

BIBLIOGRAPHIC DATA SHEET**1. CONTROL NUMBER**

PN-AAJ-245

2. SUBJECT CLASSIFICATION (695)

NA00-0000-G116

3. TITLE AND SUBTITLE (240)

A behavioral science health case study Central African Republic; consultation report

4. PERSONAL AUTHORS (100)

Ludwig, G. D.; Porsching, S. E.

5. CORPORATE AUTHORS (101)

Pittsburgh Univ. Graduate School of Public Health

6. DOCUMENT DATE (110)

1972

7. NUMBER OF PAGES (120)

220p.

8. ARC NUMBER (170)

CT614.096741.L944

9. REFERENCE ORGANIZATION (130)

Pittsburgh

10. SUPPLEMENTARY NOTES (500)**11. ABSTRACT (950)****12. DESCRIPTORS (920)**

Health data collection	Health delivery
Central African Republic	Social anthropology
Hygiene	Maternal/child health
Morbidity	Health services
Nutrition	Diets

13. PROJECT NUMBER (150)

625051000

14. CONTRACT NO.(140)

AID/afr-756

15. CONTRACT TYPE (140)**16. TYPE OF DOCUMENT (160)**

CT
C14596741
L6144

GRADUATE SCHOOL OF PUBLIC HEALTH
UNIVERSITY OF PITTSBURGH
PITTSBURGH, PENNSYLVANIA 15261

PORSCHING-LUDWIG
CONSULTATION REPORT

CONTRACT AID/afr-756

AUGUST, 1972

CT
614.540741
L944

PN-AAJ-245

CONSULTATION REPORT
USAID - UNIVERSITY OF PITTSBURGH
(CONTRACT NUMBER AID/afr-756)
AUGUST, 1972

A BEHAVIORAL SCIENCE HEALTH CASE STUDY
CENTRAL AFRICAN REPUBLIC

by

GARTH D. LUDWIG
DEPARTMENT OF ANTHROPOLOGY
UNIVERSITY OF PITTSBURGH

SUSAN E. PORSCHING
DEPARTMENT OF SOCIOLOGY
UNIVERSITY OF PITTSBURGH

PREFACE

Unapplied knowledge is knowledge shorn of its meaning.

A. N. Whitehead

Because two-thirds of the world's population lives in developing regions* where present poverty levels determine not only the pattern of medical service but the future for the majority of mankind, research into public health projects of these countries is of grave importance. But any health-related inquiry such as this anthropological-sociological investigation in the Central African Republic is of even more critical importance to the human condition of the common man. Indeed, it is the expressed bias and intent of these researchers that this data -- regardless of its value to the archives of the behavioral sciences, and whatever the professional, social, political, or financial advantage it may bring any individual or nation -- must first and foremost be used as a tool to promote human charity and compassion. Succinctly, it is our hope and aim that this report be used to save lives and improve the quality of many more.

* See Donald J. Bogue, Principles of Demography. (New York: John Wiley, 1969), P. 46.

ACKNOWLEDGEMENTS

We would like to thank the many people in the Central African Republic and Pittsburgh, Pennsylvania, who contributed to this research.

In Pittsburgh we are grateful to Mrs. Beverly Levenson, Mr. Bruce Williams, and Mr. Carlos Reyna for their work on the initial guideline questions, observations checklists, and background research. We also give special thanks to Dr. Edmund Ricci and Mr. Ernest Rhodes in Medical Sociology who gave continued encouragement, to Mrs. Margaret Gloninger in Nutrition, to Dr. B. Thomas Walsh in Population, to Dr. Bosco Postic and Dr. Michael Utidjian in Epidemiology, to Professors Burkart Holzner, Gilbert Shapiro, Jiri Nehnevajsa and John Marx in Sociology, to Professor Ailon Shiloh in Anthropology, and to Dr. H. Raymond Primas, Jr., and Mrs. Phyllis Wherry in International Health.

Special tribute goes to our families and those who cared for our loved ones while we were in Africa. They, more than anyone, made it possible for us to do this research.

In Bangui, Central African Republic, we thank Dr. Michael O'Byrne, his wife Susan, and Mr. Lardja Sanvogou and his wife Louise, who so graciously made us comfortable and assisted with many facets of our work. We are also indebted to the friendly cooperation of WHO consultants Dr. Sylvain Joliebois, Mr. Kenneth Vinayagam, Mr. Guillermo Salcedo-Duarte, and Mr. Bernard Benel. Further, we wish to thank the several American missionaries, especially Miss Elsa Schlayer and her nurse, Mr. Jacques Gueret, along with the many American Embassy personnel and businessmen.

Deep gratitude we also extend to the people of Yamboro and their chief, Londo Pascal, to the many patients we interviewed at the Limbo Dispensary, and to the entire Bimbo-Sakpa health staff who welcomed us, accepted us, and shared with us their fears and dreams. Finally, we wish to thank our dear friend and colleague, Mr. Philippe Ngenefio, without whose patience and knowledge we could never have completed our project.

Susan E. Porsching

Garth D. Ludwig

TABLE OF CONTENTS

INTRODUCTION	1
METHODOLOGY	111
I. INTRODUCTION TO THE CENTRAL AFRICAN REPUBLIC	1
A. Area, Geography, Climate	1
B. Population, Demography	2
C. People, Language, Religion	3
D. History, Government	4
E. Economy, Industry	5
II. INTRODUCTION TO YAMBORO, CENTRAL AFRICAN REPUBLIC	6
Village Population	9
Economics and Social Structure	
The Economy	11
Occupations and the Division of Labor	13
Property, Wealth, and Status	14
Political Structure	15
Sanitation and Environmental Hygiene	17
Water Source	20
Housing and House Furnishings	22
Clothing and Personal Hygiene	24
Kinship, Marriage, and the Family	27
Kinship	27
Marriage	28
Family	29
Diet	32
Core Diet	32
Protein	32
Fruits, Vegetables, and Other Foods	34
Analysis of Food Intake	34
Ecology of Nutrition	36
Meal Routines	37
Infant Nutrition	38
Summary	39

Maternal and Child Health	40
Fertility and Conception	41
Pregnancy	43
Childbirth and Child Care	44
Yamoro Symbol Systems	49
Language	50
Religion	54
A Brief Analysis: Socio-Cultural Factors of Yamoro as These Pertain to Health Education	58
III. TRADITIONAL HEALTH DELIVERY SERVICES	62
Introduction	62
Traditional Health Practitioners	63
Illness Behavior	65
Sickness	67
Preventive Medicine	69
Disease Etiology	71
Sick Role	74
Treatment	77
Materia Medica: Herbology	83
Botanical Descriptions of Medicinal Herbs at Yamoro	86
Mortality and Burial Practices	90
IV. MODERN HEALTH CARE DELIVERY SERVICES	92
Introduction	92
Morbidity and Mortality in CAR	93
Organization of CAR Ministry of Health	98
Personnel	104
Medical Assistant	104
Sanitarian	105
Certified Nurse	105
Certified Practical Nurse	105
Uncertified Practical Nurse	106
First Aider	106
Midwife	106
Social Worker	107

Budget 108

Pilot Zone of Bimbo 109

V. RECOMMENDATIONS 115

 Introduction 115

 Public Health Education via Influence Leaders 116

 Introducing the Concept of Germ Theory 120

 Coordinated Research 122

 Miscellaneous Recommendations 124

LIST OF CHARTS

(1)	Pilot Zone of Bimbo - Population/Density	ii a
(2)	School Attendance - CAR.	3 a
(3)	Yamoro Population Pyramid	9 a
(4)	Census Statistics of Yamoro	10 a
(5)	Occupations in Yamoro	14
(6)	Selected Central African Republic Food Items	32 a
(7)	Nutritional Deficiencies in Selected Areas of Central African Republic, 1960	34 a
(8)	Food Consumed Per Capita Per Day in Selected Areas, Central African Republic, 1960	35 a
(9)	Daily Per Capita Calorie Equivalents of Diets in Selected Areas, Central African Republic, 1960.	35 b
(10)	Maternity and Pediatric Consultations, Central African Republic	44 a
(11)	A Diagram of the Delivery of Health Services at Yamoro.	76 a
(12)	Morbidity and Mortality, Central African Republic, 1968.	93 a & b
(13)	Bimbo Dispensary Morbidity Report, 1971.	93 c & d
(14)	Table of Organization for Ministry of Public Health and Social Affairs	98 a
(15)	Organization of Health Care System	99 a
(16)	Health Personnel in CAR.	104 a
(17)	Budget for Ministry of Health, 1970, Central African Republic	108 a
(18)	Table of Organization for Bimbo Pilot Zone	109 a
(19)	Utilization of Bimbo Dispensary.	111 a
(20)	Diagram of Bimbo Dispensary.	112 a

LIST OF APPENDICES

- Appendix A - Guideline Questions and Observational C
Prepared December, 1971 .
Pittsburgh, Pennsylvania
- Appendix B - Guideline Questions and Observational C.
Prepared February, 1972
Bangui, Central African Republic
- Appendix C - Suggested Reading List

INTRODUCTION

This is the report of a study carried out by a two-member University of Pittsburgh USAID/OCEAC team in the Central African Republic (CAR). It is a two-month investigation in early 1972 to study the spectrum of health in one area of the country to learn the health needs of the people, their beliefs about disease and its etiology and treatment, the function of health services, and the cultural matrix in which this health care system operates. A full description of the methodology is included in the following section.

The investigation was conducted in the Pimbo Pilot Zone, a health sector designated by the Central African government as an experimental health model in which a viable health care delivery system may be devised for the entire country. Located near the nation's capital, Bangui, the pilot zone makes a sweep around the city to the east, north, and south. Covering an area of 3,580 square kilometers (1.6 percent of the surface of the country), it has a population of almost 14,000 inhabitants (0.6 percent of the country's total population). It includes two dispensaries, four first aid posts, and a mobile team with a total paramedical staff of 17. A chart of the experimental zone can be seen on the following pages.

The setting for this research is a land-locked developing country" which is located just above the equator and has a population of 1.7 million. It is a country, as one shall later see, that provides \$2 worth of health services per person annually and has one physician for 34,000 people.** A full discussion of this will be under the section on MODERN DELIVERY OF HEALTH CARE SERVICES.

* here we are referring to a country with a crude birth rate of over 30 per 1000 and per capita income of under \$200. Concomitant measures include low literacy level, predominantly rural with dominant occupations in farming, labor and service occupations, inadequate communication and transportation development, limited spatial mobility, inadequate consumption of electricity and fuel, and -- as a result -- poor medical care. See Ronald J. Bogue's Principles of Demography (New York: John Wiley and Sons, 1969), esp. p.46.

** See pages 104-A and 106-A for charts and further discussion of these figures.

This is a tropical country where parasites are an endemic problem. It is a place where communicable diseases like measles, whooping cough, tetanus, and polio have not yet been conquered. It is a country where malnutrition, tuberculosis, gastroenteritis, and pneumonia are embedded in the way people live, and the people's lack of resources and education. All of these problems are heightened by migrations to the cities where homes are crowded, food is even more scarce, and one is removed from the emotional support of friends and neighbors. This research was organized to aid with these and other health problems. Thus, after reviewing the methodology used for this pilot study, the researchers will provide a general background on the Central African Republic, an ethnographic health tour through one of its villages, a discussion of this cultural milieu as it relates to the selection of health practitioners to cure disease, a perusal of the health care system and conclude with recommendations for active public health programs and research.

PILOT ZONE OF BIMBO
CENTRAL AFRICAN REPUBLIC

	Number of Villages	Population	Number of Square Kilometers	Density Per KM ²
District of Kpale	72	8,263	2,700	3.0
District of M'Poko	<u>45</u>	<u>5,720</u>	<u>880</u>	<u>6.5</u>
TOTAL	117	13,983*	3,580**	4.7

Source: Dr. Sylvain Joliebois, La Zone Pilote de Bimbo - 1971.

* This represents .6 percent of the population.

** This represents 1.6 percent of the total square kilometers of CAR.

METHODOLOGY

This was the initial behavioral science research component of a five-year public health education project under a contract by the University of Pittsburgh for USAID/OCEAC. Basically, it was a six-week case study within the Bimbo Pilot Zone of the Central African Republic to study the general health status of the people. More precisely, it was a pilot study in one village, served by one dispensary and one aid post, to ascertain the environmental and cultural milieu of the people as related to their particular health needs, available health resources, and the utilization of traditional and Western medicine, plus an overview of the delivery of health care services.

Although the investigation was conducted from early February to late March, 1972, research plans began to take shape in the Fall of 1971 when a behavioral science research team from the University of Pittsburgh was selected. It originally consisted of one master's candidate in epidemiology, three doctoral candidates in medical anthropology and one doctoral student in medical sociology, all of whom were to be supervised by a professor of anthropology in public health. It was originally outlined to these researchers that the four social science students, divided into male-female teams, would gather baseline survey data in two pilot zones of the knowledge, attitudes, and actual health practices of the people to determine food habits, environmental sanitation, personal hygiene, health education, child care, health practices, and beliefs surrounding disease etiology and cure. These research teams, one of which would concentrate its efforts in Chad and the other in the CAR, would also attempt to gather basic health-related anthropological data on the kinship system, political and economic organization, urbanization, and patterns of influence.

Like the supervisor, the epidemiologist was to divide his time between the two countries, doing a basic epidemiological survey and investigation of the health care delivery system. This was envisioned to take two months. Furthermore, the team was to prepare the report so that it might be used as a basis for ongoing research and for final evaluation. An adequate system of continued data collection allowing for continuous indigenous input will be developed that can be used throughout the program and thereafter. The techniques will be so developed as to lend themselves to systems analysis. *

* Memorandum to Team Supervisor and team members, regarding Data Bank Team Plan, OCEAC Project, from Dr. H. Raymond Primas, Jr., November 15, 1971.

The research objectives were both general and ambitious. In an effort to explicate a more specific methodology and design appropriate questionnaires, the research team did background research on the two countries to learn as much as possible about their geography, demography, political situation, economy, cultural groups, health system, and health disorders. There was a dearth of information of these two nations, much of which was outdated and unreliable. Therefore, there were three external limitations to designing a more rigorous methodology:

(1) background materials were insufficient, (2) research goals, as earlier defined, seemed ambitious, and (3) the allotted research time restricted data collection on major medical parameters which might be included in a comprehensive health study. However, the research time was extended to three months.'

Therefore, in anticipation of a revised research design, it was decided that the most flexible research plan which encompassed as many health indices as possible was the best approach. Thus, the five members of the team devised an open-ended set of guideline questions, designed to elicit any useful information in the areas of food habits, maternal-child health, environmental sanitation, personal hygiene, health practices and beliefs, and the health-care system. Accompanying these were checklists to aid observations. These guideline questions and checklists can be seen in the first appendix. Both of these instruments drew heavily from an anthropological tradition which focuses on the case study of one area.

In the interim, the team was notified that Chad had not opened its doors to researchers. The student component of the team embarked for Africa January 9, 1972, and arrived in Bangui, CAR, January 11, 1972. The entire team subsequently met with various personnel in the Ministry of Health and were asked about the intent and plans for research, but it was not until the end of January that the necessary written permission was obtained from the Ministere de la Sante Publique to go beyond the barriers of the Bangui city limits to begin research. However, at this time, one team member had left; three others, including the supervisor left February 2. Mr. Garth Ludwig and Mrs. Susan Prosching, doctoral students in medical anthropology and medical sociology respectively, elected to remain through March.

Mr. Ludwig and Mrs. Prosching decided to capitalize on the strengths of both disciplines and augment the cultural focus with some inquiry into the delivery of health care services. Mr. Philippe Ngenefio, a medical assistant who had been chosen as the Central African homologue to the University of Pittsburgh/USAID/OCEAC

field director, was assigned by the director to assist with this work. And by early February, the rural village of Yamboro with 140 inhabitants, 28 kilometers from Bangui, had been selected as the primary focus of research.

This village was selected for several reasons. After discussions in January with government and international agency health officials, the University of Pittsburgh field team, and medical missionaries, Yamboro appeared to be reasonably representative of a rural village in the pilot zone. At the request of the field director, the researchers chose a village that was served by the Bimbo Dispensary. This particular village was geographically compact and delineated, and it was of average size for villages near the dispensary whose populations ranged from 31 to 608.* However, information about Yamboro cannot be generalized completely to villages deep in the bush or in the city, since health and customs are different in those areas. Since the village chief was amenable to investigation Yamboro became the central focus for this case study for the next six weeks.

One sometimes thinks of a case study as a focus on one individual, but it can also refer to the study of a group, an institution, or even a whole community. The essential idea is that one is trying to understand the total configuration of factors that affect a certain topic; it is a holistic attempt to analyze behavior from a variety of perspectives, concentrating on one basic theme. It seemed to be the optimal approach for several reasons. A case study can include all types of research --- surveys, observations, depth interviews, open or closed-ended interview schedules, documents, and the like. Actually, this type of research lends itself to any research tool or combination therein. It seemed to be the most profitable methodology where this type of data was being collected for the first time, where time was limited, and where the goal was to bring in a broad spectrum of data.

Because the researchers had only six to eight weeks of actual research time, and because there was little cultural information as it pertained to health, they focused the study on several broad levels: (1) semi-structured, focused interview.

* From Resultat de l'Enquete Demographique et Sanitaire dans les Villages de la Sous-Prefecture completed in 1972. Of the 29 villages represented in this study the average number of inhabitants was 166. Only one village had over 376 inhabitants and 10 were under 100.

of representative key informants in Yamoro accompanied by observations, (2) focused, structured interviews of patients and health personnel at the Bimbo Dispensary and Sakpa first aid post, (3) analysis of available government and technical documents which pertained to aspects of health and sanitation, and (4) unstructured, focused interviews of various physicians and international sanitary engineers to gain understanding of the health care delivery system in the Republic and the experimental zone, to learn about the sanitation projects currently underway, and to further ascertain the trend of future developments in this Central African country.

All of this research was intended to provide qualitative data, relevant to action programs and policies to upgrade the health conditions of the people within the pilot zone. Furthermore, it was developed and analyzed with the specific task of aiding development of health education for the people.

Social science research in a developing nation carries social ethical and methodological considerations; it should be aimed at helping as many persons as possible and it requires tools that give wide-range analysis. Rigorous quantitative empirical research of the kind often preferred today is used primarily in the industrial, affluent regions of the world where one is less restricted with time, money, and intent. However, in a region where basic sanitation is provided for only the educated in the cities, where disease is ubiquitous, where protein deficiencies are common, and where industry is in an embryonic stage, perhaps it remains the moral obligation of the researcher to use his tools in the most expansive way possible to achieve not only depth and breadth in his analysis, but draw practical conclusions which are of concrete assistance to these emerging countries. Such research is not meant to be impressionistic, but to give coverage to a broad spectrum of behavior and offer suggestions from which one can not only benefit in knowledge, but in direct aid.

Extensive survey research, the tool most widely hailed in the social sciences, is impractical for many reasons in Central Africa. It requires precise population reports for adequate sampling -- sampling which can be shown to be mathematically representative of the total group. Self-administered interview schedules are impossible because only five to 10 percent of the adult population is literate. Home interviews require rapport establishment because the people are not used

to such inquiries and, since most Central Africans speak French pas beaucoup, one must work in the native dialects which can easily render distortions unless the interviewer is highly skilled.

Also, 'home' must be explicated since it may refer to a nuclear or an extended family, a monogamous or polygynous household, and because some relatives may be absent or distant relatives and friends may dwell within. Concomitantly, the term 'respondent' needs redefinition since home interviewing might involve consensus of family and/or neighbors in varying numbers. Furthermore, precoded answers are difficult to anticipate and use in the gathering of cultural and behavioral information because so little is currently known about these populations. Survey research is not designed to absorb the nuances of social pressure or change. And, often it is insensitive to extraneous phenomena that may eventually be critical in one's analysis of the problem, and it does not allow for great detail. Also, survey research can be superficial and lack of knowledge of culture and language makes interpretation and question phrasing extremely difficult, thus increasing the potential problem of superficiality and inaccuracy.

Case studies, on the other hand, may include some surveys where it is practical. They can also gather qualitative materials, discover insights for future research, and help build designs for future research and programs. It can establish the groundwork for historical research to identify where change is rapid, where patterns persist, and which customs become rutated or extinct. Most of all, it allows for elaborate descriptions which are important in understanding the cultural milieu and flexible health care system of the pilot zone. It can also be used as the basis for more precise investigations when population and health statistics are more reliably reported. In summary, it is an ideal pilot methodology for a developing region and is a relatively inexpensive method of gathering ethnographic-health data.

There were several limitations with this specific research plan. All interviewing had to be conducted in Sangho, the native tongue of the villagers as well as most of the people in Bangui. Even research in the capital has necessitated asking questions in native tongues, not French, the official language of the country. This presented several difficulties: (1) the researchers were two languages removed from their mother tongue, (2) the nature of the project required that the translator have medical knowledge as well as language skills, and (3) the time spent in interviewing was tedious and lengthy -- often a

morning's work to finish just 10 to 15 questions. The methodological literature is replete with criticisms and cautions in transferring from one language or symbol system to another. However, this research team was extremely fortunate in having Mr. Ngenefio, who had completed the highest level of paramedical training plus a year of medical school in France and had come from a Sangho-speaking community. Without this unique combination, much information would have been unavailable. Even so, there may be some distortions.

Furthermore, the Sangho language has only a few hundred basic symbols; most of the language consists of metaphorical, picturesque idioms which require time-consuming elaboration of each question and often re-questioning after an answer had been given. Also, since the researchers were interested in learning how the people perceived their own health conditions and sanitation programs, they met unique obstacles. Because of the basic animistic life-chance orientations, there was little future tense used in Sangho vocabulary. And, because only specific past events were important to these people, it was found that they grouped most past occasions into different categories or time zones than one does in the United States. For example, few people knew their age -- they would not even guess or approximate it. They tended to think only in very short-term future -- for just a few days. Although they put beads around a baby's waist to insure growth, they did not think in terms of several weeks, months, or years, nor did they use terms such as "weekly," "monthly," "frequently," "often," or "sometimes." However, they had elaborate ways of measuring past "eternal" time, but felt that present, concrete time was quite subject to change or mutation as was discussed under Sickness and Disease Etiology. Therefore, the observer had to be the evaluator of time as it related to health habits.

Since interviewing took much longer than originally anticipated, it meant that just ten key informants were interviewed from Yamboro. All adults, these interviewees were chosen to be representative of the various statuses and occupations in the village. These six men and four women included the village elders and traditional health practitioners. In addition, eight adult interviews were conducted at the Bimbo Dispensary, along with interviews of the Bimbo and Sakpa paramedical staff. Also, the researchers interviewed a medical assistant from a Bangui dispensary, a French physician, and three WHO technical advisers and the Central African homologues. The information from these sources was further contrasted with informal interviews with American medical missionaries who worked both near Bangui and deep in the bush.

Another specific limitation was the research time lost when the village chief had an accident on his motorized bike. Since it was he who relieved the village informants from their usual cultivating and household duties to talk with the interviewers and reassured them of the research intentions, it slowed the interview schedule down for over a week. Because this accident occurred the afternoon of the first formal interview with the chief, it was feared that the research might be blamed for the accident. However, since a week had been taken to establish rapport with the villagers and their chief, and because of the short research time available, the researchers were reluctant to choose another village for investigation. Also, this seemed to be a unique opportunity to observe the pattern of health care utilization. And, although some time was lost, it did provide first-hand observation of the sick role.

Still another limitation of this research is that such questions which ask about attitudes and behavior can elicit "ideal" responses. However, in order for this to occur, the informant must have some idea of what the interviewer expects. Actual good health practice seemed to be so unknown that the researchers did not feel this detracted from the accuracy of the replies. All answers were arrived at through consensus, for 'respondent' in the village setting meant not only one person chosen for the interview, but several of his or her friends and relatives listening and commenting on the questions. In fact at all interviews there were between eight and 25 additional villagers in attendance, along with their children. Since the researchers noted that most of the adults in the village attended at least one interview, it is felt that the majority of the 140 inhabitants were represented in the study. Furthermore, there was no hesitation, embarrassment, or reluctance to answer any of the questions, even those which are "delicate" by standards in the United States -- except those having to do with male and female puberty rites, a practice recently made illegal but still assumed to be widely practiced. And the researchers found that the replies from this 'village forum' corresponded directly with replies matched by sex and approximate age to those interviews which were conducted in private at the Bimbo Dispensary. Because of the agreement between the spoken replies and the observed practices, the researchers feel that the data is worthwhile for future program decisions.

In order to further aid the public health educators in Central Africa, over 20 rolls of 35mm colored slides were taken for use in African health training projects and university education. About 10 rolls of Super 8mm film was also taken for similar purposes. In addition, 10 botanical specimens which were used for traditional medicaments were brought to the University of Pittsburgh Department of Pharmacognosy for identification and possible drug research. and contacts were made in Central Africa for continued plan collection if laboratory research is to be undertaken.

Although it is impossible to statistically manipulate the data to demonstrate its reliability and validity, the researchers feel that the data provides a valid basis for planning future public health education and continued research. It explains the health habits of the people in a variety of settings and offers the baseline for continued evaluation of the health status of the Central African.

A. Area, Geography, Climate

The Central African Republic (henceforth called CAR) is the nineteenth largest country of Africa. Almost the size of Texas and claiming an area of 238,000 square miles, it is the geographical hub of the continent. It is bounded by the Republic of Chad on the north, the Republic of Sudan on the east, the Republic of Cameroun on the west, and the Republics of Zaire and Congo (Brazzaville) on the south. Close to the equator, most of the territory lies between 3 and 11 degrees of northern latitude. It is also a landlocked country, 300 miles from the sea at its closest point.

Geographically the CAR consists of a vast rolling plateau with an average altitude of 2000 feet. In the north there are broad, open savannahs, but as one proceeds south the savannah gives way to gallery forests, then to an equatorial rain forest in the extreme southwest. There is wild game in the Republic: grazing animals inhabit the savannah while gorillas, chimpanzees and other arboreal creatures make their home in the rain forests. Fish, crocodiles, and hippopotamuses abound in the rivers.

There is an immense river system in the CAR inasmuch as the country is a watershed for the Chad basin to the north and the Congo basin to the south. Unfortunately, many of the rivers are not navigable for long distances. Even the large Sangha River which forms the southern boundary is commercially navigable year round only south of Bangui. There is a wide network of roads servicing the country, but only 3600 miles have all-season surfaces, the remainder made of laterite construction. A railroad line connects Bangui and Berberati, and crossing the border into the Republic of Cameroun, connects with the Cameroun Railway to the Douala seaport 300 miles south. An international jet airport is located at Bangui, the capital, and this city is a major trans-African air stop. Small plane service also connects hard-to-reach regions.

Because of its close proximity to the equator, the climate of the CAR is generally characterized as hot and humid. Average monthly temperatures range from a low of 66-71 degrees F. to a high of 85-93 degrees F. Diurnal variations are slight, between 15-20 degrees F. There is both a rainy season and a dry season. The rainy season extends from August through December with a shorter rainy season occurring also in April and May. The dry season extends from January to March and again in June and July. Short, violent thunderstorms are illustrative of the former whereas sunny skies, heat, and dust are prevalent

in the latter. In the rainy season the drenched, red laterite soil makes travel almost impossible on non-paved roads. An important feature of the dry season is the dramatic drop in river levels and the stagnation of streams, both of which are major water sources for drinking and bathing for the people of the Republic.

B. Population, Demography*

The population of the CAR is estimated at almost 1.7 million for 1972, with an additional 6,600 non-Central African residents, mostly French. Although the Republic is growing, the population density still remains quite low. The area of CAR is 623,000 square kilometers, averaging 2.3 inhabitants per square kilometer. This sparse population ranges from a low density of less than one person per square kilometer in the eastern sectors of the country to, in rare instances, 10 per square kilometer. (Bangui, the nation's pital, has special population density problems: some areas of the city, according to WHO experts, record as many as 26,000 inhabitants per square kilometer in regions of heavy in-migration from northern Africa.)

About 40 percent of the population is under 15 years of age, yet only 25 percent are in school -- with most of them leaving after only a few years in elementary school (See Table 1). In fact, only one percent receive their baccalauréat; only a handful go to college. The literacy rate is between five and 10 percent.

About 90 percent of the labor force is still in agriculture** and the average per capita gross national product is \$120. There is noticeable unemployment and an under-employed labor force in the urban centers. With minimally-educated youth flocking to Bangui, this may become more serious as it is now estimated that 4.2 percent annually migrate to the cities. Aggravating

* Unless otherwise specified, the population statistics come from the 1971 World Population Data Sheet, Population Reference Bureau, Inc., August, 1971.

** See the FAO Production Yearbook, 1969, and the ILO Labor Projections, 1971.

this even further, the number of employable males over age 15 has risen by one third since 1960.*

Education is controlled by the Ministry of Education, and a public school system, built on the French model, has been established with elementary, secondary, and technical schools. Recently, Jean-Dedel Bokassa University was founded in Bangui.

The average life-expectancy is 37.5 years with an estimated birth rate of 45.5 percent, estimated death rate of 25.5 percent, and an estimated annual increase of 1.9 percent.** (For this population, there is one physician for about 34,000 people.)

The capital of the CAR is Bangui, numbering 250,000 inhabitants. The only "true" city of the Republic, its population spreads along the banks of the Oubangui River. It is a river port and the hub of the nation's economy, possessing the Republic's major airport, its main road system, the main manufacturing center and administrative center. The city is mushrooming with new migrants every day and has grown enormously, numbering only 83,000 persons in 1960. Galloping urbanization of semi-educated people often means pauperization like the nineteenth-century cities of Europe and America.

C. The People, Language, Religion

There are five major ethnic groups in the Republic. Two of the main groups, the Baya-Mandjia and the Banda, occupying the western and central regions respectively, account for two-thirds of the population. A smaller group called the Sara inhabit the northern regions by the Chad border while a larger population of fishing people, known as the Oubangians, occupy the banks of the Oubangui and Mbomou Rivers to the south. A fifth group, the M'Baka, are located in the Bangui area and also further southwest. This last group, making up some seven percent of the population, has supplied all three CAR presidents. Small, isolated clusters of pygmies also live in the forested regions of the southwest.

Each of these ethnic groups has its own language, but in addition, all speak the Sangho dialect, named for a small, riverine group along the Oubangui

* Sec Données sur la situation démographique en République Centrafricaine début, 1966. Haut-Commissariat au Plan et à l'Assistance Technique. Direction de la Statistique Générale et Documentation, Etude No. 2, Février, 1967, p. 57.

** Ibid. p. 27.

TABLE 1 - POPULATION
School Attendance
Central African Republic

	<u>Age</u>	<u>Elementary</u> <u>School*</u>	<u>Secondary</u> <u>School</u>
Males	5-10	79,608	
	11-15	29,929	4,729
Females	5-10	43,354	
	11-15	14,280	1,139
Both Sexes	5-10	122,962	
	11-15	<u>44,209</u>	<u>5,868</u>
TOTAL BOTH SEXES:		<u>167,171</u>	<u>5,868</u>

Source: Estimation du taux de Scolarisation par age au 1er Janvier, 1971, Ministerede Education, Republique Centrafricaine.

*Of the total in secondary education, 1,358 are in technical schools.

N.B. Using a population estimate of 1.7 million with 40 percent of the population under 15, approximately 25 percent attend school.

River. Sangho has become the lingua franca or the national language of the CAR, although French, which is spoken by a small minority of the people, remains the official language.✓

The religious picture of the CAR is diverse due to a great deal of missionary activity since the late nineteenth century. Various estimates of denominational strength, not always agreeing, have been given. A 1966 survey states that 68 percent of the population claims adherence to some form of Christianity, 40 percent of whom are nominally Protestant and 28 percent Roman Catholic. Of the remainder, five percent are said to be Moslem and 27 percent animist. The reliability of these figures may be open to question due to the phenomenon of syncretism. However, Christian missionaries conduct many church-operated clinics and a few hospitals, most of which are located in the interior.

D. History, Government

The CAR was formerly Oubangui-Shari, one of the four territories of French Equatorial Africa. Relations between France and this central African country can be traced back to 1889 when France established an outpost at Bangui for the purpose of exploring the land to the north. By 1906 Chad was joined to the newly formed colony. In 1910 Oubangui-Shari became one of the territories of French Equatorial Africa, a federation not dissolved until 1958 when Oubangui-Shari, the Republic of Congo (Brazzaville), Chad, and Gabon became autonomous members of the French Community. Even as early as 1946 reforms in the French Constitution gave increased autonomy to these overseas territories and conferred French citizenship on all inhabitants of black African dependencies. Voting inequalities were removed in 1956, providing for a greater degree of self-government. Then followed the establishment of the French Community in September of 1958. On August 13, 1960, the Central African Republic became an independent nation.

The first president of the Republic was Barthelemy Boganda who founded the MESAN political party (MESAN - Social Evolution Movement of Black Africa). He was followed in office by his nephew, David Dacko, and under his regime, MESAN occupied all 50 seats of the National Assembly. In January of 1966 General Jean-Bedel Bokassa took office and has been Head of Government ever since. Besides dissolving the National Assembly, he issued a constitutional

decree which placed all legislative and executive power in the hands of the President. He continues to rule by decree and is assisted by a Cabinet of Ministers.

Administratively the Republic is partitioned into 14 prefectures which are in turn divided into two or more sub-prefectures.

E. Economy, Industry

The economy of the CAR is basically agricultural. Subsistence crops include manioc, sorghum, millet, and groundnuts. Cash crops, mainly cotton and coffee, are important export products. Diamonds also rank high in export production, representing in 1964 some 42.9% of the CAR's total exports. Wood from the extensive forests in the country is an important product for export earnings and diamond production is expected to increase; cotton and coffee are both surpluses on the world market.

Cattle are estimated at 500,000 to 600,000 head and sheep at about 80,000 head. However, stock-raising can only be carried on in a few regions where the tsetse fly is not prevalent. The result is that the country does not supply enough meat and additional animals must be imported from Chad and elsewhere (5000 tons a year). Forest groups and southern people obtain some of their animal proteins from hunting and fishing. However, wild game which was once abundant has become so depleted that hunting has had to be controlled.

There is some light industry which is primarily located in Bangui and which consists of diamond refining and processing plants, notably textiles, beverages, and plastic products. A hydro-electric plant is located at Bouali Falls and supplies electricity for the city of Bangui. In matters of trade France is the CAR's largest customer (40 percent) with the U.S. second (25 percent). France likewise provides most of the imports to the CAR, almost 55 percent, these mainly being machinery, electrical equipment, textiles, mineral products, and transportation equipment.

AN INTRODUCTION TO YAMBORO VILLAGE, CENTRAL AFRICAN REPUBLIC

Yamgoro, the site of the research found in this report, is an old, traditional village in the southwestern part of the CAR, located about 25 kilometers due west of the Bangui, the capital. It lies on the edge of the equatorial rain forest and is surrounded by tropical vegetation and immense tracts of timber! The setting of the village is striking and appears to have been placed right in the midst of a forest clearing.

At a former time Yamgoro was located one kilometer eastward but was moved to its present location about 50 to 60 years ago. The older location is now all but covered with jungle regrowth. The village can thus be said to enjoy some antiquity in contrast to many of the newer villages which are burgeoning near the vicinity of Bangui.

Because of its close proximity to the capital, Yamgoro is easily accessible by modern transportation. It is situated on the M'Baiki Road, one of the major paved trunk roads leading out of Bangui and serving this region of the Republic. Trucks, automobiles, motor-bikes, and bicycles frequent this road and expose the village to many of the modernizing influences emanating from the capital city. Nevertheless, the appearance of many people walking, often with heavy foodstuffs loaded on their backs and heads, bespeaks the traditional character of this region as a whole and the village in particular.

Administratively Yamgoro is considered part of the L'Ombella-M'Poko Prefecture, the Bimbo Sub-Prefecture and the Kpale Commune. There is frequent contact between the Sub-Prefecture and the village in matters of health and administration. Yamgoro is the fifth village as one travels west from the Bimbo administration center (about 14 kilometers) where the Bimbo Dispensary is also located. The village of Sakpa, the location of an elementary school and a (secourist) aid post, is eight kilometers from Yamgoro and six kilometers from Bimbo.

The village of Yamgoro is situated in a relatively flat area and can be described as a compact village. Two rows of houses hug both sides of the M'Baiki Road which passes through the village, the southern half claiming the greater part of the population of about 140 persons. The chief's house is situated on the southern side as is also the village "store", but the small Catholic church is located on the northern side. The village is exactly one kilometer long, and many of the houses along this stretch are no more than five to 10 meters apart.

From the road itself the houses are set back about 30 meters and extend again another 20 to 30 meters before the jungle growth begins. There are approximately 50 housesites in Yamboro not including many other constructions such as cookhouses, graniers, latrines, and chicken coops. A rich tropical flora grows in the village. On almost any house site a great variety of plants and trees are to be found including the palm, papaya, banana, mango, and avocado. Many families grow a variety of herbs which they use for cooking and medicines. Vending stands are also to be found close to the highway where various fruits, root vegetables and firewood are sold to passers-by. The "farms" of the villagers are located in the deep undergrowth, often a distance of many hundred meters behind the village.

There is a Pygmy village approximately 500 meters from Yamboro which is situated in the heavy forest and which is traversed by a path from the southern flank. The Pygmy inhabitants, numbering only about 21 men, women, and children, appear to be quite acculturated and wear some of the traditional clothing of the region. In addition to their hunting lore they have taken up agriculture. There is a symbiotic relationship between Yamboro and the Pygmy village. In return for the meat of animals, the Pygmies receive cigarettes and other goods such as household products and clothing. Likewise some of the native medicines of Yamboro have their source in the Pygmy materia medica. From all outward appearances there seems to be no social intercourse between the two villages. The chief of Yamboro is the jurisdictional head of their village; they are considered to be "his" Pygmies. Even when visiting them he wears his official uniform. But despite this aspect of social distance both Pygmies and the inhabitants of Yamboro share the same water source, and recently one of the Pygmy women married one of the men from Yamboro.

Life in Yamboro appears to the Western observer as one of casual relaxation. But it is the fluidity of movement and the relative lack of lost motions that belie the intense amount of activity that is almost always going on. Much of this activity is done while sitting or resting on one's haunches. Men (and many women also) are busy in their farms during the morning hours of the day. The village comes to life early, about 5.30 A.M. At noon the major meal is served and the afternoon is devoted to a variety of household tasks and general relaxation. By 8:00 P.M. the majority of the inhabitants are asleep in their huts although there will be a few who sit and converse by the side of a fire. At 10:00 P.M. not a sound is to be heard except the shrills of wildlife in the

bush. There is no electric lighting in Yamboro; kerosene lanterns provide what illumination there is available after the sunset. To see the village at night is like looking at fireflies against a dark screen. There is a refreshing quiet in the village that is strange to Western ears. Even during the day the village is not noisy. There are sounds of children playing or crying, the banging of a pestle against the mortar, an occasional dog yelping after receiving a kick, and the muted conversation of villagers going about their activities. Yet life is not so routine that there is not an occasional break to the continuity. / Should some visitors or scientific researchers come to see the chief, a whole bevy of inhabitants will come to the scene. Children will stop their playing and women will leave their cockhouses to gather around the veranda of the chief's house to hear the conversation. Indeed, the veranda is the "social center" of the village; here one learns what is new and from here gossip travels throughout the village and to other villages along the M'Baiki Road as well.

It is important to realize that Yamboro is not a village to itself. It exists only by virtue of the larger state and to understand the pattern of life within the village, it is necessary to also understand its relationship to the Republic. Many of the products within the village come from the markets of Bangui as also the village foodstuffs find their way to Bangui markets. Cash crops from Yamboro may ultimately enter the international trade network, and a person drinking coffee in Paris may have in his hands the legacy of this small village in Central Africa. A few radios in the village bring in exposure of several different influences, and transportation to and from Bangui by auto and motor-bike is the prerogative of a few fortunate Yamborites. As will be made evident later, modern health services have affected the village in many ways. Thus, culture change has come to the village in many forms. Western ways are not unfamiliar and some are even emulated. But it is important to note well in which ways and on what levels these changes have made intrusion.

For this reason, and also for the purpose of understanding the present cultural patterns of Yamboro village, there follows a description of the practices and behavior as recorded by the researchers. This socio-cultural perspective will give an intelligible framework and meaning to the health behavior of the people of this village. For no health behavior can be analyzed in a vacuum. The knowledge, attitudes and practices of any people in how they view matters of health and how they carry out health delivery services find their roots in the cultural soil of the milieu in which they live. To this paramount matter of the cultural base of the people of Yamboro we now turn.

VILLAGE POPULATION

The population of Yamboro is listed at 144 persons.* This includes 43 men, 43 women, 25 boys, and 35 girls.** The census figures for this area, which had been kept for only three years, showed a net growth of 16 persons through birth and marriage to the village since 1968. In that same time period there had been seven deaths, none of which were children. Likewise, 14 persons had left the village for other reasons -- usually to seek employment in Bangui, sometimes for marriage. Village informants stated that it had been "much larger" in former times, but we were unable to secure any numerical estimates.

