human Ecology of the South Umpqua River Basin, Oregon. They selected the model in part for its simple straight-forward nature, and found it useful in explaining the concept of their study to a wide variety of people. A civil engineer, for example, who plans to disrupt the environment in an area with the construction of a dam, should explore a variety of project ramifications attached to different possible conditions. Researching both positive and negative effects in the cultural and environmental systems of the impact area is essential. If the inhabitants of the area have strong views opposing the project, their concerns must be considered.

Marvin Harris also addresses the need for broadening the scope of anthropological research.

- "Cultural ecology...links...conditions of 'nature' and strengthens the association between social science and the 'harder' disciplines. ... It promotes research involving cooperation with the general sciences, biology, nutrition, demography, and agronomy, all of which enjoy high levels of

economic support. ...the ecological approach establishes a similar set of ties between archaeology and numerous specialties within geology and paleontology. The contemporary premium upon scientism thus makes the expansion of cultural ecological research almost inevitable." (Harris 1968:655)

Another anthropologist who has found Steward's model useful is Robert Netting. His research on the Kofyar hill farmers of Jos plateau, Nigeria details their system of intensive agriculture using a cultural-ecological model. He states his preference for this method as follows:

"To characterize the nature of this investigation I prefer the term 'cultural ecology.' This neither denies the validity of a unified science of ecology nor asserts the notion of an autonomous science of culture (cf. Vayda and Rappaport, 1968) Rather, it calls attention to (1) the unit of study as a culturally defined population of human beings; (2) the focus on cultural rather than physical adaptation, and (3) the direct debt in theory and method to Julian Steward who thus named the approach. I shall be concerned with standardized or institutionalized modes of socially transmitted behavior that are interdependent with features of the environment. (Netting 1968:11)

The Kofyar have sustained themselves employing intensive agriculture* using both terracing and ridging cultivation techniques, depending on the soil and crop types. Intensive agriculture depletes the soil, however, and the Kofyar use ash, annual applications of compost and animal dung as well as mixed cropping to help maintain soil fertility.

* "Intensive agriculture is a system by which soil fertility is continuously maintained or restored, allowing successive food crops to be produced with little or no intervening fallow period." (Netting 1968:55)

These same problems face the Mambilla but different solutions to the problem are employed. The comparison illustrates that indeed culture and environment are interdependent but that the latter does not 'determine' the former.

Andrew Vayda also uses an ecological model while addressing the expansion and warfare techniques used by swidden agriculturalists, detailing how the show or use of force, can facilitate acquisition of land. In the book that he edits, called Environment and Cultural Behavior - Ecological Studies in Cultural Anthropology, he divides the contributions of twenty-three authors into two categories of ecological studies.

"Interactions between living organisms and their environments are the subject matter of ecological studies. In the case of man, much of the behavior involved in interactions with the environment is learned behavior that has become part of the repertoire of particular human groups. It is in other words, cultural behavior.

Two main ways of relating cultural behavior to environmental phenomena may conveniently be distinguished: either showing that items of cultural behavior function as part of systems that also include environment phenomena or else showing that the environmental phenomena are responsible in some manner for the origin or development of the cultural behavior under investigation." (Vayda 1969:xi)

In this document I have combined Vayda's two main ways of relating cultural behavior and environmental phenomena in a circular model. Half of the circle considers the cultural system's effect on the environmental system and the remaining half reflects the environmental system's relationships with the cultural system. The model is based on

Steward's theory and used in the social impact assessment reports of Honey and Hogg (1975, 1976). I have further revised the model in a circular format to illustrate the interaction between the systems through time. (See Fig. 2)

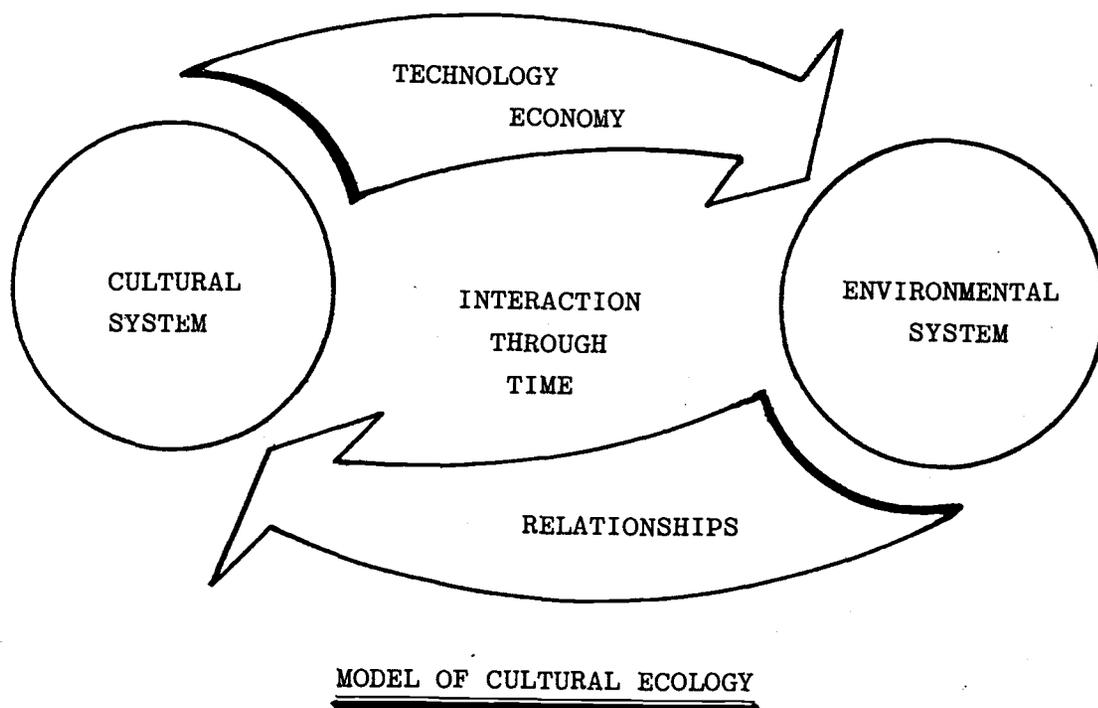


Fig. 2. Model of Cultural Ecology.

The model systems are then contained in a reciprocal context of action and interaction. This theory is also mentioned by John Bennett. He summarizes:

"The burden of these remarks is simply that man's use of nature is inextricably intertwined with man's use of man, and that remedies for destructive use of the environment must be found within the social system itself." (Bennett 1976:311)

Bennett's thoughts are cause for reflection. They remind human beings that our environment is an encapsulated, finite system, graphically illustrated by the image taken of the earth from outer space. Interdependence and harmony between the cultural and environmental systems is then a prerequisite for survival. Cultures will eventually be confronted by the ramifications of their technologies, whether constructive or destructiv to their environmental systems.

The cultural ecological model then comprises a framework illustrating dynamic reciprocity between the cultural-environmental systems. Whether the cultural system's technology acts in an exploitive manner (conflicting with the environment) or in a productive manner (in harmony with the the environment) depends on both the application of technologies and the flexibility of the environment.

• One clear example illustrating this complex inter-relationship can be observed in the Warwar Valley. In 1980 intensive agricultural activity traditionally confined to the floodplain of the Warwar River was spreading to the surrounding hillsides. The floodplain is a more flexible environment for sustaining intensive agriculture because annual flooding rejuvenates the soil with nutrients of rich top soil from the hillside. This environment produces rich farmland that can be cropped annually. The adjacent hillsides, however, constitute a more rigid environment. When intensive agriculture is practiced here, the result is soil erosion.

The demand for more arable land to satisfy the growing demand for cash crops (including foodstuffs) therefore, will affect the carrying capacity of the environment. The cultural activity of the Mambilla will in time affect the environment through soil erosion on the hillsides which will limit crop production.

The cause of these environmental changes are rooted in the Mambilla culture. Traditionally the Mambilla placed strong emphasis on co-existing in harmony with the environment. Their world-view centered on long term goals to preserve the land, farming only for subsistence, and maintaining close contact with the ancestors who were spiritually intertwined with the environment. Annual harvest celebrations and many other ritual activities reenforced and renewed ties with the ancestors as well as establishing harmony among the Mambilla.

In 1980 a western world-view and new religions shifted current Mambilla beliefs away from the ancestors and the long term goal of preserving their land. Instead they substituted short term goals with priorities geared to the present. One main contributing factor was the shift to a cash economy. The desire for ready cash, through the market sales, has increased the amount of land under the hoe and is responsible for the soil erosion.

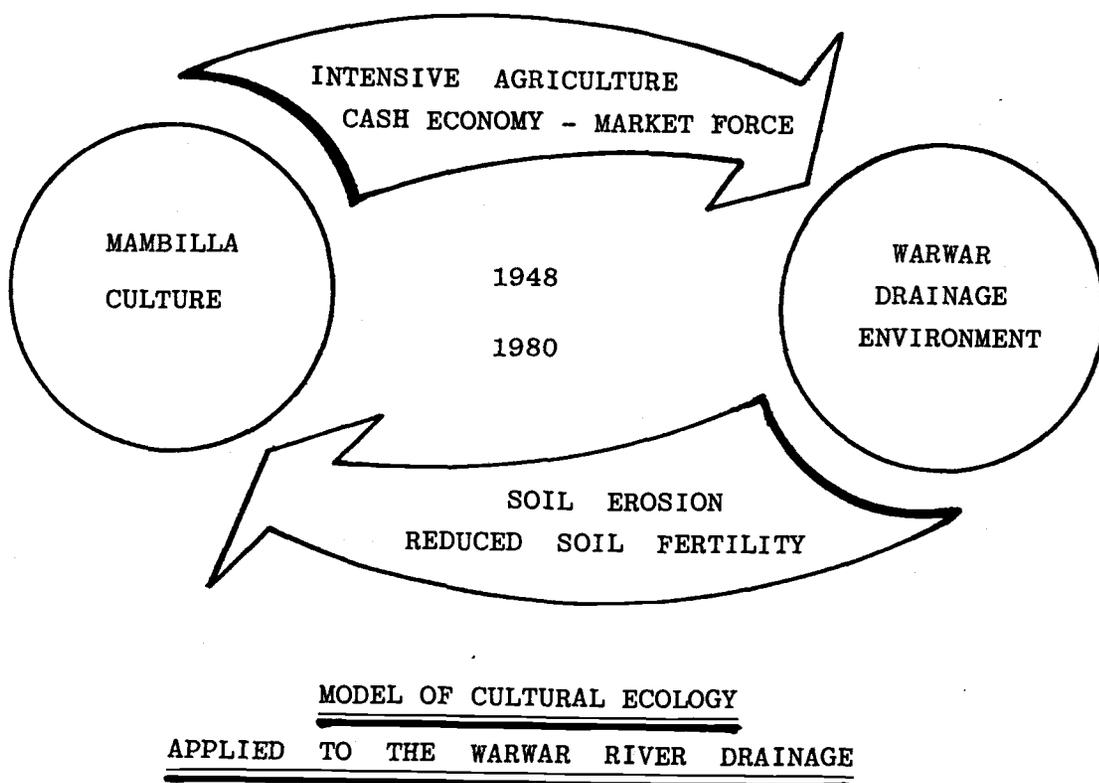


Fig. 3. Model of Cultural Ecology Applied to the WarWar River Drainage.

In studying the photographic images of the Warwar Valley I became aware of the rapid change taking place in the Mambilla culture. The environment of the Mambilla had also changed over the period of the study.

The environment and the culture of the Warwar Valley will be described first and then analyzed in terms of the cultural ecology model. (See Fig. 3)

Environmental Systems

Leslie White offers the following definition of a cultural environment in The Evolution of Culture,

"Every cultural system exists and functions in a natural habitat, a collection of flora, fauna, topography, altitude, meteorological conditions and forces, and so on. And every culture is of course affected by these environmental factors. But the relationship between culture and environment is not a one on one correlation by any means. Environment does not "determine" culture in the sense that "given the environment, we can predict the culture." Environments vary, and their influence and effect upon culture vary likewise. Some habitats are suitable for agriculture, a pastoral economy, or fishing, manufacturing, etc; others are not; they may even render certain types of cultural adjustment to nature impossible. (White 1959:50-51)

The environmental boundaries of this study can simply be defined as the drainage system of the Warwar River. The area covers approximately 225 square kilometers of the Mambilla plateau located 6° 0' - 6° 40' North latitude and 11° 15' - 11° 25' East longitude, in Gongola State, Nigeria and adjacent to the Cameroun. The valley has a mean elevation of 1400 meters and extremes range from 1000 to 1800 meters.

The higher elevations of the Warwar River drainage area form a boundary of summits and scarps surrounding the western, southern and eastern reaches of the valley. These high elevations are grasslands settled by the Fulani people and used as pasture for their cattle and horses.

The valley's lower elevations are more densely pop-

ulated by the Mambilla farmers. Volcanic soils of the valley are considered good for farming (Hurault 1979) and the Mambilla agrarian tradition has maintained them.

The Mambilla farm the entire area of the floodplain. Raised bed farms produce annual harvests of maize and guinea corn. This was true of the years 1948 and 1980 as well as an earlier note by Fredrich Migeod in 1923. While passing through the Warwar Valley he wrote,

"We passed along the edge of a valley which was a thousand feet down to our right, with the bottom all carefully cultivated and not an inch of waste space." (Migeod 1925:156)

The Mambilla also farm the hills, utilizing a variety of techniques which allow the soils to regain nutrients. Agriculture depletes the soil's fertility and the Mambilla are well aware of this relationship between crops and soil. They employ a system of mixed cropping, fallow periods, crop rotation and the use of a specialized shrub to help the soil regain its fertility. The leguminous shrub *Tephrosia vogelli* (hoary pea) is called "yum" by the Mambilla and fixes nitrogen in the soil. It grows to a height of two to three meters and is additionally used as firewood and building material. Migeod made these comments about the Warwar Valley in 1923:

"In more than one place I saw plantations of a worthless leguminous shrub or woody herb. It grows to six feet with two-inch lance-shaped leaflets and six-inch beans. I was told this is planted to fertilize the land for a subsequent corn crop, being cut down and dug in, which is a form of agriculture I had not met before." (Migeod 1925:157)

Cultural Systems

The uniqueness of human beings in the animal world is manifested through the concept of culture. "By culture we mean an extrasomatic, temporal continuum of things and events dependent upon symboling." (White 1959) Symbols such as language, clothing, architecture, tools, customs, rituals, art, politics, etc. combine to form a cultural system by virtue of the degree to which they are similar. Peoples sharing a similar or the same set of cultural symbols in the areas of ideology (language), sociology, and technology (economy) are then thought to share the same culture. (cf. White 1959).

Cultural systems are also dynamic and exist in the dimensions of time and space, allowing for change. They are by their nature, however, complex and difficult to define precisely. (Beals 1967)

Two cultural systems will be considered in this thesis -- the Fulani and the Mambilla. Both live within the drainage of the Warwar River.

The Fulani are pastoralists with cattle and horses forming the core of their culture. They invaded the Mambilla plateau during the first half of the 19th century dominating and exploiting the Mambilla for food and slaves. (cf. Murdock 1959:418) Since then, German and British colonial administrations and the Nigerian Government have replaced the Fulani

rulers. A symbiotic relationship has developed between the Fulani and the Mambilla, exchanging milk, butter and meat for crops or cash.

The Mambilla culture is based on agriculture. Men, women and children work the lower elevations of the valley and it is their culture that will comprise the primary focus of this thesis.

The cultural stratigraphy of the valley is then comprised of the Fulani pastoralists above 1600 meters elevation, Mambilla farms and compounds on the rolling hills at 1600-1200 meters, and below 1200 meters the Warwar River and its floodplain.

Historical Considerations

The history of the Warwar Valley before the nineteenth century is not well documented. Jean Hurault's research on the Mambilla plateau, however, suggests that the area was densely populated before 1800. Using satellite imagery and field research he estimated population of sedentary cultivators, above 1500 meters, as high as 80-100 persons per square kilometer. He suggests that many of the well-worn terraced slopes that can be seen in the Warwar Valley in 1980 are in fact ancient building sites. He goes on to suggest that these populations suffered a demographic crisis as a result of the Fulani pastoralist invasion sometime after 1800. (Hurault 1979)

The Fulani saw the grasslands of the Adamawa Highlands as a potential grazing ground as well as a field of Muslim missionary and reformist endeavor. (Stenning 1959) Their arrival on horseback had a definite effect on the indigenous populations but documenting who moved where and when becomes more difficult.

Farnham Rehfisch's ethnography of the Mambilla done in 1954, documents life in the Warwar area. His informants suggest that the Mambilla may have moved into the valley about the end of the eighteenth-century to escape Fulani slave raiders and came from an area that is now called the Mbo Plain, Cameroun. He also quoted Percival who dates the raids later in the century:

"...as to the Fulani invasions, it seems likely, not only on general impressions, but also from Mambila (sic) genealogies and from the names of Fulani Chiefs involved, that the raids did not begin until 1875 or later..." (Percival 1939 unpublished)

Complicating this inquiry is the fact that the Mambilla seem to have no origin myths and nothing in their oral history details life before moving to the Warwar Valley. (Rehfisch 1955) Rehfisch's informants differed in opinion as well -- some said the inhabitants of the valley were never conquered by the Fulani. Instead the Fulani demanded tribute including maize, guinea corn, and perhaps slaves which were sent to Banyo, the Fulani headquarters nearest Warwar. Others believed their chief had voluntarily gone

to Banyo and agreed to send maize and slaves in exchange for peace.

This early period of Warwar history invites investigation. According to Hurault's work, perhaps the earlier inhabitants of the valley -- before 1800 -- were driven out by the Fulani and later replaced by the Mambilla. In any event, despite the sketchy history of the area, it is safe to assume that the Fulani and the Mambilla were not on good terms but did learn to co-exist.

In 1884 at the Berlin Conference, Germany claimed the territory known as Kamerun which included the Mambilla Plateau. It was not until 1901, however, that the Emir of Banyo surrendered to German troops. During the following thirteen years the Germans cleared paths and built rest houses in the Warwar area to recruit labor for building roads and military farms around Banyo. (Percival-Rehfish 1955)

The Germans are remembered in the Warwar Valley as cruel, hard taskmasters forcing the Mambilla to carry heavy loads and shooting them if they resisted. (Rehfish 1955)

F.W.H. Migeod, who passed through the valley in 1923 reports:

"The Germans are reputed to have killed two thousand of these people before they could do anything with them." (Migeod 1925:158)

The next event that affected the Mambilla was World War I. British and French troops mounted a military campaign against the Germans in Kamerun from 1914-1916 and one of the last battles of this front took place in and around Banyo.

With the fall of Banyo and later the treaty of Versailles in 1919 the Germans gave up their ties with Kamerun and the territory was divided into British and French territories administered by League of Nations mandates until 1946 when the United Nations turned them into trusteeships.

The British knew little about the area around Warwar until 1926 when Captain Izard conducted a census and prepared an intelligence report. (Refisch 1955) There were no motorable roads in the area, so for the next twenty years the British Colonial Office sent a touring officer from Yola to double check the local administration.

Few westerners had visited the Warwar Valley over the years, but the arrival of the Cameroon Baptist missionaries was to set the stage for the first permanent western occupants in the valley. Paul Gebauer surveyed the valley as a possible mission site and made several visits there from 1937 to 1937. Later in 1947 Gilbert and Mildred Schneider moved into quarters planned and built by George Dunger and Earl Ahrens and began building a permanent settlement. The Schneiders stayed for four years. The station later was staffed by American and Canadian Baptists until 1979 when the responsibilities of the medical facilities were handed over to the Nigerian government.

The Northern section of the mandated territory, including Warwar Valley, was elected by plebiscite vote to join Nigeria in 1960, at which time Nigeria received its

independence from Britain.

This brief history of the Warwar Valley will help in understanding the major cultural changes to the Mambilla people brought on by the influx of Fulani pastoralists and Baptist missionaries. First I shall consider the Fulani. Rehfishch refers to the Mambilla-Fulani relationship as follows:

"The Mambila-Nomad relationship is one of symbiosis, even though it is fraught with mutual antagonism. The Mambila (sic) need the Nomads as they are the main source of cash income, being the largest purchasers of their agricultural surplus. The Nomads also pay the lion's share of the tax collected in the district, thus to a large extent supporting the local government." (Rehfishch 1955:9)

Despite the historical grounds for antagonism, current distrust seems to stem from more contemporary issues. Fulani cattle are apt to destroy Mambilla crops, and when disputes arise, the Mambilla are generally the losers in a Fulani-controlled justice system where they are treated as cultural inferiors. In addition, the Fulani burn the hills during the dry season, allowing new growth for pasture when the rains begin. This disrupts the Mambilla traditional hunting practices which also involve burning. (Rehfishch 1955) The kind of disputes noted by Rehfishch in 1954 were still evident in the valley in 1980. It should be stressed though that the advantages of the symbiotic relationship seem to outweigh the disadvantages of co-existence.

The arrival of the Cameroon Baptist missionaries affected both direct and indirect changes. Rehfishch made this statement in 1955.