In a population pyramid, represented in Table 1, there is an interesting configuration which graphically demonstrates this out-migration of adults, ages 15 to 40, to the city. The weight to the right of the graph in the upper-age limits shows the polygynous nature of the marriage customs. The Child-Woman Ratio which includes those 15 children under four years and the 35 women in the child-bearing years of 15 to 49 is .43 which is not high for developing regions (about half of them have had a child in the last four years). The Dependency Ratio -- $\frac{\text{children 0 to 14 years}}{\text{adults 15+ years}} \times 100$ -- stands near 30. Neither of these figures, however, are generalizable to the global situation of CAR; the Dependency Ratio, often a substitute for an approximate Crude Birth Rate (CBR) demonstrates a much lower birth rate than we would expect in Central Africa. However, using figures from the entire Experimental Zone of Bimbo, we again tried to estimate the CBR for this region. This result was 37,*** still quite low when one considers that most African nations are above 40. A still more

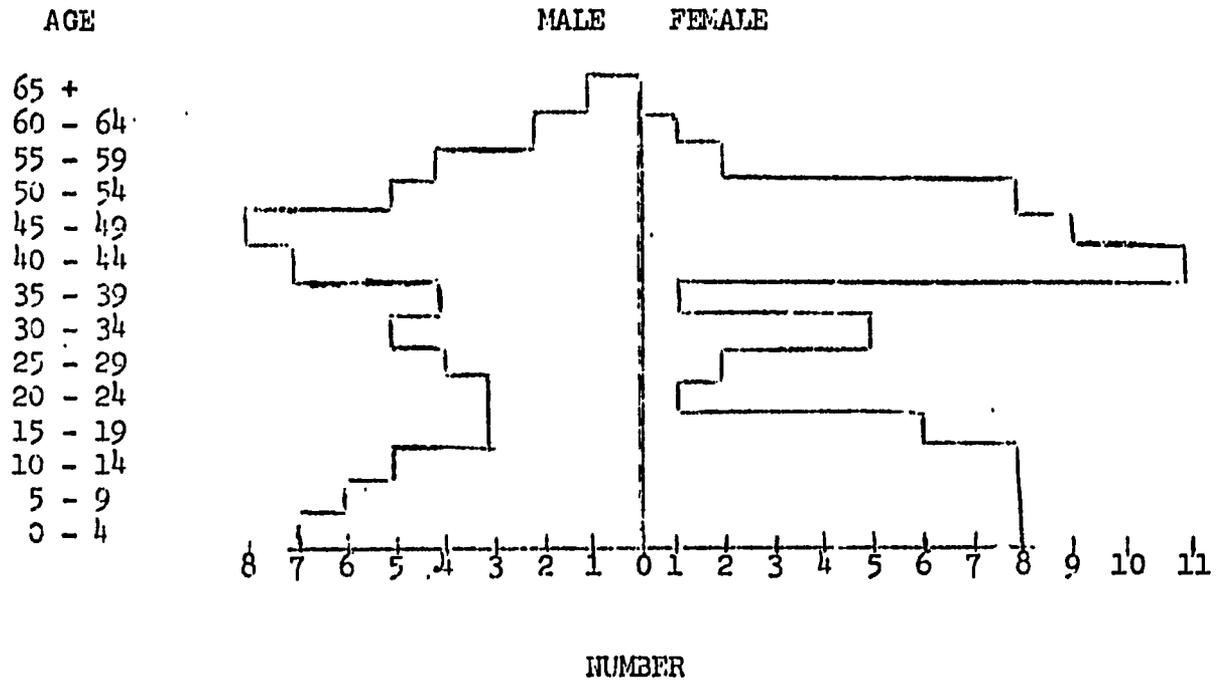
* The source of these figures was the Bimbo Sub-Prefecture Census, September 21, 1971.

** An adult is considered to be age 15 plus; children fall into the age categories of 0 to 14 years inclusive.

*** These figures which came from Resultat de l'Enquete Demographique et Sanitaire dans les Villages de la Sous-Prefecture de Bimbo, compiled by Kenneth Vinayagam, Inspecteur O.M.S., 2 Avril, 1971. These numbers included 3049 adults and 1794 dependent children from 29 villages.

TABLE 1 - VILLAGE POPULATION

YAMBORO POPULATION PYRAMID*
1972



* Source: Bimbo Sub-Prefecture Census, September 21, 1971.

sophisticated measure, the General Fertility Rate, which determines the births per 1000 among the women in fertile ages, was not possible because we lacked discrete age limits for the Bimbo sub-prefecture. Further elaboration of population problems in CAR has been discussed on page 2.

Mean and median ages for Yamboro (See Table 2) are not actually very descriptive. It is interesting to note, however, that one man was 71 years old; four persons (2.8 percent) were over 60 years of age, and 23 (15.9 percent) were over 50. Three children (5 percent) attend school, and nine adults (nearly 10 percent) are literate.

The ethnic composition of Yamboro is dominantly made up of the M'Baka group;* the few remainder belong to other major CAR ethnic groups. Overwhelmingly, the inhabitants of Yamboro are nominally Roman Catholic, but their syncretic religious orientation will be discussed in the section on religion. The only two exceptions are one Protestant and one Moslem.

* Yamboro ethnic groups include: 135 M'Baka, 3 Banda, 2 Baya, 1 Ali, 1 Talé, 1 Mandvia, and 1 Cameroun.

TABLE 2 - VILLAGE POPULATIONCENSUS STATISTICS OF YAMBORO

Prefecture: l'Ombella - M'Poko
 Sub-Prefecture: de Bimbo
 Commune: Kpale

Chief: Londo Pascal
 Tribe: M'Baka

Dates of Census	RESULTS OF CENSUS					No. Taxed	Exemptions	Gifts
	M	F	Girl	Boy	Total			
16-1-1968	33	40	30	25	128	23	7	
7-5-1969	33	40	34	26	133	20	6	7
10-11-1970	39	43	33	20	135	23	7	7
21-9-1971	43	43	33	25	144	26	7	7

Note: Thorough checking of the official records of Yamboro Village at the Bimbo Sub-Prefecture reveals that as of February 18, 1972, there are a total of 67 males rather than 68; also there are 75 females rather than 76. Thus, the village reports a decline of 2 persons since September 9, 1971. The current total is now 142 persons.

Statistical Tabulations of Yamboro Village

MALES: A total of 65 males (2 males, no ages reported)

Median age: 33 years

Mean age: 31.5 years

FEMALES: A total of 70 females (5 females, no ages reported)

Median age: 33 years

Mean age: 28.9 years

MALES AND FEMALES: A total of 135 males and females reporting ages

Mean age: 30.2 years

ECONOMICS AND SOCIAL STRUCTURE

The Economy

The economy of Yamboro is essentially a household economy of horticulture whose primary motive for production is subsistence. But it is not a self-sufficient economy and probably was not one even in pre-colonial days. For years different ethnic groups in the Central African Republic traded with each other for needed supplies, the Oubangui River groups being the mediators of this trading system. Even today the village of Yamboro depends heavily upon products it does not itself produce, and Bangui is the major market for the products. Among the food resources brought into the village are beef, fish (Chad), rice, salt, sugar, peanut oil, sweet potato, and maize. Other commonly purchased resources are soap, cloth, tools, kerosene lamps, shoes, cosmetics, cooking utensils, and liquor.

The basic means of livelihood is farming or horticulture. The vast majority of village adults are engaged in cultivating and harvesting a defined number of crops, the most important being plantains, taro, yams, sugar cane and pineapples. These are grown in "farms" which are located in the bush within walking distance of the village. As in many parts of Africa and as at Yamboro, "slash-and-burn" agriculture is the farming technique by which nutrients are added to the soil. By this method an area of land chosen to be the "farm" is set on fire, the charred timber enriching the earth. After the ground is broken, cultigens of various crops are planted so that crops may be harvested on a rotational basis which will ensure a constant food supply. Nonetheless, the wet season is always more lean of food than the dry season because of the proclivity of more plant species to mature during the latter season. A plot of land is used maximally only one year and is then allowed to fallow for five years before re-use. The horticulture system is therefore shifting and requires new areas of land to be fired and cultivated each year for maximal food returns.

- Most of the crops are used for the purposes of subsistence but a significant amount is sold in entrepreneurial fashion to inhabitants of the village or to passers-by who are attracted to the vending-stands by the side of the road. Some of the villagers will take foodstuffs into the markets of Bangui for purposes of selling. The economic system of the village thus operates on a strict "cash-and-carry" basis, even the chief paying for the native palm wine he drinks.

One important variant in the system has been the introduction of a cash-crop at Yamboro: coffee. A small number of the villagers engage in the cultivation of coffee beans, and their apparent success (they are among the most affluent in the village) may cause an accelerated trend in this direction. Coffee planting is the only occupation at Yamboro which is able to hire workers from within the village. Once or more a year the state trade union comes into the village with weights and scales and deals for the coffee on a cash basis. The coffee is then exported to the international market. Some tobacco is sold.

Other minor subsistence pursuits include hunting, fishing, trapping, livestock raising, and wood collecting. Hunting is pursued in the forests which surround the village. Wild game includes gazelle, antelope, wild pig, and rodents, all of which are taken by guns and snares. Nevertheless the major supply of meat must be imported into the village, usually beef from either Bangui or Bimbo. Fishing, a woman's task, involves the technique of several women standing across the width of a stream furiously scooping at the water with pans; the purpose is to literally propel the fish out of the water on to the bank. Fruitbats, a delicacy in Central Africa, are trapped by setting specially-built snares at the tops of fruit trees. The raising of chickens, intimated earlier, is done on a small scale as is the raising of goats. Both of these activities are minimal and are supplementary rather than basic in Yamboro food production. A few families cut timber for firewood and sell them to customers who pass on the highway. Likewise there are some families in the village who produce palm wine, utilizing a distillery which is located just out of the village.

There are virtually no arts or crafts to be found in Yamboro. Basket-weaving and pottery are non-existent. One of the few crafts remaining is the traditional method of weaving the thatched roof from reeds. More and more the village is relying on the importation of utensils and modern products from the markets of Bangui. Besides the almost daily traffic of a few of Yamboro's inhabitants to the city, there is the occasional visit of Arab merchants who come to the village to sell their wares. All of these activities underline the network of relationships which are increasingly linking Yamboro to the larger state. Against this purview must the economic system of the village be seen.

Occupations and the Division of Labor

Division of labor by sex at Yamboro is clearly delineated. Men are expected to support their families by engaging in traditional activities such as horticulture and crop cultivation. Hunting is likewise a male pursuit as are the specialized tasks of housebuilding and roof thatching. The new cash crop economy of coffee-cultivation is specifically a male occupation. Politics and local government as well as the organization and management of religion at Yamboro are also in the hands of the men.

Women's work centers around the care of the family and the home. Women are responsible for cooking, cleaning, washing, procuring water, and caring for children. Indeed, a woman's 'kitchen' is so identified with her essential being that for a man (other than her husband) to eat from her pot is to be construed as making an improper advance toward her. One never sees a man helping in any domestic work; to do so would make him an object of shame and humiliation. A woman may be seemingly burdened with a heavy load while her husband is carrying nothing. Nonetheless, there are no recriminations for the lines between the sexes and their expected roles are clearly set. In contrast, however, a woman's role is not so rigidly defined as that of a man, and she will on occasion assume what appears to be the province of the man. Many of the women in fact cultivate their own farms and are represented in the Sub-Prefecture records as having this profession. If a woman is ill, it is usually her sister who will come to her aid, although it is admitted by the villagers that in extreme circumstances a man may do such tasks as washing the family clothing.

Children are trained early in life for the sexual roles they will inherit upon adulthood. Girls from the age of eight and upwards participate in many duties associated with women: carrying water, washing, preparing food, and caring for siblings. Boys learn to help in cultivation from about the age of ten.

Although informants mentioned that all men of Yamboro worked in the village, it was observed that a few have jobs in other locations. One young man, the chief's son, is employed at the nationalized forest industry a couple of kilometers from Yamboro. It was also learned that there is a growing movement of young people to Bangui in search of specialized labor. Indeed, the Government has sponsored a youth corps to teach improved agricultural methods.

The son of one of the most prosperous villagers drives a car for the President of the Republic. Reasons for this trend to the city were mainly that of money, although it should be admitted that prestige also is a likely motivation.

TABLE 1
OCCUPATIONS REPRESENTED AT YAMBORO VILLAGE AS RECORDED IN THE
SUB-PREFECTURE OFFICE IN BIMBO

<u>Total in Occupation</u>	<u>Occupation</u>	<u>Sex</u>	<u>French Title</u>
32	Cultivator	male	Cultivateur
22	Cultivator	female	Cultivatrice
20	Housewife	female	Menagere
4	Planter	male	Planteur
1	Hunter	male	Chasseur
1	Religious instructor	male	Catechiste
1	Labor supervisor	male	Chef Chantie
<u>1</u>	Laborer	male	Mandevore
82	TOTAL		

Specialized occupations at Yamboro are virtually non-existent as the above table indicates. With the exception of the catechetical instructor, who instructs the village children in the Catholic faith in the afternoons, all the other occupations share in some phase of the food production. This obvious lack of specializations, in a developing nation which is increasingly emphasizing specialized occupations, gives added support to the trend away from the village to the city.

Property, Wealth, and Status

The principle governing property (real estate) at Yamboro is communal participation. All land conceptually belongs to the village and is parcelled out for use to families of the village. A man can therefore choose his own area for cultivation as long as it is not being used by another. The same

principle is operative for all residential property within the village proper. The only exception in the latter case is that a man is more than likely to build his home in the vicinity of the village where his kin group is located. Private property therefore pertains only to those possessions which are used strictly within the family domain itself.

Wealth is difficult to measure at Yamboro inasmuch as all but one of the informants were unable to give answers on the question of annual income. Such a response is understandable because subsistence agriculture cannot always be reduced to monetary figures. One of the planters admitted to receiving 150,000-200,000 C.F.A. francs (\$600-800 U.S. dollars) as the annual proceeds from his coffee crop, a figure that is well above the national per capita income level. He, however, is not representative of the average income of Yamboro. Otherwise, wealth differences must be estimated on the basis of personal possessions (such as radios, motorbikes, etc.), plural wives, and occupation. According to this measuring device, it can be estimated that about 10 percent of Yamboro families are in a wealthier category than others.

Wealth and status often go hand in hand in the village, but age and position are also variables that make up the equation of status. The status of the Chief is singularly higher than of any other individual. His house is larger and taller and includes one of the rare concrete floors to be seen in the village, his latrine is completely enclosed in a wooden structure that can be locked, he possesses the only shower stall in the village, and he possesses the greatest number of wives (four). Respect for the Chief likewise is consonant with his status, and his well-being signifies the well-being of the village itself. The power of the Chief is considerable, and all activities of the village are mediated through his hand. It is therefore not coincidental that his status extends to members of his own family. High status at Yamboro is also accorded to those who occupy political authority and to those who are traditional medical practitioners.

Political Structure

Yamboro is governed by a simple and yet effective political mechanism which involves six men. These may be summarized as: The Chief, two judges, and three policemen. The duties of the judges are to aid the Chief in arbitrating disputes in the village; they are, in effect, counselors to the Chief. The policemen are inhabitants whose duty is to bring the guilty party of

village transgressions to the presence of the Chief. But they also participate in the arbitration of the litigation, and together with the Chief and the judges, make up the village court.

African justice has traditionally operated on the basis of consensus, and Yamboro is no exception. In the process of a litigation, the persons involved are brought before the court and questions are asked of each. Opinions from the members of the court then go through a hammering-out process until a common decision is reached, agreed on by all. Oftentimes a punishment will be meted out by the court such as the requirement of a payment to the injured party or a task to perform within the village. However, it is strongly preferred that all disputes be handled on the village level rather than involve the more modern political structures of the state.* But more and more there is an awareness that recourse to the latter is possible.

The office of the Chief is traditionally passed from father to son. Usually one of his sons who possesses the quality of "strong eyes" (i.e. is intelligent) is chosen as the next Chief. But there is no rigidity to this custom and exceptions may take place. In the event that a Chief has no son, the other members of the village court will choose a member from the village for that position. Whatever choice is made, the new incumbent must first be legitimized by the government of the Republic.

* And all interviews were conducted in a like fashion with several villages listening and verbally agreeing with the replies.

SANITATION AND ENVIRONMENTAL HYGIENE*

In gross terms Yamboro gives the impression of being a tidy, well-kept village. There is a semblance of order; that is, houses all face in the same general direction, the latrines are behind the dwellings as are refuse mounds, chicken coops, and graniers. The earthen compounds in the foreground of the houses generally give the appearance of being swept. At first look the village is pleasing to the eye.

/ However, all this belies many significant problems of sanitation that are easily discernible to observation. Upon closer inspection there is excreta (mostly animal) scattered widespread throughout the village which attracts multitudes of flies. Fruit peels abound in haphazard bunches, rotting where they have been thrown. Dogs run hither and yon as do chickens, often on the verandas of the dwellings where food and cooking utensils are laid. Pigeons especially make a nuisance of themselves, looking for grain, being shushed off the verandas but not before they have crawled around into many of the pots and pans. And after careful scrutiny one sees the ubiquitous spoor of rats, the latter being probably one of the biggest health problems of Yamboro.

The inhabitants of Yamboro certainly are cognizant of cleanliness but with the connotation of aesthetics rather than for reasons of health. Indeed, one of the most used of household accessories is the broom, fashioned out of reeds and tied together. The women are often seen sweeping the dirt and refuse from their houses and then gathering this refuse for distribution on the refuse pile behind the house. Not infrequently the earthen compounds in front of the houses are swept to give the area an aura of cleanliness. But

* To understand the scope of lack of basic sanitation, we have reviewed the April, 1971, study of Kenneth Vinayagam, WHO Sanitation Engineer and Expert in his report, Resultat de l'Enquete Demographique et Sanitaire dans les Villages de la Sous-Prefecture de Birbo. The results of this study of 29 villages on the H'Baru Road which basically described the sanitation problems for 4,373 inhabitants, demonstrated that wells, latrines, and refuse removal were inferior. Specifically, most latrines were poorly constructed, too near wells, rarely tidy, and almost never covered; the vast majority of wells (over 90 percent) were muddy, if not spoiled, and lacked marginal wall supports and protective devices; although between 10 and 20 percent claimed to burn their garbage, most of it was placed in a shallow hole for later burial or incineration and much was just indiscriminately discarded. Yamboro was included in this study.

sweeping alone appears to be the sole activity in this category of house-cleaning, there being no washing or scrubbing of the dwelling itself or of its fixtures.

The villagers stated that very little refuse was left over from meals (most often the unused food from the noon meal is saved and eaten in the afternoon.) Such refuse, if not eaten, is ideally buried in a hole behind the dwelling. But it was observed that the ideal is not always the practice; food refuse is frequently tossed on the refuse mound which is located only a short distance from the house. These mounds begin as large cavities dug from the earth, but over time accumulations of refuse give this area a mound-like appearance. Flies and other insects are abundant here as are, quite naturally, rats.

The chicken coops, in which feces droppings go through to a board floor below, are said to be cleaned once a month. They, however, do not give the impression of frequent cleaning. The pigeon roost, located on the compound of the chief's house and rising on a pole some three meters from the ground, almost always had an abundance of droppings on the earth below. Many people frequent this area as it is the center of the village. Only once was it observed that these droppings were swept up.

The latrines, which have been previously described, are cleaned only in the sense that the earthen mound above it is brushed occasionally. Otherwise no disinfecting agent (or deodorant) is placed in the hole. Various methods of cleansing oneself after using the latrine are found throughout the village. Most often old clothing or old paper is utilized, although corncobs are observed in the chief's latrine. In the bush it is reported that leaves are used. There is no sexual discrimination in the use of latrines, nor apparently in using another family's latrine. The usual pattern, however, is to use that latrine which is set aside for a certain block of kin. Although one latrine had a lid nearby, none were ever covered.

Insect infestation at Yamboro revolves basically around (a) flies and (b) mosquitoes. Flies are ubiquitous throughout the village and are a nuisance. Mosquitoes are seen at times during the daylight hours (mostly on the inside walls of dwellings), and more prevalently at the water source. However, they constitute their greatest danger after sunset; many informants complained of being bitten at night. Some of the families (coincidentally older in age) use "moustiquaires" or mosquito netting as a preventive technique. A special indigenous technique for mosquito prevention is to burn a leaf, KPAKPALAKPA,

over a fire in the house, the smoke acting as a repellent. It is said to work effectively.

The tsetse fly is not feared in Yamboro as it is not commonly found in this region. Sometimes it follows the herds of cows which are driven along the road, but its appearance is rare. It is also reported to be more common in cold weather than warm weather.

Rats, even by the villagers' admission, are a severe health problem. Many of the people showed wounds from rat bites on the hands, arms, feet, and face. One young man developed a fever from such a wound and was treated by an infirmier who came out to the village. Others simply wrap up the wounds with leaves or an old piece of cloth. The incidence of rat bites is almost a nightly occurrence, the wounds occurring during the sleeping hours as the rats are foraging for food. Nor are these rats small and timid. One of the researchers slept overnight in one of these native houses and personally avows to the cat-sized dimensions of these rats who run with bravado all during the night throughout the dwelling. Sometimes indigeneous-made traps successfully kill a rat or two. In such cases, the rat is thrown to vultures; they are not eaten.

Mention should also be made of the respiratory problems which can develop during the sleeping hours. The experience related to previously by one of the researchers was made the more uncomfortable by a lack of ventilation in the house due to the window and door being closed and a kerosene lantern throwing out a musty odor. Coughing was heard all the night from one of the inhabitants who lived in this dwelling. In the same fashion, the grinding of manioc powder by women in cookhouses produces a noticeable lint in the air which is taken into the lungs, along with the smoke from nearby fires.

THE WATER SOURCE

Yamoro has no well or fountain from which to draw water, but the people must instead traverse to a water source some 15 minutes walk from the village through the bush. The qualification should be made that a well was dug at Yamoro in 1966, but after three years of use it went dry. To what extent this well was used and how greatly it affected the life-style of the village during this period of time is difficult to say.

The water source presently used is a major stream called the SABAKA which branches off into two smaller tributaries respectively called SO and the SABO. All are approximately the same distance from Yamoro, about 15 to 20 minutes, and at least three to four paths, located at the northern extremity of the village, make their way through the bush to these streams. There is another stream called the ANINGA which is located near the site of the old village but which is rarely used except for fishing.

Of the three streams which make up the water source, the SABAKA is the most used with the SO next in popularity and then the SABO. At each one of these streams water is taken for drinking purposes and cooking. Likewise, each serves as an area for bathing the body and for laundering clothes. It was reported that during the rainy season the people do not drink from the SABAKA, most probably because this is the major stream and the rushing current makes the gathering of drinking water a difficult task.

Since the research for this report was done during the dry season, the description of this water source will naturally reflect the drier conditions when little if any rain falls. A well-worn path through the bush leads to steep descent, at the bottom of which lies a stream. This steep hill is perhaps the most difficult part of the task of portaging water back to the village and is potentially dangerous during the rainy season. The stream itself is only a half a meter to three meters wide, and at its widest extremities it resembles more a pool than a stream. The water's depth varies from three to 12 inches. The bush is dense here, so very little sunlight is available; further, there are many flies and mosquitoes. There is very little movement of the water, a slight current only where the stream narrows. Twigs, leaves, and other fallen matter are abundant on the surface of the pools. Some of them are obviously stagnant. There is some evidence of human feces nearby.

The villagers activate a basic strategy in utilizing their water source. At one part of the stream, where a wide pool has formed, the laundering of

clothes is done. Upstream a few meters they bathe themselves, especially where the current of the water reveals some activity. Further upstream at another pool they gather water for drinking. The entire gamut of all of these activities is accomplished in an area totaling approximately 30 meters.

It is important to observe that all activities at the water source, besides fulfilling obvious essentials to the life of the village, provide also a major social function for the people. Here there is an outlet for social interaction, for gossip, and for sharing news. It is a time of intense conversation and playful antics. Indeed, it is a matrix out of which issues much of the meaning of life for the people of Yamboro.

Vessels for collecting water are usually of two kinds. A large, medium-wide pan is used for storing water which will later be used for cooking or for washing utensils or for bathing children. For drinking water a large transparent bottle is used. Water from the stream is scooped into both of these vessels with a small cup; then the vessels are placed upon the head of the women for portage back to the village. In the case of the large bottle, sometimes it is carried in a woven basket strapped to the back.

Because some of these above-mentioned activities are carried on simultaneously, i.e., laundering, bathing, gathering drinking water, many women come with their daughters to the water source as a group. In such fashion, daughters aid their mothers both in the laundering and in carrying back the water. Usually a young girl will begin carrying water when she is six to eight years old.

It was reported that water is procured from the stream at least once a day, sometimes twice a day (morning and afternoon). Because of the great use of water in the village, this seems entirely reasonable. It further precludes water standing around for any length of time in the house, a fact born out in the questioning of the villagers.

HOUSING AND HOUSE FURNISHINGS

The houses of Yamboro are all of the same basic construction: mud huts with thatched roofs and earthen floors. The manufacture of these houses is relatively simple and is carried out by the family itself with at times, help from one's close kin. Strong saplings from the forest are wedged into the earth to form upright supports for the walls and the gabled roof. Other small saplings are tied horizontally for further support and to form a mesh effect for the muddy clay which is applied to make the walls. Thatched reeds, woven by hand, are then laid upon the roof supports.

There is usually one entrance to the house, a door made of wooden planks. Often there will be no more than one or two windows, and these are usually closed by a wooden block which fits snugly into the window frame. Many of the houses feature a small porch or veranda, simply constructed by a few poles with an overhang of thatched reeds which extends over the doorway. Frequently one finds much of the cooking equipment and even the fire place on the porch. The porch is likewise a favorite respite for the people to eat and relax, and it is not uncommon to see many of the inhabitants of Yamboro on their porches sitting on small stools or on the earthen foundation. The people spend very little time inside their homes.

Houses of the Yamboro type last about three years. When they finally fall victim to the elements and insect infestation, they are allowed to crumble while a new dwelling is constructed nearby. Throughout the village there were numerous new houses under construction. At the time of this report 47 houses were inhabited.

Some of the houses are larger than the others, obviously because of the differential in family sizes. A larger dwelling enables one to screen off more rooms within the house which is how rooms are divided. The screen is a piece of cotton cloth suspended down from a timber at the joint of the wall and the roof. The main room often has nothing more than a table and a few chairs. Some household supplies such as pots and pans may be found there along with basin or jar of drinking water. Food supplies are usually stored off the floor on one of the roof timbers because of the problem of rats. The other rooms of the house are bedrooms and may or may not contain a bed and mattress, dependant upon the affluency of the owner. Many people simply sleep on a reed mat on the earthen floor. Clothing is kept in a box or barrel; there are no storage closets. Although many families possess kerosene lamps, some rely only on a fire or a firebrand to see after dark. A radio is considered a luxury and nine were counted in the entire village. The walls inside the home are for the most

part unadorned with at most a small religious (Catholic) picture or two. In sum, house furnishings in Yamboro represent only the barest essentials needed for life as it is lived on the village scale.

Many of the dwellings have either attached to them or close nearby a separate "cookhouse" which functions as a supply room for food and cooking utensils. They are built in the same manner as previously described with the exception that the roof is usually flat. The ubiquitous porch is likewise attached and here the cooking is done. While the possession of a separate cookhouse is a personal choice, it is always found at a dwelling where a polygynous family lives. In such a case the cookhouses flank the home, often the number of cookhouses equating the number of wives in the family.

Many of the families have their own personal latrine which always is located some eight to ten meters behind the house (some even further back in the bush). A total of 16 latrines were counted in the village. These are constructed by digging a deep hole in the earth about three to five meters deep and building a slight mound at the zenith of the hole. Frequently a matting of reeds in the form of a barricade is placed around the latrine for the purposes of privacy, but many latrines were without any such protection. It is considered purely personal whether the structure is there or not. The life of a latrine is estimated at two years or longer; if the family is large, then two years is perhaps maximum. When no longer in use, the latrine is covered up and a new one built.

Other structures found in Yamboro are graniers (storage huts for tuberous roots, plantains, and fruits), chicken coops, open bins for the storage of coffee sacks, and a pigeon roost. The latter is located in the chief's compound and has a large pigeon population. There are at least a half dozen chicken coops scattered throughout the village although the chickens are allowed freedom to wander as they may. Also it is not uncommon to find in the foreground of many houses temporary bins made of small wooden planks in which are placed coffee, pepper, manioc, and at times tuberous roots. This serves as a drying process before final storage.

Clothing is not in overabundance at Yamboro, most of the population having only two or, at the most, three changes of clothing. There is usually one "good" set of clothes which is worn at more important events or when traveling to Bangui. But much more in use is the day to day set of work clothes. The latter for the men usually consists of a pair of western cotton trousers, white under-drawers, and a shirt with collar and buttons. Hats are rarely in use. Men's shoes are of many varieties: French-made leather (rare), plastic (common), sneakers, and sandals. Socks are not frequently worn except for more festive occasions.

Women's clothing is distinctively non-western and has the typical West African flavor of a long wrap-around skirt which is ankle length, a short-sleeved blouse, and a mid-riff apron (which is also used to portage a small infant on the mother's back). The major difference between the women's work clothes and their more formal attire is that the latter does not show nearly as much wear; also on more formal occasions they will wear a bandana on their heads and a pair of sandals. On all other occasions, they go bare-foot.

Children up to the time of adolescence often wear only a short-sleeved shirt and a pair of shorts if they are boys, and a blouse and short skirt if they are girls. Infants and small children under three are frequently seen naked. Pre-school children never wear shoes.

Clothing is worn three or four days consecutively (sometimes longer) before being changed. Even if the clothing has become soiled or stained, the basic pattern is not to change until the day set for laundering. It is not unusual to see a mother wipe her child's nose or wipe clean a child after a bowel movement with her dress. She will also use her dress to wipe her hands during food handling.

Laundering is usually done once or twice a week at one of the streams close to the village. This task is accomplished by soaping the clothes and beating them briskly on the large rocks in the stream. After they are rinsed, they are carried back to the village and hung on lines or horizontal poles to dry. If no lines are available, the clothes are laid upon the ground or draped on the roof. Most often, when clothing is laundered, the entire family's ensemble is done at one time. Young girls, eight years old and upward, frequently aid their mothers in this task, but when they reach the age of eleven, they may be assigned the chore of doing the washing themselves.

However, it is not uncommon to see young, unmarried men at the stream washing their own personal effects. Only the Chief had clothes which were ironed.

Personal hygiene by and large revolves around washing the body and the hair which is also done at the water source. Such a person will stand nude (or partially clad) in the stream and soap his body down and follow this procedure by a rinse. The same type of soap is used for washing the body as for laundering the clothes: a large alkali-based bar soap purchased from the store or traveling Arab merchants.

Men sometimes bathe from a pan in the morning before going to their work and may or may not bathe at the stream in the afternoon. There appears to be no set pattern; rather, this falls into the category of personal choice. It is likewise difficult to discern any pattern whereby women wash their bodies on a regular basis although some claim to bathe twice a day at the stream. It is certainly probable that women bathe more frequently than men inasmuch as they spend much more time at the water source than do the latter.

The bathing of infants occurs much more systematically than others of the village population. Infants are bathed at least once a day but some mothers claim to do it as often as three times a day. The task of bathing the child may be done by either the mother or an older sister. A pan of cold water is secured with soap; the child stands in the pan and is quite thoroughly cleaned. An old cloth is sometimes used to dry the child.

There is no strong evidence that hands are washed previous to eating or to preparing of food although this procedure was reported to be the common practice. On the contrary, women went from one chore to another - touching children, shredding leaves, preparing the fire, cutting plantain, etc., - without rinsing the hands at all.

The cleansing of the hair likewise appears to have no set pattern. Some of the people stated that the hair was washed at every occasion that the body was bathed. But this was not observed to be the case. In fact, some elaborate hairdos on the women were kept intact for several weeks. More often than not mothers were seen picking lice out of their children's hair; this practice is a common procedure at Yamboro. The cleansing of the teeth is not at all practiced in the village, and many of the middle-aged and older inhabitants were observed to be missing many of their teeth. In general, adult teeth are yellowish in appearance and the gums are often black.

Concern for personal appearance however, is a definite aspect of the life-style at Yamboro. Oil is used by both women and children for application to the body. Such oil is either purchased from the market at Bangui or else is extracted from the inside of the nut of the palm fruit (called NZIKA). Sometimes a green vasoline, brillante, is applied to the baby's head after bathing. Women often spend much time pleating their hair into the popular "needle-like" style seen all over this region of the Central African Republic. But this definitely seems to be much more a preoccupation of the younger adolescent girls than of the older women, the former changing their hairdos two to three times a week. The influence of modern ways is likewise evident in the application of a small pen for eyebrows.

The piercing of girls' ears for the purpose of adorning themselves with ear-rings is a common practice in the village. When a female infant is four days old, the mother pierces the lobe with a needle (no medication is applied); a piece of cloth rinsed in hot water is placed in the puncture and when the lobe has healed, earrings are then worn.

The practice of piercing the septum for wearing a nosering has died out although the older women of the village still bear the mark of a pierced septum. Likewise, scarification and body tattooing is no longer a viable custom as in the former days. Some of the older inhabitants were observed to have scarification marks on their faces, but none of the younger were so adorned. One young married woman displayed a very elaborate tattooed mural on her mid-section. However, the villagers who performed this work of art are now dead.

The old customs of beautification have therefore been replaced by more modern symbols, probably the most significant being the importance now given to clothing. The Catholic religion has also contributed the necklace cross, worn by many of the women. There is, however, one vestige of a former custom which still survives: a narrow-stranded cord worn by small infants around the waist whose purpose is to enable the child to walk soon and grow strong. It is also thought to be a protection against evil.

Kinship

One of the keys to the comprehension of Yamboro society is an understanding of the strong kinship system pervading this village. Indeed, much of the social behavior, its meaning and motivation, lies obscured unless this facet of social interaction between kinsmen is brought to light. Kinship not only creates strong alliances between people of like blood but it also dictates the types of behavior including duties and obligations, which such people must perform toward each other.

At Yamboro the kinship pattern is what anthropologists would call patri-lineal, that is, descent is figured through the male line. A child, whether male or female, is thereby considered to belong to the father's group of kin. There are eight of these male-oriented groups, or patri-clans, in Yamboro. One clan especially, the Bobezere clan (the clan of the chief), is so much larger than the others as to be called dominant. It, in fact, has more members than all the other clans put together. This is significant inasmuch as it means that a large proportion of the village is closely related. This fact likewise enables one to grasp more clearly the power structure and the lines of influence operating within the village.

The principle of exogamy is also operative at Yamboro, with all females of the village marrying out and all wives of the men brought in from other villages. This principle is absolute with a strict prohibition against intra- and inter-clan marriages. Therefore, a wide network of relationships is established by virtue of the fact that the village's women are scattered in the nearby environs and even Bangui. These relationships involve not only alliances with affinal kin (the new families of village women) but especially the power of the father's kin group to call back the daughters to Yamboro for specific occasions.*

The patri-lineal principle is also important in that it situates those locations within the village where people are to live. Generally speaking, members of a clan will reside in that part of village where their clan is located. Sons, in fact, will build their homes right next to their father's

* This truism can be illustrated by an incident which occurred during the research. When the chief of the village was hurt in an accident and was incapacitated, all of his married daughters came back to the village to carry out their obligations toward him. On other occasions, sometimes for no other reason than to visit, village daughters were seen spending the night at Yamboro.

home which is termed virilocal residence. Such residence rules facilitate and strengthen the kinship relationship, which as stated previously, is replete with many mutual obligations.

Even to the point of inheritance, is the male-orientation principle pervasive at Yamboro. At the death of a father, all of the former's possessions go to the oldest son who then distributes them as he wishes to the remainder of the siblings. The oldest son likewise is considered to carry on the father's line or lineage.

The naming of a child is again the father's prerogative. Some children take their father's name but at Yamboro it is much more common to name a child after an "event". Frequently girls and sometimes boys are named after a relative who has died, which, in the symbol system operative among these people, can mean that the deceased has been reincarnated.

Marriage

Marriage at Yamboro is one of life's expectancies and almost all young people become married. There are restrictions concerning marriage with any near kinsman (see above) which makes the choosing of a mate an adventure outside of the environs of the village. Quite often young men will travel to other villages or to Bangui, and young women manage adequate exposure of themselves through frequent visits to Bangui or by being seen by men who stop off in the village for a drink of palm wine.

Girls at Yamboro marry at about the age of 15 or 16 and men at about the age of 20. The important fact is not the age per se (see how the question of "time" is dealt with later in this report) but the development of the young woman and man respectively. At age 15 the girl has had her first menses and her breasts are fully developed; she is considered marriageable. At age 20 the young man has begun to establish himself economically and is ready to begin a family. It is the man who initiates the marriage; this he does by choosing his woman after which he then makes a request of her parents. After a family discussion, permission is either granted or refused. If granted, the two families then meet together to arrange for the "bride-price". The bride-price at Yamboro is usually around 15,000 C.F.A. if the girl is a virgin (\$60 U.S. dollars) plus some alcoholic beverages and some animals. The matter of the brideprice is important because the marriage is not considered valid until the former is paid nor under any circumstances can a girl leave her parent's home until this matter is resolved. The marriage ceremony itself is only a family get-together, not a village affair. The husband simply brings his new wife into the new home he has built.

There are four polygynous families at Yamboro, families in which a husband has two or more wives. Aside from the chief who has four wives, two of the men have three wives apiece, and another has two wives. This custom, which has a long history in Africa, is based on economics and prestige. It is not coincidental that the above mentioned men are the most prosperous in the village; and all except one occupy positions of authority at Yamboro. In these plural unions, it was reported (and there is no evidence to the contrary) that the relations between the wives were very harmonious. If such a problem developed, the troublesome wife would be removed. Neither is any of the wives given authority over any other; all authority is considered to be the domain of the husband. Sexual relations in such polygynous unions is regulated by an equitable principle in which the husband moves from room to room, spending two days with each wife.

Divorce at Yamboro is rare but it is a viable option for a man in the event his wife does not bear him children. Quite often, if a woman does not bear a child within the first two years of the marriage, her situation is precarious. Divorce is also an option if a man's wife is adulterous or becomes a prostitute. To affect a divorce, a husband need only present his cause to the village judges and by consensus of the latter gain his freedom. There are no papers to file. A woman is also allowed this same procedure, and if agreed upon by the judges, she returns to her father's home. Remarriage is quite common at Yamboro as many spouses die early of various diseases or because of childbirth. It is indeed rare to find an older single person. An understanding of the rigors of living alone in an economy and social structure as that of Yamboro underlines this truism indelibly.

The Family

Family life in the village bespeaks of solid, enduring relationships. Not only is sexual division of labor clearly delineated but familial roles are likewise clearly defined. The husband is the authoritarian par excellence within the structure of the family. However, this is not an alienating principle; the wife and children are endeared to him in a multitude of ways, and he is highly respected. Similarly when men speak, women listen. Women are said to "have no opinions" on many things for to make decisions is the province of the men. A woman's domain is her home and her children; there she finds her role and the meaning of her life.

Relations between parents and children at Yamboro are replete with affection. There is very little discipline of children in a negative sense. Aside from some

stern commands, a short but pointed pat on the buttocks was the only discipline observed. Quite to the contrary, parents are most amiable to their children, especially the father and the young infant. Mothers often fondle and caress their babies. Often while the mother is working the baby is secured tightly to her back by a midriff apron that extends around the child and is tied at the mother's waist. Sibling relationships are warm and congenial, a brother or sister frequently given the assignment of caring for the smaller child. Especially evident is amiability between members of the same clan. Cousins not only eat together but at older ages share common chores with each other.

Though love for children is manifestly observed and the ability to produce children the expectation of every wife, nevertheless there is no conception of family planning at Yamboro. Informants found it impossible to answer the question concerning the number of children they would like to have. Cognitively it was without their frame of reference. "Only God can give children" was the rejoinder although this by no means infers an ignorance of the mechanism of pregnancy. It rather infers that children are conceived of in more supernatural terms than mechanistic terms, and the liting belief of some that the spirits of deceased ancestors are incarnated in children give added meaning to this type of orientation.

Sexual behavior at Yamboro is naturalistic with no manifest inhibitions or strong moral codes. There is no sex education, all children being expected to learn such facts for themselves at an early age. Indeed, the naked exposure of small children running about the village causes no concern. Even at the water source where bathing takes place adults will uncloth themselves in the presence of the other sex. Women at Yamboro do not bare their breasts as was traditional in former times; perhaps here the influence of modern ways in the Central African Republic and of the Christian Church have been the pervasive factors. But they are not with any sense of embarrassment in nursing their children and do so even in public assemblies. Pre-marital sexual experience does not appear to be common in the village, and ideally the village frowns on such behavior. But it is admitted that it can happen and does so with some frequency when young people go to school in Bangui. There is, however, a strong sexual taboo on intercourse between husband and wife for a considerable time after the birth of a child. Various points of termination concerning this taboo were given, for example, "when the child begins to walk" or "when the child begins to walk fast"; it can be estimated that these points of reference equate roughly

to a period of 12 to 16 months after the birth of a child. When asked if the husband has intercourse with any other woman during this duration, it was suspected that this might be the case.

Girls at Yamboro are reported to begin their menstruation at the age of 13 or 14. It could not be ascertained whether a female initiation rite was associated with menses, and the subject was avoided by informants or denied. But it was stated that a young girl is taught how "to stay" when she has her first menses, the reference being to how to conduct herself in front of others and not to leave their presence when menstruation occurs.

Malnutrition is a great health hazard in much of middle Africa.* However, we observed no obvious protein-calorie malnutrition in Yamboro, and the health personnel at the Bimbo Dispensary reported almost no malnutrition due to lack of food in the Bimbo Pilot Zone. However, nutritional deficiencies due to the ravages of parasitic invasions are a constant threat to the entire population of these areas and can easily result in death for young children. Thus, as one reviews the food intake of these people, one must realize that one can have a good diet and still be on the brink of starvation - completely depleted by disease.

Core Diet**

In Yamboro, cassava (manioc) is the principle staple. This starchy root, which is shredded, pounded into flour, dried on the open earth, and cooked into a paste, is served with every meal during both the wet and dry seasons. Supplementing this staple is taro, another tuberous root which, like manioc, is cultivated both for its roots and leaves. Of equal importance to manioc is the plantain, evidenced by the ubiquitous roadside stands at most villages near Bangui. Along with a starchy dish, which is served with a highly-peppered sauce, is often added shredded leaves, fried lightly in palm oil. This mixture is sometimes supplemented with peanuts. (Traditionally, the southern people of C.A.R. who base their diet on these starchy tubers, reject the cereals of millet and sorghum.) The food value of these items is noted in Table I.

Protein

Meat is, at least in small quantities, a part of their regular diet although they have it about four days a week. They often put whole pieces of manioc or rice into water with the meat and cook it, often for several hours. Although they buy some beef at the Bimo market, south of the village, they eat much gazelle supplied by the Pygmies. Meat is also fried with peanuts. (Patients interviewed at the Bimbo Dispensary enjoyed meat less often each week, probably because many had to purchase it in the more expensive city markets.)

In the larger urban markets meat (some beef, gazelle, antelope, etc.) is grilled on open fires and sold. Besides seeing the usual high degree of insect infestation around this meat, we noted that much of it was served rare or still

* See Jacques M. May, The Ecology of Malnutrition in Middle Africa. (New York: Hafner Publishing Company, 1965), especially pp. 207-241 for discussions of the Central African Republic and Chad.