"The fact that a Mission station has been built within its boundaries has doubtless meant that the inhabitants have been subjected to more European influence than has been the case in some of the other villages. However, many villages formerly exclusively Mambila (sic) have seen the arrival of alien settlers: Hausa, Fulani, Kaka and members of other tribes. Where these have come in fairly large numbers they have perhaps brought about more drastic changes in the local structure than has the presence of a missionary and his wife.

The coming of the missionaries seems to have had little effect on the social structure of the village. A few of the young boys have gone away to the mission school at Mbem, in Bamenda Province. When and if they return to the native villages, they may be agents of changes." (Rehfishch 1955:iv, 9)

Rehfishch observed that those who had returned and lived as Christians were on good terms with their pagan neighbors and not degraded by the old men who are guardians of traditional ways and practices. He goes on to emphasize that the most important change brought by the missionaries was the introduction of wage labor. Rehfishch estimates about thirty Mambilla worked for the mission in 1954 for wages. This is relatively small considering the valley's population of 2,389 reported by the Government Census of 1952. What caused the revolution was not the work but the concept that work could be exchanged for money. The hard working Mambilla eventually began leaving the valley in search of employment. The trend continued and in 1980 it was generally accepted that the young men and women

would leave the valley in search of educational opportunities and jobs.

Another factor contributing to the shift to a cash economy was the introduction of cash crops for export. Coffee, for example, was introduced by the British Colonial Office and the missionaries in the 1940s. Cash crops often permanently replaced other crops around the immediate dwelling area. This resulted in reduced land for subsistence crops as well as moving the location of these crops farther away from their owners. Due to the remoteness of the valley, poor vehicle access and maintenance requirements, coffee was not as profitable as expected. Other crops introduced about the same time included citrus fruits, avocado pears, pineapple and eucalyptus trees for firewood and building materials. These were more successful introductions due to their scarcity and high market value in the local area.

The cash economy changed the social structure of the Mambilla market system. Traditionally the Mambilla observed a ten-day week -- seven for work, three for rest. The first rest day was also the local market day at Warwar. Markets in Mambilla were places for social interaction, where one shared news, stories, and ideas. They were also places to drink beer relax and enjoy the festive atmosphere.

The introduction of the cash economy started a shift away from this emphasis on social interaction towards more commercial activities. In 1980 the market was dominated by

cash sales. Traders from outside the area travelled the market circuit reinforcing commercial tendencies. The desire for cash has provided strong incentives to grow more items for sale and share in the opportunities the market offers.

Charles Frantz drew similar conclusions in the Gembu area of the Mambilla plateau. (See Map Fig. 1)

"The indigenous people did, however, have some type of market system based upon a unique ten-day cycle. This system seems to have been more for the circulation of people and information than for the exchange of goods, and market day was the occasion for considerable dancing, beer-drinking, and wrestling. Participants were not solely local inhabitants, but included persons from villages between which there were affinal ties and political alliances. Each market was under the control of the head of a local religious cult." (Frantz 1981:213)

In 1980 I observed changes from the traditional market system. Commercial activities were the focus of the market and no dancing or wrestling was observed, although it was a popular place for drinking and socializing. This cultural change also affected the environmental system, as more land was needed for food production to meet market demands.

Contributing to this trend, Frantz notes, was the British and later the Nigerian administration's push for economic development of the Mambilla plateau. The demand for skilled labor was filled more readily by immigrants from Cameroun and Nigeria than by the Mambilla. The movement of outside skilled labor into the area resulted in the Mambilla men hearing of opportunities and this created an incentive to seek unskilled labor off the plateau. This influx of new

settlers created markets as well, helping foster acceptance of a cash economy. (Frantz 1981)

In summary, the dynamic reciprocity between the environmental and cultural systems was stimulated over the study period 1948-1980 by cash cropping and immigration. Both factors contributed to cultural change and a shift away from the close social structure which was the foundation of the traditional Mambilla cultural system.

Some Aspects of Mambilla Culture 1948 - 1980

The following overview of Mambilla culture will detail some of the aspects of change over the study period. This section was compiled utilizing the field notes of Gilbert D. Schneider (1947-1951) and those of the author (1980).

1948

Strong emphasis on building social investments. Extensive social networks provide security.

World-view and value system transmitted through oral tradition. Mambilla dialect of Warwar River Valley considered unique.

Social emphasis exchanging news, stories, drinking corn beer and enjoying festive social occasions.

1980

Reduced social emphasis as Mambilla become more culturally homogenous and shift to cash economy -- reducing need for strong social security network.

Nigerian, Christian, and Koranic schools introduce new ideas. Pidgin-English becomes language of trade and work-place.

Commercial emphasis -- activities centered on cash sales.

1948

1980

Agriculture

11 varieties of guinea-corn recorded, also: maize, several kinds of coco-yams, plantain, sweet potatoes, peanuts, Bambara groundnut, white carrots, sugar-cane, hot peppers.

'Yum,' kola-nuts, cotton, tobacco, raffia-bamboo.

Swidden agriculture utilizing raised beds.

Short handled hoe made by local blacksmiths.

All able men, women, children participate in farming activities.

Annual dances associated with agricultural practices.
See: Religion.

Architecture

Round thatched houses on raised earth platforms many ringed with stone. Firewood, baskets, goats, chickens kept or stored under eaves and protected by mats

All able-bodied men assist in house building. No masons or carpenters needed for traditional house or storage construction.

No latrines in use.

Fewer varieties of guinea-corn, others same with addition of: pineapple, oranges, limes, avocado pear.

Same but not cotton.

Eucalyptus trees, coffee.

Same

Large imported short handled hoe available at local market.

Same

Reduced in significance.

Rectangular mud-block houses now preferred. Round style still popular. 'Pan' roofs of zinc and aluminum favored over thatch if finances permit.

Masons and carpenters trained by Baptist missionaries, government builders and jobs available for new style.

Pit latrines in use.

1948

1980

Compounds in valley all circular built around central shrine.

Rectangular houses create new compound arrangements.

Warwar market only available to human traffic. Booths built for shelter not permanent.

Warwar Town parallels roadway. Problems of drainage, garbage, fire. Taxis and lorries available.

Division of Labor

Women: planning, preparing meals including grinding of maize. Help in all farm activities. Gather wild food plants and small animals. Major role in child rearing. Makers of corn beer for dances death ceremonies and celebrations.

Same
Maize ground by diesel mill.

Men: Heavy farming chores, construct dwellings, stores, bridges. Cultivate cotton and make cloth. Hunt and fish. Diviners, native doctors, carvers, keepers of masks and paraphernalia for annual dance. Provide large grinding stone for women.

Corn beer available at Warwar.

Same
Carpenters and masons.

Imported cloth available. Other options possible.

Same
Reduced in significance.

Operate grinding mills.

Dress

Hand-made cotton thread woven into loin cloths by men. were rubbed with camwood 'bundu' mixed with palm oil.

Imported cloth is sewn into gowns of several styles, shirts, pants, wrappers, blouses, and scarfs.

Women wore a leather string or a few fiber cords around waist.

The Nigerian Government banned nudity in public places during the late 1960s.

Elaborate hair decorations braided, shaved, rubbings, attachments -- important to young men planning for marriage.

Men cut hair short and wear a cap or nothing covering the hair.

1948

1980

Hippo-hide whips carried on special occasions like annual dances and funerals for important elders.

No longer available.

Economy

Men engage in hunting -- dogs, spears, traps, nets, fire used. Selected areas of dry grass surrounded and set on fire, animals killed or captured as they try to escape.

Hunting on reduced scale. Game scarce due to increased population and farming, eliminating habitat. Other protein sources available such as beef, mutton, goat and fowl.

No guns in use by Mambilla.

Same

An obligatory set of animals must be taken in the annual hunt. If this set is not attained another hunt will be scheduled. Parts of these wild animals, insects, reptiles are used in preparing charms, sacrifices, and potions for invocation.

Few participate or are interested in the practice today.

The men from quarters of Tiker, Tigul, Ndial, Char would each organize under the leadership of a respected elder and hunt as a unit.

Same

Women and young children collected frogs, toads, tadpoles, mice, rats, snakes, bird eggs after the grass for a large farm plot was burned.

Same

Bamboo traps used to catch small fish. Women and children dam streams and collect smaller species of mud-fish, tad-poles, etc.

Same
Fish-pond culture is now practised in some areas of the valley. Technology imported from Cameroun.

Small birds and bats collected using several types of traps.

Small birds and bats collected using imported transparent fishing nets.

1948

1980

Chickens, goats, dogs kept.

Same

Baptist Mission introduced cross-bred Rhode Island Red fowl. Mission kept pigs, cattle, sheep, and rabbits.

Mission discontinued pigs, cattle, sheep, rabbits. No sheep, cattle, pigs, rabbits kept by Mambilla.

Corn beer not for sale. Surplus grain made into beer and consumed at social events.

Corn beer made and sold by women. Available every day in Warwar Town.

Grasshoppers, locusts, caterpillars, termites, eggs of many species, honey, young shoots of elephant grass, wild fruit gathered by women and children in season.

Same

Migratory birds, duck, heron, green pigeon, turtle dove hunted. Use of decoys. Guinea fowl run-down by young men in early morning when grass is wet. Nets thrown over francolin (bushfowl) as they come in at dusk.

Availability of other protein sources have reduced this type of hunting.

Market

Traditional ten-day week, market every ten days.

Small daily and seven-day weekend markets have been added to ten-day market

Small market on east side of Warwar River. Grass, firewood, kerosene, soap, peppers, charcoal and some foodstuffs sold or bartered.

Market squares at Warwar and Ndarup, with small daily markets.

All quarters responsible for maintenance of market site.

Warwar Town merchants build, maintain private shops.

Quarters in Warwar Valley

Char, Ndarup, Ndial, Tigul, Tiker, Vakkude each with clustering of compounds.

Char, Mission Station, Ndarup, Ndial, Tigul, Tiker, Vakkude, Warwar Town.

1948

1980

Religion

Ancestor cult the province of men. Men keep up the shrine area, maintain the storage house for ritual objects. Women do have the right to take part in sacrifices to lineage ancestors and pour libations. A woman may become nominal custodian of an ancestor shrine if she is the sole survivor of a lineage.

Bi-annual dance celebration highlight Mambilla year. Time for healing, forgiving, renewing, reinforcing, relationships. Time to remember the ancestors. Confessions made and pardon sought from the past as well as the present. Seeking blessing for the future.

Annual dance begins with sound of 'tawong,' a wooden trumpet. Paraphernalia for dance: masks, fiber suits, calabashes, horns, musical instruments kept in special storage place. This storage place is fronted by a painting called 'baltu' and is usually covered with a net which holds ancestral figurines made of the inner pith of the raffia bamboo.

Medicine cults found in all Mambilla quarters of the valley. Each focuses attention on physical ailments, protective medicine, etc.

Diviners play role in the everyday life of most Mambilla. Techniques: throwing of cowrie shells, use of spider (ngam) and reading of

Undergoing rapid change with introduction to Islam and Christianity. Young Mambilla men do not show a great interest in traditional religious ideas.

Reduced in significance.

New religions, political systems, schools have taken over in Mambilla.

Nigerian holidays and school competition and events have become substitutes.

Western medicine has practically eliminated the importance of these cults.

Of little significance.

1948

leaves, examination of internal organs of fowl, etc.

Both men and women may be witches but it is usually women who are accused. The Mambilla believed that being a witch is transmitted only in the female line. "She has an eye" a common euphemism. Female associated with the witch-bird, the owl.

Belief in Supreme Being -- 'Chang.'

1980

Mambilla concepts changing with school, and new religious ideas being introduced

Mambilla use the term 'Chang' for God/Allah

ROADS AND TRANSPORTATION

Compound head responsible for maintenance of 'intra' path system. Quarter head responsible for maintenance of 'inter' path system. Most commerce accomplished by using paths network. Most goods carried by head-load.

Same

Motorable road reaches western half of valley. Mambilla help in maintaining road-bed. Native Authority assists with cement and tools for building and maintaining culverts and bridges.

Fulani cattle owners ride horses. No use of horses among the Mambilla.

Same

Hausa traders coming to the valley use donkeys to carry goods. Mambilla do not use donkeys.

Same

Photographic Considerations

I found the best way to graphically demonstrate these changes was with the medium of photography. The use of photographic images in this document also reflects my interest in photography and its application to anthropological field work. My bias is shared by John Collier who is an authority on the subject of visual anthropology. Collier's article "Visual Anthropology" in Jon Wagner's book Images of Information addresses the subject:

"The photographer's first practical contribution to regional and community studies is in the mapping or spatial and ecological relationships. The second, and maybe the most valuable contribution, is found in the camera's ability to gather swiftly and clearly the cultural inventory." (Collier 1979:280)

Collier also points out photography's ability to show the "whole of environmental relationships" during a time when the social sciences tend to be more specialized in nature. He goes on to say:

"The promise of photography is not only that it can gather valuable research tangibles, but that the detail of the visual evidence it provides can preserve a constantly 'present', context for subsequent analysis." (ibid:272)

Another consideration in favor of a photographic study is tied to the impartial nature of photography. All human beings, including social scientists, make observations and conclusions based on their personal belief, cultural view, and education. Unfortunately these observations may not reflect the true nature of the cultural or environmental

systems. Collier puts it this way:

"Photographic exposure to human diversity can balance the scales of human refinement which have been obscured by the abstractions of written records. Visual anthropology offers a holistic record of human circumstance that can give depth and qualification to written ethnographies which too often view humankind through Western eyes alone." (ibid:280)

There are also problems created with a document utilizing photogaphic images. Karl Heider in his book Ethnographic Film addresses four areas I have found useful in still photography as well. Ethnographers using photography should be made aware of the following:

First -- Inadvertent distortion. The effect of intrusion and camera consciousness. To what extent does the presence of a camera affect the behavior being photographed?

Second -- Intentional distortion of behavior Alteration of material culture. The ethnographer may interrupt behavior to gain a better camera angle or "stage" behavior to get the desired images, thus altering behavior.

Third -- The ethnographer's presence. To what degree does the presence of a stranger affect behavior being photographed?

Fourth -- Selection and omission. The ethnographer selected and edits what is photographed while in the field as well as when editing the images for the final document. (Heider 1976:50-62)

In this thesis I have made every effort to be fair and objective in both my field work and selection of the final images. I edited the base line images, taken in 1947-1950 by my father, Gilbert Schneider, while he was stationed in the Warwar Valley. He became a trusted friend of the people, enabling him to photograph without being in-

trusive. I selected images that best compared the culture and environmental systems to those images I made in April 1980. During my stay I was called "Ngel Changi" (Mambilla for "seed of God"), a name I received from Mbekuli, a Mambilla elder, after my birth in the Warwar Valley in 1949. I was not a stranger and was well accepted by the people. Both of the above factors, I think, contributed to the credence of this document, lessening the distortion of behavior.

The photographic images of the valley document changes brought about by new ideas and value systems from other cultures and their effects on the environment.

TEXT FOR WARWAR VALLEY IMAGES

Set 1. Title:1948 The Changing Cultural Ecology of the Warwar Valley, Gongola State, Nigeria -- 1948-1980.

Set 2. 1980:Map There is a beautiful valley in West Africa cut by a river now called the Warwar. The river meanders due north for fifteen kilometers before its confluence with the Donga River and forms a drainage area roughly 225 square kilometers. Situated 6° 0' above the equator these rolling hills are part of the Cameroun highlands known as the Mambilla Plateau. The highlands form a diagonal geographical barrier of escarpments, plateaus and peaks from Mount Cameroun in the south toward Lake Chad in the north.

Set 3. Model:1980 The natural environment and the human inhabitants of the valley have experienced rapid change during the mid twentieth century. This presentation will address some of these changes using a systems approach and a cultural ecological model based on the theories of Julian Steward.

A system is defined by Hall and Fagen as a set of objects or components with relationships between the objects and their attributes or properties. Two systems will be defined and then applied to Steward's model. The cultural and the environmental system both exist in time and space in a state of dynamic reciprocity affecting change through time. The culture affects change on the environmental

system through its technology and reciprocally the environment reacts, eventually effecting the cultural system.

Set 4. 1948:1980 To apply the cultural-ecological concept to the Warwar Valley a chronological starting point or base line for plotting change must first be established.

The base line images and information for this study were recorded in 1948-1951 by Dr. Gilbert D. Schneider. Comparisons will be made with images and observations made by the author during April 1980.

Set 5. 1980:1980 Two cultural systems inhabit the Warwar drainage. The higher elevations of the area form a boundary of rolling hills, summits and scarps. These grasslands are settled by a people known as the Fulani and used as pasture for their cattle and horses.

The lower elevations comprise the majority of the drainage area and it is here the other group called the Mambilla live. The Mambilla, their culture and environment are the focus of this study. The Fulani will also be mentioned, however, as their relationship with the Mambilla forms an important aspect of the Mambilla economy, history and land use.

Set 6. 1980:1980 The Mambilla people are classified as Bantu, part of a vast linguistic group of peoples that cover one third of Africa. Murdock suggests that the Cameroun highlands constitutes the original home of the Bantu

peoples based on the linguistic record. Since 1800 the Mambilla have endured Fulani cavalry invasions, slave raids, reputed German atrocities, Fulani, German and British rule, as well as being assimilated into a modern African nation.

Set 7. 1980:1980 The Warwar River is the central environmental feature as well as the cultural focus of the valley. It's course changes with the seasons. An earlier narrow, winding green channel can be seen to the right of the present wider more direct channel. These channel changes are typical of rivers carrying fine alluvial soil across a floodplain. The rains carry these soils to the plain creating rich agricultural land capable of sustaining intensive agriculture or annual cropping.

Set 8 1948:1980 The Fulani settled the higher elevations of the Warwar Valley during the first half of the twentieth century. In 1948 they built few permanent settlements and chose to move with their cattle in search of grazing land during the dry season. The grass was burned during December to March and the Fulani would move their cattle down-river to the larger Donga River drainage areas. Household goods were carried on the backs of large castrated bullocks during these moves. The bullocks, 'tapandi', were regarded highly and never sold or killed. In the event of death they would receive a special burial.

In 1980 the Fulani have established permanent fenced

compounds with small gardens on the hilltops surrounding the Warwar Valley. This change to a more sedentary settlement pattern has resulted in greater concentrations of cattle and contributed to over-grazing and soil erosion in several areas of the valley.

Set 9. 1948:1980 The Fulani have not always lived in peace with the Mambilla. The advent of German and British colonial rule, brought an end to Fulani slave raids on the Mambilla plateau. This eventually set the stage for a symbiotic relationship to develop between the Mambilla and the Fulani.

In 1948 a Fulani boy guards a calabash of milk while awaiting others who will join him for the trip to the valley. Here the milk and butter will be exchanged for foodstuffs from Mambilla farms.

In 1980 Fulani women wait for customers. Milk and butter will be sold and the Fulani will then purchase food staples and other goods to supplement their own small gardens.

Set 10 1980:1980 In 1980 Fulani men arrange cattle sales in the valley. An animal is butchered and the meat sold in the valley whenever it is determined the need is great enough to insure selling all of the meat, usually every 10 days on the traditional market day at Warwar. Staples, such as maize, guinea corn, palm oil, salt, sugar, and tea are purchased along with seasonal food-

stuffs such as peanuts, okra, sweet potatoes, beans, rice, bananas, cassava, coco-yams, and peppers.

The Fulani are grouped with the African Cattle Complex Cultures where the herd itself is a symbol of wealth and power. Individual animals are named and generally valued more highly alive than dead.

Traditionally the Fulani would not sell their healthy cattle to the Mambilla unless it was absolutely necessary. (Like raising cattle tax 'jangali') Cattle killed by natural causes such as falling, flooding, sickness or old age, however, could be carried away by the Mambilla for the asking, or at bargain prices.

Set 11. 1980:1980 The cultural stratigraphy of the valley is comprised of the Fulani above 1600 meters elevation and the Mambilla who live and cultivate elevations below 1600 meters.

The Mambilla are the main focus of this study. They inhabit the mean elevations -- approximately 1400 -- building village compound clusters and dwelling on the slopes and hilltops overlooking their farms and the river.

Set 12. 1948:1980 Some of the changes over the thirty year study period are straight-forward. In 1948 Ginda poses beside a grass sculpture crafted from rooted mature grasses by unmarried Mambilla men. They were sexually explicit learning devices and displayed near springs

and water holes where young girls would be sure to pass and take note of them.

In 1980 the same man presented traditional gifts of welcome, cola nuts and bananas. A Christian now, Ginda has chosen the name Joseph and is known as Joseph Ginda. This practice of adding a name of faith is encouraged by Christian missionaries, as well as followers of the Islamic faith. The name then identifies the person's religious preference as well as lineage identification. Joseph Ginda's traditional handmade cotton loin-cloth has been replaced by a locally sewn gown of imported cloth.

Set 13. 1948:1948 Mbekuli spins locally grown cotton into thread which will be woven into a traditional garment like the one he is wearing. The thread is woven on a hand loom, into decimeter strips which will eventually be cut and sewn together into one piece approximately five decimeters wide.

In 1948 the men made cloth for their use and would either leave it natural in color or the women would rub in pounded powdered-camwood mixed with palm oil. The camwood prepared cloth was reserved for ceremonial occasions. To prevent shrinking after washing or rubbing the cloth was weighted with a heavy stone and hung from a tree so as to retain the original length.