** See the checklists in the Appendices that were used to gather some of this information.

TABLE 1 - DIET

SELECTED CENTRAL AFRICAN REPUBLIC FOOD ITEMS
(IN TERMS OF 100 GRAMS EDIBLE PORTION)

FOOD	Food Energy	Protein	Fats	Carbo- hydrates	Iron	Calcium	Phosphorus	Thiamin
	Calories	GRAMS				MILLIGRAMS		
Cassava (Manioc)								
cooked roots	174	.9	.1	29.9	1.3	--	--	.03-.05
raw leaves	91	2.0	1.0	18.3	7.6	303	119	.25
Plantain								
ripe	135	.8-1.6	.3	32.1	1.3	8	3.8	.08
cooked		1.3	.1	18.1	--	--	--	--
Taro								
raw leaves	31	2.4	.6	5.7	2.0	98	49	.17
cooked roots	87	1.5	3.5	13.3	.8	56	61	--
Corn (Maize)	353	9.5	4.4	69.0	2.9	20	280	.16
Peanuts								
dried	549	23.2	44.8	23.0	3.8	49	409	.08
Mango	60	.6	.2	15.8	1.2	20	22	.03
Pineapple	47	.4	.1	12.4	.4	16	14	.06
Beef								
medium fat	237	13.2	17.7	0	3.6	11	19½	--
Chicken	146	20.5	6.5	0	1.1	10	206	--
Fish (Capitaine)	--	70.0	--	--	--	170	65½	--
Termites								
dried	650	35.7	54.3	3.5	.5	142	5	.03
raw	356	20.4	28.0	4.2	--	--	--	--
Ants								
male	--	3.0	9.5	--	--	--	--	--
female	--	10.1	1.3	--	--	--	--	--
Caterpillars								
dried	430	52.9	15.4	16.9	2.3	185	617	.17
Palm Wine	34	.4	.1	1.5	--	2	--	--

Food Composition Table for Use in Africa: A Research Project Sponsored Jointly by: U.S. Department of Health, Education and Welfare, Public Health Service, Health Services and Mental Health Administration, National Center for Chronic Disease Control, Nutrition Program, Bethesda, Maryland, and Food Consumption and Planning Branch, Nutrition Division, Food and Agricultural Organization of the United Nations, Rome, Italy (1968), 306 pp.

Organisations d'enquete anthropologique, Rapport No. 3, Gouvernement General de l'AOF, 1947.

pink. Except in the case of fried meat, however, the Yamboro residents seem to enjoy their meat well done. The villagers also enjoy pork, but commented that it was usually too expensive. Goats, of which we counted less than a dozen, freely roam the village and are not used for milk. They are roasted over a spit for ceremonial festivities only. In fact, our village has no milk, cheese, or butter products whatsoever. Sheep are banned from their diet by tribal taboo, as are certain game animals for the women. Chickens, whose leanness evidenced their own food foraging, are raised for their eggs and meat. But eggs are considered a special food* - in fact, they are sometimes eaten when rotten.

Although pigeons are raised in the chief's compound, they are infrequently eaten - and are taboo food for the women. Fruit bats, considered a delicacy, are trapped in nearby palm trees while the gazelle, antelope, wild pig, buffalo, monkeys, and wild birds are hunted in the bush with guns or snares. Even large game like the elephant and hippopotamus have been captured for food, although not in recent years. On hunting trips, the men also have eaten crocodiles, snakes, squirrels, dogs, and small rodents when other game was unavailable. Although many mice and rats (some as large as cats) have been observed at night, the villagers denied eating them.** Women are expressly forbidden crocodiles, monkeys, and pigeons; pregnant women are not allowed to eat wart hogs or snakes. Fresh fish from the nearby Ubangi and M'Poko Rivers and their tributary streams are caught by the women, but they are not in plentiful supply. The capitaine, a large white fish in the Ubangi, is sometimes scarce because fishermen get higher prices for it in the Congo than Bangui. Both fish and meat are dried and smoked for use during the rainy season.

Insects are another good source of food energy and protein, as Table I demonstrates. They are eaten not only after being cooked or dried but are eaten raw as snacks while one walks along the road to market or down to the stream for water. Termites and ants are dried and cooked; during the beginning of the

* The villagers' generous gifts to us included pineapples, eggs, and, on the final day of our interviewing, a large, plump chicken. This, we felt, was evidence of relative scarcity and/or delicacy of these items.

** It is interesting to note, however, that public health students in Bangui told us that rats were never a problem in the overcrowded regions of the city because they were used so frequently for food.

rainy season when caterpillars are plentiful, they are roasted. However, one medical missionary commented that she had seen several people choke to death on the fuzz of the caterpillar. Although grubs often supplement African diets, the residents of Yamboro find them distasteful.

Fruits, Vegetables, and Other Foods

The greens of the taro and manioc constitute the primary vegetables and, whenever available, wild mushrooms. When in season, bananas, papayas, pineapples, and mangoes are widely consumed. Maize and yams add starch during the rainy season. Peanuts, sesame seeds, and palm oil are purchased in nearby markets.

Sugar and salt (either rock or uniodized), because of high cost, are rarely purchased in the city market. Advanced cases of goiter was observed in three women (2 percent of the total population) in Yamboro; this is a frequent problem throughout C.A.R. as Table 2 indicates. Red pepper and other herbs are used to season many dishes.

Yamboro residents raise coffee and sugar cane as cash crops. Water, however, or an infrequent Moca beer or homemade palm wine serve as beverages. Although cash is scarce, even soda pops are occasionally purchased.

Analysis of Food Intake

What does this diet actually tell us? Taking into consideration the population profile, climate, and activities, the estimated calorie need for the average Central African adult is 2050.* This should include 55 grams of protein. Therefore, this diet first indicates that there is no gross malnutrition in the village. Although the villagers said there are a few times during the rainy season when they have no food for a day or two, this caloric standard seems to be usually met. Although a good nutritional study would necessitate full diet and medical evaluations along with biochemical microscopic tests,** we can still

* Food and Agricultural Organization of the United Nations, Rapport au Gouvernement de la Republique Centrafricaine, No. 1450, Rome, 1962.

** An excellent and fully comprehensive nutritional study for C.A.R. and Chad might be modeled after the ICNHD method. See the Manual for Nutritional Surveys (Interdepartmental Committee on Nutrition for National Defense, National Institutes of Health, Bethesda, Maryland), 1963, p. 327. Also, before such research, one should contact Dr. M. Martineaud at WHO in Yaounde, Cameroun, who finished a nutrition study in C.A.R. early this year.

TABLE 2 - DIET
NUTRITIONAL DEFICIENCIES IN SELECTED AREAS
CENTRAL AFRICAN REPUBLIC 1960

	Bouar Area	Berberati Area	Bambari Area	Nola Area	Bangassou Area 1955	Babinga People
Nos. in sample	1,894	1,150	450	196	79 children	619
Vit. A defic.	4.8%	4.3%	11.5%	7.6%	50.74%	2.9%
Vit. B defic.	3.0%	0.39%	9.1%	2.5%	52.39%	2.4%
Vit. C defic.	3.1%	0	0	0	22.32%	0.33%
Protein defic.	5.2%	3.4%	12.8%	0	73.41%	0
Goiter	26.3%	21.2%	24.8%	1.6%	24.04%	0.33%
Tb (80%)	67.0%	100.0%	100.0%	68.4%	?	74.8%

Source: Situation alimentaire et nutritionelle
 Rapport au Gouvernement de la Republique Centrafricaine
 FAO, No. 1450, Rome, 1962.

suggest that the known resources probably meet average protein needs, but are deficient in vitamins and minerals. This is evidenced by the incidence of goiter, and, as evidenced in Table 2, there is probably insufficient Vitamin B and C along with even more obvious lacks of Vitamin A. To support this, we noticed that several villagers expressed fear at the prospect of blindness - sometimes a result of eye disorders due to Vitamin A deficiency. Checking the records at the Bimbo Dispensary in the last week of March, we noted 12 cases of conjunctivitis in the 264 new patients (4.5 percent) represented.* But we are quick to point out, that without the proper nutrition study, this is conjecture only.

Furthermore, most Central African hemoglobin rates are low, as mentioned by various American and French medical personnel in the country; this anemia is due in great measure to the heavy load of intestinal parasites and prevalence of the sickle cell trait. Although malnutrition is more overt in the deep bush country in the northern, eastern, and western sections of C.A.R. (see Tables 3 and 4), one can equate Yamboro to Nola, represented in these findings where malnutrition is rare. Although the C.A.R. medical personnel substantiated our analysis from their own experience and observation, we must be constantly aware that the high complex of disease present in most Central Africans typifies them as undernourished. (Medical experts in the country talked of over 90 percent of the population suffering from major intestinal infections. Malaria, of course, is endemic.) Thus, meeting a caloric intake of 2050 is not enough; the body must be free from disease in order to absorb these nutrients, and, in the case of any illness, needs even more. Consequently, due to this toll taken by disease, the Central African can only work a few productive hours a day as we evidenced ubiquitously - the sluggish pace is not only a cultural and climatic tempo - it also has to do with a complex disease-nutritional imbalance.

Furthermore, given the proximity to Bangui, with the influx of people into the city, there will be increased demands on the game and fishing resources. Also, since the Bimbo sub prefecture is earmarked as the medical experimental zone where UNICEF sanitation facilities are being constructed, one can expect infant and early childhood mortality rates to drop markedly. This population increase

* Such small samples usually tend to underrepresent such phenomenon.

TABLE 3 - DIET
FOODS CONSUMED PER CAPITA PER DAY IN SELECTED AREAS
CENTRAL AFRICAN REPUBLIC 1960

	Bouar		Berberati		Bambari		Nola
nioc	548.9 Gr.		453 Gr.		489 Gr.		342.7 Gr.
ms	9.2 Gr.		1.4 Gr.		--		7.1 Gr.
rn	--		--		--		37.8 Gr.
esame seeds	53.7 Gr.		8.9 Gr.		--		0.7 Gr.
urd seeds	--		5.1 Gr.		67.3 Gr.		12.1 Gr.
lm nut	--		3.7 Gr.		--		--
lm oil	--		6.1 Gr.		--		4.0 Gr.
oundnut seed	--		23.9 Gr.		4.3 Gr.		23.3 Gr.
oundnut oil	0.5 Gr.		3.8 Gr.		1.9 Gr.		1.9 Gr.
eat (fresh)	antelope 9.1 Gr.	beef	48.9 Gr.	beef	7.3 Gr.	ant. or monkey	24.9 Gr.
eat (dry)	antelope 1.6 Gr.	alligator	3.5 Gr.	beef	17.9 Gr.	ant. or monkey	26.0 Gr.
sh (fresh)	3.5 Gr.		9.9 Gr.		2.0 Gr.		1.4 Gr.
sn (dry)	0.7 Gr.		3.6 Gr.		--		--
llets (sissengo)	60.4 Gr.		5.6 Gr.		--		--
reens	37.7 Gr.		48.3 Gr.		--		92.0 Gr.
antain	--		3.9 Gr.		99.9 Gr.		253.0 Gr.
shrooms	30.8 Gr.		12.7 Gr.		10.9 Gr.		4.3 Gr.
ppya	--		--		--		24.1 Gr.
trus fruit	--		--		--		3.3 Gr.
ili	--		--		--		0.3 Gr.

Source: Situation alimentaire et nutritionnelle
 Rapport au Gouvernement de la République Centrafricaine
 FAO, No. 1450, Rome, 1962.

TABLE 4 - DIET

DAILY PER CAPITA CALORIC EQUIVALENTS OF DIETS IN SELECTED AREAS
CENTRAL AFRICAN REPUBLIC 1960

<u>Nutrients</u>	<u>Bouar</u>		<u>Berberati</u>		<u>Bambari</u>		<u>Nola</u>	
Calories	n.	2,400	n.	2,103	n.	2,288	n.	2,106
Total Protein	Gr.	28.0	Gr.	35.0	Gr.	50.1	Gr.	52.9
Animal Protein	Gr.	4.2	Gr.	15.9	Gr.	16.8	Gr.	25.3
Fats	Gr.	35.2	Gr.	39.8	Gr.	38.3	Gr.	32.3
Carbohydrates	Gr.	479.0	Gr.	385.0	Gr.	423.0	Gr.	388.0
Calcium	Gr.	0.807	Gr.	0.331	Gr.	0.227	Gr.	0.242
Iron	mgm.	12.2	mgm.	4.9	mgm.	15.0	mgm.	?
Vitamin B ₁	mgm.	0.54	mgm.	0.4	mgm.	0.37	mgm.	0.66
Vitamin B ₂	mgm.	0.23	mgm.	0.3	mgm.	0.54	mgm.	0.73
Vitamin <u>PP</u>	mgm.	14.2	mgm.	14.7	mgm.	7.3	mgm.	12.6
Vitamin C	mgm.	96.0	mgm.	66.0	mgm.	207.0	mgm.	435.0
Vitamin A	UI	1,893	UI	3,200	UI	1,960	UI	4,300
<u>Percentage of Calories:</u>								
Proteins		4.8 percent		6.8 percent		8.9 percent		10.3 percent
Fats		13.4 percent		17.2 percent		15.2 percent		13.9 percent
Carbohydrates		81.8 percent		76.0 percent		75.9 percent		75.8 percent
		100.0 percent		100.0 percent		100.0 percent		100.0 percent

Source: Situation alimentaire et nutritionnelle
Rapport au Gouvernement de le Republique Centrafricaine
FAO No. 1450, Rome, 1962

in and around the Yamboro region will result in increased food needs within the next few years and a greater dependency ratio will ensue. Specifically, Yamboro's nutritional problems are due more to illness than food shortage. However, one still needs to look at the whole ecology of nutrition and food production for this area.

Ecology of Nutrition

As has been explained in a previous section, Economics and Social Structure, nutrition is intimately connected to the economy of the region. Yamboro's food economy is based on home-grown food and barter. Succinctly, this is subsistence farming. Agriculture is primitive; women dig a few manioc holes in nearby fields or close to their homes and casually nurse a few plantain and banana trees. Crops are rotated, but there is no fertilizer, irrigation, machinery or even animal-drawn equipment. In fact, the traditional "slash-and-burn" method of clearing and enriching the soil is used. The only tools are crude hand hoes. The cash crops are coffee and some tobacco. People in nearby villages raise peanuts.

As it has been pointed out, the soil types of Central Africa are tropical; the topography consists of shallow, rolling plains with frequent water networks which are often dry for half the year. So, given the reasonable crop rotation and the amount of available cultivatable land, improved agricultural techniques - even animal-drawn equipment and improved seed - could substantially change the food production levels.

However, C.A.R. is at least 300 miles from the sea and its main cash crops are already produced throughout Africa; these very crops (cotton, peanuts, coffee, cocoa) are also part of the most precarious price markets in the world. Consequently, profits could quickly be dissolved in high transportation costs or low-yield price markets.

The people of Yamboro are fortunate not only to have some cash crops along with their food crops, but they are further lucky to be within a five-minute walk of a Pygmy village with which they have a quasi-symbiotic relationship. These forest-dwelling people, with a reputation as agile hunters, have an exchange relationship with the chief, with whom they trade additional game for cultivated foodstuffs. Also, Yamboro is located on a heavily-traveled hardtop road where cash trade is brisk, so the residents can market their surplus food and bring in that which they need, even in the rainy season.

Although increased productivity of foodstuffs for internal consumption and increased productivity of new cash crops for export has been indicated, the Government has severe budgetary restrictions in both developing the necessary administrative structures for such development and making such social or agricultural services available. However, rural youth activities aim to keep the young population on their farms and demonstrate improved agricultural procedures. "Operation Bokassa," furthermore, is designed to bring more land undercultivation with improved mechanized techniques. It is the expectation of the Government that an expanded population will also increase agricultural employment, which is now thought to be under par.

At present there are no food industries in the country, but a citrus juice plant will be built within a year or two. There are some experimental food stations, sponsored with international assistance, including scientific fish and poultry farms in Bangui.

To summarize, the ecology of nutrition, coupled with the earlier analysis of diet, adds another dimension to good nutrition. Besides curbing communicable diseases, there is grave need for improved education, perhaps especially technical education, before diet can substantially be improved.

Meal Routines

Although in many discussions of African eating habits, two meals - early morning and late afternoon - are mentioned, in Yamboro residents claimed to eat three. However, during our early observations, we found that the early morning "meal" consisted more of snacking on fruit, discarding the peelings or pit on the ground. The big meal comes about noon, when the manioc and accompanying dishes are prepared. The food is cooked in large cast iron pots over outdoor fires on clear days; during the rainy season, the women cook in their mud-brick, reed-thatched-roof homes. As one can expect, many accidents occur with young children, and household fires are frequent. After the food is cooked, it is piled on one or two large serving plates and set on the ground for the extended family to enjoy. In Yamboro no preference for food is given on the basis of age or sex; it was equally shared.*

* Some missionaries noted that in areas where the men are given preferential food access, the women often hide food for themselves and their children.

Thus, the family scoops the glutinous manioc and other foods from the communal serving dish with their hands. Water is usually served in glasses or mugs. There are few utensils - usually just one large spoon for stirring. Although the villagers remarked that they washed their hands before eating, this appeared less common in practice than even the American seven-year-old who rushes in from his play to gulp a peanut-butter sandwich. The critical difference, however, is that intestinal infections abound in this environment.

In this tropical climate where insects are omnipresent and insecticides are virtually non-existent, the people seem not to notice the ubiquitous swarm of flies at every level of food preparation - the drying of manioc, the pounding of flour, the serving of cooked food, and finally the swarms in and around the storage containers. One can easily understand that, in this village where no latrine is covered, communicable diseases, are common.

After the meal, left-over food is put in a container (sometimes - but not usually - covered) or left in the cooking pot for anyone who wishes more food in the afternoon. There is no refrigeration. The dishes are washed in the large cooking pot, still encrusted with the boiled manioc or plantains. The water for this purpose is cold, unboiled and unfiltered; there is rarely any soap. Dishes are then placed in another pan to drip dry, with an additional throng of insects gleefully skating over the remaining food particles. Ground manioc or other flours along with dried fish and meat, is frequently seen uncovered outside in the sun. Everything is prey to vermin. For longer storage durations, coffee and tobacco in cloth bags under large open shelters, covered only by reed roofs. Pigeons roost right outside the chief's front door; chickens have open coops but wander at will - even standing on the mortar as the women attempt to grind meal. Roots and fruits are kept in storage huts. Dogs and goats further complement this menage, for all animals mingle freely with the people both in and out of their huts.

Infant Nutrition

Infant nutrition, although discussed under maternal and child rearing practices, is also important in understanding the general food patterns of Yamboro's M'Baka people. Babies are nursed, the women explained, on demand until they learn to walk or near their second birthday. However, we observed several two and three-year-olds going to their mothers for milk. In any event, weaning

was a gradual, gentle process. In addition to the mother's milk, the child is given a cereal made of maize at three months. Meat is given as soon as he has teeth. At one year they add cooked plantains to his diet and, by the second year or time of weaning, he is given all adult foods.

Summary

Although the villagers of Yamboro appear to have an adequate diet, there may be scarcities in the future. Closely connected to good nutrition, is having a body that is free of disease so that it can absorb the necessary food nutrients and an agricultural base that can provide needed supplies. At this time, the Yamboro residents have neither. However, as Tables 2 and 4 indicate, not all people of C.A.R. are even as fortunate as those in Yamboro; there may be only undernutrition in certain regions, but there is gross malnutrition in others. In this area of Africa, sickness is the norm, and the incessant morbidity results in premature mortality. The intercurrent of parasites - in the blood, intestines, genito-urinary tract, and skin - plus the chronic-degenerative diseases and mineral-, protein-, and calorie-deficient diseases result in a lowered energy level, physical and mental malfunctioning, and lowered productivity. Some gastrointestinal damage in childhood affects absorption forever. Consequently, it is difficult to adequately assess nutrition. It is probably most accurate to say that at least sub-clinical malnutrition is present.

Like other developing countries, the burden of ill health in C.A.R. falls on young children. Most deaths occur in children under four, for diarrhea and related maladies are as common as the flies, water, and dirt from which they come. In questioning the Yamboro villagers and patients at the Bimbo Dispensary, we found that about a third of the mothers had lost at least one child in infancy. But these great killers and disablers of children need to be understood not only from the standpoint of their clinical pathology, but from an explanation of the physical and cultural environment in which they are raised. Also, once we understand the situation which breeds these illnesses, we need also to understand the efficacy of treatment for it is precisely these attacks of diarrhea, malnutrition, and pneumonia in which the physician has the most difficulty giving supportive therapy. Even if medical care is available, to treat such diseases and send the patient back into an environment which perpetuates the ill health seems both inefficient and, to some people, immoral. As we stated earlier, the problem in C.A.R. and most of the world is not just medical knowledge, but how to deliver medical knowledge to the people. This includes the full gamut of health education to the masses. It is precisely in the case of childhood diseases where this concept becomes so agonizingly acute. Succinctly, maternal-child health is thus important in C.A.R. because most people are under or malnourished, and 95 percent are said to have had severe diarrhea problems.*

Therefore, since we have hypothesized that the Central African Republic is surrounded with the causes of perpetual illness -- poverty, ignorance, poor ventilation, filth, and flies -- let us look at the cultural setting for mothers and their children to see the many glimmers of hope in alleviating these problems.

* This estimate was given frequently by WHO and UNICEF personnel we contacted during the course of research, and emphasized again and again by French and indigenous medical personnel, as well as missionary personnel both near Bangui and deep in the bush.

Fertility and Conception*

Child care actually begins the instant the child is conceived, for if the mother is malnourished or disease-ridden herself, it is immediately going to have impact on her unborn offspring. In fact, a WHO physician and a few of the medical missionaries commented that one currently-limiting factor to increasing the birth rate is female sterility from venereal disease and secondary infections from parasitic infections. Fertility rates are further limited by tribal taboos which forbid intercourse between husband and wife while the mother is nursing. This custom, although ideal in practice, can be said to be true in much of Africa.

Another limitation on fertility might be the cycling procedure in polygynous households. As was earlier pointed out, the husband rotates his contact with various wives by staying two days with each of them. When one considers the taboos against intercourse with menstruating women or those lactating, this limitation of contact may further serve to marginally inhibit the fertility rate.

On the other hand, the rate may climb, for the President gives awards to mothers with many children and annually even publicly decorates the mother with the most children in her household. Also, as we said, this denial of sexual access is ideal; in fact, the midwife at the Bimbo clinic commented that lactation is usually stopped when the mother realizes that she is again pregnant. We cannot be sure of the degree to which such continence is practiced.

As Yamboro typifies, the Central African desires children. They are not only wanted to further the lineage, add to family prestige, or increase the family productivity, but they are wanted as objects of love. After marriage, it is necessary that the wife produce a child as soon as possible. Otherwise, she may be divorced. After her first-born, there is less pressure on her to bear children although they are still greatly treasured. In talking with educated Central Africans this necessity to produce that first child was also critical to a marriage. Sterility is thought to be only a female problem, but our villagers in Yamboro did realize that there might be a clinical or physiological cause. In fact, the chief has

* The population of C.A.R. may be characterized as young and expanding. It has a high birth rate (CBR) estimated at 46%, a death rate (CDR) 24% and an annual population increase of 22%. The C.A.R. does not have complete registration of vital statistics, so the CBR and CDR are United Nations estimates in working paper 38 (ISA/P/W.P., February 22, 1971). The population increase is thus based on those calculations. In human terms, this means that the usual C.A.R. wife will have between five and seven live births.

traditional medicaments for such conditions which the women seek if they are having trouble in conceiving, but he refused to share his secret with us.* They may also wear a thin string cord around their waist as a fertility charm.

As one can imagine, there was no attempt to control birth in the village. Pregnant women were admired, just as the forthcoming children were highly desired, although the literature on Africa stresses desire for male children, our villagers said they had no preference for a boy or girl. However, educated Africans expressed concern at the prospect of having to feed, house, and educate too many children. In the literature on tropical Africa, primitive birth control (usually coitus interruptus), crude medical or herbal abortion, and even infanticide are mentioned.**However, we found no evidence of any of this. But contraception seems to be still employed only in the brothel or by the teenage school boy who "looks right and left." In fact, in talking with educated C.A.R. health personnel, we found no knowledge of the "pill" the "loop", the diaphragm, vaginal contraceptives, or douches. They knew only of condoms which were sold in local pharmacies. However, as the family moves from the traditional African polygamous extended type to the urban, monogamous nuclear unit, we can expect them to employ contraception. At this time, there are no family planning programs in the country and only a few physicians from which contraction can be secured.

One additional dimension is perhaps relevant here. In talking with educated Central Africans, it was noted that they felt that, although it was necessary to have that first child as soon as possible, the men scornfully noted that it was really the women who always wanted more and more children; only men are "capable" of "thinking" about such matters as food and education expenses.*** In fact, as was pointed out earlier, there is a clear deliniation of roles of sex. However, we must accentuate the idca that not only does this division of labor apply to duties, but to appropriate domains of thought one thinks or makes decisions upon.

* This was one of only a few incidences of secrecy about traditional medicines that we encountered in our study.

** See J.C. Caldwell, "Africa," in Bernard Berelson, et.al. (eds.) Family Planning and Population Programs: a Review of World Developments, Chicago, 1966.

*** Furthermore, it was felt and expressed by both educated and uneducated Africans that women were physically and emotionally weak.

Female Yamboro residents and clinic patients, at the Bimbo Dispensary, both reiterated the notion that there are some matters which they "do not think"; in other words, there are certain matters about which they make no decisions. This cultural variable needs further elaboration with respect to decisions which are peculiarly male or female, but one might hypothesize that this attitude will change as more African women are educated.

Pregnancy

The first pregnancy occurs at about age 15. When we questioned the Yamboro residents about their knowledge of how conception takes place, one woman replied that "God gives the child." But this must not be construed to mean lack of cause-and-effect knowledge. Quite the contrary, the villagers -- even young girls -- were quite aware that "looking right and left" could result in a pregnancy before marriage and did not condone premarital sex. In fact, although sex education seems to be observation, the pre-pubescent girl is aware of her sexual restrictions.

The village women recognize pregnancy as occurring when menstruation ceases and their nipples turn black. A licensed midwife* comes to the village every couple of weeks to visit both pre- and post-partum mothers as well as young children. She weighs the children (checking malnutrition) and gives expectant mothers and pre-schoolers nivaquine against malaria at each visit. The women of Yamboro stressed that they go to the dispensary only in case of bleeding or extreme pain during their pregnancies, but a few said they now go to the Bimbo Clinic for one examination by a physician. (Appropriate laboratory tests are done at that time, including bloodtest for malaria). They perceived the licensed midwife as functioning to offer childcare advice only since she did no deliveries. Pregnant women in the village continue their usual cultivating and household activities -- including carrying heavy loads of water or plants throughout their pregnancy, although they commented that they should curb their activities the last two months. (The licensed medical midwives stressed that one of their hardest tasks is to encourage the women to lessen activities which may induce hemorrhaging.)

* The traveling licensed midwife has a special diploma from one of the C.A.R.'s hospitals. In Bimbo, her primary job was to educate the women; she performed no deliveries. However, the traditional midwife gains her expertise through observation and experience. She often has no schooling whatsoever, as was true in Yamboro.

Sexual intercourse is allowed by custom until the seventh month. However, there are certain food taboos; pigs, catfish, and snakes. These are not eaten out of fear of aborting the fetus.

Childbirth

In C.A.R. babies are born in one of two places; a hospital or a mud hut. While some are also delivered at maternity centers scattered through the country, the vast majority are born in the village hut with a local, indigenous midwife in attendance. (See Table I). This traditional baby-deliverer learns through experience and the women in Yamboro expressed much confidence in her. When asked if they feared childbirth, they laughed and noted that maternal and infant death are rare (this is not accurate since about a third of our interviewees had lost a child).

The birth takes place in the family home where the woman is assisted by female relatives and neighbors. Men are not allowed to be present during labor or delivery. The village midwife commented that labor with the first child is "long" (i.e. if it "starts in the morning" it is delivered "that night"), but that long labors with later children usually designate a problem for which she is transported to Bangui's General Hospital.* However, before she is taken to the city, traditional medicines are used to induce further contractions. The local midwife administers a medicine made from the root of a DOKOROMBA plant which is shaved into fine pieces and added to unheated water for drinking. This same drink is administered if the placenta is difficult in being delivered. There are no special messages, exercises, or other medicines for labor.

During the birth, the delivering mother squats on the ground with a relative or friend holding her under the arms for support. The midwife sits in front of her, instructing the new mother in proper breathing techniques or in the case of breech births pulling the baby. She employs no instruments. This midwife commented that she washes her hands before assisting at the birth,**

* Note the jump from the village hut with indigenous midwife to a specialist at hospital. In a developing country, this may be inefficient use of personnel or services.

** However, one midwife we interviewed requested soap so she at most probably rinses off her hands in the contaminated, parasite-infested stream water used for bathing and drinking.

TABLE 1 - MATERNAL-CHILD HEALTH

**Maternity and Pediatric Consultations
Central African Republic**

		<u>No. of Cases</u>	<u>No. of Con- sultations</u>	<u>Average No. of Units Par Women</u>
Mother	Pre-natal	36,400	178,000	4.9
	Post-natal	33,000	67,000	2.0
	Deliveries	22,974	--	--
		<u>No. of Cases</u>	<u>No. of Con- sultations</u>	<u>Average No. of Units</u>
Child	Infant 0-1 year	83,500	336,700	4.0
	Child, 2-4 years inclusive	96,500	374,300	3.9

Source: Statistics Sanitaires Rapport Annuel, 1968. (Direction de la Sante Publique, Service Technique, Republique Centrafricaine). This is the most recent report from CAR's Ministry of Health.

Based on an estimated 1968 population of 1.5 million and a crude birth rate of 46 percent, there were a total of 690,000 births that year. However, this report shows that only 22,974 were born aided by medical personnel; only 3.3 percent had the help of modern medicine.

but no sterile precautions are employed. The umbilical cord is cut with a piece of palm*** (although knives are available, this was preferred) and the baby is washed in cold water, then wrapped in a piece of cotton cloth. During this process, the delivering woman does not cry out or let tears fall, as we noticed even in the hospital; she remains stoic.

If the baby fails to initiate respiration or stops breathing, the midwife drops him in cold water several times until breathing begins. After the cord is cut, she applies crushed banana leaves to it in order to aid the healing. If the mother starts to hemorrhage soon after birth, the village midwife puts the leaves of another medicinal plant, KONGOBORO, in water over a fire, then has the woman drink some of the liquid and sit in the remainder. However, when the bleeding is severe, the hemorrhaging woman like the woman in an excessively long labor or one who failed to deliver the placenta, is taken to the hospital in Bangui.

After the delivery, the mother is washed off and the placenta along with the umbilical cord is buried. Only the new mother of the child can bury this, although it does not have to be in a special place. She resumes activities as soon as possible while relatives and neighbors assist in the interim.

The parents welcome all children into the family -- both boys and girls, the albino, the lame and deformed, the physically and mentally handicapped, and those from multiple births. Although infanticide or masked forms of it have happened in the past few decades, and we were told are still practiced deep in the bush, Yamboro villagers had a special song to welcome twins and incantation to keep them healthy. It is felt that twins split the strength that would ordinarily go to one child; therefore one must seek good health for them. In a region where babies are often born underweight, where multiple births occur prematurely, and the environment is a breeding ground for germs and worms, one can understand this assumption. It is not difficult to see why malnutrition, pneumonia, and diarrhea are three of the major causes of sickness and death in tropical children.

*** In the C.A.R. mortality records discussed later, one can note that a large percentage of the birth trauma cases included an infected umbilical cord.

In the case of maternal death, the child is taken to a sister of the mother who will nurse and raise him. Otherwise, the child is given tepid water (unboiled, unfiltered) the first day after birth or simply waits until the mother's milk comes in. If the mother has difficulty producing enough milk, the midwife puts the bark of GBAN in unheated water for the mother to drink and press against the breast. To make the mother's milk "stronger", they also take oil from the fruit of the palm and mix it with NDOKA, a small tomato-like plant, which is served to the mother as a warm soup. If there is sufficient quantity of milk, one need not worry about quality for it is uniformly good. However, these medicaments indicate that there probably is a nutrition problem for the nursing baby.

As was mentioned, there is supplemental nutrition to the mother's milk which includes a maize cereal at three months, boiled plantains at 12 months, and table food, including meat, as soon as the child has enough teeth. (The midwife at the Bimbo Clinic explained that she sees no kwashiorkor around Yamboro but does see it deep in the bush. She administers vitamins to all young children on her route but supplies additional UNICEF fishmeal, cheese, and powdered milk in only those areas where there is great nutritional need.)

In the Bimbo Subprefecture the biggest health problems for infants are parasites, respiratory infections, and diarrhea, respectively. However, the transition from the mother's breast to the family dish -- which, if abrupt and ritualized, can be deadly -- did not seem to provoke problems. Children are nursed upon demand until they can walk. They are weaned in case of pregnancy and most mothers set the third year as the cessation time for nursing. Sometimes they rub the bitter fruit of the KDONGO on their breasts to give a sour taste to the milk or place a leaf over the nipple to remind the child that milk is not available, but this is not the harsh practice it seems. We saw children nursing on demand -- even interrupting the household duties of their mothers to do so -- until they were four. However, more study of this practice is necessary to understand fully their diet.

Toilet training, likewise, seemed gentle and occurred well into the second year. During infancy, a stringy material from the inside of the banana stem is beaten and put in the sun to dry before being used as diapers. These are as easily disposed of in the family latrine -- but they are difficult to make and not changed -- or worn -- as often as desirable.

As we noted under personal hygiene, clothing is not changed often. Although the baby is bathed daily in cold water, he may go naked or wear just a shirt. Sons also wear a cord of tiny beads or thin rope around the waist as a charm to ward off evil and help the child grow faster. Clothes are not washed any more frequently for babies and young children than adults; it is not unusual to see a child in the same thing for several days. Lice on older children are common as are various skin disorders. This lack of clothes is often due to poverty; in fact, some villagers do not even have blankets for damp or cool nights. Children sleep on the reed mats on the dirt floor of their homes or on a wooden slat bed a few inches from the ground; babies sleep tucked in the arms of their mother. Father and mother sleep together on a mattress or a slightly elevated bed. Mosquito netting isn't used very frequently. And, as already mentioned, children and women never wear protective shoes - even though the dirt and mud are as parasite-infested as the rivers.

The baby is carried on the mother's back until he can walk. Then he is rarely more than a few feet from her -- even in the fields. Movements of the mother and father toward the children are slow and gentle; it is like watching a ballet in a rural setting. Children are rarely scolded and almost never corporally punished; this is never harsh. Only once did we see children actually being punished -- four preschool-age children had crossed a busy highway and were being herded home with their mother who wielded a long stick. They cried vehemently but she simply tapped their bottoms symbolically, as she walked behind them. She did not scold them further after they returned home and they immediately went back to their play. This was unusual in two respects: the physical punishment and the tears. At no other time, except in the injection room at the clinic, did we ever see a child cry -- not even babies. If babies or toddlers start to fuss, they are immediately offered their mother's breast.

The term "children" is of recent historical origin and one not common to all cultural groups. In Yamboro, it can probably safely be said that this distinction between child and adult is also fuzzy, for the child is taught his sexually-delineated roles as soon as he is old enough and strong enough to handle the task. Even four-year-old girls are seen pounding the pestle against grain while their mother takes a brief rest. Assuming these tasks seemed to largely be voluntary and was often initiated by the child. Games replicated adult activity from the earliest years.

But the childhood diseases are not new and there are many ways of dealing with them. Mud is applied to the cheeks of the child with mumps; the moist inside fibers of the NDAKANDOKU stem were crushed to emit a clear liquid that is applied to the eyes of children suffering from measles, or eaten to relieve dysentery; the pulp of the woody BONGOO is crushed into a fine powder and applied to boils to draw out the pus; burns are bound with crushed banana leaves. In the case of respiratory problems, the village midwife who also acts as nurse for toddlers crushes NZINGO or shaves the root of the KPOSSOKOUNDA and applies either of them to the chest of the one with breathing difficulties.

Smallpox vaccinations are given routinely to both children and adults every three years, but there is little immunization available otherwise. Even DPT and polio immunizations are rare. Yet childhood diseases -- even those readily controlled through inoculation -- have high incidence, as one can see on the table of C.A.R. Morbidity statistics. Furthermore, besides disease, accidents, burns from cooking fires, and rat bites add to the toll of permanent or temporary disabilities; rabies are not uncommon.

However, given this background of illness and privation, these children are raised in a warm family group which gently eases them into the adult routines of life. We were unable to learn about any puberty rites Yamboro might employ, but we were told that male and female initiation rites are still a custom in much of C.A.R.*

In any event, through a gradual process of working beside the adult, the child learns to take his place in the social structure of his ethnic group. Increasingly, the young people are going to the city. The people of Yamboro encourage their children to seek education and urban employment; they feel that to "learn a specialty" will give their offspring more financial reward and social mobility.

* There is some controversy over the extent of these practices. However, female "circumcision" or clitoridectomy is usually performed by the village chief or medicine man at puberty. The clitoris is tied, cut, or burned off and sometimes this is accompanied by a "defloration process." The wound is usually dressed only in leaves and the result is often severe infection -- sometimes death. Male circumcision is also practiced and carries the same consequences of infection.

The workings of any culture are more clearly seen in what can be called the symbol system. Simply speaking a culture can be defined as a set of control mechanisms or recipes for the governing of behavior. These recipes for living are what man needs to find his bearings in the world. But these recipes not only guide his behavior; they also give meaning to his behavior. No member of the human species lives pointlessly or chaotically. On the contrary, man is a meaning-seeking creature, and it is because human behavior has meaning that we can speak of the symbols of a culture. (Symbols are all words, gestures, activities whatever that give meaning to a person within the context of his culture). A symbol system, therefore, emphasizes the ordering and meaningfulness of life in contrast to the non-symbolic, instinctive behavior of the lower animals.

Yamboro culture has such a symbol system. It is unique, integrated, and functionally related within all its parts. To this point in our report we have emphasized the external manifestations of this symbol system, that is, we have described holistically the practices of the village. But now it is necessary to explore the internal mechanisms of their symbol system, the motivations and dynamics that give meaning to the whole. In a word, we need to analyze the matter of knowledge and attitudes.

In every culture two categories especially are the springboard for the internal mechanisms that give rise to knowledge and attitudes, namely, language and religion. Language - because it is the cultural symbol which establishes for man his cognitive behavior. Through the eyes of language he "sees" the world. Religion - because this symbol designates for him how the world is to be ordered and further, the value system by which he is to live in the world.

The discussion of these two aspects of the Yamboro symbol system will give significant insights into an understanding of the village's health behavior. Indeed, without this understanding we will miss valuable clues as to the reasons for the knowledge and attitudes that presently constitute what health and illness mean to the average Yamboro inhabitant.

On the empirical level the inhabitants of Yamboro speak three languages, namely, M'Baka, Sangho, and (to a very minimal degree) French. M'Baka is the mother tongue of the villagers and the symbol of their ethnic distinctiveness.* All children of the village grow up with a thorough knowledge of this language and associate it with the deepest roots of their culture. For example, their names, the kinship system, native medicines, songs and ceremonies -- all that is most meaningful in life finds its association with the mother tongue. On the other hand, the Sangho dialect, the national language of C.A.R., is also fluent in Yamboro. For all matters of trade, barter, health care and intercourse with the state, Sangho is the accepted means of expression. Children therefore learn Sangho at any early age, bi-lingualism being taken for granted.** French is rarely spoken in the village, and only a few of the inhabitants have any command of it; what knowledge they do have is minimal. Inasmuch as the French language is taught in the Central African Republic school system, the French speakers are basically those who have learned it at school.

But language is much more than simply communication. Being a symbol itself, it is the resource for many meaningful symbols of the people who use it and speak it. For one thing, a language structures the ways by which a person looks at and evaluates his world.*** It forms for him his entire cognitive behavior, the means by which he perceives reality. Through the eyes of his language, there is formed for him the way he will evaluate the environment, other people, and himself. It is quite obvious therefore that this has many implications for

* Almost all African tribal groups are known as such by their linguistic affiliation. Linguistic differences signify group differences even though the groups may be related genetically.

** Sangho and M'Baka are not mutually intelligible. However, they do share many features of cognition which will soon be made evident.

*** Studies in ethno-linguistics have repeatedly shown that a language structures the world of reality for its speakers. Hoijer writes, "Peoples speaking different languages may be said to live in different worlds of reality, in the sense that the languages they speak affect to a considerable degree, both their sensory perceptions and their habitual modes of thought." See H. Hoijer - "The Relation of Language to Culture", in S. Tax, Anthropology Today, Chicago, 1962.

health behavior and health education. For if the basic conceptions of life are mediated through language, then two different languages will oppose each other not simply on the basis of phonics or vocabulary, but on the higher symbolic level of conceptions. And it is on this level that health attitudes and behavior are critical.

Let us demonstrate this with a case in point. In traditional Africa the concept of 'time' is viewed much differently than among western peoples.* For the African, 'time' is not conceived in terms of mathematical quantities nor is it perceived as a calendrical unit. 'Time' is rather conceived as an event, a happening. Only when an event is transpiring is 'time' said to be taking place. There is thus no emphasis at all upon calendars, upon age, upon the hour of the day, or upon some future goal that must be done at some future 'time'. Indeed, in contrast to the future-time orientation of western peoples, traditional Africans are past/present-time oriented.

All of the above was verified at Yamboro. When people were asked their "age", they responded with either a blank look or replied that they didn't know (Even the chief had to pull out an identification card from his wallet to verify his birthdate). When asked how many times a week they washed their clothes, the question had to be re-phrased many times because neither Sangho nor M'Baka have a word in their vocabulary for "month" or "week". Indeed, some of the villagers are using the appropriate French term in their own language in order to cope with this alien concept of 'time' meaning a mathematical quantity. Frequently this problem of ascertaining ages can be gotten around by suggesting an 'event' and asking whether the informant remembers it; but this is a tedious process.

Since western medical behavior is inextricably woven to western concepts of time - "take these pills 3 times a week" or "do this now so that in the future you will have no problem" - it is readily apparent that in matters of health education there are paramount problems, conceptually, in dealing with traditional peoples. This especially pertains to the category of maternal and child health where the pre-natal period and the lactation period are figured in terms of months in western medicine, but among traditional Africans these are figured in terms of events. For instance, the sexual taboo on

* John Mbiti takes up the fascinating study of the African concept of time in his book, African Religions and Philosophy, Doubleday & Co., 1969.

intercourse between husband and wife after the birth of a child is terminated "when the child walks", which when translated into a western cognitive pattern means about 12-14 months. This inter-play between contrasting concepts of time is vitally important to the health educator who must understand how to communicate on the symbolic level of a language. Nor can it be taken for granted that suggestions, as to 'future goals' for a village in health education will be understood, much less followed. The whole concept of environmental hygiene/sanitation, as referring to the means by which illness may be prevented, fits in beautifully with a western future-time orientation. But to what degree it can be made to harmonize with a past/present-time orientation is critical to health education and the implementation of long-term goals. It is therefore instructive to know the problems before ready solutions are sought.

Still another difficulty on the symbolic level of language is the fact that a language encapsules the deep-rooted values of the speaker. At Yamboro, for example, the entire traditional medical system, along with all of its herbology, is rooted in the M'Baka tongue. The values received from this traditional medical treatment are to a great degree protected by the persistence of the language. It may confidently be suggested that with the persistence of the language there will likewise be a persistence of the native medical system. On the other hand it is risky to assume that the introduction of French, with a completely different conception of medical behavior, will bring about a sudden shift to western values of health. At Yamboro some of the people have learned the French terms for 'day' and 'hour', but their practice of time is still basically African. Some have learned French names for diseases, but they do not at all understand western concepts of disease etiology. Over a long period of time, the use of French may have a criss-crossing effect on the cognitive pattern of the villagers. But at present it is being far too optimistic to assume that a knowledge of French, however articulate, has brought the speaker into a complete scientific frame of reference as far as health behavior is concerned.

None of this discussion thus far is to suggest that modern health methods cannot find a place in the scheme of traditional African concepts of thought. On the contrary, ways and means have been found in other traditional cultures to bridge the hiatus of language and perceptions. But they have successfully overcome the conceptual problems mentioned and have applied solutions that have

harmonized with native patterns of thought. In this connection one of the functional benefits of the African sense of time is the tremendous amount of patience that Africans have at government clinics. Long lines of people were observed at every clinic -- women with small children, old people, people in obvious pain -- yet the slow moving lines displayed little if any irritation, or impatience, a dramatic contrast to a similar situation in a western clinic.

This discussion on language and its association with how one perceives the world has been a necessary entre into an understanding of the cultural base of the people of Yamboro. But just as vital as language is an analysis of Yamboro religion. To this subject we now turn.

It has already been pointed out that the people of Yamboro are nominally Roman Catholic with but two exceptions in the entire village. Likewise, no one passing through the village will miss seeing the small wooden construction that is used for Catholic worship services and catechetical classes. It is to be doubted whether 40 or 50 persons could comfortably sit in this building. Seats are made of narrow planks of wood which sit on stones; the floor is earthen, and besides an altar, the only other decorations are very old religious pictures (French) which have been tacked to the walls. Once a week a priest comes from Bangui to hold services for the people, always on a Sunday morning. In the afternoons during the week one of the inhabitants of the village instructs the boys and girls in the Catholic catechism, the length of training reported to be about five years.

Nevertheless, an analysis of Yamboro religious patterns presents a far different picture than that just given. Proceedings from the point of view that religion is the cultural symbol which designates for a people how the world is to be ordered and how man ought to behave in this world, we find that religion is one of the true dynamics of cultural life. From religion springs the knowledge of what is essential and ultimate in life's meaning, and from religion spring the attitudes or values by which this meaning is attained. It is difficult indeed to comprehend the motivations behind the behavior of traditional cultures (including especially the health behavior) unless the religious patterns are rigorously examined.

From this standpoint Yamboro religion is only superficially Catholic. It is fundamentally an animist view of life, the traditional African approach to religion.* This syncretism of Catholicism and animism is so blended that in its present form the externals of Catholicism are readily apparent but the internal features are animistic through and through. This may be demonstrated in the following ways:

* Animism may be defined as a belief in a vitalistic world in which spirits, demons, and other vital forces impinge upon the behavior of man. The worldview is therefore unitary in structure, no necessary distinctions being made between natural and supernatural. In contrast with the mechanistic view of life in the western world, animism presupposes a strong magical/supernatural view of life.

(1) A consistent feature of animistic thought is a world of spirit-beings usually associated with a High God who is the creator. At Yamboro the data reveal the belief in a High God who is called Mokomet and to him is attributed the creation of the world. This Mokomet is all-powerful, he cannot die, he knows all and sees all. He is likewise the judge and has power over evil. In addition there are said to be evil spirits who can be dangerous, chief among them being Diablo (here the Christian doctrine of the devil is obvious). These evil spirits reside in the "country" (the bush), they may especially come in the wind (after a strong wind people may become ill), and if Mokomet should leave the presence of a person, the evil spirits may bother him. On the other hand Mokomet is good, and an ill person may be healed by Mokomet by "thinking on him."

(2) In animism dreams can be dangerous because during a dream the soul is considered to wander among the spirits. When questions were asked concerning dreams at Yamboro, one of the people responded with a scream. Further questioning revealed that too many dreams can be dangerous because "your soul is not on you, it has gone away." Some dreams, however, are good; for example, to dream that one is travelling in the fields. But other dreams can be especially dangerous and are said to be causative of illness. Indeed, it was admitted that a person's soul (his vital essence) first becomes ill, then illness follows in his body. The data from Yamboro also reveal that deceased spirits can approach kinsmen in their dreams and request food, that a deceased person can be re-incarnated in a child and be said to live again, and that morally evil people on death will turn into animals.

One of the most feared signs in traditional Africa is the birth of twins. At Yamboro this fear was substantiated. When twins are born a special ceremony is held in which an egg is given to each of the twins, one from the father's brother and one from the mother's sister. Then a song is sung which is a plea for the good fortune of the children.* The fear in such a multiple birth is that the mother and the father are considered to be in mortal danger. It is believed that they "may dream too much" and become sick and die. Thus the ceremony of propitiation and the presentation of gifts (The people of the village are also expected to contribute some money to the parents).

* A tape recording of this ceremony was made by the researchers.

(3) In animistic thought the universe or environment is considered to be fertile and the provider of all the good things of life. Therefore the orientation is to live in harmony with nature, not in hostile opposition to it. By contrast the values of western civilization are hardly commensurate with a sense of harmony toward nature. Rather, nature is to be conquered, subjugated, and exploited; nature may even be said to be dangerous to one's health and well-being. At Yamboro there is a very positive orientation toward nature. Mokomet is good because he made the animals and put food in the country for man. A good sign is when one sees animals in the country. The forest is good because from it comes food and sustenance. A prosperous person is one who receives an abundance of good things from nature. This emphasis upon the fertility of the environment is much the same conceptually as the idea that women are conceived of as being fertile. The two ideas are mutually supportive in animism.

(4) In animism the events of life are often explained in moral terms. Illness may therefore be attributed to improper moral behavior, either on the part of the person himself or upon the evil activities of others. At Yamboro this example was given: "If a man goes out to his farm and cuts his hand, it means that somebody was not speaking 'good' about him." This is typically animistic; causation of the accident is attributed to the evil intent of another person. Similarly, reprehensible behavior on the part of the person himself can bring undesirable results such as becoming ill "in his soul", or at death he is destined to live as an animal.

Belief in witchcraft was denied as being practiced at Yamboro. It is said to have been the practice in former times in which men used "powerful medicines" to become invisible and cause sickness and death. Belief in the "evil-eye" was also denied as taking place at the present time (In the older days people placed medicines in their eyes and caused illness by looking at their victims). Nevertheless, the village admitted having medicines against the "evil-eye" which were known only to the older persons.* But it was reported that evil-speakers still exist; these eat bad medicines to gain power in which they are able to cause illness by speaking. It is therefore not coincidental that the Yamboro ideal of a "good man" is a man who speaks right. An evil man is one who cannot speak properly.

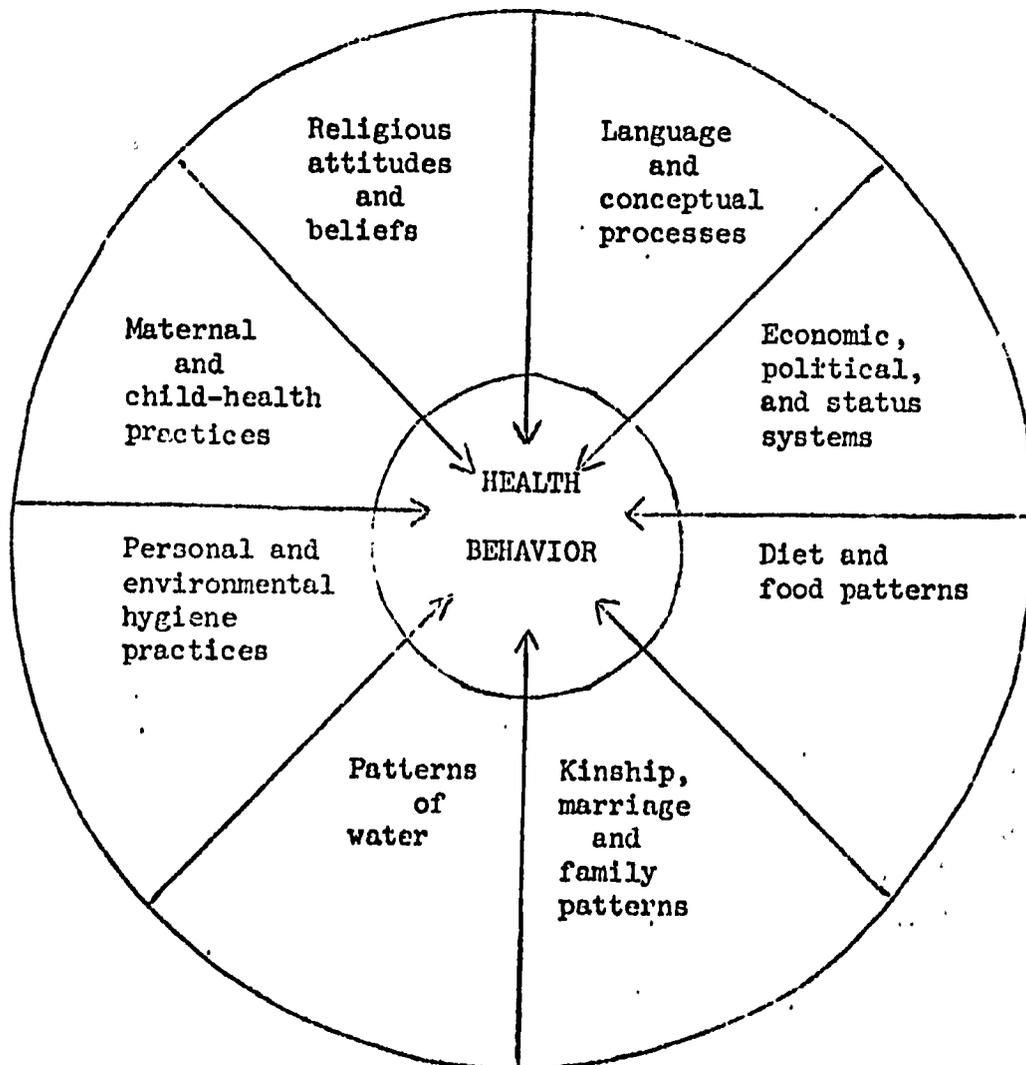
* We were refused access to this medicine. It was said to be "secret".

(5) Animistic thought features totems and taboos which are guidelines to prescribed behavior. All the clans at Yamboro have totems or animal symbols in which such animals are forbidden to be killed or eaten. The totem of the chief's clan is the panther which if seen at mid-day is considered to be a dangerous sign. Another bad sign is the rainbow which is conceived to be a snake climbing a tree and then climbing into the sky. Similarly the villagers have strong food taboos for their women. Foods such as snakes, crocodiles, monkeys, rats, and wild boars are forbidden to all females.

In summary, Yamboro religion both as regards its worldview and its value system is strongly based in animism. While many of the more elaborate ceremonies which one associates with full-blown animism have obviously eroded through the years because of the introduction of Roman Catholicism, nevertheless the dynamic behind much of the attitudes and behavior of this people has this sense of vitalism. To a great degree this is reflected in the views of health and illness prevalent in the village. Life is perceived in supernatural terms, not in mechanistic terms. For example, the amount of children a family will have is strictly a supernatural decision; it cannot be planned by husband and wife. An evil person can do you harm and cause you to become ill. There are dangerous omens in life, taboos, and bad dreams; all can bring sickness in their wake. All of these statements of animistic attitudes are substantive evidence of the important role religion plays in the health behavior within the village.

Thus far this report has placed emphasis upon the socio-cultural patterns of Yamboro village in order to establish a framework for understanding the health behavior of these people. Indeed, health behavior or any other type of cultural behavior seen by itself without the remaining cultural patterns that sustain it, becomes virtually meaningless. What is infinitely worse is to apply health education to such a vacuous model. Friction and misunderstanding are inevitably the results. The diagram below cogently illustrates how health behavior is related in an holistic way to all other cultural patterns of a society.

A DIAGRAM OF HEALTH BEHAVIOR AS HOLISTICALLY RELATED TO THE SOCIO-CULTURAL CONFIGURATION



For the benefit of health educators who will want to avoid any "cultural friction" as they implement health education techniques, the following analysis of Yamboro cultural patterns is now presented. This listing of socio-cultural patterns is not pretended to be exhaustive but rather intended to be an outline of the most pertinent patterns at Yamboro as these pertain to health education:

- (1) Cultural Patterns of Water - It should be carefully noted that water plays a more inclusive role in Yamboro village life than in western society. For one thing it is strongly associated with the female role, and the entire complex of water (i.e., procuring, laundering, washing, etc.) is identified early in the female socialization process. Also, the water complex provides a means of social cohesion and interaction for the village women which is an integral part of village culture. Although the water source is undoubtedly contaminated and the boiling of water not practiced, any change in water patterns by health educators should take the previous-mentioned factors into account.

- (2) Personal and Environmental Hygiene Practices - Sanitation measures as practiced in western society for the prevention of disease are virtually unknown at Yamboro. What hygiene practices that do prevail are rather done for the purposes of aesthetic order and a sense of well-being. Thus cleanliness has a different meaning in this village than in a comparable village of a western nation. Because of this fact there is a great deal of exposure to disease at Yamboro. Some examples are: excreta of animals (and at times human) which attract flies, uncovered latrines, rubbish piles near houses which attract rats and insects, dysfunctional practices of food storage, poor ventilation of houses, the non-practice of washing hands before touching food, over-wearing of clothing before laundering, etc. Obviously, some of these practices are related to the relative poverty of the village, but others are definitely related to a lack of knowledge of sound preventive medical techniques. In view of this situation, it would seem that there would be no overt friction with existing cultural patterns if modern sanitary measures were to be applied. This is based on the fact that patterns of cleanliness (although based on a different premise) have already been established in the village. If modern sanitary techniques were tactfully applied, they could build on this existing framework.

- (3) Patterns of Social Structure - It is of paramount importance that health educators understand the network of power and influence as these pervade village life. High status is accorded those who occupy positions of political power and who serve in such respected offices as traditional health practitioners. Status is also accorded those who possess kinship leadership, who have wealth, and have attained an elderly age. (It is to be admitted, however, that these status variables may change perceptibly as the nation develops in the direction of a modern technology.) The introduction of modern health education, therefore, should be channeled to harmonize with this traditional network of influence. Failure to work within the "power system", as it is presently constituted, may bring in its wake unfruitful results and even friction.
- (4) Patterns of Kinship, Marriage, and The Family - Traditional networks of kinship at Yamboro are still strong although the nuclear family is emerging as more and more distinct due to a modern cash economy. However, marriage patterns and the social roles accorded to men and women remain as traditional as ever. Health educators should therefore be cognizant of how women are moved out of their village by marriage and new women moved in, how the male is still dominant in all household decisions and in village life, and the strong inter-village and village-city network of kin relations that prevails. All of these rejoinders loom as patently important in setting up a plan of health education.
- (5) Cultural Patterns of Food - It is instructive for health educators to take note of how the food complex touches base with almost all other village cultural patterns, including: the agricultural system (still basically primitive), the economic system (an emerging cash economy), the village-city network (food is imported), the preparation of food (centered on the role of the woman), the religious system (taboos on eating certain foods), the environmental factor (food is more plentiful in the dry season than the wet season), etc. Thus nutrition and diet is a multi-complex phenomenon and is functionally integrated with numerous other patterns. Health education must take the whole system into account.

- (6) Maternal-Child Health Patterns - Once again it is important to understand the clearly delineated role of women as this pertains to what is expected of her in village life. There are many cultural prescriptions on pregnancy, childbirth, and child-rearing which become more easily comprehensible as one understands the pervading religious beliefs and the world view of the people of Yamboro. A woman in this African village differs in degree from her counterpart in the west, and the factors which influence her are in many ways vastly different. Health educators must be sympathetic to the traditions which she finds meaningful to her own existence.
- (7) Language and Conceptual Processes - Yamboro thought patterns are still typically African despite cultural change and western intrusion. The concept of 'time' is but one important example. Health educators must be aware that communication with Africans is essential on the conceptual level as well as on the level of the exchange of information. A careful analysis of "what this means to the African" should be first undertaken before the implementation of health techniques is applied. This necessary step will save much frustration and expense later on.
- (8) Religious Attitudes and Beliefs - Yamboro religious beliefs, even though nominally Roman Catholic, are nevertheless animistic in essence and oriented toward a vitalistic worldview. A vitalistic worldview operates on different premises than a scientific worldview concerning such aspects of health behavior as disease etiology and the birth of children. Therefore, a mechanistically-oriented health educator who treats disease in neutral terms will find himself "talking past" the Central African who looks at disease with moral connotations. It is of paramount necessity to deal sympathetically (and with respect) with the beliefs and attitudes of these villagers whose religious system has helped them to adapt to their environment with some success these many past years.

All cultural groups and societies throughout the world have adapted to the problems of illness and disease by selective cultural means which can be called a medical system. Whether for the purpose of preventing illness or for curing it, or both, these medical systems vary greatly in their scope and their behavior. The variables encountered in geographical location, disease etiology, the incidence and epidemiology of disease, health practitioners, to name a few, all mesh together to create the indigenous medical system.

It is our purpose to describe the traditional medical system, or health delivery services, of the village of Yamboro. Before beginning this task it should be understood that this description comes at a point in time in the history of Yamboro when many cultural changes, including the introduction of modern medicine, have affected the health behavior of the village. Therefore it goes without saying that even the traditional medical system of this people has undergone change. Indeed, it is almost impossible to speculate what exactly constituted Yamboro's health delivery system before the first cultural contact in the 19th century. The data collected is thus a description of extant beliefs and practices, somewhat vestigial of what once was a full-blown traditional health system.

In saying this, however, it should also be emphasized that the traditional approach to health is still quite viable at Yamboro and will persist for a while to come. Even though the people make use of modern medical facilities at the Sakpa aid post, the Bimbo dispensary, and the hospital at Bangui, nevertheless they also utilize the traditional herbology of their own native system. They likewise seek medical advice from the traditional health practitioners of the village who are highly respected. In a word, they find validity in the traditional system just as they find validity in the modern system.

Above all the assumption must be made that the people of Yamboro are intensely interested in their health and well-being. They desire freedom from illness as do all peoples. The description of their medical system that follows is their way of attempting to achieve this goal.

TRADITIONAL HEALTH PRACTITIONERS

The delivery of health services at Yamboro is essentially the function of what are termed 'traditional health practitioners.'* There is no secrecy or mysticism at all surrounding these practitioners. Not only are they public functionaries who operate freely in the social life of the village, but they made themselves readily available for intensive interviews by the researchers.

There are three such practitioners at Yamboro: two men and one woman, all adults. The approximate ages for the men are about 48 and 70, for the woman practitioner, about 55 to 60. The younger male practitioner is also the chief.

Villagers have a voluntary choice as to which of the practitioners they will call upon at a time of medical need, but quite frequently the medical problem itself will help guide their decision to prefer one over the other. The general patterns for utilizing the services of the traditional practitioners may be described as follows:

- (a) The inhabitants of Yamboro will seek out the woman, who is the village sage-femme (mid-wife), for illnesses that pertain to infants or children. Her special expertise focuses on pregnancy, childbirth, and post-partem care. (Her role has already been extensively described in the section on MATERNAL/CHILD HEALTH).
- (b) The elder male practitioner is called upon for specific symptoms in the region of the chest or swellings on the limbs. He is also most likely to be called upon by a villager if a sudden, acute illness should develop.
- (c) Villagers will go to the chief for those symptoms which develop in the stomach, and he is especially sought out by women who desire to become pregnant but have been unsuccessful. As mentioned previously, only he knows the medicine for the latter problem.

The chief also has an auxiliary role in that, besides being a practitioner, he is likewise a 'divinator'. As a divinator he is considered to possess the power of diagnosing an illness, which in the words of one of the other practitioners, makes him "a more powerful practitioner." Divination at Yamboro carries with it

* As will be pointed out later there is much fluidity in the Yamboro medical system. A family may choose to use its own particular remedies rather than call the practitioner. There is much freedom here.

the connotations of magico/supernatural powers because the divinator is said to be able to counter-act the evil-speakers and their bad medicine. However, due to acculturation and the erosion of many manifest animistic practices, the role of the divinator at Yamboro is probably best seen in the light of diagnosing illnesses rather than according to the emphasis of dealing with evil powers, this latter aspect more vestigial than operative.

To become a practitioner at Yamboro there is no necessity for first undergoing either a vision or a ceremony or an initiation. One becomes a practitioner through a training procedure in which a father instructs his son in the art of traditional medicine, for a practitioner can only teach his own son. He will usually choose one of his sons who "has strong eyes" (i.e. one who learns quickly) to follow in his steps. There is no formal age when such a trainee begins his apprenticeship nor is there a prescribed length of time for apprentices to undergo instruction before beginning their own practice.* The instruction itself revolves around learning the particular herbs which make up the materia medica and for which symptomologies the appropriate herbs are used.

Each traditional practitioner at Yamboro prepares his own medicines which are plants and herbs usually found some distance from the village in the forest. Since he is responsible for the entire treatment, when called upon by a villager, both the preparation and the application of the medicines is in his domain. Thus, he oversees the process from beginning to end.

The practitioner will usually work out of his own house, but sometimes he will go to the home of the patient. Most of the patients are from Yamboro but from time to time an inhabitant from another village in the vicinity will come for treatment. Obviously some practitioners enjoy reputations for treating specific symptomologies that transcend the village level. Payment for services to a practitioner are 100 C.F.A. francs (in American dollars under\$.50) if the patient is from Yamboro and 500 francs (U.S. dollars: \$2) if from another village. However, payment is made only if the patient is helped by the treatment. All practitioners at Yamboro, in addition to their medical role, have other occupations; coincidentally, all three are cultivators.

* One of the practitioners began his training at the age of 16-17 years.

ILLNESS BEHAVIOR

The sick role at Yamboro is defined as the inability of a person to perform his ordinary social roles. Thus it was reported that if a person was not seen at work in the morning, it was presumed that he was sick. This assumption was then verified by going to the person's house and seeing him in his bed or lying on a mat. The sick role is made supportive by the attention given the ill person by other members of his family or clan. At Yamboro it was observed that there was a great deal of empathy for a sick person; such a person is not isolated but is rather surrounded by his close relations who sit in sympathetic silence.*

By the same token a person may experience some discomfort, but if it does not confine his activities, he is not regarded as being truly sick. Many people who had rat bites, for instance, simply bandaged them with leaves or cloth and went about their ordinary routine. One small boy with the mumps was allowed to play with other children, the only treatment being a mud pack applied to both neck glands. Often a person with a low-grade fever will go about his work with no great concern about being ill. Thus, at Yamboro, as in all cultures of the world, illness is culturally defined. It may be stated that in this village the people have learned to live with so many symptoms through the process of adaptation that what may be regarded as illness in another culture is regarded as discomfort at Yamboro. Nevertheless, if any symptom becomes personally debilitating, and is considered so by the person experiencing it, the sick role then goes into effect.

The question was asked concerning what were the most likely occasions that a person would become ill. The answers were as follows: women at menstruation sometimes become ill; a person who works all day in the sun is in danger of getting sick; for a child the most vulnerable time is one month after birth; older people who become cold are high risks for illness. These empirical observations on the part of the villagers offer valid proof that the people do seek out the associations between behavior and subsequent illness. But at the same time their set of premises concerning disease causation differ so radically from western medicine that

* During the chief's illness, a period of some three weeks, at no time was he ever left alone by a member of his family. Whether at the hospital or at the village, his wives, mother, children, and clansmen were near his bedside.

cognitively they do not discern many other types of behavior as illness-producing, e.g. drinking water from a stream. This subject will be more extensively treated later.

The concept of the 'sick role' is not so simple as it first seems, for one needs to define health and illness in a cultural and cognitive framework. Health is any state in which the person believes himself healthy; illness is also self-defined. However, as we have just seen in the case of Yamboro, it usually needs further reinforcement and legitimation by one's family and friends, since the sick role necessitates neglect of one's duties and dependent behavior for the purpose of gaining health. This passage from health to sickness to the state of the patient depends upon the institutionalized dictates of society. Succinctly, in any culture one learns what sickness is and how to be sick; some cultures further define why one becomes sick and how to regain health.

So first we must understand the Central African's perception of illness. In former sections on LANGUAGE and RELIGION, one gained some insight into the African's "construction of reality" and the life-giving forces which operate through these two symbol systems. The Central African sees health, sickness, and accidents not as natural phenomena which happen to only a part of the body, nor as random behaviors, but as a sign of aggression by the devil, Diablo, or the spirits. To review some of their syncretic religious tenets, one recalls that to the villagers of Yamboro, the God, Mokomet, knows all in man's minds, has power over evil, and can help a person get well through prayer.

A "good man" is one who works diligently, speaks honorably of others, is faithful, and recognizes appropriate taboos and misdeeds. Stealing, for example, is a singularly ominous sin which often results in illness. Accidents reflect misconduct. Although there is no active witchcraft in the village, the residents acknowledged that if a person eats certain foods and then speaks badly of another person, he is capable of making that person ill. But, in such cases, the chief, who also acts as divinator, is able to ward off curses that one person might inflict against another.

Furthermore, one must understand the philosophical orientation in animism. There is no distinction between mind (or soul) and matter (or body) as in Western philosophy; power and substance are inextricably bound together.* There is no separation between the natural attributes of the body or environment and the supernatural. They all blend together in one highly-personalized universe where substance connotes power just as power connotes substance. Specifically, there are two groups of spirits responsible for ailments: non-human and human. The non-human spirits reside in animals, plants, even the rivers, rocks, soil, and wind. So if a totem animal is accidentally killed, the responsible person will have to be punished for his conduct -- perhaps through illness or an accident. Human spirits, which are both dead and alive can also render sickness. Dead ancestors, whose personalities sometimes change after death, may continue to express pleasure or displeasure on their relatives conduct.

* This may be explained with cannibalism which has reoccurred in recent years in CAR. The heart or brain of the victim is eaten so that the strength of the adversary's soul may be absorbed along with the food. It connotes power (mind) as well as substance (matter).

The belief in the soul, which we earlier mentioned, is not a "part" of man but is intertwined in the "whole" of man; it constantly interacts with the spirits. It is believed that the soul wanders during dreams and that one is then in danger of losing it. Likewise, during sickness, there is a great fear of losing one's soul which would result in death. God, it is believed, also keeps away the malevolent spirits and helps keep the soul in the body. Thus, one can say that the concept of illness is not loss of certain bodily functions (which is understood only as the symptom of the disease), but soul loss. Consequently, we can further say that one of the greatest factors of Central African disease is fear. Some even die from it. For illness, besides acting as a premonition for total soul loss, is also a diminution of strength -- energy which is felt to ebb continually from birth to death. During illness one at least temporarily loses some of this 'vital force' which keeps one not only spatially in harmony with nature, but also temporarily, for although 'eternal time' is always kept intact, "concrete time" can be broken, interrupted, or changed in the everyday world. This also helps to explain the lack of future time orientation and the keen sense of past events. Thus, the central question one would ask in Yamboro when a person falls ill is not "How did he become sick?" but "Why?"

Therefore, in order to convince a person of danger -- for example, the existence of the bilharzia-carrying snail in the I'Poko River -- demands that he perceive not only the seriousness of consequences for bathing in the river, but his own personal susceptibility to that disease. But we must also be cognizant that the African's metaphysical orientation is one of extreme optimism; if he leads a moral life, he is well-protected. We saw this often when the villagers denied fear of infant and maternal death, as well as shistosomiasis, malaria, and other infections although there was evidence of much disease even at Yamboro. Sickness for them represents not a negation of life, but an affirmation of Vitalism -- illness is only a mutation which carries temporary destruction of some aspect of bodily function which will be remedied if and when he can again be a "good man." Thus, illness is deviance. At least it symbolizes deviance. Consequently, actions in the sick role will mean primary attainment of spiritual well-being in order for the physical well-being to follow. Sickness can thus be understood metaphorically as the purge or punishment and the course of such punishment (whether one falls from a molyette, has syphilis, or dies of malaria) is thought to be out of his hands.

At this point we might ask, when will the Central African engage in preventive health practices? This, too, can be answered on the basis of perceived threat to the moral values and expectations of the person. He may offer prayers before harvesting a plant for food to appease it for disrupting its life; he will acknowledge salient taboos out of fear of becoming ill; he will avoid signs which warn of death such as hunting at noon out of fear of seeing a panther; he will sing the "Song of Children" to ward off the evil spirits of twins who are often born prematurely; he will tie a cord around the waist of his newborn to insure rapid growth; he will burn leaves to ward off nocturnal mosquitoes in his home. For he is a pragmatic, as well as a religious, man.

But there is little or no preventive medicine in the Yamboro medical system, as this term is understood in the western scientific context.* That is to say, there is no overt activity to guard against or prevent the invasion of germs or the contagion of germs.

This, of course, does not mean that there is no preventive health behavior of a more general nature. By a thorough analysis of village cultural patterns, many subtle preventive measures on both the manifest and latent levels begin to emerge. Indeed, it can be suggested that some of these preventive measures are therapeutically functional. The following list is illustrative of how preventive health behavior works itself into the adaptive process of a traditional village such as Yamboro:

(1) There are taboos at Yamboro against eating certain foods during pregnancy which may prove to have therapeutic value.**

(2) There is a taboo against sexual intercourse during the period of lactation which may be considered functional. Such a prohibition curtails pregnancy on the part of the mother when her milk is vitally needed by her infant.

(3) The mortality and burial customs of Yamboro forbid anyone but the family to touch the body of the deceased which is certainly sound medical behavior, especially if the deceased has died of a communicable disease.

* Alexander Alland in Adaptation in Cultural Evolution (Columbia University Press, New York), 1970, states that much of what we would define as preventive medicine lies outside indigenous medical theory.

** Alland also suggests that taboos and prescriptions for women during and after pregnancy have medically positive effects on fertility and survival.

(4) On the cognitive level of the villagers, the practices of a child wearing a waist cord and the ceremony for the twins for the protection and well-being of children and parents, is certainly preventive health behavior inasmuch as these are prescribed ways to prevent illness.

(5) At times certain foods are avoided because they are known to exacerbate sickness. For instance, if a person has a stomach ache, a food called KANI (made of shredded leaves and mixed with other foods) is not eaten because it is known to make one more ill.

~~elicited~~ ^{elicited} Undoubtedly, many more examples of preventive health behavior could be elicited if a longitudinal study could be conducted. Nevertheless, it is still evident that preventive health techniques at Yamboro are more incidental than planned. Indeed, the medical system of the village is considered to revolve around curative practices, not preventive practices. The traditional health practitioners themselves admitted that they had no preventive medicines, only curative ones.

From the viewpoint of health education, therefore, the conclusion hardly needs to be underlined that preventive health behavior, in the scientific frame of references, is lacking. If planned procedures of sanitation and hygiene are considered to be important variables in preventing illness and maintaining health, they will have to be linked to moral issues which demonstrate an understanding of the total cognitive framework.

DISEASE ETIOLOGY

Since the biggest disease problems of the Central African Republic are communicable, it is essential to understand not only how people live and behave and how they acknowledge illness and perceive the sick role, but also what they understand to be the causes of disease. We have already discussed that certain communicable diseases, like mumps, minor colds, respiratory difficulties, and even some parasites are so common that they are almost not even defined as illness by the villagers. Rat and insect bites also were so frequent that people paid little attention to them unless they became infected. They live with disease so much of their lives -- illness that would incapacitate most Westerners -- that only the more heinous conditions which actually cause such loss of strength that they cannot work are even considered sickness. Hence we were interested in answering two questions which are central to understand their perception of transmission from a Western stance in medicine: What do they consider the most dreaded diseases? What understanding do they have of the mode of transmission of these diseases?

The villagers and the patients interviewed at the Bimbo Dispensary seemed most concerned about schistosomiasis, amoebic dysentery and malaria. Some mentioned the respiratory difficulties of the elderly. This correlated strongly with the concerns of the health personnel who also further listed gonorrhoea, other parasitic diseases, and whooping cough. However, these answers were often a function of age, since many of the elderly were concerned with blindness. And, although accidents are frequent -- burns of women and young children during cooking falls from bicycles, and numerous other injuries incurred during working or hunting -- they did not mention these. (The actual incidence of disease in CAR will be discussed in the next main section under MORTALITY and MORBIDITY.) These answers, however, reflect not only specifically-feared diseases, but also the degree of association between certain symptoms and a specific disease. Tuberculosis, for example, is a continuing problem, yet this is considered only a problem of 'old age'. Their answers primarily reflected two things: the enormous numbers of diseases they have learned to live with daily and the symptoms they acknowledge as 'illness.' Thus, health education means not only the promotion, maintenance, and restoration of health to these people, but it also means that they be given new definitions of health as environmental sanitation can be improved and increased education can be given them.

Since these communicable diseases may be transmitted by man and through the environment, we tried to ascertain their understanding of disease causation, trying also to elicit any type of preventive measures against these vectors of transmission that they might employ. As we mentioned earlier, the Yamboro chief understood certain disease etiology. He knew that mosquitoes carry malaria, that the tsetse fly is responsible for sleeping sickness and that snails in stagnant water carry bilharzia. He also understood that mumps, measles, whooping cough, and gonorrhoea, were carried from man to man. However, even he did not fully understand the transmission of parasites from the water or soil. For example, when asked if he boiled water, he replied that the secourist and mobile-unit infirmier had instructed them against "bad water," but he felt that boiling was unnecessary if one let the dirty particles float to the top of the water or precipitate to the bottom. The snail, insects, and dirt could all be understood -- but not the microorganisms that are too small to be seen. However, as we shall see in our discussion of the health personnel, this is perhaps due to the general level of education by both the health people and the villagers. The concept of 'germs' is probably quickly transformed into the spirit world.

Thus, since there has been some health education at a mass level both from the health personnel and over the radio, some persons have awareness of some hygienic measures. For example, several women at the clinic mentioned the importance of covering food against flies -- to keep from getting ill "in the stomach." But usually gastro-intestinal discomfort is assumed to be the result of "bad food," especially "bad meat." (This may be true, since some parasites come from uncooked meat.) However, most people had a very simplistic, somewhat magical orientation to the method of transmission. For example, many think dirty water causes rashes, especially Yaws, cold nights bring on chills, mosquitoes cause welts on the skin, the wind blows air into the nose and chest for pneumonia, drinking from a used cup causes goiter or teeth problems, and going barefoot leads to foot aches, injury, or elephantiasis.

A couple of interviewees (especially those from villages near the Bimbo Dispensary where Kenneth Vinayagam's students had been giving health instruction along with the new wells and latrines) know that flies touching feces causes "something." These, and others, think that the way to keep flies away from feces is to defecate in the streams, "to wash them away." However, the same locations at these streams are used by many villages for drinking water, bathing, and laundry.

When we reflect on these findings, there were a few interesting results. In a country where malaria is endemic, there was almost no concept of control or prevention. Even the health personnel commented on the high cost of malaria suppressants, but failed to suggest insect control. Although a few people were able to tell us that bilharzia comes from standing in stagnant water, no one associated it with their own nearby streams or rivers. They further have no understanding of the various vaccination programs. Although smallpox vaccinations have been given to everyone and many have received free inoculations against measles and yellow fever, only a few receive polio or BCG vaccinations.* Since vaccinations are given in the village where the chief uses his authority to bring his villagers together, they often fail to understand the preventive nature of the injection. In fact, during interviews at the dispensary, most persons were surprised to learn that these inoculations were given to "protect" against certain diseases. Thus, more health education is needed at the time such preventive measures are taken.

As we shall discuss, when they become ill, they have much trust in both the traditional and government-sponsored health practitioners. They are oriented totally to de facto, curative medicine -- even smallpox vaccinations are thought to have "killed" the old disease that some elderly villagers remember. They want help against disease and actively seek it whenever their strength and finances permit it, but first we need to understand more how they behave when ill and when they seek medical attention.

* Pasteur Institute further provides some vaccinations. In the Institute's Annual Reports they reported 216 inoculations against diphtheria, tetanus, whooping cough, tuberculosis, and polio in 1969 and 368 in 1970.

SICK ROLE*

We have established that, for a person to become ill, there is not only a physical ailment in the eyes of Yamboro residents, but a moral or spiritual malady as well. The symptoms -- be they high fever, aches, chills, diarrhea, swelling, or whatever -- are not signals for resignation or passivity. Quite the contrary, the punishment has already been issued by some force greater than the people and they show no malice toward the recipient of these evil forces. It is now up to them -- the ill person, his kinfolk, and friends -- to reject the bad spirits. Although the person may initially have been responsible for his illness, he is now given full sympathy, affection and respect. His soul -- especially in serious illness -- is felt to be endangered and the entire group comes together to offer support, to help deliver him from the evil that has befallen him. The ill person is exempt from normal role obligations and allowed dependency. He is assumed to have the right to care and alleviation from his problems.

Diagnosis of disease, while it does not employ Western technology, is often made with precision. The chief, who in his role of divinator determines "why" a person becomes ill, also has a rather sophisticated knowledge of tropical disease etiology, although the villagers did not. Some illnesses, however, are so common -- such as mumps, chicken pox, whooping cough, measles, yaws, snake and rat bites, dysentery, diarrhea, pneumonia, and pregnancy complications -- that the villagers have traditional medicament for them which will be discussed under HERBOLOGY. Furthermore, since traveling infirmiers put diagnoses of diseases into small spiral notebooks owned by each person, he has learned to associate certain symptomatology with frequent diseases -- even those demanding complicated diagnostic procedures like venereal disease, malaria, and shistosomiasis.

But what concerns him is not the theory of disease or its vectors of transmission, but rather its ontological cause. For he first asks "Why?" and not often does he ask, "How did it happen?" To understand this is critical to

* The conceptual framework for this section comes largely from Talcott Parsons. See 'Definitions of Health and Illness in the Light of American Values,' and 'Illness, Therapy, and the Modern Urban American Family,' reprinted in E. Gartly Jace (ed.), Patients, Physicians, and Illness, Free Press, Glencoe, 1972. For an excellent survey of the literature on sick role theory, see also S.V. Kasl and Sidney Cobb's articles, 'Health Behavior, Illness Behavior, and Sick-Role Behavior,' Part I, Archives of Environmental Health, Volume 12, February, 1966, pp. 246-266, and Part II, Archives of Environmental Health, Volume 12, April, 1966, pp. 531-541.

Sick Role (continued)

understanding how to institute further public health measures in this country. Consequently, the emphasis in Yamboro is not on the preventive aspects of illness -- even through prayer -- but what counts first is reintegration of the moral or 'pure' person into the group. The traditional medicines-- those private plant pharmacies held by traditional practitioners and certain families to kill intestinal worms, provide bandages for burns, relieve eye strain of measles and deter hemorrhaging after childbirth -- treat only the physical symptom. Thus, full medical treatment combines magic and rite with empirically-derived medical therapy.

And so, as one can readily see, there is no contradiction in using both native treatment and that prescribed by a European physician; they may be used simultaneously or sequentially. Just as the perceived threat is important to understanding what symptoms and diseases will finally be brought in for treatment, so perceived consequences are important to understanding when one will seek the role of patient and treatment. One notes in much of the behavioral science health literature that the efficacy of Western medicine is assumed and that Western medicine is usually resorted to after traditional medicine has 'failed.' These biases -- and perhaps erroneous assumptions -- are unfortunate, for not only have many Western drugs come from native pharmacopoeia, but we found that certain Central Africans had greater faith in their traditional practitioners -- at least, for specific ailments.* So we would like to suggest that one look at their perception of treatment.

It may be a matter of personal preference for the practitioner as we saw when some villagers chose the secourist at Sakpa over the infirmier at Bimbo; it may be that they have an empirically-developed understanding that the Bangui General Hospital is the place to go for tuberculosis treatment and the village midwife for infant diarrhea. Finances further impinge on such decisions since it costs 120 CFA francs to catch a car or truck ride into Bangui. Even sex role divisions of decision-making show that mothers decide who will care for an ailing infant, but the father determines treatment for the older child.