Set 14. 1980:1980 Yuyu poses by the 'shrine' tree of the dance area in Char quarter. His attire of the 1980's

consists of shoes, gown and cap. Traders from Nigeria and Cameroun sell imported textiles and clothing in the markets of the Warwar area.

Traditional cotton cloth has been replaced by imported fabrics and only the very old men still have and occasionally wear it. The traditional cotton loin-cloth and other items made from cotton will soon be non-existent in the valley due to the fact that no one in the area now is raising cotton, making thread or weaving cloth.

Set 15. 1948:1948 Hajia and Njoya, two men from the valley dressed in their traditional finery. They are on their way to a bi-annual dance in 1948 wearing cotton loin-cloths, bracelets on arms and legs, yarn necklaces, caps and ornamental hair styles. All indicate dress for a special occasion.

These men are not blood brothers but can be labelled as an 'age-set pair.' This bond resulted from their entering manhood at the same time and being circumcised during their 'rites of passage'. Traditionally it was common for two men to continue this bond, pairing up as partners in working farms, hunting, styling each others hair and attending social functions together.

A 'kurum' was formed when several age-mate pairs joined forces in a group for working extensive farms, house building and harvesting tasks. Their friends and/or wives were also welcome to such work projects.

Set 16. 1948:1948 Elaborate hair styles created by age-mate male couples reflected each others skill, creativity, and friendship. The sculpted creation on your age-mate's head was said to be your personal hair style because you did the work.

Life activities traditionally centered around the valley and it's river, resulting in few Mambilla men ever leaving the valley.

Set 17. 1948:1948 Creating hair styles was a labor intensive activity and also a time for social interaction. The hair was sometime embellished by the incorporation of white shirt buttons in the hair styles of 1948. The exact date of their introduction is not known but it has been speculated that German, French and British colonialists brought along much that was new and exotic to the Mambilla during the early part of the 20th century.

Set 18. 1948:1948 In 1948 red wool yarn was also valued for hair styling and body decoration and only the color red was used. The Mambilla language has three color words -- red, white and black. The introduction of red yarn, perhaps about the same time as the white shirt buttons fit in well with the Mambilla color system and made for creative new styling.

Set 19. 1948:1948 Between styling periods the hair was

groomed with wooden combs. Hair, styled or groomed, was a useful place to keep a comb as well as a variety of special sticks, some used for removing jiggers, others called "chew-sticks" for cleaning teeth, and some for braiding hair.

Set 20. 1980:1980 The art of traditional hair styling for men has now disappeared in the Warwar Valley. In 1980 the hair is cut short and covered with a cap of embroidered yarn or an imported Fez cap.

The disappearance of elaborate hair styles is directly linked to current changes in social patterns. The practice of age-mate bonding was associated with hair styling as well as the circumcision rites. This bonding rarely exists in its traditional form in 1980. One factor being that circumcision is now done soon after birth at Warwar Hospital.

Set 21. 1948:1948 Age-mate bonding did not exist among the women but groups, usually wives of one man, would work and socialize together.

Traditional marriage among the Mambilla followed a complex system incorporating both matrilineal and patrilineal lines of descent. Briefly they included three methods of marriage: 1.) patrilineal exchange, where a man could exchange a female relative for one from another lineage, 2.) matrilineal bride price, where a fee was paid for a wife. Children and wife belonged to the wife's mother's lineage, 3.) slave, where a man could purchase a woman

obtained by warfare. She would become his property. War and raiding parties were banned by the German and British Colonial administration, eliminating the latter form of marriage.

Set 22. 1948:1948 Traditional women's dress has also changed. In 1948 women wore few articles of clothing. Braided fiber cords, leather strips and beaded strings were worn around the waist, sometimes supporting a short loin cloth of hand woven cotton cloth. Bracelets, anklets, and neck pieces were also worn on occasion.

Set 23. 1980:1980 Women's hair is still braided in 1980, the "shaved island" style is no longer done, however. Most Mambilla women also wear a 'tie-head' or scarf over their hair style. It is usually worn in public or in between braidings.

Dress has also changed. Colorful blouses worn with a fathom of cloth wrapped around and secured at the waist are now preferred by most women. These fashions are locally sewn of imported cloth and also include several imported ready made blouses and sweaters.

Set 24. 1948:1948 The traditional women's role in Mambilla society in 1948 was one tied to family, farm and household. Family units lived and worked together. A woman's responsibilities included rearing the children and cooking food, usually one main meal daily. It was prepared in the evening,

after the work on the farms was over. The women returned from the farms carrying firewood and food items in season. Gathering these seasonal edible items, carrying water for family use, and cleaning the house and compound were additional daily tasks the women and children were expected to do.

Set 25. 1980:1980 The woman's role in 1980 has not changed in respect to household, farm and family duties.

The introduction of a cash economy to the Warwar Valley has expanded their role, however. Surplus farm produce and gathered foodstuffs can now be sold or bartered. This provides incentive to grow more crops than are needed by the family, and increase work loads. It also adds to more intensive use of available land, resulting in soil erosion and short or no fallow periods.

Set 26. 1948:1948 In 1948 women married soon after puberty. Large families were the wish and desire of most married couples. This they hoped would ensure a social security network of helpers and caretakers. The children helped where needed and were expected to contribute time and energy in the farms, as well as help with household tasks. Infant mortality was high, but most women had enough children to assure the survival of the lineage.

Women carried small children on their backs with woven raffia or leather straps. This left the hands free

for work and other activities.

Charms and native medicine were worn around the neck, waist, ankles and wrists as preventive measures to ensure protection from sickness, evil spirits and to guarantee the child's well-being.

The hair of small children was shaved except for the hair on the fontanel area which was allowed to grow. Many interesting folk ideas are associated with the extra protection given this vulnerable juncture of the skull.

Set 27. 1980:1980 Children in 1980 have access to more effective health care and the former Baptist Mission Maternity Center and Dispensary at Warwar has significantly reduced the infant mortality rate in the valley.

Now clothing for Mambilla children reflects styles worn by their parents. Colorful imported prints come with symbols representing new themes and personalities.

Charms are still used in parts of the valley -- especially to protect babies in the early months of life.

Set 28. 1948:1980 According to Mambilla tradition, baskets are woven by women and used throughout the valley. These strong multi-purpose containers continue to be the method of choice for carrying tools and produce to and from farms and markets. They are also essential accompaniment on a wide variety of gathering excursions.

The method of fabrication also remains the same in

1980 as it did in 1948. Mambilla women use another basket as a base, then weave the new basket around it. When completed the basket will be lined with a finer weave and four shoulder straps will be attached.

Set 29. 1948:1980 Two images present views of the east bank of the Warwar Valley taken in 1948 and 1980. Settlement patterns remain much the same, but size and number of compounds has increased. Note-worthy, however, is the fact that the amount of land under cultivation on hill slopes has increased dramatically.

The shift from a subsistence to a cash economy creates incentive to grow more and sell the surplus. The Mambilla are excellent farmers and utilize all of the fertile land in the valley.

Set 30. 1980:1980 The western half of the valley has experienced more dramatic change. The former Baptist Mission station and hospital at Warwar created housing for staff, patients and attending relatives. In addition, a church and maternity clinic were under the Mission's supervision.

A motorable road linking the Warwar Valley with the rest of Nigeria and Cameroun terminates at Warwar. The market square has been built there. It is the commercial center of the valley.

These factors have led to a more rapid rate of urban growth on this western half than that of the area east of

the river.

Set 31. 1948:1980 Traditional architecture in 1948 consisted of circular dwellings and store houses with conical roofs. Compounds typically surrounded an open courtyard. These dwellings had raffia bamboo doors that open toward this courtyard, making it the central and focal point of the compound. The courtyard was well maintained and sometimes included a central ritual storehouse or shrine area.

The outer circle of houses was also surrounded by crops, such as plantains, sugar cane, bananas, peppers, coco yams, and occasionally cassava. Some coffee was also intercropped in this area. It was introduced by the Baptist Mission in the early 1940s.

Set 32. 1948:1948 Traditional house construction in 1948 was very efficient. Due to the high altitude, and sometime severe weather conditions on the plateau, houses needed to be well made.

Several techniques were employed in building, depending upon the season. During the rainy season a round, raised platform was prepared, and a smaller circle of raffia bamboo or 'yum' poles were forced into the ground and lashed together with elephant grass. A mixture of clay, bits of grass and water was applied to this basic framework. However, since the dry-season hastened the drying time of the walls, a wider spacing of poles eliminated the need

for the elephant grass inner structure. The dry season structure was also placed on a raised platform to ensure a dry floor inside the house.

Set 33. 1948:1948 The circular house was covered with a conical grass roof after the wall composition of daub had dried on the wattle. A conical framework of latticed raffia bamboo poles was used to securely hold long folded sections of thatching grass. The top third of the roof was then finally secured by threading long strips of raffia bamboo over and under the thatch. This technique facilitated maintenance of the roof as well as seasonal rethatching.

In 1948 Mambilla men in the valley were responsible for all building of houses and storage huts, according to custom, working in groups such as the 'kurum,' a house could be built in several days time.

Construction tasks are still done by the men. It has become necessary to specialize in 1980, however, since particular carpentry skills and tools are needed to construct the 'pan' (zinc and aluminum) roof dwellings becoming popular.

Set 34. 1980:1980 The majority of village clusters, with the exception of the former Baptist Missiona station, Warwar Town and Ndarup market square continue to maintain the traditional circular compound style.

Here the rethatching of a compound in April 1980 preceded the rainy season. This traditional popularity of a

thatch roof has carried on for several reasons: 1.) It provides good insulating qualities from heat or cold; 2.) It 'breathes', allowing a fire to be built in the house. The fire keeps the house warm and dry and the smoke reduces the activity of vermin. The fire also dries and preserves meat and spices, usually hung above it, as well as maize and guinea corn stored in the attic; 3.) Thatching grass is a cost efficient renewable resource.

Set 35. 1980:1980 In 1980 major changes in architecture are evident in the Warwar Valley. Since the first rectangular building was built at the former Baptist Mission in the early 1940s, there has been a gradual shift to this architecture. The rectangular style was also preferred by most of the cultural groups moving into the valley--Hausa, Yamba, Bansa preferred these new dwellings, constructed of sun-dried blocks and then roofed with thatch or 'pan'. Zinc and aluminum roofing material was introduced in the 1950s and became desirable because of its lasting qualities and status implications. Only persons with enough capital could acquire a 'pan' roof.

Rectangular architecture and 'pan' roofing materials are linked because of the difficulties inherent in fitting rectangular 'pan' sheeting on the conical roof framework of a traditional house. Some rectangular houses are built and thatched with the expectation that they will be 'panned'

when enough capital has been accumulated.

Set 36. 1948:1980 The custom of abandoning compound dwellings is a traditional practice continued from 1948 to 1980. Disease, negative spiritual omens or climatic catastrophies may determine a move is necessary.

The entire compound is evacuated completely -- dwellings, storehouses, shrines, etc. Occasionally a compound may be burned, but more commonly it will be left to deteriorate. Only the occupants and their belongings will be transported to a new building site, which is usually not more than a kilometer away. The gravity of the cause for leaving usually determines the distance moved.

Cash crops surrounding the compound usually continue to be maintained by the former occupants.

Set 37. 1980:1980 Cash crops were an important transition factor in the developing economy of the Warwar Valley in 1980. The men, as lineage heads, traditionally had control of cash crops such as cola nuts, raffia palm (wine and building materials), bananas, and plantains. These crops were not sold, but given as gifts, or bartered. Now, however, there is a market for such produce. Important new cash crops introduced in the 1940s were coffee, and eucalyptus trees for firewood and building poles. In the 1970s fish-pond culture was added and welcomed as a marketable cash crop and food supply.

The men are avid hunters. During the dry season the grass is burned to drive out antelope and other small game, collect honey and gather other wild products. Several men and boys surround an area to be burned and with the aid of spears, nets and dogs kill the fleeing animals.

Set 38. 1980:1980 Hunters start to learn at an early age by observation and participation. In April 1980 a Mambilla boy holds a cane rat trap made of stakes and a closed long fiber net. The traps are placed on rat trails with the large open end facing the area to be burned. Rats running from the fire and dogs and hunters, run into the traps and are immobilized as the trap narrows. Cane rats are large, weighing 5-7 kilos. Their diet is of tender grass roots and they are regarded as a delicacy.

Hunters usually carry at least two spears with differing and specialized spear point styles. Spears are customarily used for killing bushbuck (harnessed antelope) and the red and grey duikers common to the Warwar Valley.

Set 39. 1948:1980 Signalling is a common method for hunters to stay in contact with one another and their dogs. Antelope horns were traditionally used in 1948 and the men carried woven grass bags over the shoulder. The bag may also contain a hunting dog's neck bell. The bell helps the hunters locate the dogs and also scare the game out of hiding.

Tobacco, pipe, drinking cup, cola nuts, food such as roasted maize or dried peanuts, and a fire starting kit of flint, metal striker and tinder are also carried in the bag.

In 1980 hunters' bags carry the same items with the addition of matches.

The most important items carried by the hunters of the valley in 1948 and 1980 are 'medicine' charms and divining materials. The hunters use divination to forecast which area and what strategy will ensure a successful hunt and then adjust their plans accordingly. "Medicine' charms ensure success and guard against failure.

Set 40. 1980:1980 Traditionally the Mambilla fished the Warwar River and this is still done in 1980. Fish traps were set after the heavy rains had passed and the flood waters receded. These funnel traps were made of raffia bamboo and secured near the bank of the river. Fish would swim into the trap, but could not turn and swim back out.

In the 1980s fish ponds were introduced for **tilapia** production. This type of fish farming technology is said to have spread over the border from Cameroun Northwest Province. The United States Peace Corps fisheries volunteers have been active in Cameroun resulting in year round production.

Set 41. 1948:1980 Honey is collected throughout the valley from bee hives. The hives are made from bamboo pith

and grass woven in a cylindrical shape. Throughout the 1948-1980 period, harvesting technology remains unchanged.

Set 42. 1948:1980 Trapping small birds for use as a protein source is another activity which has continued from 1948 to 1980. The methods of catching the birds has changed slightly, however.

In 1948 a traditional bird trap consisted of an enclosed 'V' shaped elephant grass and bamboo structure with a hand woven fiber net covering a hole at the narrow end of the 'V'. Guinea corn or maize was scattered on the ground inside the structure. When birds came to feed on the grain, people hiding near the trap would rush in, blocking the large open end of the 'V'. The startled birds fly into the net and become entangled.

In 1980 fine imported fish net was being spread among the cash crops which surround the compound. The transparent net entangles small birds feeding in the area.

The birds are defeathered and boiled, then eaten whole, usually with 'fufu'. (in Mambilla 'fufu' was prepared by boiling maize or guinea corn meal in water, forming a loaf which was eaten with a variety of side dishes.)

Set 43. 1948:1980 In 1948 the traditional subsistence economy of the Mambilla centered around agricultural pursuits. Fertile soils, combined with a favorable climate and hard work, produced satisfactory yields with occasional

surpluses.

Agricultural tools and methods have remained virtually unchanged during the period 1948-1980.

The division of farm labor also remains unchanged. Men, women and children all work on the family farms with each performing traditional tasks.

Set 44. 1980:1980 The men are responsible for heavy clearing and the preparation of a virgin or fallow plot. They also effect the initial preparation of the soil into raised bed rows. Then too, they will be required to help carry the harvested produce.

The women assist in farm plot preparation. They concentrate on reworking the initial raised beds, as well as, weeding and breaking up the soil before planting. The planting of the crops is by tradition a woman's task.

In 1980 some women covered the seeds they planted with a mixture that included discarded dry-cell flashlight batteries. Such treatment is believed to ward off insects but does not harm the seeds.

Set 45. 1980:1980 A farming venture first requires clearing and burning of the brush and grass covering the selected plot. Long raised bed rows are formed next using short angled hand shovels. These rows follow the contour of the land and vary in length depending on the degree of slope encountered. The steeper the grade the shorter the rows.

The overall pattern includes channels for excess water runoff.

The farm plot will be inter-cropped with guinea corn, maize, beans, groundnuts (peanuts), okra, 'yum,' cassava, coco yams, sweet potatoes and peppers. Selection of the desired combination of crops requires planning and skill. Location of the plot, quality of the soil, moisture content and seasonal factors will all be taken into account before the desired selection of crops can be made.

'Yum' is a traditional multi-purpose legume, *Tephrosia vogellii*, excellent for adding nitrogen to the soil and grown in combination with other crops. It grows 3-4 meters high and, in addition to replenishing nitrogen, provides firewood and building materials.

Set 46. 1980:1980 Farms in the Warwar Valley are prepared and planted twice a year. The first season begins during March-April-May and grows through the rainy season. The second season September-October-November, grows throughout the dry season.

The first growing season, which is during the rainy season, leaves the soil exposed to water erosion. Fine alluvial soils are carried down to the Warwar River filling the channel and causing floods. This also results in river channel changes. An early river channel forms a green winding line beside the more direct present river channel. Over-grazing by Fulani cattle also adds to soil erosion.

Set 47. 1948:1948 Bird scares are the most common method of protecting farms from hungry birds. They are traditionally made from thin strips of central pith of raffia palm which are very light weight. The scares are suspended on small fiber ropes from long raffia poles strategically placed in the farms. Their design and materials will vary with the creativity of the maker. One 1948 bamboo pith scare resembled a large carnivorous bird and 'flies' around the guinea corn and maize farms discouraging smaller seed eating birds. Another 1948 variety was made of a local prickly weed fashioned in human form.

Set 48. 1980:1980 Bird scares are commonly used in 1980 as well. The large scare on the right was made in 1978 to discourage hawks and kites from preying on young chickens. It was suspended from a raffia pole and 'flew' around the central courtyard area of the compound.

On the left, another pith figure is seen made in human form for use in a guinea corn farm.

Reflective pieces of metal, such as scraps of aluminum roofing of flattened tin cans, are also used as effective scares in 1980.

Set 49 1948:1980) Some bird scares were also designed to make noise. One 1948 wind-activated scare has several hanging clappers that make sounds when they hit the backboard to which they are attached.

In 1980 a pith scare twirls in the wind making a whirling sound over the compound. This is another type of scare used to protect their chickens.

Set 50. 1980:1980 Farming is an activity involving the entire family. Some members are most useful when left at home, however. The very young and older members remain in the compound and look after each others needs. Maintaining and guarding the compound are important tasks left to those that stay behind.

The half barrel in the slide on the right is an imported container used to collect rain water in a traditional way. A spout is attached to a girdle which surrounds the outer bark of the tree and collects water running down the tree trunk. Zinc or aluminum roofs also utilize gutters as rain water collectors.

Set 51. 1980:1980 Children waiting for their parents to return from the farm are a common sight in the compound. They are responsible for many tasks including carrying water, bringing firewood and collecting foodstuffs not found in the farms.

In 1980 chickens are kept in much the same way they were kept in 1948. In this set the small square hole, to the right of the children, leads to an enclosed chamber where chickens are kept for the night. The entrance is covered for safety at night and during the day they are let

out to forage around the compound.

Set 52. 1948:1980 In 1948 harvested grains such as maize and guinea corn were dried and then ground by the women. Traditionally two stones were used to grind the grains. A large stone with a slight depression would hold the grain, while a smaller one was used with a back and forth motion to crush and grind the grain into a coarse meal.

In 1980 two imported grinding mills using diesel engines are run by the men. One is located on the western half of the valley in Warwar Town and the other on the eastern half in Ndarop. Children carry the grain to the mills and wait in line for it to be ground into flour.

Despite the fact that stone ground flour is almost non-existent in the valley, its flavor is still generally preferred to the mill-ground product.

Set 53. 1948:1980 The methods for storing harvested grains in 1948 remain the same in 1980. Elevated bamboo granaries lined with a large woven mat, keep the contents relatively dry and vermin free. To gain access to the grain store the roof is pushed up and held by a pole. It is necessary to climb up the side of the structure in order to retrieve the grain.

Two sizes of food storage huts are built. The large style is for guinea corn and maize, and the smaller one for groundnuts (peanuts) and a variety of miscellaneous dry

foodstuffs.

Set 54. 1980:1980 The traditional staple food of the Mambilla is made from guinea corn or maize. The grain flour is added to boiling water and stirred until it thickens. This loaf, called 'fufu' is cooled and served with a wide variety of soups, stews, and side dishes. Both wild and cultivated plants and protein sources vary with the season; but 'fufu' is primarily the staple served with them. Rice, coco yams, sweet potatoes and plantains in season, also provide alternatives to 'fufu' with rice being the most recent addition to the diet.

In 1980 an unexpected protein source descended on the valley in the form of locusts. They were gathered and boiled in salted water and then served with 'fufu'. Surpluses were gathered, dried and stored.

Set 55. 1948:1948 In 1948 Mambilla celebrated two important occasions, the first season of harvesting during June and July, and the second harvest during December and January of 1949. These celebrations were times for social interaction, combining music and dance with corn beer. They lasted several days and nights during the full phase of the moon.

Masked dancers came out during this time of year representing human and animal spirits important to the Mambilla culture. Men wearing wild-banana fiber and

feather suits with wooden masks would dance to the music of drums, rattles and singing.