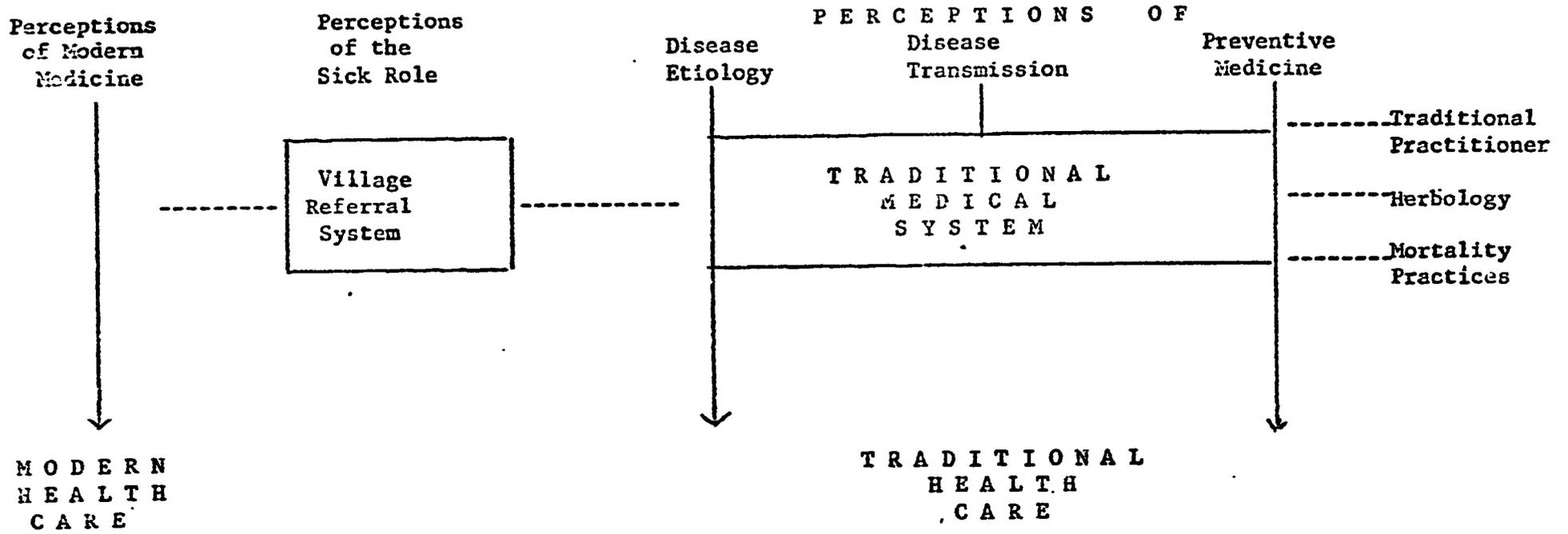
Many other subtle factors enter the equation -- the biggest one again is fear. Several older villagers and patients at the Bimbo Dispensary mentioned that people only go to the hospital to die. This fear, which has some degree of truth,

* There were tales of kidney stones being removed without surgery back in one's home village after all other Western therapy had been tried.

since those who enter it have often waited too long for treatment, also signals fear of certain Western medical practices -- especially surgery and its accompanying anesthesia which may cause dreams. Since the African feels that his soul is off wandering in a dream and can thus incur more sickness -- even death -- he is not readily willing to submit to such therapy. Also, since the hospital and auxiliary units are sometimes thought to be a kind of "storehouse of bad spirits, it is critical that they be staffed by people who understand the entire cognitive and psychic framework of the person, not just his body.

Thus, one can understand why so much medicine is practiced in the village -- not only because of scarcity of medical personnel, transportation and financial difficulties -- but because here is his support network, often that critical link, even in Western therapy, to his recovery. Here he finds acceptance and a delicate balance of discipline and permissiveness. He is very tightly bound with this social milieu of which he is both the product and the provider; he needs not only the medicinal treatments for his body, but the group and religious support for his mind and soul. He needs not only his own prayers for recovery, but those of relatives and neighbors. Here he derives his sense of strength from his total environment and here the depleted strength from his illness is replenished from the sense of purity as the balance of forces is restored.

A DIAGRAM OF THE DELIVERY OF HEALTH SERVICES AT YAMBORO



Thus one can understand that treatment is both pragmatic and magical -- it is aimed at relieving the symptoms and drawing out the source of infection or illness. Thus, as we shall see in the section on Herbology, the powder from the crushed BONGOO tree is applied to the swelling of an infection to draw out the pus which includes the evil spirits, for snake bites, slivered fruit of the KORO is mixed with water and drunk until vomiting is induced, then the same fruit is made into charcoal and applied directly to the wound -- both purge the victim of bad spirits and the venom. Most traditional home treatments have this dual purpose since one is treating both the spiritual and physical ailments of the person.

But another intrusion into the treatment or health care domain must be mentioned: the stoicism of the people. Since they live with poor health and are undernourished much of their lives, they learn to accept more pain, discomfort, and fatigue than certain Western peoples. Also, yielding to pain -- even extreme pain -- is not acceptable, so they are socialized to ignore, or at least not overtly demonstrate it. Although mothers attended to every little whimper or call from their children with rapid and warm response, there were cases of cuts and mild burns when the child's cries were not acknowledged. They were never punished for these outbursts, but they were never positively or negatively reinforced in any way. Consequently, we saw even preschool children being given injections with dull needles without even a flinch. The important factor is, however, that this stoic attitude continues into adulthood and often means that a person will tolerate pain until he is incapacitated -- and often beyond help of modern medical skills. This points to the need for much mass education about the importance of acknowledging early symptoms of disease. Thus, Yamboro does have its own medical referral system, the process by which therapy is sought out in the event of illness. As in western cultures it operates on the basis of alternative pathways in search for a cure or alleviation from sickness. The process is basically three-fold:

(1) FAMILY TREATMENT -- At first the sick person tells only his family. The family may attempt to diagnose the symptom itself, such as in the case of "the fever" (malaria) the family will apply warm water on him for a day or so. The family may have its own particular remedies or medicines (which they may grow near their house or which they may have purchased from other people) and treat

the ill member if the symptom is recognizable. But if there is no remission of the illness then the family will seek out more professional help, either the traditional practitioner or modern medical help.

(2,3) TRADITIONAL PRACTITIONER - The family may call for the 'divinator' in the event a symptom is puzzling and should be diagnosed. If the divinator comes he will also do the treatment. However, if the symptom in question is considered to be the particular expertise of a certain practitioner (as mentioned in the section under TRADITIONAL PRACTITIONERS), the family may contact the latter instead. But another alternative is possible. The ill person may be taken to the clinic or dispensary rather than to the practitioner for treatment. If this should happen but no relief is gained, then the patient may be finally brought to the traditional practitioner.

(3,2) MODERN MEDICINE - As mentioned, many villagers may choose to by-pass the practitioner and avail themselves of the services of the clinic at once. On the other hand, they may first proceed to the traditional practitioner and if the treatment is successful, the process will end there. But if there is no remission, they will then almost certainly go to the clinic for modern treatment.

It should be emphasized that there is a lot of fluidity in the village in seeking out medical aid.* Much freedom prevails in the decision-making process as to what alternatives are chosen (although it was not ascertained how influential the matter of kinship is in this decision-making). Very often it would appear that the particular symptom itself will dictate what pathway to therapy is chosen. This matter will take on more perspective in the ensuing discussion of the traditional medical system in which certain symptoms have an equivalent native treatment and other symptoms do not.

* Perhaps a special category of self-care should have been added in order to have given a more comprehensive overview. Often this encompasses a great deal of a culture's medical system. Although we have included self-care under 'family treatment', we still recognize its importance as a viable entity in any medical system.

Basically, on the basis of (1) perceived severity of acute symptoms and (2) perceived possibility of cure, he will choose what alternative seems to be the most efficacious medical practitioner. Above all, he is pragmatic; he wants only to know if he will gain relief. He is anxious to reestablish not only his physical health, but his social being as a working, moral member of the group. It is this total conception of aid -- mutual support and group effect, spiritual atonement and healing, and medical therapy -- that channels the person back to his normal routine of being a 'whole' person.

Despite their persistent belief in the validity of traditional medications, the people of Yamboro at the same time illustrated a great interest and respect for modern medical care. Indeed, it was constantly impressed upon the researchers how quickly many of the people would avail themselves of modern treatment, especially in view of the fact that travel to a clinic or the hospital involved considerable sacrifice in time and effort, not to mention the cost of transportation. This impression was reinforced by the ubiquitous long lines of people who patiently waited in the hot sun outside the clinics and dispensaries all over Bangui and its environs.

Obviously the question may arise whether the African people are losing faith in their traditional methods of healing and are, in fact, demonstrating a belief in the superiority of modern medicine by their ready acceptance of western treatment.

But it should be made indelibly clear that such a question is premature and suits itself to a western cognitive mode rather than to the cognitive framework of the African. The fact of the matter is, the people of Yamboro do not place traditional healing and modern, scientific healing in opposition. They rather take from both whatever values in treatment each has to offer. In sum, the inhabitants of Yamboro, like many traditional peoples of the world, are pragmatic in their choice of medical treatment. So desirous are they of health that they will opt for whatever works -- no matter if they understand the rationale behind the treatment or not. Literature from medical anthropology has consistently demonstrated that native peoples of all continents will use both modern and traditional means of health delivery services with no sense of contradiction.

at all.* Their pragmatism for health overrides metaphysical considerations, and it is this blatant truism that health educators must be keenly aware of. The foremost question then is not -- "How does this work?" -- but rather -- "Does it work?"**

At Yamboro we were able to observe first-hand how this pragmatic attitude operated. Shortly after being allowed permission to work in the village, we were notified that the chief was injured from a collision on his motorbike. He was taken immediately to the hospital in Bangui, having sustained what appeared to be a concussion. After two days he was brought back to the village and traditional medicines were applied to his chest. Not improving very perceptibly he was again taken to the hospital where he remained two days longer. Again there was no immediate improvement, so he was removed to the village where a special lean-to hut was prepared for him in the bush. His condition remained the same for many days, and he spent his time sleeping in this hut surrounded by his wives, mother, and other kinfolk. It got to the point where he even asked the researchers if they had any medicines which could help him.*** After several weeks he had progressed to the point where he could sit in a chair and walk a few steps although the whole process of his illness had left him quite weak.

It is quite apparent by this example that the pragmatic viewpoint was uppermost in the chief's mind. Our data from the village and the dispensary illustrate that it is uppermost in the minds of others as well. Another example is that of a man from Yamboro who had been having problems with his teeth. He

* See, for instance, Harold Gould's article "The Implications of Technological Change for Folk and Scientific Medicine," American Anthropologist, Vol. 59, 1957, pp. 507-516, and John Adair, "Physicians, Medicine Men and Their Navaho Patients" in Iago Caldwell (ed.), Man's Image in Medicine and Anthropology, No. IV, International Universities Press: New York, 1963.

** Even in the United States, to the dismay of the American Medical Association, there is a preponderance of patent medicines, chiropractic, and faith healing - to mention only a few of the many "popular" types of healing services utilized.

*** In response to his request the chief was given some powdered milk and some powdered soup because he appeared to be nutritionally weak.

had himself purchased a special traditional medicine (from another area) whose purpose was to kill the "animals" that were eating his teeth. But all the while he was using this medicine - which he applied by squeezing a fluid down his nostrils -- he was at the same time visiting a dentist in Bangui. Evidence such as this is not contradictory. It is simply pragmatism at work, and those who are believers in animism are notoriously pragmatic.⁸

While saying all of this, we do not wish to give the impression that there is no patterning in the way the people of Yamboro utilize their health services, whether traditional or modern. Pragmatism is not such a god that health behavior at Yamboro is haphazard and chaotic. Indeed, it will be our purpose in the section on the "VILLAGE REFERRAL SYSTEM" to elicit what health delivery patterns actually prevail. But it was felt necessary to underline the importance at this time as to why the people of the village availed themselves of modern medical care and how they perceived it. In a word, modern medical care is sought after simply because it works.

It was indeed quite interesting to discover that there was no hostility on the part of the traditional health practitioners of the village concerning modern medical treatment. Not only did they not perceive it as a threat, but they used these services themselves. One of the old practitioners, in fact, revealed that he had been to the Sakpa Aid Post for an illness in his stomach, to the Birbo Dispensary for a problem with his liver, and to the hospital at Bangui for his hernia. When this man was asked if he had any feelings of antagonism against the modern practitioners, or conversely they against him, his answer was simply, 'They practice their medicine and I practice mine. There is no problem.' Such an answer highlights the fact that in the minds of the villagers there is validity to both methods of healing. Both are considered to be effective within their particular provinces because both work.

⁸ John Mbiti, *African Religions and Philosophy*, discusses at length how the animist pragmatically attempts to deal with the spirit world. The animist is not a mystic but a pragmatist. Thus, he will not pray to the powers-that-be for release from illness but will rather attempt to cajole them by whatever means possible, whether practical or magical, to recover his lost vitality.

Such a pragmatic attitude therefore explains why there is encouragement in the village to participate in the modern medical system while at the same time participating in their own traditional system. It likewise explains why the people want to participate even more than they currently do in the delivery of modern health services. When asked the question, "What could the government do to give the village better medical help?" -the unanimous answer of the villagers was that the government should build a dispensary at Yamboro. We, however, were assured that even if they had their own dispensary they would continue to utilize the traditional medical system as well.

MATERIA MEDICA: HERBOLOGY

The essential function of the Yamboro medical system is to cure and alleviate illness. There is absolutely no emphasis at all in preventing illness as far as the function of the medical system is concerned. The traditional health practitioners, all of whom voluntarily listed the medicines which they used in their practice, stated unequivocally that they had no medicines for preventing illness, only for curing it.*

In this section of the report the particular medicines utilized by the Yamboro practitioners will be described and analyzed according to the functions they are said to treat. It should be mentioned at this time that the methodology by which the researchers were able to isolate these medicines was to submit comprehensive lists of symptomologies and diseases and to question for each the traditional medicine used. This methodology was amplified by asking about native medicines throughout the other interviews, especially the interview on MATERNAL AND CHILD HEALTH, which incidentally isolated several additional medicines not previously mentioned. Part of the explanation for this is the fact that not all of these traditional medicines are necessarily a common fund of knowledge throughout the entire village (although a few of them may be), but that some indeed are associated with a particular practitioner whose private property they remain. Therefore, a certain practitioner will only speak about the medicines that he or she uses and not those used by others.

A total of 14 herbs were reported and shown to the researchers along with the description of their preparation and the symptomologies for which they are used.** Ten of these specimens were later dried, crated, and brought to the Pharmacognosy Department of the University of Pittsburgh. They are presently being analyzed for possible therapeutic value and potential drug research.

* We were allowed access to all the traditional medicines of the village except two: (1) a medicine said to counteract the effect of the evil-eye; (2) a medicine of a highly secret nature which enabled women to become pregnant. Both of these medicines have obvious magical connotations.

** It is quite possible that these 14 herbs do not exhaust the entire materia medica of the Yamboro medical system. The Abron of the Ivory Coast, for example, have 151 plant medications. However, it may be conjectured that most of the herbs they presently use are on this list. This conjecture is based upon the fact that many former medicines, i.e., those used in witchcraft and war, were said to be no longer in use.

The particular medicines that are used at Yamboro are plants or herbs which have a strong association with the traditional system of herbology found in other parts of Africa. No animal parts nor fats nor mineral substances such as clay were said to be used. Likewise, these plant medications are located in the immediate environs of the village, some growing within the village proper and others procured by the practitioners deeper in the bush. There seems to be no logical reason why a certain part of a plant is used for a particular medication except that it has been discovered to be effective.* Thus, from the medicinal herb, GBAL, the bark is used; from the herb, NGOKA, the leaves are used; from BONGOO, a tree, the wood pulp is used; and from DOKOROMBA, a thorny bush, the roots are used.

However, there is a logical association between the treatment process of the herb and the symptomology for which it is used. A few examples will suffice to demonstrate this. For the treatment of a swelling or a boil, a medication of powdered wood pulp is applied to the swollen area for the purpose of drawing out the pus. If the symptom is stomach cramps or dysentery, the fiber of a small tree is eaten to relieve the condition. For those afflicted with respiratory problems, the leaves of a small bush are crushed and rubbed on the chest. In the event a new mother cannot give milk after the birth of her child, the bark of a tree is put in unheated water and drunk. Some of this liquid is also pressed against her breast. What is quite apparent from these examples is that the medication is logically associated with the symptom to be treated. Thus, for symptoms of an internal nature, the medicine is ingested. When the symptom is of an external nature, the medication is applied externally.

Nevertheless, it was found that some of these herbs have a double function. The previous example of the new mother unable to give milk is a case in point. Here the medication was both ingested and applied externally. Similarly, if a woman hemorrhages after the birth of a child, she is made to sit in a liquid that contains medicinal leaves; but she also drinks some of this liquid. For snakebites the fruit of a plant called KORO is mixed with water which is said to make the patient vomit the snake poison out. However, this same fruit is also burned in charcoal and applied to the wound. It is tempting to conjecture that this

* A plausible explanation for this selection process is that traditional peoples from antiquity have practiced trial and error in regard to choosing medicines. By empirical observation they have found that certain substances are therapeutically effective.

double-function of the herb implies an animistic meaning. Since animism purports all of nature to be filled with vitalism including plants, it could be argued that the magical/supernatural properties of the herb are believed to be communicated more strongly when both applied externally and internally. Nonetheless, it could simply mean that in those particular symptomologies when a herb is applied by both methods the symptom itself has both an internal and external association. Hence, one could assume that the medication to produce a woman's milk should have a double-function inasmuch as the milk itself is produced internally but received externally.

The Yamboro medical system, like many traditional systems of the world, is geared to treat symptoms rather than discrete diseases.* Thus, a pathological state in indigenous medical theory centers upon a certain condition or symptom of the body rather than upon a specific disease, the latter term inextricably woven to the concept of germ theory. This is not to say that the people of Yamboro do not recognize what western science means by "disease." In those conditions which have very clear symptomologies, such as leprosy, malaria, measles, sleeping sickness, or sterility, the pathological state is recognized immediately. Furthermore, the intrusion of modern medicine has helped to isolate such specific diseases all the more by medical names. Nevertheless, the bulk of the pathologies dealt with in the village are treated according to symptoms, for example: stomach pains, diarrhea, swellings, fever, irritations, boils, headaches, etc. As was made evident in discussion on SICKNESS and DISEASE ETIOLOGY, the Yamboro people do not understand the scientific causation process of disease. Unless the underlying pathological state is known, it would follow that only the symptoms of the pathology would be treated which is precisely how the medical system at Yamboro operates.

By and large the traditional health practitioners deal with single symptoms rather than a syndrome of many in treating the patient. A particular symptom, therefore, calls for a particular remedy. In some cases two distinct symptoms which are strongly associated will be treated by the same medicine as, for instance, BONGOO will be used for both swellings and boils. There does not

* See the discussion by Alexander Alland, Jr., Adaptation in Cultural Evolution: An Approach to Medical Anthropology, 1970, pp. 117-128.

appear to be any additional therapy applied except the medication itself. Nor does the Yamboro medical system give any attention to massages or special emetics as are found in other traditional systems. In fact, no mention was made of surgery nor bone-setting nor any other concomitant techniques which in some traditional systems occupy a large emphasis. The Yamboro healers deal strictly with herbs. The only exceptions to this practice were the bathing of the body in warm water in the case of a fever, and the incision on the temple of the head for the treatment of a headache. In this latter case a small cut was made for the purpose of blood-letting. Salt was then applied to the wound.

Our data do not reveal any specific religious ceremony in association with the treatment process. Nor does there appear to be any enforcement of taboos or confession techniques on the part of the healer with his patient. It undoubtedly would have been revealing to have observed the process of divination at work, but this opportunity was denied us because of the illness of the chief. Our conclusion is that these traditional medications are taken at face value by the people for the purposes for which they are intended - to cure and alleviate disease. It will be made evident later on that modern medicines are taken in the same procedure. This does not at all vitiate the fact that traditional practitioners are held in high esteem and in affection. In fact, all healers, whether traditional or modern, are treated with high status. But the medications themselves appear to be neutral and not at all charged with magical overtones.

BOTANICAL DESCRIPTIONS OF MEDICINAL HERBS AT YAMBORO AND

DESCRIPTIONS OF THE TREATMENT PROCESS

1. BEDGOUROUNGOU*

Description: This large leaf, about 5 by 14 inches, grows in groups of three on a half inch stem. The shiny side of the leaf is a dark olive green. There seems to be no distinctive smell or taste.

Treatment: The leaves are burned in a pan over a hot fire. This charred residue is applied to the chest with a cloth and vine strappings for people with high fevers.

* These are the M'Baka names, the native language of the village of Yamboro.

2. BONGOO

Description: The shaft from this tree is over an inch thick and light grey-green in color. The fiber, which is used for the treatment, is similar to pine but harder.

Treatment: The pulp of the wood is crushed into a powder and applied to any swelling or boil with a cloth cover. It remains on the wound for five days to draw out any pus.

3. DOKOROMBA

Description: This thorny bush, like the others, is a bright emerald, tending toward dark olive green.

Treatment: The roots of this plant are shaved into fine pieces with a sharp knife and put into unheated water to drink. It is given to women who are having a difficult and long labor in order to speed the delivery of the baby. This may also be used if the placenta is slow in coming.

4. GBAN

Description: This 10 to 15 foot tree with large, dark green leaves, grows near water. The sap from these stems burned the skin upon contact.

Treatment: The bark of the tree is put in unheated water and drunk by any new mother who cannot give milk after the birth of her child. Some of the liquid is also pressed against her breast.

5. KONGOBORO

Description: Dark green leaves from small bushes.

Treatment: If a woman starts to hemorrhage after the birth of her child, leaves are put into water over a fire, simmered a short while, and placed under the woman so that she can sit in this solution. She also drinks some of this solution.

6. KPAKPALAKPA*

Description: Dark green leaves.

Treatment: These dark green leaves are burned inside the home to create smoke which is to ward off mosquitos.

7. KPOSSOKOUNDA

Description: These vines which grow through bushes and trees come in lengths of several feet.

Treatment: The root is shaved and mixed into a mush with the hands. It is given to an infant or child who has a dysentery problem.

* This is the only herb in the list which is of a preventive nature.

8. NDAKANDOKU (also called GANDOKU)

Description: Like all plants collected in this region, its leaves are also dark green. The shaft or stem, which is used for the treatment, comes in long sections of several feet from a small tree. The stem is a pale green with a soft, porous white fiber center. It tastes somewhat sour.

Treatment: Only old, mature stems are used, usually about half an inch in diameter. After the bark is removed the fiber and juice are eaten immediately to relieve stomach pains and dysentery. (This plant is widely used in C.A.R. In fact, a para-medical professional who worked with us, and who was raised in the northern region of the republic, took some home one day to an ill son.) In the case of measles, the inside fibers are crushed so that the liquid may be squeezed from the stem and put into the eyes of such children.

9. NGOKA

Description: These small leaves grow in a cluster about 3 by 6 inches. The top of this dark olive leaf is shiny and it has a slight aroma and a somewhat bitter taste.

Treatment: The leaf is crushed and mixed with water. One immediately drinks it to relieve rectal irritations.

10. NZINGO

Description: These small bushes with bright green leaves yield small-sized nuts during the rainy season.

Treatment: The leaves are crushed and rubbed on the chest for any child with respiratory problems.

Note: The above ten specimens were submitted to the Department of Pharmacognosy of the University of Pittsburgh for analysis. The following four herbs which are described were unable to be included in this collection.

11. DOROBRE

The roots of this plant are shredded until the liquid runs. The fluid is then dropped from a leaf into the nasal passage to "kill" the animals which eat the teeth.

12. KORO

This herb, which is used for snakebites, comes from the pygmies and is found deep in the forest. The fruit from this plant is shaved, mixed with water, and given to the patient so that he vomits repeatedly and the poison is "made to come out." The fruit is also burned in charcoal and applied to the snake wound.

Materia Medica: Herbology (continued)

13. NDOKA

This is a small tomato-like plant which grows in the village. The fruit is mixed with palm oil and mused together to form a soup-like substance. A mother drinks this liquid in order to make her milk stronger.

14. NDONGO

This is a small red berry which is applied to the breasts of a mother in order to wean a child from his mother's milk. The berry has a bitter taste. (A woman will also place a leaf over the nipple to remind the child that he is not allowed to nurse any longer.)

Other materia medica and botanical cosmetics included banana leaves which were applied directly to burns (one American medical missionary felt that this was an extraordinarily good burn treatment) and the palm nut, NZIKA, which was applied to the body and used in cooking. Large bananas, called plantains, are used to combat diarrhea, by having the person eat of the same.

MORTALITY AND BURIAL PRACTICES

Mortality and burial practices at Yamboro are completely handled by the village with no assistance or supervision by government or health agencies at all. All aspects of the mortality process, including the preparation of the body and the subsequent internment, is the domain of the village. Even if a villager were to die in the hospital in Bangui, his body would be brought back to the village for the complete mortality rites.

The only association the government has with the mortality process is that the death of a villager is reported. At Yamboro it is one of the duties of the chief that he report death to the mayor of the sub-prefecture at Bimbo. Even deaths of infants at childbirth or shortly thereafter are supposedly reported.

When a death occurs in the village the word is announced in a variety of ways. Women are said to weep openly in the village which communicates in a traditional way the news to all. The relatives of the deceased are notified by a member of the family; for kin folk living far distances from the village, the radio station at Bangui will announce the news.

Death is said to be recognized at Yamboro when an ill person doesn't speak anymore or when his eyes are shut and he is cold. He is also reported to be dead if his body should become rigid and stiff. Since no health authorities come to the village to officially pronounce a person dead (there are no death certificates), it might be assumed that a person in a comatose condition could accidentally be buried.

The preparation for the burial is the prescribed task of the deceased person's family. There are no mortality specialists in the village. By tradition the body is first washed with soap, as in a normal bathing, by the parents of the deceased. A sponge-like fiber called NDOKOKO is used for this washing and is then thrown away. The dead person is placed upon a mat or a bed outside the house for this washing, and during the entire process no one but the family is allowed to touch the body. After this task has been completed the parents will wash themselves in the stream; after three days the entire family will do the same.

No scents or preservatives are used in the preparation process, but the nose and ear orifices are stuffed with cotton. The corpse is then covered with white clothing, which is purchased by the family, and the body placed in a coffin made of wood. Also placed into the coffin with the body are some utensils, mainly a

knife, fork, and spoon. A special workman is said to make the coffins for the people of Yamboro; the price for an adult coffin is about 3,000 - 4,000 C.F.A. francs (\$16 U.S. dollars); for a child's coffin, about 2,000 C.F.A. francs. The coffin is then placed on the bed outside the house and lays in state for a period of two days. People from the village and kin-folk file past the body but do not touch the body.

The burial proceedings begin with a ceremony held at the village church if the deceased was a Catholic. There are prayers for the person and the Catechist leads the villagers in these prayers.* If the deceased was not Catholic, there are said to be no prayers. Rather, one of the members of his family speaks a few words in which it is said that the dead person died a good death and the speaker is not responsible. Then follows a procession to the village cemetery which is located at the site of the old village, about one kilometer away.** Men lead the procession to the cemetery, women follow next, and the children last. The deceased person is placed in a freshly dug hole, about five feet deep, which has been dug by the brother of the dead person. After the interment a slight mound is raised over the grave so that the latter can be found at a later time; or else a special tree is planted by the grave for purposes of recognition. At the head of the grave, bottles in which flowers are placed, are laid to honor the dead. One grave was observed on which the entire mound was covered with soft-drink bottle caps. Another had a very elaborate canopy built over it. It was said that in former days food was placed in pans by the grave in order that the departed spirit might have something to eat. Such pans were observed by some of the graves at Yamboro, but it was denied that any food was ever placed in them.

* It was interesting to note that no prayers are ever said in the church for a person who is ill, only for those who have died.

** At least four or more graves were noticed behind houses in the new village, two of them quite recent. But when questions were raised concerning this, it was adamantly stated that it was not possible to bury anyone in the village, only at the site of the cemetery.

MODERN HEALTH CARE DELIVERY SERVICES

In a developing country like the Central African Republic, the delivery of medical care provides a major challenge. Vast numbers have no access to modern health care; for a large majority of the remainder health care is inferior. Although the Western world has introduced many advances of modern biomedical science, whole groups of people still die of preventable and curable diseases; others survive these same maladies with physical or intellectual impairments because they were unable to secure any treatment at all. Unfortunately, the big question of how to bring medical knowledge to the masses is one of the great unmet health needs. Therefore, in order to put into better perspective the availability of health care services, we shall discuss the basic morbidity and mortality problems of CAR and explain on a general level the organizational plan of delivering health services to the country, concentrating mainly on the Bimbo Experimental Zone outside Bangui.

The study of medical care might well be defined as how to make existing medical and public health knowledge available to a community.* But medical care is more than that; it is a vehicle of compassion, the service of one human being for another; it also implies self help. And, because medical care in developing regions is inadequate due to scarce financial, educational, and manpower resources, efficiency of available care is critical. Expressed another way, the central issue is: how can one provide the best possible medical care to the greatest numbers of people for the least amount of money? Therefore, we are first going to look at the global health problems of CAR and determine what basic governmental health services are provided. Then, considering the cultural perspective and symbol systems we have previously discussed, we shall offer some suggestions for health care services and education.

* See Medical Care in Developing Countries, edited by Maurice King, (Nairobi: Oxford University Press, 1966) p. 1:2. This excellent book will be used as reference frequently in this section on Health Care Services and we are indebted to its compassionate and insightful suggestions for creating good health programs in developing regions.

MORBIDITY AND MORTALITY IN CAR

The mantle of disease in this tropical country is ubiquitous. It touches every man, woman, and child -- some with such a complex range of disease that the diagnostician must decide carefully which to treat first. One does not know if the child walking along the road with the swollen belly is actually suffering from malnutrition, worms, or other infections. Chances are great that it involves at least these three. Just touring the city market makes one aware of the toll of these illnesses, one cannot walk more than a few feet without encountering persons with withered limbs, running sores, heavy coughing, apathetic stares, and lethargic gaits. It is not just the hot sun of this tropical climate that renders people slow-moving; it is the burden of parasites, respiratory ailments, and undernutrition from which most of them suffer. Sickness -- not health -- is the norm.

In this country where malaria is endemic, there are periodic outbreaks of poliomyelitis and spinal meningitis. Venereal diseases go largely unchecked. Communicable diseases of childhood -- now largely curtailed in the industrialized world -- take a number of deaths. To be specific, let us review some of the basic statistics. The neonatal death rate is 70 percent due to diarrhea or pneumonia; many more will not live to their fourth birthday. It is the children who are in the greatest mortal danger. For those children fortunate enough to live, they have an average life expectancy of under 40 years.

As one can see in the Tables 1 and 2 on Morbidity and Mortality in CAR and at the Pimbo Dispensary, parasitic diseases account for almost 30 percent of the declared incidence of disease. However, health personnel generally agreed that over 90 percent habitually suffer such illnesses. Of these, malaria is the biggest killer and debilitator. In 1969, Pasteur Institute did a sampling of 26,688 stool specimens from randomly-selected nation-wide villages. The study revealed that almost one-quarter had shistosomiasis and about one-fifth had ancylostomiasis (hook worm).³ This indicates the extreme prevalence of these diseases. In 1970, 24 new cases (to total 101) of trypanosomiasis were found. Due to the transient nature of those afflicted, it is difficult to control although chemo-therapy is

³ See Institut Pasteur Rapport Annuel, 1969, Republique Centrafricaine.

TABLE 1 - MODERN HEALTH CARE

MOORBIDITY AND MORTALITY¹
CENTRAL AFRICAN REPUBLIC 1968

Malady ²	C A S E S								Total Inci- dence	Perce- tage of total Morbi- dity	Death ³	Perce- tage of total deaths
	0 - 1 yr.		1 - 4 yrs.		5 - 14 yrs.		Adults					
	M	F	Inclusive		Inclusive		M	F				
Tuberculosis	4	9	5	3	48	54	601	363	1,126	.08	41	2.22
Leprosy	2	1	6	1	—	6	31	34	65	.01	2	.11
Veneral Disease	152	264	163	197	253	2,292	7,756	10,312	21,394	1.51	--	--
Dysentery	1,552	1,684	4,147	3,899	5,205	5,411	8,250	9,152	39,330	2.77	45	2.43
Malaria	15,006	11,182	24,563	22,556	19,909	21,845	34,439	21,178	170,678	12.01	122	6.59
Trypanosomiasis	--	--	--	--	--	--	2	--	2	--	--	--
Shistosomiasis	31	27	985	1,144	4,000	4,000	7,504	8,303	26,127	1.84	68	3.68
Filariasis	--	--	190	355	2,175	3,744	9,471	9,015	24,950	1.76	2	.11
Ancylostomiasis	313	396	3,103	3,729	4,736	5,463	13,302	13,869	44,046	3.10	42	2.27
Scabies	1,955	2,044	3,667	4,082	4,417	4,439	5,393	4,424	30,421	2.14	6	.32
TOTAL PARASITIC DISEASES (In- cluding above)	23,141	21,760	42,105	43,194	50,037	53,569	95,731	79,238	(408,325)	(28.76)	(380)	(20.53)
Mycetozoa	747	540	1,799	2,244	1,839	2,628	4,286	4,979	19,062	1.34	--	--
Typhoid Fever and Paratyphoid	--	--	--	--	3	2	2	--	7	--	--	--
Yaws	82	85	270	339	456	396	943	827	3,398	.24	--	--
Tropical Ulcers	205	151	1,249	1,692	3,599	2,987	3,023	2,773	15,678	1.10	4	.22
Diphtheria	--	--	14	1	--	2	--	--	17	--	2	.11
Whooping Cough	311	791	1,756	1,389	528	46	35	15	44,701	3.14	16	.86
Measles	969	1,083	2,382	2,634	1,915	1,153	176	114	10,431	.73	62	3.35
Mumps	86	101	386	394	554	693	261	349	2,824	.20	--	--
Chickenpox	931	380	951	782	1,162	1,318	1,196	608	7,528	.53	--	--
Polioomyelitis	5	1	12	11	13	3	23	22	90	.01	--	--
Meningitis	16	31	37	44	58	35	74	67	362	.03	57	3.08
Plague	--	--	--	--	21	16	53	76	166	.01	--	--
Relapsing Fever	--	--	--	--	--	--	9	2	11	--	--	--

-2-

Malady	C A S E S								Total Inci- dence	Percen- tage of total Morbi- dity	Death ³	Percen- tage of total deaths
	0 - 1 yr.		1 - 4 yrs.		5 - 14 yrs.		Adults					
	M	F	Inclusive		Inclusive		M	F				
Encephalitis	1	--	1	--	1	2	38	25	68	--	--	--
Infectious												
Hepatitis	2	2	55	50	309	24	1,038	800	2,497	.18	32	1.73
Trachoma	--	1	19	32	80	76	159	139	506	.36	--	--
Respiratory												
Viruses	23,182	22,785	32,440	65,543	39,130	38,225	41,412	45,412	308,109	21.68	209	11.29
Nutritional												
Diseases	590	626	1,752	1,926	1,814	1,501	1,095	1,147	10,451	.74	63	3.40
Chronic Degenera- tive Disease	388	415	1,076	1,641	3,503	5,254	13,374	12,434	58,085	2.78	201	10.86
Pregnancy												
Complications	--	--	--	--	--	43	--	5,513	5,556	.39	373	20.15
Birth Trauma	3,698	3,057	38	61	--	--	--	--	6,854	.48	33	1.78
Accidents	1,790	3,134	6,302	7,034	11,966	11,432	23,834	18,145	83,637	5.88	78	4.21
Mental Disorders	1	4	16	3	31	36	129	96	318	.02	2	.11
Other	--	--	--	--	--	--	--	--	392,700	27.53	11 ⁴	.59
							TOTAL		1,421,340	100.00	1,851 ⁴	100.00

1. Source: Statistics Sanitaires Rapport Annuel. 1968. (Direction de la Sante Publique, Service Technique, Republique Centrafricaine) p. 29-36. This is the most recent annual report, which has been consolidated for purposes of this report, was published by the CAR Government; even the most current World Health Statistics Annual, published by WHO, is based on 1966 figures. The WHO representative in CAR, however, felt that this last annual report was relatively accurate for 1971 as well.
2. There was no incidence of cholera, yellow fever, scarlet fever, smallpox or typhus.
3. The incidence of deaths are very misleading; they are based only on those deaths which occurred in hospitals.
4. The total number of deaths represented cannot be representative of CAR. This would be only 1.3 per 1,000 or .13 percent. This points to two problems: (a) the difficulties in keeping CAR health statistic reports, and (b) the unavailability of health care services for the vast majority of CAR's population.

TABLE 2 - MODERN HEALTH CARE
BIMBO DISPENSARY MORBIDITY REPORT, 1971¹

	C A S E S								Total Cases	Sub- Totals	Percent- age of Total Cases	Percent- age of Sub Total
	0 - 1 yr.		1 - 4 yrs.		5 - 14 yrs.		Adults					
	M	F	Inclusive		Inclusive		M	F				
<u>MALADY</u>												
Venereal Disease	--	--	--	--	9	5	294	93	403		3.23	
Amoebic Dysentery	--	--	3	1	1	4	32	37	80		.64	
Whooping Cough	3	2	4	2	--	--	--	--	11		.09	
Spinal Meningitis	--	--	--	--	--	--	--	1	1		--	
Yaws	--	1	3	2	13	2	11	10	42		.34	
Measles	6	7	24	28	3	3	--	--	71		.57	
Chickenpox	1	2	5	2	5	5	14	15	49		.39	
Malaria	63	63	236	190	228	164	192	162	1,298		10.39	
Schistosomiasis	--	--	3	6	19	27	83	298	436		3.49	
Scurvy	3	4	24	24	8	14	17	7	101		.81	
<u>ALL DECLARED</u>												
<u>PARASITIC DISEASES)</u>										1,835		19.69
Goiter	--	--	--	--	1	4	--	2	7		.06	
Eye Disorders	11	6	5	10	30	20	104	68	254		2.03	
Ear Disorders	2	2	14	5	24	15	54	29	145		1.16	
Respiratory Viruses	112	112	190	178	208	228	566	374	1,968		15.75	
Disorders of Mouth and Stomach (Including appetite and Con- sipation)	75	60	186	190	204	234	564	365	1,868		14.95	
Urinary Disorders (ex- cept V.D. and Yaws)	--	--	--	1	--	4	41	127	173		1.38	
Pregnancy Complications	--	--	--	--	--	--	--	26	26		.21	
Fetal Deaths	--	--	--	--	--	--	--	--	1		--	
Ulcers	--	--	5	1	52	22	15	8	103		.82	

	C A S E S								Total Cases	Sub- Totals	Percent- age of Total Cases	Percent- age of Sub Total
	0 - 1 yr.		1 - 4 yrs.		5 - 14 yrs.		Adults					
			Inclusive		Inclusive							
	M	F	M	F	M	F	M	F				
Skin Disorders (Except Scabies)	6	4	17	13	20	26	101	51	238		1.91	
Disorder of Bone and Joints	--	--	--	1	1	6	76	97	181		1.45	
Mental Disorders	--	--	--	--	--	--	4	--	4		--	
Epilepsy	--	--	1	--	--	--	--	--	1		--	
(Other Diseases not classified here)	21	18	55	44	151	147	1,189	818	2,443		19.55	
Superficial wounds	4	3	68	69	404	234	538	158	1,468		11.75	
Wounds involving bones & joints	--	--	--	1	--	--	2	1	4		--	
Other Trauma	--	31	39	104	218	421	49	255	1,117		8.94	
(ALL ACCIDENTS)	4	34	107	174	622	655	589	414		2,589		20.72
									TOTAL 12,493		100.00	

1. This is a complete report, unabridged, except to group V.D. cases together.
 Source: Nomenclature - Nosologie Sommaire, (Reports Mensuel, 1971), Bimbo Dispensary.

available.* As we noted earlier, some diseases -- such as the common skin parasites, even Yaws -- are so common that people do not even regard them as illness.

Tuberculosis (especially respiratory tuberculosis) is primarily, but not completely, an urban slum disease. However, as evidenced throughout Africa, it is on the rise in crowded cities like Bangui. Described as 'galloping consumption' it is associated with other illnesses such as helminth diseases, malaria, anemia, and malnutrition. Other respiratory ailments account for one fifth of the declared ailments; they claim the lives of 10 percent of the population.

Nutritional diseases in Table I took the lives of three percent of the declared population. But these gross malnutrition problems -- notably scurvy, pellagra, beriberi, and rickets -- account for only part of the problem. As we pointed out earlier under NUTRITION, there is a malnutrition problem due, if not to incomplete diets, to the ravages of disease. We found in our interviews of patients at the Bimbo Dispensary who lived close to Bangui and were unable to raise their own food, thus being dependent on the cash economy and poor employment market, were often without the daily meal. The culprit is the high cost of protein and vitamin-enriched foods. Obligatory expenses such as rent, clothing, and transportation, limited access to rural-grown foodstuffs, and high food prices means that some of our interviewees go without food 'two or three times a week.' At the same time, money is spent on alcohol and quick-energy, but low food-valued sodas. Of course, what these and other figures can never measure is the loss of intellect, especially during the critical periods of infancy and early childhood, and the loss of energy to be a productive member of the labor force. Thus, it is safe to say that like parasites, 'sub-clinical' or mild-to-moderate malnutrition is the rule both in the bush and in the city.

Whooping cough, measles, and poliomyelitis -- both easily prevented with vaccines -- claimed over nine percent of the total reported hospital deaths. Meningitis claimed another three percent. As we shall see, very few inoculations are given for any communicable disease except smallpox. In 1968 there were no reported cases of cholera, yellow fever, smallpox, or typhus, but WHO reported that at the end of 1967 there were still 40,000 leprosy cases -- a figure it is

* A.D. Magale (Ministre de la Santé Publique et de la Population) Report sur les Activités du Ministère de la Santé Publique et de la Population en 1970, le 23 Octobre, 1970, Bangui, No. 00309/CAB, Ministère de la Santé Publique et de la Population, République Centrafricaine, p.4.

difficult to update because of unavailable data. Venereal diseases, especially gonorrhoea, while not fatal to adults, are largely unchecked. However, newborn infants, again bear the brunt of these infections.

Pregnancy complications -- which point to a shallow use of trained personnel -- account for over 20 percent of the total hospital deaths. As we have demonstrated in MATERNAL-CHILD HEALTH, this figure is not surprising -- and undoubtedly far from complete. Death to the mother and/or the child at birth carries a high risk and should be of prime concern to those organizing health care delivery services. As we shall later see, this is of prime concern to the Ministry of Health.

Accidents happen in all age groups and are mainly a result of falls. However, severe burns account for ten percent of such trauma. It may be significant to note the relatively-low declared rate of chronic-degenerative diseases, which primarily includes heart disease and cancer. However, some medical missionaries noted that they had seen much cancer. Perhaps the primary cause of hospitalization or death represented here was a more obvious acute infection although the chronic disease was present.

These figures point to several inconsistencies in our data collection. As we have repeatedly noted, the figures are far from complete; they in no way represent the total health situation of the country.* However, they do show the intensity of many diseases largely eliminated in other areas of the world. Also, although this annual report is five years old, the WHO physician in charge of the Experimental Zone explained that it was probably a good indication of current health problems. Furthermore, these statistics were gleaned solely from health stations, which will be described later, and the death statistics came only from the hospitals. In any event, one can see that some good epidemiological investigations are needed.

* One really wonders about the accuracy of these reports because of the inconsistencies. For example, the Minister of Health, A.D. Magale, in his report of October 23, 1970, footnoted earlier, shows 77 "old" cases of trypanosomiasis before 1970 yet the 1968 report gives only a declared incidence of 2. He also reported 634 new leprosy cases and 1,992 just declared recovered, yet one notes only 85 leprosy victims in the annual report. And although the 1968 figures showed no yellow fever, it is a major health concern for the health plans of the 1970's.

These figures abstract the suffering of the Republic's 1.7 million people. What do they really tell us? Besides painting a depressing landscape of incessant morbidity and premature mortality, they demonstrate intercurrent infections which lower human energy output levels and produce physical and mental malfunctioning. Drawing from earlier discussions on Yamboro and the surrounding region, we can then draw several conclusions about the status of health in the Central African Republic.

We can predict hunger in many areas, particularly within eight to ten kilometers of the city or deep bush. All people suffer at least 'seasonal hunger' during the rainy season, when infant and child mortality will be expected to peak. Heavily parasitized persons -- which we hypothesize as the standard -- need increased dietary inputs yet the resulting increased metabolism from fever, reduced absorption of nutrients, and possible intestinal tract damage, restrict utilization of even scarce food. Thus, the lethargy and suboptimal activity levels are to be understood.

The new roadways, built for economic development, also bring in not only migrations of people and a few cash crops, but facilitate man-vector contacts of several different kinds of insect-borne diseases. Thus, the re-occurrence of trypanosomiasis, which is of concern to the Ministry of Health, is difficult to trace. Agricultural development, with the introduction of the cash-crop system, means that whole regions concentrate on only a few products thus lowering the mineral and vitamin intake provided by several varieties of food. It is well known that irrigation projects and the building of new drainage ditches, like those under construction in Danguj, tend to foster dense populations of two kinds -- human and the bilharzia-carrying snail. Thus, the two main types of shistosomiasis, the urinary or vesical and the more severe intestinal bilharzia -- already very problematic -- will be increased. These same water systems incriminated by health authorities are also causally correlated to enteric bacterial infections, diarrheas, cercarial dermatitis, helminth diseases, and polio, as well as providing suitable breeding grounds for malaria, dengue fever, arbo viruses, encephalitis, filariasis, and the crippling mycetoma.

As we have seen, it is difficult to isolate one disease from another. They breed together and often attack en masse. For example, we have seen the complex phenomenon of parasites and resulting malnutrition with secondary long-term

effects. Malaria, like other such parasites, also gives a greater susceptibility to other infections and can cause women to suffer miscarriages. Sterility sometimes also ensues. Yet, malaria campaigns have not proved totally efficient and even have proved to be a social detriment with sharply increased birth rates, and decreased death rates, played against already sparse food resources.

Development programs have been conducive both to betterment and community pathology. Urbanization of the kind one can see in Bangui, which is several summations of its population ten years ago, leads to overcrowding, water shortages, overloading of existing sewage and draining systems, and the resulting infectious diseases. One can see this in two reports by a WHO Sanitation Expert on the Kilometer Five and La Kouanga regions of Bangui.* Here one finds that about 95 percent of the wells and drinking fountains are contaminated. During the rainy season there are several succeeding days when the wells, latrines, and city drainage canals all overflow and merge, running together in the streets and into the mud-brick homes. Poorly-constructed communal latrines, often only a few feet from cooking areas and within a few meters of wells and drainage sewers, are rarely covered. In these same regions, where the sample population alone totaled 20,000 people, three out of four families toss their refuse into the yard.

These same people, largely migrants from rural CAR or the Sudan, live in peri-urban slums of tiny, poorly ventilated mud huts with reed roofs. Tattered blankets act as doors. There is no electricity and food is eaten immediately to eliminate storage problems. Water, fetched from distant, largely-contaminated taps and wells is almost never boiled or filtered. Water may, in fact, even be taken from puddles in the streets or yards -- the same places where most of this sample population tosses all refuse. Flies and other insects are so numerous that they blanket food in the open markets even during the dry season. Clothes are washed in the open sewers -- polluted with human wastes as well as parasites -- and dried on insect-ridden roofs or the ground. Thus sanitation is non-existent both in the country and in the city.

So the average Central African is badly housed and badly fed. His personal hygiene is the lowest standard. He is usually without work and the strains of uprootedness lead to psychosocial deprivation and stress. Simultaneously, he is sick. The critical question, therefore, is how does one break the cycle of ignorance, poverty, and sickness? But before we attack a question of that magnitude, let us look at the organization of health services now geared to cure such maladies.

* These reports by Kenneth Vinayagan, WHO Sanitation Inspector, were published in Bangui, C.A.R., December, 1970 (Kilometer Five) and August, 1971 (La Kouanga).

ORGANIZATION OF CAR MINISTRY OF HEALTH

Against this backdrop of constant disease, the Ministry of Health in the Republic has an enormous task even though the population is small. We must remember that transportation and communication is quite primitive and even more remote during the rainy season. Also, the population is widely scattered and largely uneducated. Actually, delivering health services is a herculean effort because of the need to develop basic public works and infrastructure, which the country is in the process of doing at this time. Precisely because of this multifaceted national growth, the task of bringing health care to the CAR is a special challenge and provides a unique opportunity for efficient services. Although the health picture at the moment seems dismal, one cannot underestimate the desire on the part of the people for better health and the desire of the government to provide such support. We found not only the international technical assistants helpful, but the Central African health paraprofessionals very willing to give of their extremely limited spare time to answer our questions and assist in any way they could. Their dedication and compassion is something that, while it cannot be measured, must be emphasized.

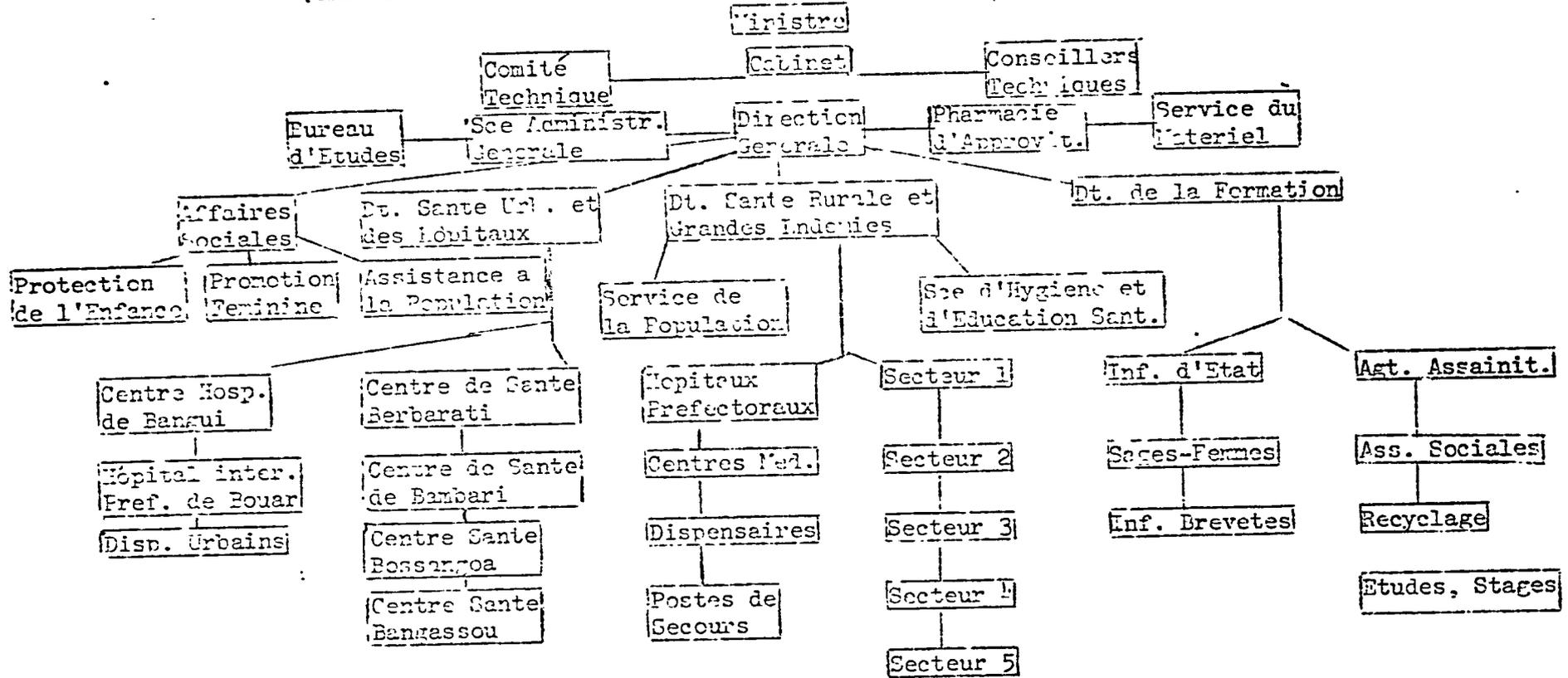
In this same vein, a five-year health plan for the Republic was drawn up under the auspices of the Ministry of Health. The current program, running from 1971 to 1975,^{*} concentrates its efforts basically toward two goals: improved maternal-child health and training of health personnel. "Since women and children constitute two-thirds of the population and given the high infant mortality rate,"^{**} mother and child protection ranks as the Ministry's first priority.

The second priority of the Ministry of Health is the development of training services for health personnel, especially to gather recruits to work in rural regions. Thus, the Bimbo Experimental Zone, which is being set up not only as a training unit but also as a research zone from which the formulation of health care services can be generalized to the remainder of the country, may be critical to the Republic as development of certain health policies in the years to come.

^{*} This plan, drawn up by Dr. Simon Bedaya-Ngaro, Director of Public Health, was published in his report, Projet des Termes D'Action du Plan Quinquennal. 1971/1975, Ministere de la Sante Publique et de la Population, Direction de la Sante Publique et de la Population, Republique Centrafricaine.

^{**} Ibid., p.1.

TABLE OF ORGANIZATION FOR MINISTRY OF PUBLIC HEALTH & SOCIAL AFFAIRS
 (ORGANIGRAMME DU MINISTERE DE LA SANTE PUBLIQUE DES AFFAIRES SOCIALES)



The Table of Organization for the Central African Ministry of Health on the next page demonstrates the priorities and types of available services, as well as the chain of command. First, regarding the general structure, one should note that the technical experts from various international organizations, including WHO and USAID, function on the same level as the Minister's cabinet. This is important since such technical advisers can sometimes effect policy change and can certainly help guide the long-range health plans for the country. In the very least, they are able to keep aware of the national health programs and projections. This will be important for one of our later research suggestions.

Such international agencies work closely with several units of the Ministry of Health. They provide training, actual health services, construction, and preventative or eradication programs. WHO provides health consultants, technical sanitary advice, and teaching. UNICEF concentrates on infant care, vaccination programs, drugs, training, and material resources for model environmental sanitation, while UNESCO trains further sanitation personnel. The drainage system presently being constructed in Bangui, with appropriate training programs, is being sponsored by the UN Development Program. FAO concentrates on agricultural and related nutritional development. The Red Cross, the German MTSEREDR, and various Swiss agencies deliver actual health services, such as the leprosarium near Bangui. French and USAID provide further technical and developmental assistance. As one can see, all of these provide a training component -- something the Ministry actively seeks from international health groups.

Since the hierarchy is self-evident on the chart, we would like to discuss the main divisions: maternal and child health (Affaires Sociales), the urban and rural health (Direction de la Santé Urbaine et des Hôpitaux, et Santé Rurale et Grandes Endémies), and health training (Direction de la Formation). As mentioned previously, reduction of infant mortality and care of mothers -- so prized, as we have already demonstrated -- is of special importance. So far, there are few specialized maternity centers in the Republic. Although many hospitals and regional health centers can care for maternity patients, the high rate of maternal mortality is of great concern and ways must be found to curb the number of deaths, even when the mother is delivered of her child at home deep in the bush. Even in the Experimental Zone, babies are either delivered in the Bangui General Hospital or at home, but it is hoped that the Bimbo Dispensary

TABLE 2 - ORGANIZATION OF HEALTH CARE SYSTEM
CAR Health System Summary

<u>Type of Establishment</u>	<u>No.</u>	<u>Beds</u>	<u>Inpatients</u>	<u>Hospital Days</u>	<u>Cases</u>	<u>Consul- tations</u>	<u>Births</u>
General Hospitals	2	934	16,048	260,477	69,777	170,000	4,362
Health Centers	4	502	12,107	117,947	152,662	537,848	4,504
Prefecture Hospitals	10	591	12,456	132,750	257,058	490,717	3,668
Medical Centers	22	586	28,436	112,331	309,510	557,912	4,413
Health Stations	33	813	31,542	147,110	370,387	734,298	5,767
Dispensaries	80	--	--	--	697,867	1,595,162	--
First Aid Posts	220	--	--	--	163,337	252,562	--
Private Health Centers	37	111	2,540	31,124	78,560	347,561	260
TOTAL	408	3,537	103,129	801,739	2,099,058	4,686,060	22,974

Source: Statistics Sanitaires Rapport Annuel 1963.
 (Direction de la Sante Publique, Service Technique, Republique Centrafricaine.)

will provide maternity beds. To date, only a small amount of pre- and post-natal consultation and health instruction is given by midwives attached to the clinic. There is need for more specific analysis of this problem throughout the country.

The concept of the health care system -- both urban and rural -- in a developing nation is bound with the concept of the 'referral system.' Simply stated, this is the ideal that patients are to be treated as close to their own homes as possible in the cheapest possible way. Strictly speaking, only when one unit cannot provide what a patient needs, should he be referred to the next unit up in the chain. (This assumes that prevention is employed wherever technically feasible and further assumes as much outpatient coverage as possible.)

Focal to this referral network is the medical center which ideally provides a family with all the required health services other than those specialties of the regional hospital. In the developing world, the center functions not only to cure, but also to prevent disease, especially through public health education and environmental sanitation projects. These centers provide minor curative outpatient services, antenatal and post-natal clinics, maternity care, preschool clinics, immunization programs, clinics for specialized diseases such as tuberculosis. It further gives limited inpatient services along with health education, general environmental improvements regarding water sources, excreta disposal, housing and marketing conditions, wages campaigns against localized communicable diseases, and collects health statistics. The centers necessitate all types of medical personnel ranging from those who dress wounds to paramedics (Assistants Medicaux) in lieu of physicians. Their job descriptions will be discussed later. These centers should cooperate with agricultural extension agents, community workers, and the schools, along with other district health posts and hospitals.

It is from this base that mobile units are sent into the rural villages where health care is so minimal -- both to diagnose and treat disease, as well as provide educational and immunization services. Thus, the dispensary and aid post provide much more restricted services, operating largely under the auspices of these health centers. The dispensaries provide minor outpatient curative care for people of a restricted vicinity and usually have only nurses (infirmiers), perhaps a laboratory technician, a midwife, and a dresser. The aid post, often just a

simple mud hut with a few drugs, staffed by a first aider (secourist) is meant only as a rendezvous point for patients who need injections, new dressings for wounds, or other treatment which has been prescribed. Mobile nurses and midwives provide the liaison for the populous between the health center, the dispensary, the aid post, and the hospital. They diagnose, treat when necessary, and function as general referral agents so that the patient visits the appropriate facility for his malady. With special maternity centers, the hospital then ideally should function to treat only those who suffer from diseases requiring highly-specialized surgery, radiotherapy, and complex laboratory investigations. By 1975, it is hoped that the Ministry of Health will have established 15 regional hospitals, 45 medical centers, 81 health centers and dispensaries, and 204 aid posts. It also hopes to establish a state pharmacy to sell drugs to needy patients at reduced rates.

Thus, one can see that urban health is directed toward the hospital, which functions, at least in Bangui, as a general hospital, not a specialized health unit as just described for optimal utilization. Bangui General Hospital has a total of 814 beds (for a city population of almost 250,000).^{*} In 1970 it serviced 18,502 patients of which 6,587 were maternity cases. Of the total 215,145 patient days in the hospital, 184,685 were devoted to medical and surgical care, and 30,460 to maternity cases. The government budget for this hospital's personnel costs totaled under \$300,000 (74,595,000 CFA francs) or \$1 per patient day. Fees are charged those who can pay, but health care is not denied those who have no income. (See the previous section of MATERNAL-CHILD HEALTH for the hospital's breakdown on maternal and infant consultations.)

Bouar General Hospital with 120 beds services an urban population of 16,000 plus the surrounding rural region. There are other health centers at Bossangoa, Berberati, Barbari, and Bangassou. These facilities, for a total of 1436 beds, support an urban population of over 350,000, plus its nearby rural population. As one can see in the CAR Health System Summary on the next page, the country has a total of 3,537 available hospital beds. This is a ratio of one bed for less than 500 persons. Furthermore, assuming the accuracy of these figures, the people of CAR averaged about 2.5 annual consultations. These are respectable averages for developing countries, but one needs much more understanding of the nature of the complaints and effectiveness of service to make any evaluation. Although the Ministry of Health had included projections in their five-year plan to add two

* Rapport Annuel, Année 1970, Centre Hospitalier de Bangui, Ministère de la Santé Publique et des Affaires Sociales, Direction Générale, et Direction de la Santé Urbaine et de Hôpitaux.

40-bed maternity centers, enlarge the Bongassou and Bambari Hospitals, construct a national medical laboratory, and improve facilities at Bouar, only small-scale financing has to date been arranged. The plan also called for 69 additional mobile units -- station wagons, land rovers, ambulances, and some smaller automobiles -- which would be another large expenditure.

Since most of the people live in remote areas of the country, rural health is of prime concern. Ideally, this should be the pillar of preventable medicine, although what we have just been discussing is, in actual practice, primarily curative care in CAR at the present time.

The division of the Grandes Endemies plans in this five-year period to concentrate its efforts toward polio, yellow fever, and trypanosomiasis through routine vaccinations, leprosy campaigns, and programs to combat yaws, syphilis, gonorrhoea, shistosomiasis, and other parasitic infections. It plans to wage new efforts against tuberculosis. Hence the training of new personnel for these rural health pursuits is critical, as are the development of far-reaching vaccination programs, as we saw in our discussion of MORBIDITY AND MORTALITY. As we demonstrated earlier, although smallpox immunization is provided with vaccinations being routinely given every three years, the number of actual inoculations against other communicable diseases seems very small. Again, one needs to know the exact scope of the vaccination programs now carried on under the direction of the Grandes Endemies.

As we have stressed, one of the major concerns of the Ministry of Health is education of health personnel. At the present, the Republic brings most of its physicians from other countries, although Central Africans staff other health posts. This can be seen in the Health Personnel chart on the following page. This report, published in the last annual report (1968), can be updated to show 56 physicians, 11 paramedics, 203 nurses with diplomas, and 661 uncertified health paraprofessionals. Using these figures, we find one physician for about 34,000 persons. Thus, it is easy to understand the grave concern for education. As of 1971, there were 72 medical students abroad, plus 10 pharmacy students and two in dentistry.* However, Dr. Ngaro's five-year plan proposed a need of 84

* Of those 72 medical students, 15 were enrolled in the USSR, 53 in France, 3 in Belgium, and 1 in Canada. This was reported by A.D. Magale, Minister of Health, in his Rapport Sur les Activités du Ministère de la Santé Publique et de la Population en 1970, Bangui, le 23 Octobre 1970, No. 00309/MEPT/CAB.

physicians (in such specialties as psychiatry, obstetrics, pediatrics, dermatology, cardiology, radiology, public health, and surgery), nine pharmacists and five dentists. But the role of physician in a developing country is quite different than an industrialized setting -- he is teacher and facilitator of community health projects. He rarely practices. Consequently, it should be the paramedical professionals which should concern us, for as one can see in our earlier discussion of the referral system, it is they who diagnose and treat the general population. INEHS (L'Institut National d'Enseignement Medico-Social et de Santé Publique), which was first organized in the late 1960's, provides training for nurses and public health. On the basis of competitive medical exams, it admits 20 midwife students, 20 nursing students, 15 social workers, 10 sanitation students, and 40 students in assistant nursing. During the 1971-72 school year there were a total of 207 students. This program is currently being augmented by USAID's recycling program. It is the hope of the government that further medical studies can be pursued at Jean Bedel Bokassa University, as well as INEHS.

Now that one has an idea of the focus of health planning for the period ending in 1975 and of the general structure of the Ministry of Health and its various facets, we can explore in more depth the utilization and description of various health paramedical professionals.

The role of the physician in a developing country is very different from that in developed regions where health personnel are more abundant. In Central Africa his job is ideally that of teacher, organizer, supervisor, and consultant; his treatment roles are minor, for here he orients himself toward the community as a whole rather than toward specific individual patients. In fact, the axiom for all health personnel is that any task which is often repeated -- even though sometimes complex -- should be taught whenever possible to an auxiliary. The very first priority is to get health assistance to as many persons as possible. This means the training of many paramedical professionals. Because the major enemies in developing countries are ignorance, poverty, and disease, health personnel must be equipped to promote better hygiene, improve housing standards, give education, upgrade agricultural yields, and further public works. Therefore, let us review the health personnel of the Central African Republic with their various job descriptions. (These people were part of the staff for the urban and rural health service of the Grandes Endemies.)

Medical Assistant (Assistant Médicaux)

A medical assistant is the general practitioner of a developing country. He diagnoses and treats the sick -- even performs major surgery. He is also the administrator of the health center when no doctor is available. Furthermore, like the doctor, he functions to influence community development, instructs his staff in doing the more routine medical work, and administers good record keeping. Optimally, he teaches all possible tasks and treatments to other health personnel so as to free his own time for complex medical problems, preventative health, and community improvement activities.

For this job, one must have 10 years of schooling with two to three years of nurses' training and another two to three years of specialized education. In the Central African Republic, like most of Africa, health personnel -- with the exception of midwives and social workers -- are all men. Considering, as we earlier discussed, that men have status over women and specific division not only of tasks but of appropriate decisions and areas of thought, it seems to be in keeping with a viable tradition. It is quite possible that the community would have difficulty relating to a female physician or sanitarian, although their pragmatic desire for better health would probably obfuscate this sex-division identification.

HEALTH PERSONNEL IN CAR*

	1 9 6 8		
	Central Africans	International Technical Assistant	Total Personnel
Physicians	2	40	42
Medical Assistants (<u>Assistants Medicaux</u>)	3	-	3
Certified Nurses (<u>Infirmiers d'Etat</u>)	17	41	58
Practical Nurses (<u>Infirmiers Brevetes, Agents Techniques</u>)	131	-	131
Uncertified Practical Nurses (<u>Infirmiers non-brevete</u>)	419	-	419
First Aiders (<u>Secourists</u>)	220	-	220
Midwives	8	12	20
Uncertified midwives	75	-	75
Sanitarians (<u>Agents d'Hygiene</u>)	37	-	37
Assistant Sanitarians	-	22	22
Dentists	-	1	1
Pharmacists	-	2	2
Laboratory Technicians	2	1	3
Radiology Technicians	1	-	1
Business Administrators	4	-	4
Administrative Officers	-	2	2
TOTALS	919	121	1,040
Medical Students Abroad	61	-	
Student Paramedica (<u>Infirmiers</u>) in the Medical Institute (INEMS) at Bangui	21	-	
	82	-	

Source: Statistiques Sanitaire Rapport Annuel, 1968.
Direction de la Sante Publique, Service Technique, Republique
Centrafricaine. This is the most recent annual report.

* Some of these figures have been updated by Bernard Benel at the Ministry of Health, as of March, 1972. These include: 8 specialists (physicians); 48 general practitioners; 11 medical assistants; 12 pharmacists; 1 dentist; 27 midwives; 57 qualified nurses (infirmier d'etat); 58 practical nurses (agent technique); 88 certified practical nurses (infirmier brevete); 51 nursing assistants (infirmier assistant); 381 uncertified practical nurses (infirmiers); and 229 first aiders (secourists).

Sanitarian (Agent d'Hygiene)

Hygiene agents are used at this time basically in the cities. They instruct village and city dwellers in the construction of basic sanitation projects such as latrines and wells, and provide health instruction in the maintenance of pure water and proper refuse disposal. They can be useful in assisting against endemic diseases and may be helpful in tracing contacts of infectious diseases. These men are particularly valuable at times of epidemics and may be useful in gathering cultural and sanitary data for ongoing research. Most of them have had about six years of education with a year of nursing and another year of sanitation education.

Certified Nurse (Infirmier d'Etat)

As one can see, many paramedical professionals in developing regions -- besides the physicians -- can diagnose and treat. They can even prescribe antibiotics and do routine surgery. So is the case with the certified nurse, who has passed a special examination after 10 years of schooling and two to three years of nurses' training. Because they are relatively high in the health personnel hierarchy, these paramedics function largely in an administrative, supervisory, and teaching capacity. Because there is a scarcity of trained persons, they may have the bulk of the medical functions in a large health center, but still ideally perform only those tasks which cannot be delegated to another member of the nursing staff.

Certified Practical Nurse (Agent Technique, Infirmier Breveté)

These nurses, who are found in all levels of medical facilities throughout the country, provide a variety of medical functions. Not only do they diagnose and treat the sick, but they may do some training of other staff and even act as the local veterinarian -- inspecting meat that is to be sold in local markets. Ideally, they should be the main supervisor of the records and, in fact, since these paramedical professionals usually direct the various clinics or dispensaries, they also act as liaison between the village chief or representative, to relay birth and death information to the major's office. Besides nursing instruction, these and other nursing personnel need improved understanding of the importance of accurate and complete health records.

With five or six years of primary schooling, applicants for practical nursing programs receive another two years of hospital training and about three years of experience before they take a special brevete examination. After about six years, they may take an additional examination for advanced standing. Some also obtain special laboratory training.

Uncertified Practical Nurses (Infirmier or infirmiers non-breveté)

This category, which constitutes the bulk of trained paramedics in the Republic, is allowed to give all forms of medical and nursing care. Usually attached to small hospitals and clinics, they can also assist with major medical services such as operations. Although many have had only practical, apprenticeship-type training for a couple of years, some have two years of training in a general hospital after completing a primary education.

First Aider (Secourist)

Previously termed garçon de salle, the first aider is the only paramedic in the nursing category who is curtailed in his diagnoses and treatments. He applies and gives all treatments or injections ordered by any of the above categories of health personnel, but he is allowed only to deal with diagnosing and treating minor complaints. Hence, he does no surgery and, although allowed to dispense antibiotics upon the orders of another infirmier, he cannot prescribe them. He works autonomously at isolated rural outposts and travels to villages dispensing ordered drugs, giving inoculations, dispensing vitamins and malaria prophylactics to preschool children, and referring seriously-ill patients to other health facilities. Like other health personnel, he is sometimes advised of births and deaths which he records with the infirmier-chef and mayor of his region.

This health care is provided by a man who usually has two to three months on-the-job training in a hospital or clinic and has completed only enough schooling to make him literate. At the present time, the Ministry of Health is upgrading its health personnel, recycling them through various training programs, while eliminating certain titles or job descriptions.

Midwife (Sage-femme, Matrones)

Although a certified midwife has between six and 10 years of education, along with three years of midwifery training, she does few deliveries. Rather, in the

tradition of developing regions, her job is to maximize her training and continue with further education projects of her own. Hence, they provide maternal-child health classes at health centers and clinics and hold antenatal and postnatal classes in the village. There is no family planning in the Republic at this time. Midwives also give malaria prophylactics to expectant mothers on their routine visits and refer any cases of malnutrition for medical attention. In such cases of under-nutrition, she may distribute UNICEF milk and foods to some families.

The matrone (not to be confused with the traditional village midwife), who often learns to deliver babies through some on-the-job training, assists with maternal-child health services and may assist with the actual delivery.

Social worker

Maternal and child health is further aided by the welfare services of the social worker, who has completed primary school, a year of nursing, and a year of social work studies. She often travels with the midwife and their duties, considering the high maternal and infant mortality rates, might be examined more closely to see exactly what they can do to directly benefit the village woman and her children.

As one can see, the educational level of these paramedics does not seem high by Western standards. Yet one cannot overlook their dedication, long hours, and probable efficacy of treatment. Although the trend, from the five-year report by the Ministry of Health, states that it is interested in training more physicians there was little attention paid to the training of large numbers of paramedical personnel. Yet these men and women, who have salaries ranging from \$34 a month to a little over \$200, are the backbone of the system of diagnostic and treatment personnel. With the organization of INEMIS and the input of the USAID recycling program, it is possible to continue this pattern of health care whereby it is more important to extend health care coverage than upgrade the medical standards for just a few persons. There is a tendency to want prestigious health people, especially physicians, but this involves large expenditures of money and reaches only a few people. Often, the standards of a developing country's Ministry of Health are not too low, but too high. Thus careful thought needs to be given to training programs for large numbers of paramedical personnel -- people who are relatively inexpensive to train and inexpensive to keep on the payroll. Therefore, projections should be made not only for more surgeons and pediatricians, but more infirmiers. As we shall see in the next section on BUDGET, this is the way in which the CAR will get the most for its health franc.

The health budget of the Republic, which currently constitutes about \$3.4 million, means a per capita health expenditure of about \$2. In looking at the Budget for the Ministry of Health on the following page, we can see that the health expenses are about seven percent of the total national budget for 1972 -- the bulk of the \$46.5 million national budget goes for military and public works expenditures. Thus, we are talking of what is to us in the United States a small amount of money.

We have argued throughout this report for a kind of cost-benefit-analysis approach to viewing the operations of the Ministry of Health, for it represents a significant portion of the Ministry's funds when WHO or another international organization brings in a half-million-dollar drainage system for Bangui or training programs for a special experimental zone in health. For this reason, we would urge that one continually think of how many people are being trained or retrained as each American dollar is spent. Is the aim of these expenditures for the long-term good of many persons, or the long-term good of only a few? Considering the almost-total lack of even rudimentary sanitation and knowledge of basic hygiene, how can the greatest numbers of people be reached for the lowest amount of money? These, we believe, to be some of the essential questions one needs to answer when going into the CAR with health-development funds, for as one can see on the following page most personnel expenditures currently go to high-level personnel.

BUDGET FOR MINISTRY OF HEALTH, 1970¹
CENTRAL AFRICAN REPUBLIC

<u>PERSONNEL</u>	<u>CAR FRANCS</u>	<u>U.S. Dollars (1,000 fr. = \$4)</u>	<u>Percentage of Total Expenses</u>
Minister	2,265,000	\$ 9,060	
Secretary of State	1,700,000	6,800	
Cabinet	4,020,000	16,080	
Public Health Department	10,135,000	40,540	
Hygiene Service	16,000,000	64,000	
Medical Assistance	183,000,000	732,400	
Bangui General Hospital	74,595,000	298,380	
Bouar Hospital	6,900,000	27,600	
Pharmacy and Provisions	3,270,000	13,080	
Maternity and Pediatrics	25,500,000	102,000	
Service against Great Epidemics	60,000,000	240,000	
Medical Institute	4,185,000	16,740	
UNICEF Garage	1,000,000	4,000	
<u>TOTAL Personnel Expenses:</u>	<u>392,670,000</u>	<u>\$1,570,680</u>	<u>64.1%²</u>
<u>TOTAL Current Expenses:</u>	<u>219,709,000</u>	<u>878,836</u>	<u>35.0%</u>
TOTAL:	612,379,313	\$2,449,516	100.0%

Source: Budget de l'Exercice, 1971.
Tome I (Republique Centrafricaine)

1. The total CAR budget was 11,649,275,614 (CAR francs) or \$46,597,100 (U.S. dollars). This health budget constitutes 5.06% of the total budget. However, it was raised to 6.8% (U.S., \$2,873,724) in 1971 and 7% (U.S., \$3,400,000) in 1972 so it is rising in both percentage and net terms.
2. This figure seems low; this often constitutes 80 percent. However, it may point to low salary scales.
3. There was no designation for large capital improvements, so this percentage seems high. However, need for a discrete breakdown is indicated.

THE PILOT ZONE OF BIMBO

Now that one has some idea of the overall organization of health services in the Central African Republic, we can explore the experimental zone in the Bimbo Prefecture.

As we briefly mentioned earlier, the pilot zone was established in 1968 and began functioning a year later. Basically, the plan is to develop a viable health care delivery system which can stand as the model for the remainder of the country. Besides standardizing a medical organization or system, the long-term general goals of the experimental zone are to develop maternal-child health services, concentrating on pre-natal consultations and under-five clinics. Furthermore, demographic and epidemiological surveillance, under the direction of the Grandes Endemies, will be improved with a new system of birth and death recording along with better reporting of communicable diseases. In accord with the general emphasis on maternal-child health and control of transmittable diseases, sanitation programs -- including new wells and latrines -- will coincide with direct population education in environmental hygiene. An immunization program will add a further preventive health aspect to these endeavors.

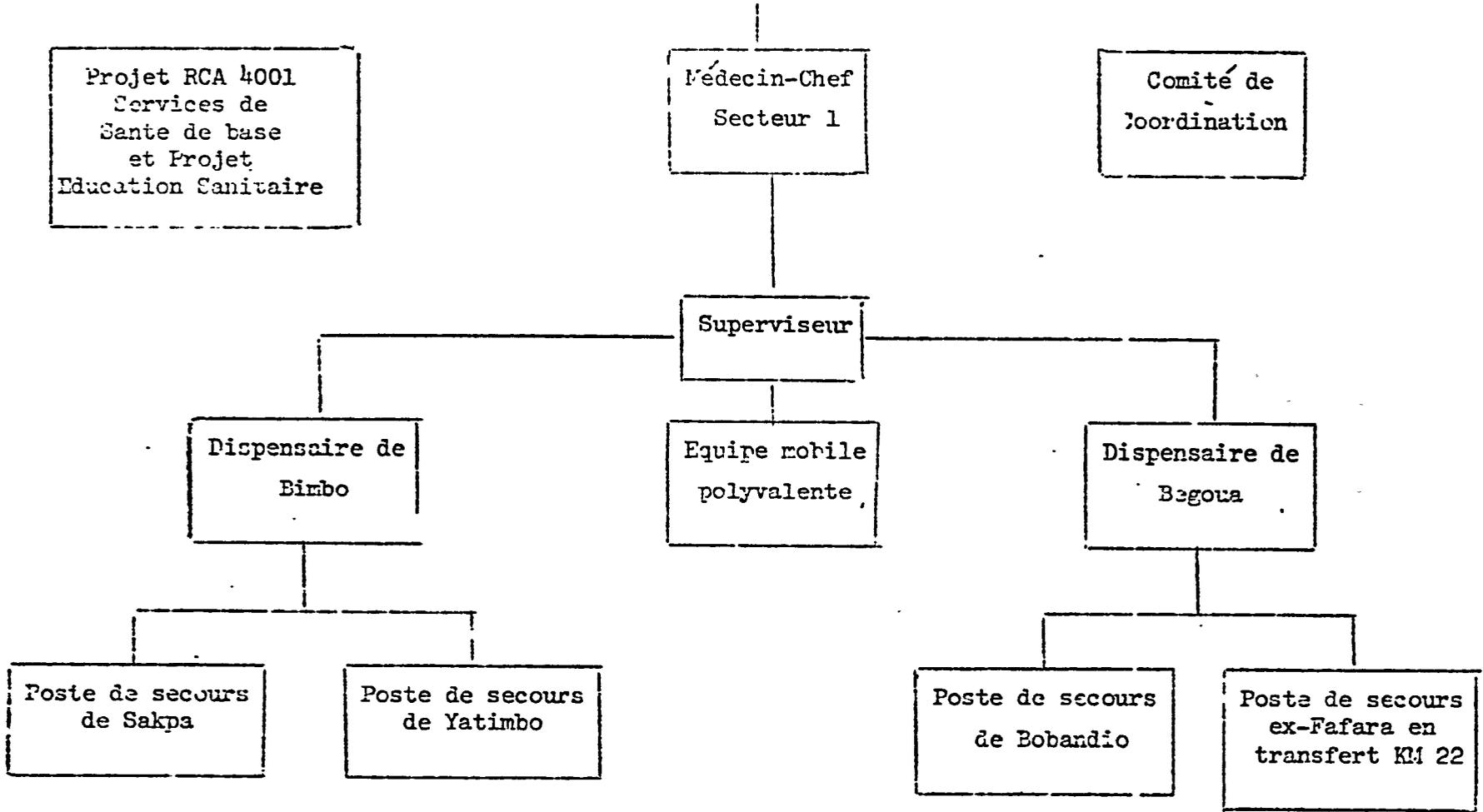
The health organization can be seen on the following page in the organizational chart for the Pilot Zone of Bimbo. Here one can see that a physician (from WHO) directs the project with a Central African supervisor being directly responsible for the two dispensaries, the four secourist posts, and the mobile unit. The staff in the experimental zone, excluding the WHO physician, is paramedical personnel, including the USAID homologue and the supervisor.

The two dispensaries, Bimbo -- from which we conducted our research -- and Begoua, will soon be in the category of "health centers" when they add some inpatient facilities to their existing plans. Therefore, in trying to evaluate the goals and future activities of these stations, one can think of them in the ideal terms described earlier with regard to the referral system of a developing country which emanates from its health center. At the time of our inquiry, three of the secourist posts were being used; only Fafara was not operational. The mobile team consisted of the supervisor (infirmier), a sanitarian, a social worker, and a leprosy worker (circuit experimental lepre), a literate member of the health team whose main job is to deliver medications to various leprosy victims.

(Non encore
approuvé)

MINISTRE DE LA SANTE PUBLIQUE

ORGANIGRAMME DE LA ZONE PILOTE DE BIMBO



These people go by car and mobylette (a small motorized bike) to the villages, concentrating mainly on biweekly case-finding and minor treatment in Batalimo, Bimon I, Salanga, Botambi, Boboui, and Yamboro. A river mobile unit was tried in 1969 but turned out to be ineffective. In 1971 these mobile activities provided 26,152 consultations to 10,609 persons (75 percent of the experimental zone population).*

Consultations at the clinics and first aid posts numbered 45,979 in 1971. This means an average of over three visits per year for everyone in the experimental zone. Maternal-child health consultations, which include an initial examination by a WHO physician, included only 48 women coming in for prenatal consultations for a total of 444 consultations, 83 infants (birth through one year), and 69 preschoolers (two to five years). Infants averaged almost 14 visits apiece while other children usually came in only once. Considering the problems of these age groups and child-bearing mothers, the expansion of these services is of prime importance as recognized in the 1971-1975 national health plan.

The vaccination program coincides with the MCH consultations, but the only concrete figures, besides those from Pasteur Institute, were that Begoua Dispensary had given 150 vaccinations in 1971. Public health education is provided the villages by assistant sanitarians who help the villagers build wells and latrines and teach improved methods of refuse disposal. The Grandes Endemies, which is especially interested in tracking the residual cases of sleeping sickness (trypanosomiasis), found 14 cases under treatment in the Bimbo region in 1968 and no new cases in 1969, 1970, or 1971. It seems to be under control in this area.

As we can see by these figures, much work needs to be done in gathering further statistics in order to learn the incidence and prevalence of disease and to see which villages avail themselves of help or are benefited by the mobile units. Such investigations would be a good additional research project in the experimental zone to see the efficacy of mobile health care.

A very meager effort in this regard was an inquiry at the Bimbo Dispensary in late March of this year** to determine who actually comes to the clinic for help.

* This report from Dr. Sylvain Joliebois, WHO Counsellor Technique, La Zone Pilote de Bimbo, 1971. Republic Centrafricaine.

** This survey, conducted March 23 to 27, 1972, was taken by us at the Bimbo Clinic, noting each patient's sex, age (child or adult), diagnosis, distance from home, and mode of transportation to the clinic.

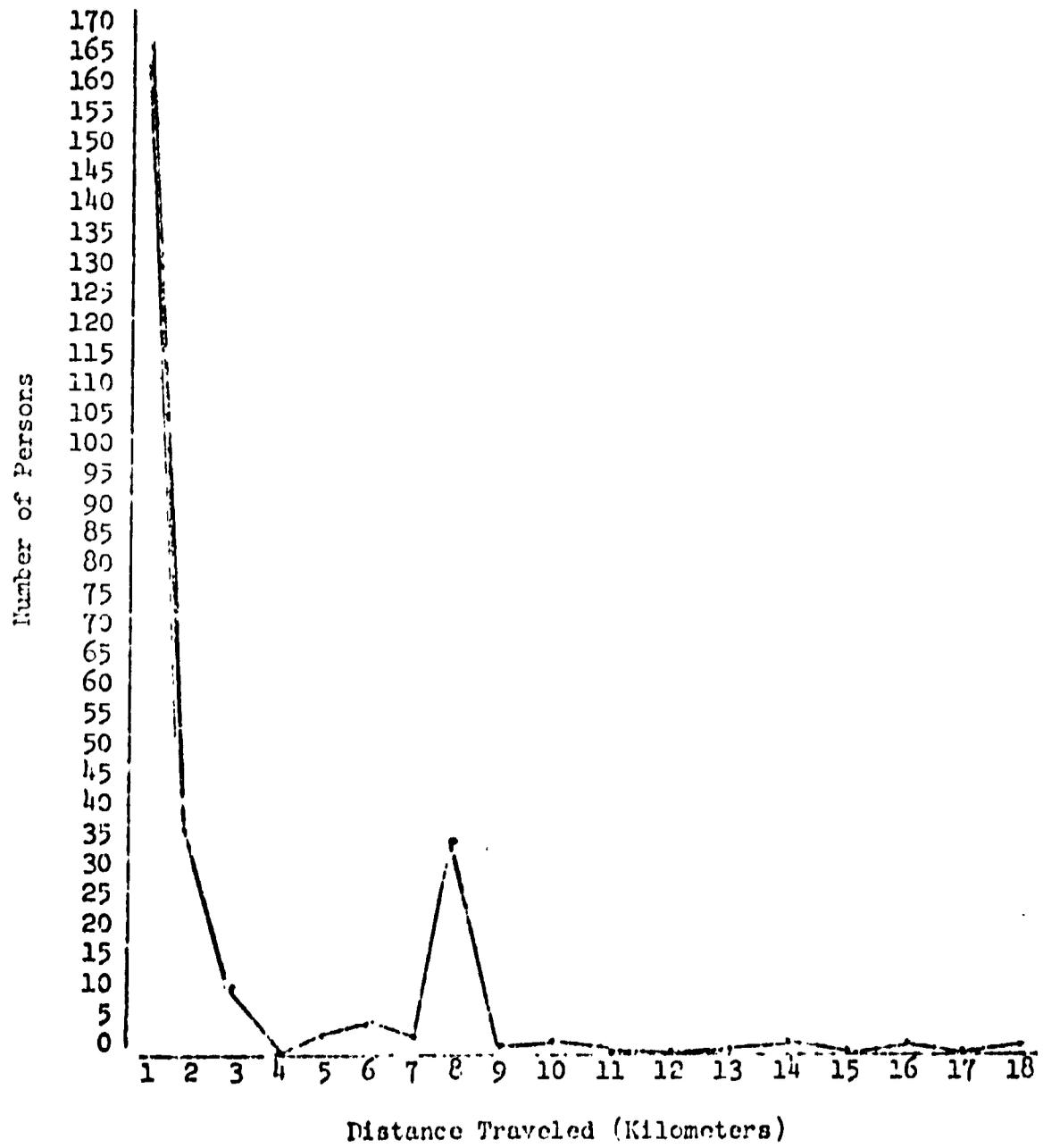
This utilization can be seen in the chart on the following page. As one can readily see, the vast number of persons -- 166 out of 262 -- came from the immediate Bimbo area. The clinic, which is about four kilometers from Bangui, is actually located at one end of a hardtop road which serves the M'Poko District of Bimbo. Most people -- in fact, four out of five -- came on foot. Of those who traveled nine to eighteen miles to Bimbo, only two took motorized transportation; the others -- including the man from Yamboro, 16 kilometers away -- walked. This chart can be interpreted in a variety of ways, and because the survey was for only a short duration of time, one must be wary of the results. However, it demonstrates a few interesting points. Note the rise in numbers of patients who come from a distance of eight kilometers. These people were all from Kilometer Five and said they preferred the Bimbo Clinic on two counts: (1) the chief infirmier was able to cure them and was "kind" and (2) the city clinics were too crowded; one had to wait too long to see a nurse.