The semi-annual dances are times for reinforcement of friendships and bonds, celebration of the past season, as well as, anticipation of the next. They are still part of the life style of some Mambilla in 1980.

Set 56. 1948:1980 Corn and guinea corn libations continue to be observed by the Mambilla. The beer is made from surplus grain that is first fermented, dried, heated and then brewed in water.

In 1948 it was brewed in large woven vats standing one meter high and averaging eight decimeters in diameter. These double-lined containers had an inner lining of fine woven elephant grass **guli** and an outer shell woven from strips of raffia bamboo **reym**. The beer would ferment in these vats, each holding roughly 120 liters.

Set 57. 1980:1980 The tradition of drinking corn beer continues and has expanded. In 1948 corn beer was consumed during celebrations, and when surplus grain was plentiful. Generally it was not sold, but freely given in good health, fostering and bonding friendships. A public display of bonding friendships in the valley involves two young men draining the same liter calabash of corn beer cheek to cheek without stopping. The technique demanding coordination and cooperation or the beer would spill.

In 1980 corn beer is available year round and prepared by several women, who each make and sell 10-20 liters daily. These meeting houses are located primarily along this street in Warwar Town and do a brisk business in the late afternoon.

Set 58. 1948:1980 In 1948 there were no motorable roads into the Warwar Valley. The closest road could be reached by a four-day trek to the south.

North American Baptist missionaries were the first westerners to establish a permanent settlement in the 1940s. They arrived on foot and horseback employing porters to bring in all supplies.

In 1980 a motorable road connects Warwar Town with Gembu, the regional headquarters of the Mambilla plateau.

Set 59. 1980:1980 Four-wheel drive taxi service between Gembu and the Cameroun provides access to goods for import-export trade.

During the rainy season, however, rivers rise and roads deteriorate, disrupting vehicle transport and thus create shortages. Many Mambilla still prefer to use the traditional network of paths and carry their goods themselves. Others simply wait for the dry season to purchase heavy items such as 'pan' roofing.

Traders also use the available taxi service to bring a wide variety of goods to the Warwar Valley.

Set 60. 1980:1980 Camerounian and Nigerian entrepreneurs bring imported textiles, clothes, blankets, shovels, pots (aluminum, iron), shoes, kerosene lamps, umbrellas and a wide array of trade goods to the Warwar Valley. Traditional items made in this valley such as cotton cloth, shovels, clay pots and pipes have all been replaced by imported items.

One exception is the carrying basket which is still widely used due to its strength and practicality.

Set 61. 1948:1948 The arrival of the North American Baptist missionaries in the Warwar Valley was an event that would set the stage for change in the area. They were given a plot of land north of the present Warwar Town to build a church and clinic. The area was a former village site that had been abandoned and burned due to an outbreak of smallpox about 20 years earlier.

The missionaries used a combination of both round and rectangular architectural styles during the 1940s. 'Pan' roofing materials were introduced in the early 1950s shifting the emphasis to the rectangular style. These were the first rectangular buildings built in the valley.

Set 62. 1948:1948 The first permanent missionaries to the Warwar Station were an American missionary-anthropologist and his wife, Gilbert and Mildred Schneider from Dallas, Oregon. Their background in farming, carpentry, nursing and

Christianity would directly and indirectly influence the Mambilla culture of the valley.

Gilbert Schneider was fascinated by his first cross-cultural encounter, and using field notes and photography, recorded the daily activities of the valley. This presentation relies on that information for comparative purposes.

Set 63. 1980:1980 Warwar Station in 1980 is now funded by the Nigerian government and has no resident American missionaries. The dispensary, clinic and maternity center are staffed by Nigerians with one resident doctor from India.

Set 64. 1980:1980 A new Baptist Church dominates the main square of Warwar Town. Here on Easter Sunday 1980 church school classes were held outside before assembling for the main service inside the church. It is the largest structure in the valley and was filled to capacity this Sunday.

Christianity, as well as Islam, are both practiced and gradually replacing the traditional belief system.

Set 65. 1948:1948 In 1948 two major factors influenced the subsistence agronomists in the valley. First, they were bound by a strong social structure involving extended families; and second, their existence depended on maintaining a good relationship with the environment. Traditional Mambilla religious beliefs reflected the dynamics of these relationships in several ways: shrines were built to evoke and honor spirits from the ancestral and natural

worlds; sacrifices and libations were made to these spirits to insure harmony in the compound and the lineage, as well as to request bountiful harvests and successful hunts in the future.

Set 66. 1948:1948 In 1948 a shrine consisted of an elevated store house designed to contain ancestral figurines made of bamboo pith or terra-cotta clay. These figures were kept there along with dance masks, fiber suits, and other ceremonial objects. These store houses were entrusted to the care and guidance of a respected lineage head and were strictly off limits to women.

The front of some store houses was covered with a painted bamboo-pith panel called a **baltu**. Two figures, one female on the left with a moon in the upper corner and one male on the right with a sun near his shoulder, were painted beneath a rainbow. Between the figures another circular symbol represented the compound. Storage huts might also house porcupine quills and special musical instruments. Nets usually covered the **baltu** on which were tied a variety of objects including dead birds and bundles of feathers.

Special stones, pots, plants and other items were selected and placed underneath and beside the shrine. The general selection and design of the shrine was left to the judgment of the caretaker.

Set 67. 1980:1980 Ritual storage huts are still found in

some compounds of the Warwar Valley in 1980. The number of stores in use has been greatly reduced since 1948.

The general architectural style has remained much the same, but several cosmetic changes are evident. The caretaker of a store in 1980 may prefer a 'pan' roof, or different ritual objects. The use of ancestral figures and the *baltu* in 1948 are not as common in the valley in 1980. The act of making these pith and terra-cotta ancestral figures, as well as, the carving of masks has all but disappeared.

The shift to non-traditional belief systems such as Christianity and Islam, is generally given as the reason for this reduction.

Set 68. 1980:1980 During the first half of the 20th century and before, traditional beliefs were a powerful cohesive force in the valley with the Warwar River physically defining the environmental and cultural systems of the Mambilla. It continues to provide a central theme to the culture in 1980 providing a focal point for both work and play.

Set 69. 1948:1980 The river is central to the drainage and also the agricultural core area of the valley. It's roll in soil rejuvenation has made the floodplain prized farm land, traditionally fostering a special respect for the river. In 1980 the amount of soil reaching the floodplain is increasing, however, and soil erosion is becoming a serious problem

on hills adjacent to the river.

Set 70. 1980:1980 The root cause of the erosion, however, centers on changes to the Mambilla cultural system and its perception of the environment.

The cultural-ecological model provides a theoretical framework for understanding the changes that have taken place between the cultural and environmental systems of the Warwar Valley. The Mambilla interact with their technology affecting environmental change. Intensive agriculture, introduction of a cash economy and the impact of the market force are all additional demands on the environment that require more air-able land to satisfy the desires of the culture. The environment eventually reciprocates when the carrying capacity is reached or surpassed. The result in the valley is soil erosion and reduced crop yields.

Set 71. 1980:1980 Loss of ground cover contributes to fast drainage patterns that increase the severity of soil erosion. Four main factors contributing to this effect in the Warwar drainage are: 1.) dry season burning, both for hunting and clearing grazing land, leave the soil exposed; 2.) extensive areas prepared for agriculture are vulnerable to wind and rain.

Set 72. 1980:1980 3.) wood gathering for firewood and building materials reduce the number of large trees and bushes; 4.) over-grazing on the higher elevation removes cover

and leaves cattle trail networks exposed.

The intensity and duration of rainfall also accelerates erosion. Annual measurements of 80-100 inches of rain are concentrated during seasonal months in a pattern of storms and heavy showers. Most of the water cannot be absorbed and exposed soil is carried away.

Set 73. 1980:1980 The future of the cultural and environmental systems will depend on sensitivity to cultural-ecological issues. Interdependence and harmony between the systems is then a prerequisite for survival. Cultures will eventually be confronted with the ramifications of their technology. It is therefore the culture's construction or destructive use of the finite environmental system that will determine its destiny. In the case of the Warwar Valley the environmental system is sending out strong signals to the cultural system. For the Mambilla to continue to live in harmony with their environment they must not lose their traditional concern and respect for the welfare of the land and the river.

SUMMARY AND CONCLUSIONS

Julian Steward's cultural-ecological theory is useful in illustrating the interdependence between the environmental and cultural systems. I have used this theoretical framework in conjunction with the photographic image to help address current concerns in the Warwar Valley. Recognizing and acknowledging these concerns, however, is only the first step. Understanding the cultural and environmental systems is an essential prerequisite for finding a solution to problems such as soil erosion.

Due to both historical and geographical factors, the Mambilla have remained isolated. Hardships endured under Fulani and German rule brought change through taxation, torture and forced tribute. This period was followed by a more human rights oriented British Colonial administration. Like the Germans, however, the British ruled through an already established Fulani political structure, perpetuating unfair treatment and mistrust.

This period of generally hostile change was followed by other forces. Missionaries, both Christian and Islamic, Nigerian independence, western schools, hospitals, -- all fostering new ideas that were rapidly assimilated into Mambilla culture. The most important development of this period was the introduction of a cash economy. The ramifications of capitalism and the power of market forces permeated the cult-

ure, replacing traditional belief systems and world view.

Charles Frantz made similar observations in the Gembu area of the Mambilla Plateau in 1974.

"It became clear that not only had government services significantly increased of late, but also that the capitalist world market system has more fully penetrated the area and, indeed was flourishing. This was equally true of two world religious systems, Islam and Christianity." (Frantz 1981:213)

Despite these rapid changes to their culture system, the Mambilla retained their traditional agrarian technology from 1948-1980, and simply produced more to accommodate the market and cash economy. Farming is still done by all able-bodied members of the valley and customary types of farming tools and techniques are employed. Several factors have led to an increase in farming activities, however.

First, the introduction of cash crops by the British Colonial Office and missionaries in the mid 1940s helped lead to the introduction of a cash economy. Coffee, eucalyptus, fruits (avocado pear, oranges, limes, papaya, pineapple) were added to established farm crops. Traditionally the Mambilla didn't use cash, but eventually were encouraged to grow cash crops to raise money for taxes, school fees, as well as to purchase imported goods starting to filter into the valley.

Secondly, Mambilla men left the valley for the first time in search of jobs and education. When they returned they brought money and new ideas and an acceptance of a cash

economy.

Thirdly, the valley foodstuffs production increased and with the construction of a motor road in the 1960s the valley was introduced to the market economy. The people of the Warwar Valley began exporting foodstuffs, and the agricultural on which they were grown were at a premium. The cash economy of the valley became well established by 1980, as money was needed for drygoods, school fees, taxes, taxis, grinding grain, religious offerings, hospital fees, corn beer, etc. In 1980 the Mambilla expected to grow enough for themselves and find a ready market for the surplus.