We did not find that people come to Bimbo with a variety of complaints; the dispensary was not known to "specialize." Nor was one sex or age group more represented than another. However, the patients were there primarily for acute, severe symptoms for which there was a perceived treatment. This would coincide with their use of the Western medicine that we described earlier. In order to further analyze these findings, we need to know exactly how medical care is delivered on the mobile units and whether or not the people of the immediate Bimbo area are "healthier" because of their apparent utilization of this medical post.

Since we can see the paucity of data available even in a research-oriented experimental region, we can see that one of the initial problems is to set up good records. There are actually three levels of a comprehensive record-keeping system in a developing country: (1) the patients' own records, like those CAR residents now carry in their small spiral notebooks, which summarize their clinical condition at a glance, (2) the files and ledgers in the hospitals, health centers, clinics, first aid posts, mobile units, or wherever medical care is delivered, and (3) the birth, death, and summarized national health records which can be used for other analysis.

We have already noted the disparity and age in national health record keeping which is a result of scarce resources and untrained staff. So let us now look at the records kept by two key figures in the Bimbo Pilot Zone, the chief nurse at

UTILIZATION OF BIMEO CLINIC*



* Survey conducted March 23 to 27, 1972

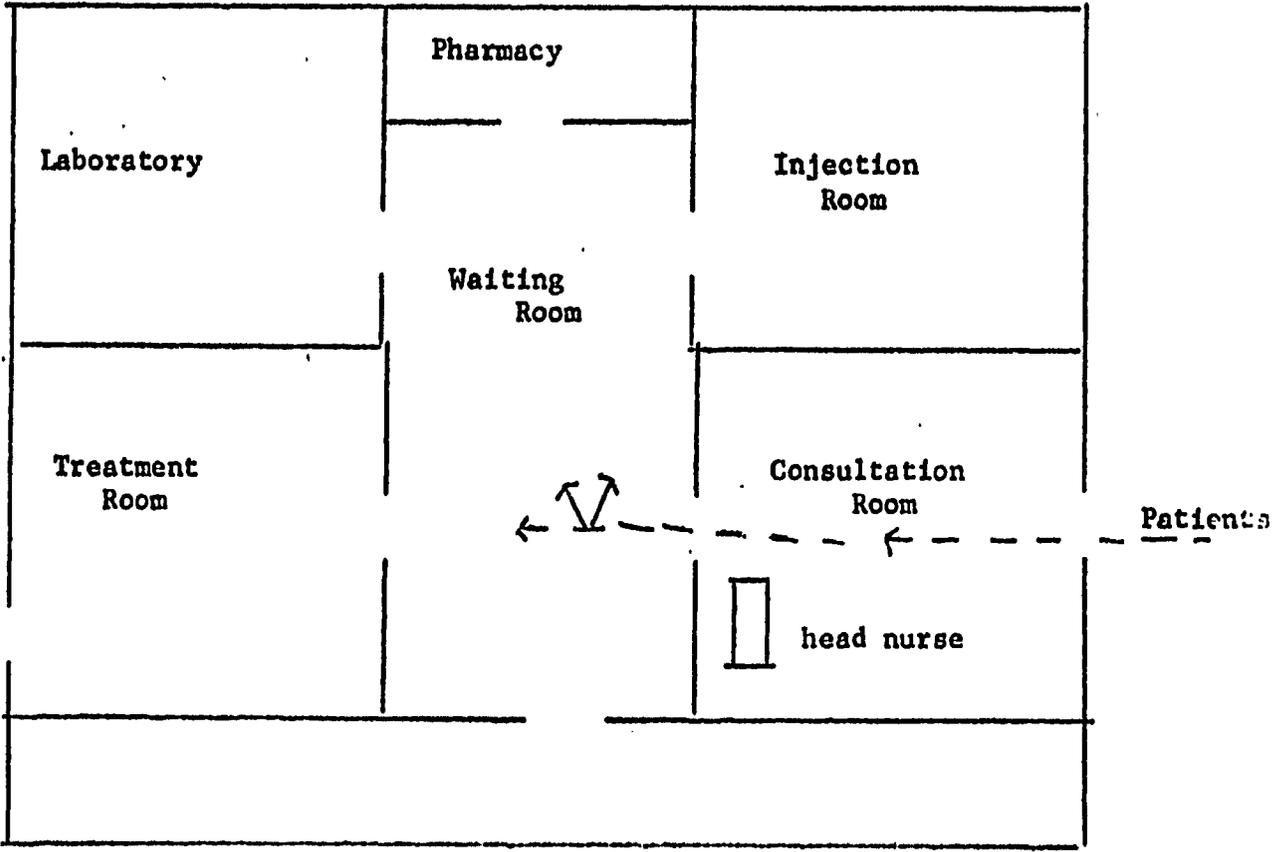
the clinic and the first aider. To better understand this, we need first to describe the facilities and layout of the clinic, which is diagrammed on the following page. Bimbo has a main consulting room which may be entered directly from the outside and from which patients can enter the laboratory for tests, the injection room, or the treatment room for superficial dressings. Noting the daily ledger for the first three months of 1972, kept by the consulting nurse, we found that he saw an average of 135 patients a day,* six days a week, about one-third of which were either new patients or had come with a new ailment. Only these new patients were listed in his ledger, which noted their sex, age, diagnosis, and treatment. But often the diagnosis was only a symptom. On the many occasions we observed him, we noted that he spent about 30 to 60 seconds with a patient, rarely touching them except to check for fever or uncover a wound. Each person showed his little notebook -- his own personal medical record -- which recorded earlier dates, diagnoses and treatments. After consultation, the patient^t is then referred for further laboratory tests, in which case the laboratory technician further adds to this notebook once blood or stool analysis is made, is told to go to the injection or treatment room, or he is given one day's supply of pills for his ailment in any available scrap of paper -- another scarce item around the clinic.

The clinic would initially be upsetting to the Western practitioner. Flies freely swarm in through the screenless windows, often stopping on the blood soaked dressing in the wooden box of the treatment room or hovering around the needles in the injection room. Water is transported to the clinic from a backyard well, but those attending or consulting patients were never seen to wash their hands. In fact, one wonders at the personal hygiene practiced even by these health personnel, for only the head nurse at the Bimbo Clinic said he boiled and filtered his water at home -- all other attendants interviewed do not.

The Sakpa first aid post, unlike the raised concrete, permanent building which housed the Bimbo dispensary, was a large mud-brick building with dirt floor and reed roof. Only its size and the large Red Cross on its exterior showed it to be anything other than traditional housing. Here the secourist dispenses his drugs

* This coincides with the earlier figures -- about 2.5 consultations per person per year.

DIAGRAM OF BIMBO DISPENSARY



and advice, again in the midst not only of several patients at a time, but with many insects overlooking the entire procedure. The spoon from which he gives the many young children their nivaquine against malaria, was kept in a rusty tin filled with water -- it was used repeatedly without being cleaned. This practice made us wonder about the sterile techniques employed by the various health practitioners, for if they do not see need to boil water for their families, do they boil it for their patients? One must recall that one of the basic job descriptions of all these health officials is their promotion of public health practices. When asked about this, all of them replied that they teach while they treat, yet considering the lines at the clinic and the first aid post, along with the short consultation time, the researchers wonder how much education can be accomplished.

The first aider also keeps a ledger with the name, age sex, diagnosis and treatment, but he, too, records only new patients or those along his mobile route. There is not at this time any coordination between the records at Bimbo and Sakpa; both are distinct from one another. Nor is there a file kept on any individual at either place, for all medical records are found only in these ledgers or in the personal medical notebook of the patient. Thus, complete histories are possible only in so far as the patient can remember them. There is one exception to this -- the records that the midwife at Bimbo keeps on her mothers and young children. She maintains much more detailed accounts of weights and general progress of her patients.

There are a few general comments which the researchers wish to make about the health personnel interviewed in the experimental zone. Not only were they dedicated and zealous workers, but they were very interested in the health of their neighbors and themselves. Yet, the services of the country are presently so oriented to de facto, curative medicine; not one paramedic interviewed thought in terms of preventive medicine. Even malaria control was thought to be accomplished solely through the giving of malaria prophylactics -- something that is "too expensive" as they often reminded us. And, although they are to engage in sanitary education, when asked about the health needs of their neighboring peoples, they tended to mention the need for more health personnel, more clinics, and the like -- they did not mention the need for improved environmental sanitation, vaccination or insect control. In fact, the only person who concerned himself with community improvement was the sanitarian. But he does not work with persons in the Bangui

open food markets and the market across from the Bimbo clinic, where meats lie in the hot sun from early morning to noon.

One has seen how the Pilot Zone of Bimbo is presently designed as a potential health care delivery model for the whole of the Central African Republic. Since it has only been operating for three years, evaluation of it is premature. Weighing the desire of its personnel to create a good system, there is much hope. Therefore, the researchers shall next make specific suggestions for the development of further programs.

RECOMMENDATIONS

In the African social drama sickness has a strong claim to being arch-villain. It is bad enough that a man should be ignorant, for this cuts him off from the commerce of other man's minds. It is perhaps worse that a man should be poor for this condemns him to a life of stint and scheming, in which there is no time for dreams and no respite from weariness. But what surely is worst is that a man should be unwell, for this prevents his doing anything much about either his poverty or his ignorance.*

*What George Kimble states so succinctly here summarizes the intertwined relations between health and development. The problem is how to break the cycle of illiteracy, poverty, and sickness. This calls for a creative health care system, one that is preventive as well as curative, and one that anticipates health problems as they arise in industrial development. This report has identified some of the major health problems and has tried to demonstrate how the health practices are juxtaposed with the cultural context of the people.

The results are these final suggestions which come from the experience in the field -- the multi-phased operation of interviewing, collecting records, and observation -- and the many weeks of analysis with this report as the final result. Further, these recommendations have not been hastily conceived and reflect the full weight of the academic disciplines the researchers represent -- namely, medical anthropology and medical sociology. But more so, they represent a deep and abiding humanitarian concern for the peoples of Central Africa.

Some of them will be negatively colored. That is, they are listed for the express purpose of advising against the utilization of health education programs and techniques which are culturally biased and friction-producing. For this reason this report has been holistically framed so that the cultural patterns and cultural dynamics may be taken into account. On the other hand, many of the recommendations are oriented to the implementation of techniques that are of a positive nature. Some advise building on cultural patterns that already exist whereas others urge implementation of newer and more revolutionary methods of health education.

PUBLIC HEALTH EDUCATION VIA INFLUENCE LEADERS

As this report has repeatedly stressed, the Central African Republic is a developing nation with the attending growing pains: (1) an unfavorable environment which includes poor sanitation, inadequate diet, and a high incidence of disease; (2) deficient delivery of health care services largely due to actual manpower and financial resources, which are further accentuated by unmet needs in transportation and communication, and (3) high levels of illiteracy. Thus, public health education needs to be aimed at the masses.

The focus of the Ministry of Health has been to provide health education through the various health paramedical personnel, men who although they are dedicated and diligent, are often too busy to provide complete and comprehensible advice to their patients. Perhaps a two-phase program which includes direct, face-to-face education and programs aired on the radio would be a more effective way to use the health-care dollar. As the researchers found in Yamboro and other villages they visited, shared radios are a frequent source of enjoyment and learning. To use the radio to teach has shown to be an especially sensible approach to education in developing countries. The outstanding example is Columbia, South America, where the Accion Cultural Popular, a system of radio programs has been designed to promote literacy and public health education in remote rural areas. Semi-literacy can be achieved in about eight months,* and many development projects have thus been made possible. These programs have reached between 150,000 to 300,000 a year in Columbia** and similar television programming has been successfully devised for Puerto Rico.

There are several reasons to believe that this would be an efficient method of public health training to the general person: (1) the people desire health and actively seek it whenever it appears available, (2) radios are now available in villages near the city and could be provided inexpensively to remote regions which

* Area Handbook for Colombia (Special Operations Research Office, American University, July, 1961) p. 168.

** Ibid.

do not now possess them, (3) people have the leisure time to listen because their energy levels do/^{not}always permit a full work day, (4) new ideas would flow from the radio to the opinion changers of the village to effect change, and (5) it would meet the criteria of good health education to many people for low per capita cost.

Although the training of paramedical people is extremely important in the CAR and will continue to be so in the future, every health practitioner from international health educator to physician tries to determine how to best utilize his time. The University of Pittsburgh/USAID/OCEAC health educators could prepare materials for broadcasts and have them translated into native tongues (mainly Sangho) for airing on the radio. These could provide information in the critical areas of childhood nutrition, prenatal and infant care, environmental sanitation, personal hygiene, and disease transmission. It could further offer advice to village midwives and traditional practitioners, whose services will continue to be needed and used by many villagers. It could also facilitate the teaching of additional paramedics in rural regions. In this way, one teacher and "one classroom" could provide help to hundreds in need. And, since President Jean Bedel-Bekassa has a strong interest in the informational services of his radio and new television stations, he may be interested in endorsing such a venture. He was instrumental and very active in the cholera campaign and would be likely to feel that this is another way to give aid to his people.

Since health care in a developing region is organized from the bottom up not the top down, this mass media approach would aim both at continued paramedical training and self-help to improve one's own health status and that of a community. Quite frequently, health education fails because the structure of the community and the persons of influence are not taken into consideration. It was brought to the attention of the researchers on repeated occasions how people from the villages did not listen to the advice of the missionary nurses regarding proper procedures of preventing illness. Suggestions as to washing hands before handling food or not bathing in the river were simply ignored. However well-meaning these warnings were, they overlooked the cultural dynamics of how native peoples organize their lives. More specifically, they by-passed the people of influence in the village whose leadership is respected.

Therefore, the researchers suggest that health education be channeled through the leaders of the village. This includes (1) the formal political leaders such as the chief, (2) the traditional health practitioners, and (3) the informal "influence leaders," which will be discussed later. To by-pass any of this authority structure of the community is to produce friction at the outset. Health educators will need the cooperation of such leaders if what they have to say is accepted by the people. Having such a person of respect give approval to any change of behavior is to gain the imprimatur so needed in soliciting a hearing among the people themselves.

As the researchers pointed out earlier, the chief uses his authority to organize the village as a whole, as when smallpox vaccinations are given to the entire community. At these times, his influence can be used to give the whole group specific kinds of health information, such as instruction about the importance of covering latrines and not defecating in or near water sources. Or one could use this "village forum" as a place to explain disease transmission of frequent communicable diseases such as malaria or shistosomiasis. In any event, people amassed either for radio broadcasts or public meetings should be used to critical advantage.

Also an effective transmitter of information are the traditional medical practitioners. As the researchers pointed out, even the village midwife, divinator, and medicine expert were quick to avail both themselves and their patients of clinic and hospital services when they recognized the need. To have the mobile team, especially the infirmier and sage femme, work directly with these traditional practitioners to promote better sanitation, personal hygiene, and even assist them in their medical functions would enlarge the scope of delivering health care to the people. Because these traditional practitioners already have respect as medical consultants, it would be wise to build upon this existing, village-based resource. For example, since many babies must be delivered in the village, due to lack of sufficient maternity facilities, the government midwife could provide the village midwife with sterile dressings and razor blades for cutting the umbilical cord and give instruction about recognizing problem pregnancies and deliveries. Since the village midwife also cares for the ailments of young children, she could also be taught to dispense the malaria prophylactic to children and expectant mothers. Other practitioners could also be taught to dispense medication, take care of skin disorders, and give minor treatment to the other common complaints of these

people. Furthermore, since these respected traditional practitioners are assumed by the villagers to have both medical knowledge and special wisdom about the workings of their universe, they are unique health educators. For example, if moral value can be given to the eradication of germs, they could be taught to teach sanitation procedures to other members of the community. Radio programs could expand this education.

So far there has been discussion of public health education which flows directly from one leader, via either a paramedical official or radio program, to another overt guide, either a political or medical leader. However, since the time for actual health education is limited by these nurses and their staff to largely diagnostic and treatment procedures, their teaching duties may be quite specific. Furthermore, they are usually able to identify only those obvious formal leaders in the village. However, other more subtle -- and sometimes more important -- leaders exist. These leaders are found not at the top of some vertically arranged hierarchy, rather, these are informal "influence leaders" who are found within a specific class of persons.* These persons are considered experts in some special area of activity. For example, there is probably a woman who is admired for her healthy, productive children. A man may be known as a good hunter or as one who builds the most weather and fire-proof homes. Someone else may be admired for his cultivating. These influence leaders will be critical to change daily habits.

Since these opinion changers are difficult to identify, the radio is the ideal way to give information to them. Here knowledge flows from the radio to the opinion leaders -- those considered "good mothers," "good cooks," or "good planters. From them, the message travels to the active sections of the population, the community members at large. The analysis of such personal influence, which can change behavior and attitudes, is complex, but the radio has been demonstrated its viability in this task.** These are the persons to reach so that water will be boiled, so latrines will be built and trash buried, and so that women will come to clinics for prenatal checkups.

* See especially Elihu Katz, 'Communication Research and the Image of Society, Convergence of Two Traditions,' American Journal of Sociology, LXV:5, March, 1960, and E. Katz and Paul Lazarsfeld, Personal Influence: The Part Played by People in the Flow of Mass Communications (Free Press, 1955).

** Ibid.

INTRODUCING THE CONCEPT OF GERM THEORY

Perhaps the most difficult concept for health educators to deal with among traditional peoples is the concept of disease causation by germs. The problem, quite obviously, lies in the area of cognition and worldview. We need not rehearse all the difficulties modern health personnel have had in communicating why germs are dangerous and consequently why their suggestions in dealing with germs have been spurned. Traditional peoples simply do not operate with a scientific worldview where germ theory makes sense. Therefore, health educators must seek to bridge this gap by bringing germ theory into the cognitive frame of reference of the native people themselves.

One suggestion is to give the germ a moral value because the native worldview is morally and supernaturally oriented. In the Western system of cognition a germ is impersonal, being neither good nor bad. It has a neutral connotation in the same way that the Western view of the world is mechanistic and neutral. For this reason, sickness among Western peoples is not a morally traumatic experience (except for the more terminal type of illnesses or accidents which are disfiguring). But among native peoples sickness is a moral experience, and disease causation is often conceived of according to moral terms. Therefore, in assigning to germs a negative moral quality the first step in introducing germ theory has been accomplished.

This can be achieved by portraying the germ in a concrete form in which the negative quality of the germ may be immediately recognized. One of the most effective ways to accomplish this is the use of a cartoon, the germ characterized as a reprehensible and morally evil entity as was done in the recent CAR cholera campaign. The cholera germ was depicted as a giant crab next to a filthy rubbish pile which was swarming with flies. (The association between the germ and the source and vector of the disease was thereby clearly drawn). A native with a spear (representing good health) was posed and ready to kill the crab. Also on the poster were words in both French and Sangho alerting the population to carry out the fight against cholera. These posters, which were located in most of the public buildings, were therefore effective in bringing to the attention of the people how cholera is transmitted and what must be done to prevent it. Yet it cannot be overlooked that the cholera "germ" in the cartoon was singled out as a morally evil entity.

In similar ways other endemic diseases of Central Africa could be dealt with by health educators through the use of poster cartoons. Bilharzia, amoebic dysentery, to name some, could be depicted as discrete germs, but with an

exaggerated form in order to make clear the moral connotation. Such posters could be placed in villages, near water sources, conduits, rubble piles, and in other likely places. Or they may simply be used for teaching purposes. The cost of producing posters would be quite minimal, and it has the added advantage of reaching great numbers of people.

It is to be admitted that a cartoon figure of a germ is not the same as understanding germ theory. But it is a beginning and builds a platform for a progressive evolution of learning about germs. Another step in the development might be to show x-rays of diseased organs; this has been somewhat effective among the Navaho Indians in the southwest of the United States to portray for them the dangers of tuberculosis. Nevertheless, the point is well made that people want to know what is causing them to be sick. The problem is in communicating this knowledge to them in terms that they understand and in the conceptual framework that they find meaningful.

Because many of the missionaries also give medical assistance, they too can be used to extend the idea that "germs" are morally reprehensible. Since the country is quickly becoming Christianized and because the vast majority of people with whom the researchers talked attend church services at least once a week, this is a place to continue public health education. The moral precepts of Christianity lend themselves to stressing the importance of "cleanliness" and this can be expanded to include explicit health information. These sermonettes could be prepared by health educators and disseminated to the various churches and mission posts so that the education is uniform and follows some coherent plan -- possibly with scheduled radio broadcasts, poster campaigns, village lectures, and health classes in the schools.

In all African public health education, it is necessary to underscore the importance of understanding the traditional response to time. Since the verb system gives little emphasis to the future tense, this has strong implications for public health and preventive medicine. Rather, it is the past and present tense which is most meaningful to the African mind, as was discussed under LANGUAGE. Future time is conceived of as very short -- usually only a few weeks. To resolve this problem of time, short-range educational goals might be implemented in favor of long-term goals. This necessitates making programs more intense and repetitive in order to undergird their success. In fact, since repetition will be the key factor in communicating health training, educators may find it is wise strategy to gear their efforts to what is known as "maximum retention time." This is another reason to carefully plan global public health projects which simultaneously saturate the audience with radio broadcasts, posters, church sermons, school lectures, and village programs which concentrate on one theme at a time.

COORDINATED RESEARCH

Important to any health project are its research components, for as a country develops so do its health problems. One knows from decades of experience that each and every project, whether it is putting in new wells and latrines, digging drainage ditches, placing tarmac on roads, or attracting new industry carries not only increased benefits but additional health problems. Thus, there is need for continuous research on all of these projects in a given locale. The CAR is a unique place for such coordinated, interdisciplinary research. As was noted in the Table of Organization for the Ministry of Health, the international technical consultants (including the University of Pittsburgh/USAID/OCEAC team) are on the level directly below the Minister. This means they are part of the planning boards of the country and have access to reports and designs for on-going developmental projects.

Since the health-related technical consultants in the CAR meet periodically, they might plan research designed to assist one another in their specific endeavors. For example, health educators will need to know the villagers' acceptance of new sanitation equipment over at least one lifetime cycle to determine effectiveness of the program. For example, if the infant mortality rate dramatically drops, will this have social implications in the family? If a water pump breaks and parts are not available for repair, will this handicap further innovations in the villages? Also, with the introduction of a new series of city drainage canals which are excellent breeding grounds for mosquitos and other insects, how does this effect the disease rates in the next year or two? Since one can anticipate some changes in disease incidence, is the health care delivery system able to cope adequately with these new burdens? The technical consultants can thus assist one another, giving research assistance when necessary, to determine how one project affects another.

Furthermore, since health problems can be expected to mount geometrically as migration and industrialization increase, it is important to keep abreast of amendments in communication, transportation, agriculture, mining, and the like. To insure coordinated national planning, and anticipate new health issues, it would be wise to establish a committee of international consultants which includes at least one member from each Ministry who can mutually discuss project agendas and plan interdisciplinary evaluative research. Since all activity emanates from Bangui such coordination would be logistically feasible and could promote a coordinated plan of development for the entire country.

Besides this type of overall cooperation and research endeavor, there are specific recommendations for continued research in the Bimbo Pilot Zone. There is a need for evaluation of the health care delivery services, including services rendered at the clinics and first aid posts along with attending mobile units. Perhaps Pasteur Institute could be persuaded to assist with aetiological analyses taken randomly from the pilot zone population to determine the extent of the major communicable diseases. Since latrines, wells, and refuse disposal are being introduced to the villages served by the Bimbo Dispensary and Sakpa first aid post, it would also be wise for the sanitarians to establish ongoing research into the changing and persisting personal habits of these people. Of all the paramedical personnel, the sanitarians seem to be the ideal indigenous researchers. They have more time than those who treat illness, their duties in the villages are such that they have already established the friendship and cooperation of the villagers; they are the most likely of all paramedical personnel to know some of the informal, as well as formal, influence leaders of the village. Consequently, by adding some research training to these indigenous sanitarians, the public health programs of Central Africa could be greatly strengthened.

MISCELLANEOUS RECOMMENDATIONS

1. The sanitarians now concentrate their activities to the city and villages, concentrating on environmental health around the home. Perhaps they could organize public health education for the butchers and food salesmen in the open markets. This is another self-contained "public forum" where short daily talks could be given perhaps in the early morning as the shopkeepers are arranging their wares. The sanitarians could instruct the people not only about food handling and storage but personal hygiene and vaccinations.
2. Since rural residents expressed concern at the cost of hitching a ride to a distant dispensary or hospital, perhaps the Ministry of Health or another organization could arrange to cover the transportation costs. One method of reimbursing truckers or car owners for rides to rural residents might be to provide a book of coupons to the villagers (or perhaps the chief or various traditional medical practitioners). Each coupon could be worth a specified number of kilometers. Instead of redeeming these for cash, they could entitle the driver to national lottery tickets or another weekly drawing, giving, of course, the greatest probability of winning to those with the greatest number of coupons.
3. The small spiral notebooks carried by all patients should be expanded. Not only can they provide instant medical histories, but excellent tools for continued epidemiological research. These notebooks should contain not only the birth date, sex, marital status, education, occupation, and tribal affiliation, but the vaccination record and full medical history of the person - diagnosis, date, treatment, and general remarks by attending nurse or physician. should also list the date and each new address when one moves or travels. And, if the person can be taught to have some literate person make a notation, they should record the date and special life events -- marriage, divorce, family births, family deaths, family crises. Children's notebooks might designate one page for a weight chart -- the quickest single health indicator. If the person can learn to keep these intact and carry them at all times, like their identification card, they could provide an excellent portable medical record. Research from these notebooks could furnish not only interesting epidemiological data, but socio-cultural information into disease transmission and etiology. This could also be a valuable evaluative tool in determining the progress of the project and health care in the pilot zone.

4. The records kept in the clinics and aid posts need both coordination and systemization. Not only should individual cards be kept on each patient, but mobile units, dispensary, and first aid posts must share their information, perhaps on a weekly basis so that follow-up can be made to patients who do not continue treatment. Vaccinations need similar systemization, so that the main dispensary or health center is aware of each patient's inoculation schedule. Maternity records could be kept in the village by the traditional midwife or another literate female when the birth takes place at home. The traveling sage-femme could instruct them about the type of necessary information.
5. With the assistance of the project field director's Central African homologue, one could devise a Sangho/French/English medical phrase book, compiled to elicit medical information for attending international medical personnel. This should include general questions, demographic information, previous illnesses and treatments, present complaints, plus specific questions in the areas of pregnancy, alimentary tract and abdomen, circulatory or respiratory system, and the like. Questions should take into account not only the language of the people, but should be phrased in such a way to delicately approach any taboo topic such as infidelity as it applies to venereal disease. Since the homologue assigned to this project speaks Sangho and has had some medical training, he is uniquely suited to this task. Appropriate questions are detailed in Stover and Mazorodze's Shona Phrase Book which appeared in the Central African Journal of Medicine (11:12, December, 1965).

It is hoped that this case study and these recommendations are instrumental in providing the University of Pittsburgh/USAID/OCEAC field personnel and the health officials of the Central African Republic with ideas upon which to build new programs and research which will give better health to the people of this African nation.

APPENDIX A

GUIDELINE QUESTIONS AND OBSERVATIONAL CHECKLISTS

PREPARED DECEMBER, 1971
PITTSBURGH, PENNSYLVANIA

1. FOOD HABITS
2. MATERNAL/CHILD HEALTH
3. TRADITIONAL HEALTH PRACTITIONERS
4. ENVIRONMENTAL HEALTH
 - I. Community Sanitation
 - II. Personal Hygiene
5. MORBIDITY
6. MORTALITY
7. HEALTH CARE DELIVERY SYSTEM

by

Beverly Levenson
Garth Ludwig
Susan Porsching
Carlos Reyna
Bruce Williams

**BEHAVIORAL SCIENCE EPIDEMIOLOGICAL RESEARCH TEAM FIELD METHODOLOGY:
BASELINE HEALTH DATA OF KNOWLEDGE, ATTITUDES, AND
PRACTICES IN CHAD AND THE CENTRAL AFRICAN REPUBLIC**

In order to aid the health educators in operationalizing the goals of the OCEAC project in Chad and the Central African Republic, the Behavioral Science-Epidemiological Research Team will conduct a survey designed as an inobtrusive research tool to gain baseline health data focusing on knowledge, attitudes, and practices. This data collection will constitute a framework for gathering fundamental features of the health-care delivery system. These categories encompass the areas of Maternal and Child Health, Nutrition Patterns, Environmental Hygiene, Morbidity, Mortality, and Health Services, and can serve as a survey technique for continuous indigenous input.

GUIDE QUESTIONS FOR FOOD HABITS

A. Foods and Mealtimes

1. Which foods do people in this town eat most often? (Determine "core diet".)
2. How many times a day does each family eat? At what time?
3. Do people in a family group all eat together or do some people eat whenever they wish?
4. Who is served first? Last?
5. Which foods do people (you) prefer? (do men prefer? Women? Children?)
6. Can you list the foods people usually eat by: a) day of the week _____, b) time of the year _____, c) season _____, d) special occasions such as celebrations _____ or ceremonies _____, e) other _____.
7. How often do people eat or drink: a) meat _____, b) fish _____, c) vegetables _____, d) fruit _____, e) milk _____, f) other _____?
8. Where do foods come from into this town? a) meats _____, b) fish _____, c) vegetables _____, d) fruit _____, e) condiments (specify salt, sugar, pepper, other _____), f) milk _____, g) other foods _____?

B. Preservation and Storage

1. How do people keep foods from spoiling?
2. How do people store foods for future use? How long is it stored?
3. What containers are used for each type of food stored? Where are they located?
4. Are these containers covered? If so, please describe the covers.
5. Do insects or small animals such as rats invade food stores?
6. How do people keep them away from food?
7. Which families or individuals have the right to take food from town storage containers?

C. Recognition of Association between Food Habits and Health

1. Do people use certain foods to make themselves and their families healthier? Which foods? How do they improve health?
2. Which foods do people use to treat diseases, to help sick people get well? Which diseases? What symptoms?
3. Can too much food cause sickness or pain? What kinds of sickness?
4. Can too little food cause sickness or pain? What kinds of sickness?
5. What do people do for:
 - a. poisoning from spoiled foods?
 - b. stomach pains?
 - c. intestinal pains?
 - d. severe diarrhea (adult? child?)
 - e. vomiting (adult? child?)
 - f. constipation?
 - g. blood in stools or urine?
 - h. worms in stools or urine?
 - i. pain in teeth or gums?
 - j. difficulty in swallowing?
 - k. refusal of infant to suckle?
 - l. infant of non-lactating mother?
 - m. refusal of weaned baby to eat?
 - n. refusal of anyone to eat because of pains or no appetite?
 - o. persons whose poor or absent teeth do not permit them to chew properly?
6. Whom do people call for help in such cases as the above?
7. How soon?
8. What do people do for a baby who has any serious food problems?
9. What do people do for an older child with a similar problem?
10. What do people do for an adult with a similar problem, e.g. a husband? wife? sibling? parent? co-wife? any other kin? a friend? a villager who has become sick from food? a stranger?
11. Do certain foods cause pain? Which ones?
12. How long after mealtimes? (immediately? in a few minutes? ten minutes later? a half hour later? an hour or more later? the next day? several days later?)
13. What relieves the pain? (drugs? special foods? special drinks? any other methods?)

14. Which treatment method causes vomiting? Does vomiting relieve pain or make it worse?
15. Does pain make one afraid to eat?

D. Association Between Food Preparation and Accidents

1. How do people protect themselves from accidentally hurting themselves when they are: collecting honey (from bees); cooking (from burns); using a sharp instrument (from cutting oneself); serving food (from slipping on spills or spilling hot food on someone); while hunting, fishing, or cultivating (from cuts, gunshot wounds, spear wounds, insect bites, predatory animals, etc?)

CHECKLIST FOR DIET*

	Eaten in Wet Season	Eaten in Dry Season	Produced in Home Territory	Produced in Nearby Territory	Imported	Production Technique	Parts Used in Food Preparation:	Leaves	Roots	Stems	Animal Part	Method of Cooking	Additional Description
A. <u>DIET</u>													
1. <u>DOMESTICATED PLANTS</u>													
a. <u>Starchy Staples</u>													
manioc (cassava)													
sorghum													
millet													
maize													
rice													
plantains													
yams													
taro													
sweet potatoes													
Coleus potatoes													
b. <u>Sources of Fats and Oils</u>													
sesame													
oil palm													
groundnuts													
castor beans													
Bambara nuts													
butter													

*When determining food usage, include proximity, preferences, taboos, protein-caloric balances and other nutrient values, and barter or cash potential.

GUIDE QUESTIONS FOR MATERNAL AND CHILD HEALTH

This set of questions will vary according to whether the respondent is a physician, a traditional or certified midwife, a woman resident, or a group of women. The questions are therefore phrased as if they were addressed to a local woman resident, married and a mother -- and appropriate changes may be made according to other respondent categories.

A. Conception and Pregnancy

1. When do girls usually get married in Bimbo (Farcha)? At what age?
2. Does the marriage take place shortly after their first menses or after an initiation ceremony?
3. When do women usually have their first child?
4. How does a woman become pregnant?
5. What special foods should pregnant women eat? What should they not eat? Why?
6. How does a woman (and others) know she is pregnant? What signs are there?
7. When it is learned that a woman is pregnant, how does her family react to the news? Do they do anything different than ordinarily?
8. What does she do for herself and the expected baby?
9. What do people feel she should not do? (Walk in certain parts of the village? Travel to a nearby village or city? Have intercourse with her husband? Touch certain animals? What else?)
10. What does her husband do to safeguard his wife's and expected baby's health during the period of pregnancy?
11. What kind of medical care do women seek during pregnancy? Do they treat themselves or ask help from others? Who?
12. Do other people relieve the pregnant woman of housework and other chores?
13. What is done for nausea and dizziness in pregnancy? For food cravings? (Check if such symptoms occur in Bimbo or Farcha.)
14. What do pregnant women do when they have unusual pain, bleeding or other signs of trouble during pregnancy?

15. Are (therapeutic) abortions or miscarriages performed by anyone here?
16. If women visit the local clinic during pregnancy, how often do they usually go? Do they like to go there? Is the midwife or another person better to consult? Why?
17. At what age do boys and girls learn about reproduction? Who teaches them? Where?
18. How can people forecast the time of delivery of a pregnant woman?
19. Which signs during pregnancy indicate what the baby will look like? (a boy? a girl? normal? deformed? have unusual markings like warts, discolored patches, caul over his scalp, etc?)
20. How much do people know about what happens during pregnancy and childbirth to the woman and her baby? Do they learn this from their families? Do they learn more about this in the clinic? Are there pre-natal classes for expectant mothers?

B. Childbirth

1. Where does a birth usually take place? (In a woman's parents' household? in her own dwelling in her husband's compound? in a special hut? in the clinic? in a hospital? other?)
2. Who generally is called to assist a woman in childbirth? (a particular group of female relatives? a traditional midwife alone? a certified midwife? the clinic doctor or nurse? a doctor in a hospital?)
3. Describe step by step what the midwife and her assistants actually do, to assist the childbearing woman.
4. What is done in case of complications? (e.g., severe bleeding, prolonged labor, or breech birth?)
5. Are special actions taken for a primipara (first-time mother) or a multipara (mother having her second or later child)? What is the difference between the two types in length of labor, personnel permitted at her accouchement and actions taken?
6. Does the woman lie down on a bed (or mat on the floor) or does she squat? What is her position during labor and delivery?
7. Is she encouraged to walk, be silent, cry out, or show other kinds of behavior during labor?
8. What customs are observed by all persons present during a birth?

9. What customs does the childbearing woman's husband observe before, during and after the birth?
10. What care is given the mother after the childbirth if she is not in a clinic or hospital? (special diet? restrictions? purification measures? washing? for how many days? weeks?)
11. Who may visit a woman who has recently borne a baby?
12. If a woman sickens during or after childbirth, what steps are taken for her?
13. How long after a birth does the mother see and hold the baby? If a son? If a daughter? If sick? If dead?
14. What is done with the placenta and other exuvial of childbirth?

C. Child Health

1. What is done to the infant at birth? How is respiration initiated? Is the infant washed? clothed? put to the mother's breast? given water or food? other?
2. If the mother is unable to suckle her baby, how will it be fed?
3. Will another mother suckle a child not her own? What relation to the mother or child would this person be?
4. During the convalescence of the mother, who cares for the baby's needs?
5. What is the attitude about twins? multiple births?
6. What is the attitude about babies with birth defects? How are such babies cared for?
7. What food, plant, or other matter (or technique) will increase a mother's milk?
8. How long do mothers nurse their babies? One year? Two to four? Until the next baby is born? Until the next pregnancy?
9. Are any foods besides mother's milk fed infants?
10. After weaning, what foods are fed the infant (child)?

11. Are any food mixtures from the government, another country, or the United Nations fed to a weaned child? (By this is meant high protein INCAPARINA, peanut flour, soy flour, or fish-meal flour).
12. In what form is such a mixture served? pudding? bread? porridge? Do the people like (find acceptable) such a food?
13. What do you do when the weaned baby or older child shows signs of:
 - kwashiorkor
 - marasmus
 - diarrhea (painful or continuous)
 - much vomiting
 - constant weakness or listlessness
 - poor appetite - refuses to eat
 - lost of weight - appears thin
14. What do you do for a child who walks late? How early should a child begin to walk?
15. What do you do for a child who talks late or poorly? How early should a child begin to talk? What is poor speech for a child?
16. What ages are considered important enough to mark by ceremonies or by teaching correct behavior?

	<u>Ceremony</u>	<u>Health Information Taught</u>	<u>Teacher</u>	<u>Boy</u>	<u>Girl</u>
Infant					
One-year old child					
Small child up to 3 yrs.					
Child up to 6 years					
Older child 7 - 11					
Pubescent					
Adolescent					
Young adult					
other stages as defined by local people					

17. How do people wean a child? When?
18. How do people toilet-train a child? When?
19. What do you do for symptoms of disease such as:
 - vomiting
 - diarrhea
 - persistent coughs
 - intestinal or stomach pains
 - skin rashes (e.g. symptoms of malnutrition, parasitic disease, and respiratory illnesses)
20. How many sick children have you heard of who died from an illness?
21. How many were cured? By whom? (a clinic or hospital doctor? a nurse? a local curer? the childrens' relatives? anyone else?)
22. What does a child of five and older do at home if he cannot go to school? (If a boy, does he work in the fields? What else? If a girl, does she assist her mother with household chores? What else?)

CHECKLIST FOR MATERNAL AND CHILD HEALTH

DESCRIPTION

A. Conception and Pregnancy

special clothing worn
 special cosmetics used
 special jewelry worn
 special regimen
 special tatooing or sacrifice which denotes pregnant status

relief from work
 food taboos
 sex taboos
 social taboos
 rites and ceremonies
 sympathetic behavior of husband
 sympathetic behavior of kin, co-wives or friends
 practices intended to facilitate delivery of, or insure healthy offspring:
 amulets
 other visible signs

B. Childbirth

1. Personnel present
 witnesses
 assistants
 excluded persons
 person in charge of labor and delivery

2. Role, position, and actions of each
 physician (may be obstetrician)
 traditional midwife
 state-licensed midwife
 specific female relatives
 specific male relatives
 husband

3. If traditional midwife and female kin,
 trace sequence of events
 implements used
 food administered mother
 drink administered mother
 drugs administered mother
 massage administered mother
 other

Role Position Actions

Labor Delivery Post-Par.