Fourth, the market place changed from a traditional system of social interaction to one of commercial transaction.

Fifth, immigrant populations of Fulani, Hausa, and other peoples from elsewhere provide a growing market for Mambilla foodstuffs. Commercial centers such as Gembu, the district headquarters, are growing and will continue to provide a market for exports from the valley.

These five changes to the Mambilla cultural system had an effect on the valley. The changes reduced the time for social interaction and a subsistence economy was transformed to a cash economy. Traditionally, both strong social interaction and a belief system involving natural and ancestral spirits, contributed to maintaining harmony between the cultural and environmental systems.

In 1980, rather than maintaining social solidarity, cash was the incentive and increased production the goal of the goal of most farmers in the Warwar Valley.

The Mambilla culture was becoming fragmented in 1980 as people left the valley in search of opportunities. This cultural fragmentation combined with the influx of immigrants from other cultures increased conformity to outside cultural influences.

This fact has contributed to the acceptance of a cash economy, as well as, changing the concept of time in the valley. Time in 1980 was being equated with money. Time was needed for work, work produced crops and crops brought cash. Free time is, therefore, less valued because it can be translated into work time which is equated with financial gain.

When time takes on monetary value, changes result in the social structure. Traditionally the Mambilla spent more time building social alliances, dancing, and celebrating as well as creating elaborate hair styles. These social investments and the formation of cooperative work parties paid off in maintaining an extended social security system in which one could rely on the resources of others in time of need.

Changes in the social structure and cultural values placed additional demands upon the environment. Intensification of agriculture has resulted in reduced fallow periods and more land exposed to erosion.

The loss of top soil has become a serious problem

to the hillside farms and goes unchecked, rendering them useless. Farm plots on the floodplain, however, benefit by the deposit of topsoil. If left to continue, this pattern will reduce the overall amount of farm land available in the valley.

The trends identified here will severely affect the future. Soil erosion will eventually force more people out of the valley and continue to fragment the society, further eroding traditional cultural values in the Warwar Valley.

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APPENDIX

MAMBILLA GLOSSARY
Dialect of Warwar Valley

b ^h aelbo ^o	n. hand, arm	chor	n. fowl
b ^h aelguli	n. foot, leg	chorkol	n. cock
ba ^l	n. bag, pouch, purse	chueae	n. famine, hunger
ba ^l tu	n. bamboo pith paint- on store	chuechu	n. breath
ba ^l ki	n. European station	-----	
ba ^l ti	n. dried fruit pits tied around ankles	da ^h eni	a. far
ba ^l tu ^l	n. European (white)	da ^h li	a. long, wide
bea ^l	n. outer bamboo used in matting, tying	dea ^l	n. floor, base
beel	v. make, do	dea ^l n	v. sit, stay
beer	n. camwood	dea ^l ng	n. horse
be ^l i	n. hammer	dea ^l rwa	n. book, letter
be ^l r	n. workday, fieldwork	di ^l	n. place
be ^l r	n. dog	dili	n. cold
bi ^l	v. greet	dua ^e	a. big, wide
bi ^l	n. friend	dun ^g	n. drum
bi ^l	n. goat	-----	
bi ^l i	a. red	ee ^h ba	n. 4th workday
bo ^o	n. knife	ee ^h g ^e mee	n. 6th workday
bva ^e	a. bad, mad, ugly	ee ^h ka ^r ee	n. 5th workday
bva ^e	v. hoe, turn soil	-----	
bva ^r	n. roof, ceiling	fa ^e	a. new
bve ⁿ	n. hoe, shovel	fa ^r	n. farm, plot
bvu ^a e	n. hearth, where food is prepared	fa ^e i	n. wind
bvu ^l	n. wife	-----	
bvu ^l eb	n. heaven, abode of ancestors	ga ^e ach ^o ri	n. egg
-----		ga ^e al	v. make, prepare
cha ^{ng}	n. God, Creator	ga ^e ar	n. firewood
cha ^r	n. monkey	ga ^e l	n. journey
cha ^w an	n. beads	ga ^e m ^l	v. buy, purchase
cha ^{ng}	n. cloth	ga ^e n	n. will, may
che ^e beal	n. night	ga ^e l	n. field, acre
che ^e mean	n. grasshoppers	ga ^e ol	v. pick
che ^r	v. sleep, intercourse	ga ^e oal	n. spear
chi ^a r	n. fish	ga ^e ol	v. pick
chi ^m i	a. old	ga ^e ue	v. grind, pound
chi ^r	n. path, road	ga ^e u ^r i	n. skin, hide, fur
chi ^{ch} a ^r	a. short	ga ^e ul	n. head
		ga ^e wi	n. sweet potato

		ha ^e l	v. give, send
		ha ^e l	v. climb, mount
		ha ^m	n. blood

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Mambilla Glossary - 2

har	v. bear, give birth	kú	v. die
hé	n. stirring stick	kue	n. bridge
heal	v. see	kuee	v. carry (water)
héli	a. white	kuekue	a. plenty
hól	v. laugh	kukyar	a. fast, quick

ja	v. say	kuliguli	n. message drum
ja	n. reddish clay	kungjoengn.	drum (held by legs)
jatéan	n. rainy season	kur	n. time
jeal	n. laughter	kushiaer	n. dance rattle
jiá	n. bush	kwae	v. dig
jig	a. round	kwala	a. big
jítal	n. game with stones	kwanang	n. banana
joeg	v. carry	---bili	n. red banana
joem	n. end, conclusion	---yili	n. ripe banana
jol	v. cut grass, corn	kwear	n. slave
jooa	n. drum	-----	
jue	n. language	lābir	n. plaster
juea	v. to speak	lae	n. belly

káb	n. crab	lāe	v. to smith
kab	v. shave	laem	n. bow (arrow)
kachag	n. Hausaman	lakam	n. gun
kál	n. sack, pouch	le	n. sun
kala	a. strong, rich	lea	n. heart
kali	n. drum (shoulder)	léage	n. bamboo sticks
karndae	n. cow, cattle	leal	n. native medicine
kasala	n. cassava (borrow)	lëb	v. strike, hit
kati	n. name of dance	lee	n. compound
ke	n. walking stick	léea	a. hard (work)
keal	n. hearth stone	leel	v. tie a house
këe	a. correct, right	lel	n. village, quarter
keea	n. glass	liá	v. weave, braid
kél	v. know	liri	n. yesterday
kél	v. tie, bind	lung	n. ring (iron)
kélem	n. palmoil	-----	
kéli	v. wash	māe	v. drink
kéree	n. 2nd workday	mae	a. dry
ki	v. work	makál	n. elder
koba	v. make	maku	n. soul, spirit
kœbti	n. iron	mala	v. fall
kól	v. put up roof	mana	n. neck
kòm	n. maize	mbae	n. corn beer
kóo	n. chair, stool	mbaen	n. breast
		mbea	n. shoulder

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Mambilla Glossary - 3

mbéa	n. friend	nggéal	v. dance
mbitear	n. bamboo flute	ngger	n. story
mbol	n. basket (small)	nggiea	v. burn, scorch
mbyooa	n. young of animals	nggol	n. back
méa	n. thatch	nggwáe	n. chief
méa	n. mother	ngwearee	n. free day
méal	v. whistle	-----	
méana	n. tomorrow	nya	v. write
mim	n. house, hut	nya	v. dance
mini	v. think!	nyam	n. animal
mvile	n. beads	nyam-	
-----		atéan	n. dry season
nabal	n. tongue	nyáng	n. sun
naé	v. to cook	nyar	n. buffalo
nae	v. to rain	nyéam	n. meal (corn)
nda	n. bed	nyeana	n. child
nda	v. go	nyl	n. tooth
ndael	v. come	nyin	n. door
ndama	n. palmwine	nyoo	v. write
ndil	v. bring	nyooa	n. white clay
ndili	n. 3rd workday	nyue	n. rain
ndoeb	n. granary	nyue	n. bee, honey
ndoeb	n. rat, mouse	nyue	v. stir
ndong	n. lungs	nyun	n. nose
ndoo	n. hill	-----	
neén	v. grow	pem	n. sleeping mat
njeal	n. eye	-----	
njeebe	n. 2nd workday	sa	n. basket (big)
njeel	n. thing	sae	n. workday
njuer	n. thatch grass	saél	n. comb
noén	n. bird	saeni	n. market day
noma	v. bite	sang	n. file
nor	n. man	sanggar	n. peanuts
norlae	n. blacksmith	see	n. calabash
nziea	n. worm, caterpillar	sel	n. pot
nzhigib	n. fly	sooa	n. annual dance
nzhóla	v. awake, get up	sooa	n. thief
-----		-----	
nggaba	v. sing, dance	shéeli	n. hair
nggaeb	n. calabash	shí	n. husband
nggaen	n. kolanut	shia	v. plant
nggal	v. take	shiaer	v. wrestle

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Mambilla Glossary - 4

shimbil	n. lizard	toógee	n. knife, razor
shue	n. bellows	toou	n. slave
shueshue	v. blow (bellows)	tuea	v. say
-----		tuér	n. charcoal
-----		-----	
táb	n. earth	wae	n. bush fire
tábal	n. heart	wee	n. leaf
tabár	n. Fulani people	wée	n. string, thread
taeb	n. war	wil	n. moon
taem	n. cap, head cover	-----	
taér	n. drying rack	yab	n. snake
tál	n. grinding stone	yáelée	n. 7th workday
tám	n. salt	yaér	n. buffalo
tama	n. tobacco	yá\l	v. eat
tana	n. grass	yalib	n. food
té	n. house post	yá\yae	v. take, hold, have
tean	n. elephant	yara	a. warm
tear	n. oil plant	yéala	v. marry
tee	a. small, little	yel	v. awake
teel	n. father	yian	v. worry
tekwoola	n. frog, toad	yieal	n. guinea corn
tem	v. to trap	yil	n. name
tí	v. tie house	yí\l	v. call
tí\	n. tail	yili	a. black, dark
tia	n. ear	yir	n. maize (pap)
titéang	n. musical instru.	yoola	n. sickness, pain
tikee	n. scarecrow	yúee	n. 1st workday
titebíl	n. witch, sorcerer		
toén	n. market place		

Note: This Mambilla Glossary is comprised of:

Meyer, Emmi Mambila-Studie, "Zeitschrift fuer Eingeborenen-Sprachen", Band XXX, pp. 210-231, Berlin 1940.
 Schneider, Evan Field Research, April 1980.
 Schneider, Gilbert Field Notes, (1947-1951)
 and revised for computer.

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