CHECKLIST FOR MATERNAL AND CHILD HEALTH

<u>B. Childbirth (Cont.)</u>	<u>DESCRIPTION</u>		
	<u>husband's</u>	<u>wife's</u>	<u>either</u>
<p>4. Preferred dwelling (if not hospital or clinic) which kin's area (or compound) special hut special corner of usual dwelling</p>			
<p>5. Position of woman's torso and legs squatting lying on her back lying on her side varies considerably; no prescribed pattern</p> <p>6. Implements for inducing labor Implements for hastening birth Implements for dealing with breech birth Implements for dealing with other complications</p> <p>7. Linguistic and ritual behavior prayers recited at particular stages sayings recited at particular stages oaths recited at particular stages myths recited at particular stages narratives recited at particular stages Above categories expressed spontaneously not necessarily at certain stages</p>			
<p>8. Onset and duration of labor (average)</p> <p>9. Receiving the baby</p> <p>10. Severing and tying umbelical cord</p> <p>11. Expulsion of placenta</p> <p>12. Disposal of placenta and waste materials</p>			
<p>13. Immediate care of mother and child</p> <p>14. Washing, bandaging and medicating mother</p> <p>15. Treatment of postnatal hemorrhage</p>			

CHECKLIST FOR MATERNAL AND CHILD HEALTH

	DESCRIPTION
<p><u>B. Childbirth (Cont.)</u></p> <p>16. Treatment of infant Initiation of respiration washing swaddling handling how soon fed fed any water how soon put to breast treatment of eyes treatment of nose, mouth, throat</p>	
<p>17. Post-natal care rest isolation medication diet regimen purification resumption of normal life resumption of sexual intercourse</p>	
<p><u>C. Infant Care</u></p> <p>1. Breast Feeding frequency duration position adjustments to baby amount of contact with baby</p>	
<p>2. Carrying of Infant sling held in arms held astride the hip other (describe)</p>	
<p>3. Sleeping arrangements alone, in special infant bed (until what age) type of infant bed in mother's bed (until what age)</p>	
<p>4. Disposal of excreta diaper (what material, shape, size?) use of grass as absorbent hold baby over hole in ground hold baby over pit latrine other</p>	

CHECKLIST FOR MATERNAL AND CHILD HEALTH

	DESCRIPTION
<p><u>C. Infant Care (Cont.)</u></p> <p>5. Method of toilet training early (age ___) late (age ___) harsh (describe) (<u>Attitude toward soiling</u> <u>permissive (describe) and accidents)</u> facilities clothing (or none) or none for lower torso who trains the baby</p>	
<p>6. Treatment of motherless infants and children surrogate mothers (kin to child and/or mother) adjustments to parental loss Father's role in infant care Other kin's role in infant care Ceremonies birth naming</p>	
<p><u>D. Care of Growing Child</u></p> <p>1. Supervision</p> <p>2. Support</p> <p>3. Who is responsible for child if parental loss age of child measures taken</p>	
<p>4. Clothing considered appropriate differs by age differs by sex</p> <p>5. Feeding considered desirable</p> <p>6. Housing considered desirable</p> <p>7. Hygienic and therapeutic measures</p>	
<p>8. Protection from physical dangers confinement removal of dangerous objects other</p>	

CHECKLIST FOR MATERNAL AND CHILD HEALTH

DESCRIPTION

D. Care of Growing Child (Cont.)

9. Protection from social dangers

10. Protection from supernatural dangers

- amulets
- charms
- spells
- other

11. Measures to promote physical health
Measures to promote emotional health

12. Preventive medicine
Health regimen

13. Customs and reactions to growth stages

- teething
- weight gains
- weaning
- learning to walk
- learning to talk
- signs of pubescence

measures for ceremonies ma

14. Education

- a. discipline
- b. motivation
- c. health education
- d. sex education
- e. habit formation
- f. games for play and learning
- g. desired attitudes (i.e. desired by local
- h. desired knowledge people)
- i. desired skills
- j. regarding menstruation
 - hygienic measures
 - customs regarding isolation
 - customs regarding food taboos
 - customs regarding social taboos
 - customs regarding ritual taboos
 - measures to alleviate cramps
 - exercises
- k. regarding adult role in responsibilities
 - regarding marriage role
 - regarding earning a living
 - regarding the male role
 - regarding the female role
- l. regarding rights and privileges of children
 - post-puberty young adults, and older adults

GUIDE QUESTIONS FOR TRADITIONAL HEALTH PRACTITIONERS

1. How many practitioners are present in the town? Estimate. Is there a choice of practitioners?
2. What type of training do the health practitioners receive? Does their training involve actual studying (e.g., apprenticeship, formal schooling, etc.) or do they become practitioners through other means (e.g., inspirations)?
3. Do different types of health practitioners have different areas of competence? Do individual practitioners specialize in specific health areas (e.g., specific maladies, specific parts of the body)? Are there certain areas where health practitioners do not seem to direct their attention? (e.g., certain illnesses or diseases, certain parts of the body, etc.)
4. Name some specific types of curing practices for specific maladies.
5. What Western medical practices are used (e.g., massages, herbs, surgery, purgatives, dietetics, psychological suggestion, western drugs, etc.)? Which of these practices is successful? For what maladies is each of these treatments successful?
6. Do the practitioners direct their attention to curative medicine, or preventative medicine or both? Does western medicine play a greater role in preventative or curative medicine?
7. How do traditional health practitioners cooperate with government health personnel? In what areas of health do they seem to be uncooperative? In what areas do they cooperate with government health personnel? Be specific. (e.g., types of illness, parts of the body, injuries, births, etc.)
8. How do government health personnel cooperate with traditional health practitioners? In what specific ways do they cooperate?
9. Do traditional health practitioners also act as religious practitioners? Does religion also play a role in medicine? (e.g., in prevention, in curing, or both areas) What is the nature of the relationship between traditional health practitioners and other government personnel who do not work in the health area.
10. Estimate how many midwives are in the town. What is the nature of their training? Are they older women, younger women? Are they only women? Do they serve some sort of apprenticeship before becoming midwives? When are they recognized as midwives?

11. Estimate how many women go to clinics or hospitals when they give birth. What women go to a clinic or hospital when giving birth? Why do they go to a clinic?
12. At what ages did (do) health practitioners become recognized as practicing practitioners? How long did they train? How long have they been practicing? Are there any retired practitioners? Why did they retire? What do they do after retirement?
13. Which health practitioners are male? Which are female?
14. What is the usual age of a health practitioner?
15. Is the practitioner usually married? Yes _____ No _____
16. (Nature of housing or dwelling place of the practitioner.) Is it special in some way (e.g., is it larger, or smaller or fancier than most dwellings)?
17. Does a practitioner work in a private area, a public area, on his own property, at the dwelling of the client?
18. Will a practitioner travel to deliver health services or does he only work in one particular area? For what reasons will he travel?
19. Are there overt signs which indicate who a health practitioner is? (e.g., clothes, insignias, special objects which are carried, etc.)
20. Does a health practitioner devote 100% 80% 60% 40% 20% of his time as a health practitioner? Estimate.
21. What other economic activities does a practitioner engage in? (e.g., agriculture, crafts, etc.) Estimate percentage of time spent in each activity.
22. What other activities does a health practitioner engage in?
23. How does he get paid? (e.g., cash, food goods, services, other material goods, etc.) How much does the practitioner get paid for each service? Be specific. _____
24. What percentage of time does a practitioner spend in each other activity? Be specific for each activity.
25. Do practitioners train others to be practitioners? Yes No
How long does training last? How many hours per day with a student?

26. If practitioners train others, what is the nature of the trainees? (e.g., age, sex, same sex as the practitioner, etc.) What is their relation to the practitioner to the trainee? (e.g., relatives of the practitioner)
27. Do the clients of the health practitioner travel considerable distances? How far? Or do practitioners only practice within their own town?

GUIDE QUESTIONS FOR ENVIRONMENTAL HEALTH

I. Community Sanitation

A. Water

1. Since water is scarce, and it is often an arduous task to carry it, determine the water-portage routes. Determine in detail the number of people who use each water source. If possible draw a sociogram showing use.
2. Who is responsible for bringing water into the home or community?
3. Denote the various water sources and describe.
4. Are wells used? Note their age and general condition. Are they covered and cased? What is their depth? What container is used to draw water from the well? Do people lift water out or at any time step into it?
5. Is the water source a river, stream, lake, marsh, pond, or swamp?
6. Is such a stream or external water source rapid moving or sluggish?
7. Does the water run over rock, sand, or mud. Describe soil content.
8. Is this water source used for bathing, laundering or swimming?
9. Note the color and degree of clarity of any water source. Where water samples have been analyzed by the health department, note their appraisals.
10. Is there any foam or froth on the water?
11. In the case of a river or stream, designate all activities that go on further upstream. Pay attention to wastes that may be put into the water.
12. Is this same water source used for animals? Describe if the water is brought to the animals or if they actually wade in the water.
13. Describe all animal life around the water.
14. Do aquatic birds live near the water source?
15. Is fishing from this source scarce or plentiful?
16. Is such a stream or river also used for transportation?

17. Where water is carried, how far must one go to carry it? Are the water containers metal or pottery and are they covered or not? Describe in detail.
18. Is water allowed to stand for many hours or days at a time? Is standing water used for human consumption or just for animals?
19. Are certain people restricted because of age or malady from carrying water?
20. Describe any social or recreational functions that take place on or near water sources.
21. Are wells or small patches of water close to latrines or places of elimination?

B. Refuse Disposal

1. Is the refuse organic or inorganic? Describe in detail all the identifiable components.
2. Are food or animal discards buried or burned or piled? Describe in detail all organic refuse disposal.
3. If there appears to be no putrescible garbage, determine what is done with meal remains? Are they kept in the house and added to the next meal?
4. How close is any organic refuse to private or public dwellings? Describe fully.
5. What is done with human fecal matter? Is human or animal fecal matter used for fertilizer or fuel?
6. How often are animal shelters cleaned? Describe fully the procedures.

C. Excreta Disposal

1. Describe fully any and all toilet facilities. Are they open or isolated? Are they attached to the house or separate units? Are they clay pots, gourds, metal containers, or holes in the soil?
2. Are these permanent or temporary? Be specific.
3. What is the state of cleanliness of the latrines? Is there an odor present? Are there insects?

4. Are lime, dirt, insect repellants, or disinfectants used around latrines?
5. Where are fecal deposits seen around the village? Describe in full.
6. If a child soils the floor of his home or building, how is it cleaned?
7. Is there any defecation near water sources, near food supply, near meal preparations, in close proximity to living quarters, or near babies' and children's play areas? (Locate such deposits on survey map and note extent of visible worms, blood, froth, and dung beetles)
8. Is the fecal matter in the open sun or moist shady areas? Be specific. Is it left on rocks, sand, mud, grass, or among weeds?
9. What cleaning agents are used after defecation? If water is used, does one seek a water source for elimination? If leaves or other such tissue are used, what is done with them?
10. How long does human or animal waste stand before removal?

D. Insect Infestation

1. Are mosquitoes seen on the walls and ceilings of buildings?
2. Are they seen around water sources or near water containers in buildings? Examine stagnant water in containers.
3. What times of the day do most bites occur and around what areas?
4. Are any measures taken to repel insects? (e.g. fires, lotions, ointments)
5. Is the sandfly seen hopping around the house or work areas?
6. Note the existence of tsetse flies. Describe where they are most prevalent and any precautions against them.
7. In the homes and animal shelters does one find evidences of mites, chiggers, ticks, spiders, wasps, bees, hornets, snakes, lice, rats, or mice? Look for their droppings and burrows.
8. Are chickens, dogs, cats, goats, sheep, bullocks, horses, donkeys, and camels seen in close proximity to living quarters. Describe fully.
9. Are there evidences of rabid animals? Note the animals, their proximity to people, and any precautions taken.

10. Since dog and scorpion bites are of increased importance, note their prevalence.
11. Since rats are linked to many diseases, determine not only evidences of them, but check the exact types seen and denote their locations on the survey map.
12. Outside the town, note the proximity of other animals such as the antelope, wart hog, wild pig and serval cat.

E. Community and Private Dwellings

(Map the town or a satellite section that will be representational of the general layout. Locate the private dwellings, public buildings, market areas, official residences, courthouses, clinics, assembly halls, ceremonial places, wells or pumps, cites of electricity, drainage and sewage systems, schools, stockade, walls, storage areas, garden plots, animal shelters, roadways and paths, and outlying fields and grazing areas. Denote taboo areas such as burial grounds. Also locate areas of special hazard such as cliffs, dry reeds or trees which may constitute fire hazards. What is the growth rate of this town? Is the trend toward permanency or transiency?)

(1) Public Dwellings

1. What public or ceremonial dwellings are in use. Describe in full, specifying functions and extent of use, by different ages and sexes.
2. Are these dwellings permanent or temporary. Do they have electricity or other utilities?
3. Are the materials adobe, logs, reeds, branches, mud, cement, or some other material?
4. Are roofs galvanized or thatched? Are they sloped or flat?
5. Are the buildings square or round? Does this differ from private dwellings?
6. Are there any kitchen or toilet facilities in these buildings?
7. Describe the ventilation, noting placement and size of doors and windows.

8. How much space is allowed between buildings?
9. Are animals allowed in these buildings? Give full details.
10. Are the floors rough dirt, beaten clay, cement, pottery, wood, or another composition?
11. If there is a second floor, is it approached by a slope, ladder, or stairs?
12. Are there safety precautions for fire, winds, or heavy rains?
13. What provisions are there for lighting and heat?
14. If there are open fires in the buildings, how does the smoke escape?
15. What is the "life expectancy" of such buildings?
16. How are they cleaned? Is there any precaution for insect or rodent control?
17. Detail the functions of each public dwelling.

(2) Private Dwellings

1. Are private homes permanent or temporary? Give an estimated "life expectancy" and allow for such catastrophes as high winds, tornadoes, floods, epidemics, and hard rains.
2. Are the dwellings made of adobe, logs, reeds, branches, mud or cement?
3. Are the roofs galvanized or thatched? Are they sloped or flat? Are they used for drying vegetables, fruits, meats, or fish?
4. Do the homes have electricity? Describe the lighting and heating arrangements.
5. Are toilet facilities attached to the house? Describe in full and designate the extent of their use.
6. Describe the floor composition. Is it broken pottery, beaten clay, wood, cement, rough dirt, or other materials?
7. Where does cooking take place?

8. How and where are foods stored in the house? Are they in closed containers or in open bins? Are they stored on shelves or on the floor?
9. Are animals allowed in homes, particularly where people sleep or eat? Where and how are these animals kept?
10. Is there a second floor? Is it approached by stairs, slope or ladder?
11. When and how are the houses cleaned? Does one ever see rodent or animal waste on the floor? Are detergents, pesticides, or rodent exterminators employed?
12. Are the homes shared or rotated by various family members? Describe.
13. What are the sleeping arrangements for the family? Describe in detail. Are some sleeping accommodations elevated from the floor? Denote by age and sex, paying special attention to the sleeping pattern of babies and preschoolers.
14. Is smoke ever entrapped to repel insects?
15. Is there ornamentation on the walls or furniture in the home? Describe in detail.
16. Describe all cupboards, shelves, and furniture in the home in full detail. Is it permanent or temporary?
17. Are sleeping areas or foods covered with nets?
18. Are certain areas of the home for special use only? Describe.
19. Are the homes in a general state of good repair? Describe.

II. Personal Hygiene

A. Bathing

1. What is the source of water for bathing? (e.g., streams, ponds, well, pump, etc.)
2. Where and when do the people bathe? Is there specific ceremony connected with it?
3. Do people bathe in groups or individually?

4. Where containers are used from which people take water to bathe or in which they immerse themselves, are they shared or is the water replaced for each individual?
5. Is soap, sand, or other cleaning agent used to clean the body?
6. Are oil or fats used for cleaning?
7. Are any cleaning agents used only for ritual purposes?
8. Is there a special bathing routine for the infant? Describe in detail, including the cleaning procedure at birth.
9. Who does the bathing of young children? Do those with running sores or communicable diseases ever bathe the young?
10. Who cleans the body of an injured or extremely-ill person? Describe in detail, noting the illness.
11. Does hand, face or feet washing take place at appointed times? (e.g., before meals, feasts, or ceremonies.)

B. Elimination

1. What is the distinction between a private and a public act? Is the act of urinating or defecating considered private?
2. Where does defecation and urination take place? Be age-sex specific.
3. Describe the latrines and how they are used. Are they used mainly by certain ages and sexes?
4. Who keeps the toilet facilities clean? How often are they cleaned and in what manner?
5. Are human wastes ever used for fertilizers? By what techniques are they applied? Are the hands exposed to these wastes?
6. Are animal wastes used for fertilizers or fuel? Be specific.
7. Does one use water, leaves, sticks or other materials for cleansing purposes after defecation?

C. Clothing

1. Describe the garments worn by age and sex. Note ceremonial garb as well.
2. How often is clothing changed?
3. Where and how is the clothing laundered? Are clothes beaten, soaped, or rubbed with rocks? Describe the water source and possible other uses of this water.
4. If clothes are washed in a container in the town, are precautions taken for special cleaning of garments by those with illness or open sores?
5. Are clothes boiled? Are they heated at any point in the cleaning process either by the sun or an iron?
6. Where are the clothes dried?
7. How are damp clothes dried in tropical climates or during the rainy seasons?
8. Who makes the clothing?
9. Is clothing dyed? Describe full process, noting all plant and animal material used.
10. Are shoes worn? Be age-sex specific.
11. Where and how is leather tanned? Is it heated? Describe full process.
12. What is done with excess fur, hair, and leather scraps?

D. Special Cosmetics

1. Is the hair cut, shaved, curled, braided, twisted, or tonsured?
2. How often is the hair washed and the hairdo changed?
3. Is the hair dyed? Describe the process and note the origins of all compounds.
4. Are facial or body cosmetics used? Are they oils, grease, clay, or other materials? Describe fully and note their origin and method of mixing.

5. Do such cosmetics also act as insect repellants or aid skin disorders? (e.g., eyebrow pencil to cover loss of brows.)
6. Are nails stained, trimmed, or perforated? What becomes of the nail clippings?
7. Is the body ever molded to achieve certain effects? At what ages and for what sexes is this done?
8. Are digits or organs ever removed for purposes of beauty?
9. Is the nasal septum, alae, or tip of nose ever pierced? At what ages and sex?
10. When are ornaments inserted in the holes of the nose or ear? Note placement and weight of ornaments.
11. Are some dental formations purposible? Describe the various techniques of coloring, inlay, incrustation, plating, chipping, filing, or extraction.
12. Are any drugs or anesthetics used in any of these procedures to curb pain or infection? Understand the compound and know all ingredients.

GUIDE QUESTIONS FOR MORBIDITY

A. Diseases

1. Consider the following two lists of diseases and symptoms of disease with each column to be read independently of one another.¹ Then, please answer the questions which follow these lists:

<u>Disease</u>	<u>Symptom</u>
amoebic dysentery	fever
bacillary dysentery	swellings
hookworm (ancylostomiasis)	dizziness
gonorrhoea	coughing
syphilis	spitting blood
infectious hepatitis	blood in urine
leprosy	stomach pains
malaria	vomiting
measles	diarrhea
meningitis	skin rashes or itchiness
onchocerciasis	itchiness in rectum
schistosomiasis	worms
trypanosomiasis	eye pain or redness
tuberculosis	boils
typhoid fever	pain in joints
whooping cough	pain in limbs
other	pains in torso
	sore throat
	colds
	headaches
	other

2. What Western medical practices are undertaken for these maladies? Describe.

¹ Questions regarding these diseases and symptoms are meant to discover the extent and kind of knowledge regarding them among town residents. This knowledge and understanding of disease refers to the body of information and techniques currently utilized by professional medical and health practitioners within the Western system of medicine. Any questions which seek data, re. incidence, prevalence, and clinical manifestations of disease which are related to cultural patterns will, of course, be posed to Western-trained health and medical personnel. The disease list was gleaned from Abram S. Benenson, Control of Communicable Diseases in Man, 11th edition, Washington, D.C.: a report of the American Public Health Association, 1970 and from W.H.O., World Health Statistics Annual, 1967, Infectious Diseases: Cases, Deaths and Vaccinations, Vol. II, Geneva, 1970, and other publications which include mention of diseases prevalent in Chad and the Central African Republic. The symptom list was gleaned from Benenson, Ibid., and U.S. Dept. of H.E.W., Public Health Serv., International Comparisons of Medical Care Utilization: A Feasibility Study (Vital and Health Statistics, Data Evaluation and Methods Research), National Center for Health Statistics, Ser. 2, No. 33, Washington, D.C.: U.S.H.E.W., June 1969, p. 7.

3. What traditional health measures are undertaken for these maladies? Describe.
4. What other health measures are taken for specific maladies (from either source, e.g., massage, herbs, purgatives, dietetics, surgery, psychological suggestion)?
5. What maladies are treated with both Western and traditional measures?
6. What environmental conditions may contribute to the incidence of infectious diseases? (e.g., practices regarding potential reservoirs of infection such as water, garbage, human and animal wastes, insects, rodents, open pits or deep latrines, fires in homes, crops near homes)
7. What practices in the town help to reduce the incidence of disease? (sweeping, washing practices, burning, waste disposal, latrines, enclosing animals, etc.) Who performs these tasks?
8. What specific nutritional deficiencies contribute to a particular disease or illness?
9. At what point in a disease course will a person leave the town and seek modern medical care?
10. For what specific maladies is Western trained medical help sought outside the traditional medical sphere?
11. For what maladies is aid from hospitals sought? Please specify.
12. For what maladies are rural clinics employed? Please specify.
13. What emergency treatment do people receive for chronic (long lasting, persisting) maladies?
14. What treatment do people receive for infectious diseases such as those on the list above?
15. What treatment do people receive for emotional problems.
16. What preventive medical practices are found in this town and neighboring rural areas? Are there inoculations, vaccinations, pesticides, soaps, or other cleaning agents?
17. Are Western medical drugs available? (e.g., penicillin) Are these drugs available in stores? without prescriptions? How much do they cost?

18. Are illnesses regularly reported to town leaders or governmental health officials? What types of illness are reported? Who does the reporting? (e.g., family member, any village member, other)
19. Do sick people continue to work? For what duration? How frequently? What tasks do they give up first, second, etc? Describe.
20. What is the general understanding of disease cause? of disease transmission? (see question 6)
21. What is the people's knowledge of disease cause and transmission for a specific illness? (see question 1)
22. What do people know about disease transmission from person to person for a specific illness? (see question 1)
23. What do people understand about disease transmission from materials (e.g., water, air, wastes, etc.) to persons?
24. What is their understanding of germ theory?
25. How do the people identify a sick person?
26. What is the specific knowledge of germs and parasites being present in water, in human and animal wastes, or in garbage? What is their knowledge of insects transmitting illness?
27. What do people think is the cause of emotional problems?
28. What do people know about the anatomy of the body? (use anatomical charts.)
29. What is the people's knowledge of specific systems in the body (urogenital, nervous, circulatory, digestive, respiratory)? Are specific systems associated with specific maladies?
30. What is the understanding of western drugs for prevention or curing? Do Western and traditional medicines work differently?
31. Do the people regard one specific drug (or type of drug) as being beneficial for health improvement generally?
32. Do the people regard one specific drug as being beneficial for any particular illness? If so, what drug is beneficial for a specific illness?
33. Do people regard one drug (or some drugs, or types of drugs) as not being beneficial? Are some drugs regarded as being harmful? Which ones?

34. Do people regard one method of administering drugs as being better than another method? (e.g., injections versus orally)
35. Do people regard one type of traditional drug, or herb, as being more efficacious than others? Specifically, what traditional drugs or herbs work for particular diseases?
36. What is the explanation of the cause of injuries and accidents?
37. What other explanations do people have for curing?
38. Do people believe there is vulnerability to disease (what specific disease?) at particular periods of a person's life (e.g., infancy, childhood, puberty, old age) or under certain conditions? (e.g., menstruation, after extended hard work, etc.)
39. Is one type of disease feared or considered more reprehensible than others?
40. What is the people's understanding of sanitation for disease cause and prevention?
41. What is the people's understanding of insect control for disease cause and prevention?
42. What is the people's understanding of rodent control for disease cause and prevention?
43. Is it dangerous to participate in the curing of a particular disease which another person has? Why is it dangerous?
44. What are people's attitudes toward particular types of maladies? (Note the specific malady and the attitude, e.g., disgust, fear, indifference, etc.)
45. What is the attitude toward people with specific maladies?
46. What is the attitude toward traditional health practitioners? Are male or female practitioners held in higher regard? Are older or younger practitioners held in higher regard?
47. Does the ability to cure a specific malady (or group of maladies) carry with it greater esteem, or add to the status of the practitioner? Are practitioners held in higher regard if they employ traditional methods, or western medical methods, or both?

48. What is the attitude toward local people who function in some governmental capacity as health personnel?
49. What is the attitude toward doctors (or other certified health personnel) toward African health personnel and to European health personnel? Are African or European doctors felt to be more competent in certain areas? In what specific areas?
50. Is there a preference for Western medicine over traditional medicine? For what specific maladies is Western medicine preferred to traditional medicine? For what specific maladies is traditional medicine preferred to Western medicine?
51. Eye diseases are found in what percentage estimate of the population? Be age-sex specific by the type of eye disorder.
52. Skin diseases are found in what percentage estimate of the population? Be age-sex specific by type of skin disorder.
53. Dental diseases are found in what percentage estimate of the population. Be age-sex specific by type of dental diseases.
54. For what maladies are people separated from their families?
55. Comment on the weight of people. Do many people seem overweight? Estimate by age and sex. Do many people seem underweight? Estimate by age and sex. Are there obvious cases of malnutrition? Estimate by age and sex.
56. Are animal or human wastes used for fertilizers? Are fowl cared for or do they run free? How? What other domesticated animals are there? House pets? Birds for pets? Birds in cages for eggs or food?
57. What type of government health personnel is found in the town? How often do they come to the town? Specifically, what do they do in the town? What form of preventive or curative medicine do they perform? What is their formal job description and assigned duty?
58. How far is it (in miles) from the town to the nearest clinic? hospital? (in local terms of distance, e.g., 2 days)
59. How do people travel to the hospital or clinic?
60. Are there any townspeople who are outpatients at a clinic? For what maladies? How many?

61. Do governmental health personnel work in the tribal area of their birth? or language?
62. What health education techniques are used locally?
63. Are radios found frequently in the community? Estimate. Are newspapers found frequently in the town? Estimate how many people can read newspapers.
64. What people are found in the town who do not normally reside there? How often are they there?

B. Accidents¹/Physical Impairments

1. What accidents are prevalent? (Include all lacerations, abrasions, sprains, fractures, fainting, and all other wounds inflicted by hand blows, lashing, or special instruments. This category further includes the full range of bites and scratches by dogs, rats, snakes, fish², insects, and other reptiles or animals) List in order by prevalence.
2. What preventive measures are taken against such accidents? (e.g., rat traps, insecticides, etc.)
3. Do some accidents seem to be a result of illness (or action by another individual, e.g., broken limbs due to fall during an epileptic attack)?
4. What is the apparent causative agent of the accidents?
5. Where do each of these mishaps seem most likely to occur? (e.g., snake bites during planting time, rat bites in home, knife wounds during special ceremonies)
6. What time of the year and/or day do most accidents occur? (e.g., fish bites during special seasons, rat bites at night)

¹Accidents here are assumed to be random -- any chance occurrence and will include also the resulting infections from such happenings.

²See Alfred A. Buck, Robert I. Anderson, Tom T. Sasaki and Kazuyoski Kawata, Health and Disease in Chad: Epidemiology, Culture and Environment in the Five Villages, Baltimore, MD.: Johns Hopkins Press, 1970, for mention of the fact that fish bites constitute a health problem in Chad.

7. Are some accidents more prevalent for specific ages and sexes? (e.g., burns for toddlers, fainting by pregnant women, insect bites for those carrying water)
8. What is the first thing which is done for each type of accident?
9. What mishaps are treated solely by oneself or family?
10. What accidents are treated by a traditional medical practitioner?
11. What traditional practitioner treats which accidents?
12. What means are used to treat the accident? (e.g., ligatures, bandages, poultices, heat, anesthetics, surgery, bone-setting, trepanation, name changes, poison antidotes, massage, cauterization, herbs, mood-altering drugs, exorcism, prayer, divination, counterirritation, homeopathy, emetics, etc.)
13. How does treatment differ for the
open wound,
edema,
itching, and
skin lesions?
14. How are these remedies compounded? Who performs this task? Describe all plant, animal, and inorganic matter used in detail.
15. Does the treatment vary greatly according to one's sex or age?
16. Is one expected to take the "sick role" for certain accidents or bites? Which ones? (Explain that "sick role" means doing whatever sick people usually do such as, getting into bed, resting, etc.)
17. In what cases is one expected to remain stoic and continue with one's usual tasks?
18. Are any preventive measures taken to ward off accidents? (e.g., amulet, ritual before hunting, odorous materials to ward off insects)
19. What is done when the injured do not respond appropriately to treatment? (e.g., heal, improve in some visible way, etc.)
20. What type of accidents are taken to western medical practitioners?
21. Are certain accidents reported to health or social control agencies?

22. What education exists about accidents?
23. What reasons are given for accidents in each of the categories? Is it considered to happen naturally or are other causes (e.g., spiritual) given?
24. Are some accidents considered with more fear than others? If so, for what reasons?
25. Are certain symptoms associated with certain accidents? (e.g., fever with scorpion bites, etc.)
26. Are these symptoms treated as a reaction to the accident or as a separate illness?
27. Is there any prevention of infection during the treatment process? (e.g., are knives cleaned before and after surgery or circumcision)
28. Are there other derived defects from accidents? (e.g., blindness, missing digits, etc.)
29. Is dismemberment or disfigurement as a result of an accident treated differently than one resulting from birth complications or disease?
30. Is there any avoidance of the person who has suffered an accident and has been seriously disfigured? Or is there any name change or temporary quarantine?
31. Do such avoidances or prohibitions differ by age or sex?
32. What reasons are given for serious physical defects? (e.g., blindness, deaf mutism, skin depigmentation, feeblemindedness, nervousness, crippling, paralysis, missing limbs, hunched back, etc.)
33. Describe all physical disfigurements seen in locale. Be age-sex specific. Estimate the cases of arthritis, goiter, speech impediments and neuro-muscular disorders. Be age-sex specific.
34. What distinctions are given to those with various impairments? Does this have to do with inability to perform certain roles or taboo restrictions?
35. What equipment is used by people with ambulatory problems? (e.g., crutches, wheelchairs, canes)
36. Are eye-patches, glasses, hearing aids, braces, or casts seen? Be age-sex specific in describing their use.

37. What defects are considered the most serious? Order by importance.
38. What adjustments are made for those with serious deformities? Do they assume the same family roles? The usual community roles? Are they set apart with disdain or honor?
39. What is the considered cause of each deformity?
40. What is the special treatment, if any, for such defects? (e.g., rheumatism, tumors, etc.)
41. Do the family members care for these individuals? Are there specialized roles for this purpose?
42. Are there any Western medical or missionary groups which isolate and care for these individuals?
43. What broad percentage of each category is actually isolated in this way?
44. Do certain precautions exist to ward off long-term defects? (e.g., for the injured, for the aged, for the ill persons or babies at birth)

GUIDE QUESTIONS FOR MORTALITY

A. Dying

1. Are omens placed anywhere when death is approaching? (e.g., in the home, outside the home, on the patient)
2. Are there any particular measures taken to ward off death? (e.g., religious symbols, fetishes, treatments of any kind)
3. What are the practices in preparing the patient for death? (e.g., removal of patient from the home, dressing in mortuary garments, cleansing rites, religious rites)
4. What customs do the family practice when death is imminent?
5. When death occurs, what is the first thing that is done?
6. Is the death announced? How? (e.g., to the village, to the kin group)
7. Is the death reported to the health authorities?
8. How is the death received by the dead person's kin group and how would this be described? (e.g., wailing, flight, self mutilation, stoicism)
9. What equipment does one use to encase the dead person? (e.g., shroud, coffin)
10. Is there a post-mortem examination of the corpse? Who does this?
11. What equipment is used in such an examination? What happens to it after its use?
12. Are there special mortuary practitioners? If so, who are they? (e.g., are they religious practitioners, kinsmen, specially assigned because of training, etc.)
13. When are they called to prepare the corpse for burial? Who calls them?
14. How much time elapses between the announcement of death and preparation of the corpse?
15. What role does the family play in the preparation of the corpse?
16. Are health officials ever called in to help prepare the corpse? If so, under what circumstances?

17. What reasons does one give for death? (e.g., natural, accidental, religious)
18. Are there specific religious ideas associated with death? What are these?
19. In what state of existence is the dead person said to be after death?
20. Are distinctions made between different types of death? (e.g., a sudden death, death by old age, death by sorcery, illness, death after illness)
21. Is there a hoped for ideal type of death?
22. Is there a type of death that is particularly feared?
23. How do people feel if a death takes place in their home? Does this have any fearful dangers associated with it?
24. How do people normally feel about the subject of death? (e.g., do they talk about it often, occasionally, or avoid mention of it as much as possible?)

B. Funeral

1. At death do people stay away from the body? (e.g., fear of getting ill, fear of a tabu)
2. Who is allowed to be near the body? Or are there no restrictions?
3. Is the body touched by anyone? By whom?
4. Is the body kissed? Fondled? By whom?
5. Is the body cleansed before burial? Who cleanses it?
6. What solutions are used? What equipment?
7. Is the cleansing equipment disposed of in any particular way? Is it allowed to lie around? Where? Is it thrown away? Where? Is it destroyed? How?
8. Are the body orifices stuffed. For which people is the function performed? What materials are used?
9. Are any special ointments or scents used to prepare the body for burial? What are they? What is considered to be their express function? Who applies them?

10. Are these ointments applied to the whole body or only certain parts?
11. Must those who prepare the body for burial practice a purification rite previous to this? If so, what is done?
12. Where is the body prepared for burial? (e.g., in the home, a special location)
13. Is the body decorated in any particular way? (e.g., special mortuary garments, medallions)
14. Is there a religious ritual connected with the preparation of the body for burial? Who is responsible for this?
15. Is the body laid out in state previous to burial? Where is this done? (e.g., in the home, special location in village)
16. Are vigils or wakes practical after the preparation of the body? Which people are involved? (e.g., family, kinsmen, whole community)
17. Are there customary ways of preserving the body? What techniques are used? (e.g., embalming, mummification, desiccation, special ointments and scents)
18. How long a time occurs between death and interment? (e.g., 3 days, 2 days, 1 day, same day)
19. What reasons are given for either a long or short interval of time?
20. How is the body disposed of? (e.g., inhumation, cremation, placed in a tomb)
21. Is everyone buried in the same manner? If not for everyone, what reasons are given?
22. Who in particular disposes of the body for interment?
23. Where is the corpse buried? (e.g., cemetery, ossuary, tomb)
24. Is this the usual location for burial? Is everybody buried there?
25. Is there a procession to the burial site? Who usually attends this procession?
26. Is anyone forbidden to enter the burial site? (e.g., non-kinsmen, aliens)
27. What ceremonies are practiced at the burial of a dead person? Who leads these ceremonies? Do they take place previous to burial or after burial?

28. What obligations does the family (kin group) have in the burial of a dead person?
29. Are these obligations handled previous to burial or after it?
30. Are any special precautions, e.g., purification rites, taken at the burial of a dead person? Are these performed previous to or after the burial?
31. In general, are all people given the same mortuary treatment including the preparation and burial? What exceptions can be noted? Why?
32. Are there distinctive mortuary practices for certain people? (e.g., those with a religious role, those with status, the aged)
33. Are there special mortuary practices because of the nature of the death? What differences can be noted by residents? (e.g., loathsome disease, communicable disease, sudden tragic death)
34. Are people generally concerned that the mortuary process be carried out in the traditional way? (e.g., very concerned, indifferent)
35. If the mortuary treatment is not performed as traditionally prescribed, is this considered dangerous? Do people believe that illness can result from improper mortuary practice?

C H E C K L I S T (Cont.)

SUB-TOPICS	AGE				SEX		TIME			PLACE		Additional Comments
	child	adol.	adult	aged	male	fem.	always	occas.	rare	in village	outside village	
4. <u>Interval Between Death and Burial</u> a. long (3+ days) b. short (2/less days) c. same day												
5. <u>Method of Disposal</u> a. abandonment b. inhumation c. cremation d. other												
6. <u>Place of Disposal of Corpse</u> a. cemetery (1) specific location (2) non-specific b. ossuary c. tomb d. other												
7. <u>Burial Rites</u> a. religious ceremonies (1) before interment (2) after interment b. Familial Obligation (1) before interment (2) after interment c. Purification Ritual (1) before interment (2) after interment												

GUIDE QUESTIONS FOR HEALTH CARE DELIVERY SYSTEM

The following questions will be asked of medical personnel in health hospitals, clinics, dispensaries and other health facilities. The questions may vary in form depending on the person being interviewed.

1. What is the number of beds of the facility?
2. Is there patient separation according to sex? age group. disease?
3. How many medical personnel are there? What are their roles and responsibilities? What is their training and education? How many hours do they work per week?
 - a. Physicians
 - b. Dentists
 - c. Pharmacists
 - d. Fully qualified midwives
 - e. Birth attendants
 - f. Fully qualified nurses
 - g. Health assistants
 - h. Sanitary assistants
 - i. Laboratory assistants
4. How many non-medical personnel are there? What are their titles, duties and responsibilities?
5. How many in-patients are seen weekly? Monthly? Yearly?
6. How many out-patients are seen weekly? Monthly? Yearly?
7. What are the diagnoses of in-patients? Out-patients? Are they categorized by sex, age, type of condition?
8. Are in-patients given care by friends or relatives? If so, what care do they provide?
9. What is the number of deaths of in-patients by cause, sex and age group? Are autopsies performed? For what reasons are they performed?
10. What diseases are reported? To whom are they reported? Who does the reporting?
11. What immunizations are administered? Are there large-scale campaigns? Which are required by law? How are immunization regulations enforced?
12. Are there out-patient facilities? What is their nature?

13. Are mental disorders treated here?
14. What rehabilitation services are available for people with physical impairments? e.g. loss of sight, loss of hearing, loss of limbs, paralysis?
15. When are out-patient services available?
16. Are there training programs for your medical personnel?
17. Who prescribes medications and where are they available?
18. Are there fees for services rendered? e.g. Hospitalization, immunization, emergency, out-patient, medication
19. How are the hospitals and clinics financially supported?
20. What type of follow-up is given patients upon completion of treatment?

The following questions will be asked of personnel at the national and local departments of health.

1. What diseases are reportable by law?
2. How is morbidity data collected?
3. How is mortality data collected?
4. How are births reported?
5. Is there an official census?
6. What kinds of census data are available on both national and local levels?
7. What is the current census data and what types of information does it contain?
8. How is census data collected?
9. When was the last census taken?
10. Are registries of population updated through reports of births and deaths?
11. Is there a system of death certification?
12. Are death records available? Are fetal death records available? What type of information is on these records?
13. What diseases are notifiable by your own regulations?
14. What action is taken when such communicable diseases are reported?
15. Is there a registry of communicable diseases?
16. How do physicians and other health personnel report their data to the national ministry of health?

APPENDIX B

GUIDELINE QUESTIONS AND OBSERVATIONAL CHECKLIST

PREPARED FEBRUARY, 1972
BANGUI, CENTRAL AFRICAN REPUBLIC

1. DAILY CHECKLIST
2. INFORMANT INFORMATION GUIDE
3. QUESTIONS ON ECONOMIC AND POLITICAL PATTERNS
4. QUESTIONS ON ENVIRONMENTAL HEALTH/SANITATION
5. QUESTIONS ON KINSHIP AND MARRIAGE
6. QUESTIONS ON FOOD HABITS
7. QUESTIONS ON MATERNAL AND CHILD HEALTH
8. QUESTIONS ON RELIGION
9. QUESTIONS FOR TRADITIONAL HEALTH PRACTITIONERS
10. QUESTIONS ON MORBIDITY
11. QUESTIONS ON MORTALITY
12. CLINIC QUESTIONNAIRE

by

Garth Ludwig

Susan Porsching

DAILY CHECKLIST

1. Researcher's Name:
 2. Date:
 3. Hour(s):
 4. Place:
 5. Weather conditions:
 6. Day of week:
 7. Goals of that day's field operations:
 8. General mood, health, and personal concerns of researcher:
 9. Special activities on research site (feast, birth, market, etc.):
 10. Note general pace of activity on research site (slow, rapid, random, melancholy, purposive, etc.):
 11. Check the existence of any of the following health indices:*
- | | |
|-----------------------------------|------------------------------------|
| _____ Pregnancies | _____ Facial swelling |
| _____ Vomiting | _____ Lack of eyebrows |
| _____ High pitched whooping cough | _____ Filled teeth |
| _____ Excessive sneezing | _____ Decayed teeth |
| _____ Spitting blood | _____ Several missing teeth |
| _____ Bringing up phlegm | _____ Gum disorder |
| _____ Fainting | _____ Eye infections (incl. worms) |

- | | |
|-------------------------------------|--|
| _____ Worms in stools | _____ Runny noses |
| _____ Worms in vomitus | _____ Wrinkled forehead |
| _____ "Raspberry lesions" (yaws) | _____ Skin depigmentation |
| _____ Bone/cartilage disintegration | _____ Shortness of breath |
| _____ Nerve malfunctions | _____ Extreme nervousness |
| _____ Circumcised boys | _____ Epileptic attacks |
| _____ Nonsensical behavior | _____ Skin rash-minor |
| _____ Chewing cola nuts | _____ Ulcerated skin lesions |
| _____ Chewing betel | _____ Jaundice |
| _____ Smoking hashish | _____ Severed limbs or digits |
| _____ Hanging groin | _____ Withered extremities |
| _____ "Sliding" upper eyelid | _____ Itching/scratching |
| _____ Bloody or darkened stools | _____ Burns |
| _____ Deafness | _____ Cuts |
| _____ Broken arms, legs, etc. | _____ Bruises |
| _____ Hallucination | _____ Acne |
| _____ Hysteria | _____ Recent scarification |
| _____ Aphasia (non-talking) | _____ Edema of feet/legs
(except w/pregnancy) |
| _____ Intoxication | _____ Body lice |
| _____ Catatonic states | _____ Hair lice |
| _____ "Possession" | _____ Ringworm |
| _____ Sprains | _____ Body chiggers/ticks |
| _____ Sunburns | _____ Fleas around people |
| _____ Wounds (induced by others) | _____ Swollen eyes |
| _____ Aggression (phy. assault) | _____ Blindness |
| _____ 'Fresh' scarification | _____ Ear discharge |
| _____ Circumcision | _____ Thyroid enlargement |
| _____ Red hair | _____ Swollen stomachs |
| _____ Puffy earlobes | _____ Obvious PCM |

12. Check the incidence of the following medical equipment:

- Glasses
- Braces
- Eye Patches
- Crutches
- Canes
- Wheelchairs
- Bandages (specify material)
- Other (specify)

* Describe in detail any medical incident (i.e., birth, bites, illness, accident, etc.) and explain who treats it. Describe how any medicines are concocted, how instruments are cleaned, and how any other type of medical equipment is used.

UNIVERSITY OF PITTSBURGH DATA-BANK QUESTIONNAIRE

Village of Yamboro, Bimbo Sous-prefecture

INFORMANT

INFORMATION GUIDE

I. Household Census

Name of Village _____

Name of Family _____

Name of Clan _____

Name of Ethnic Group _____

Religion of Family _____

<u>First Name</u>	<u>Sex</u>	<u>Age</u>	<u>Education</u>	<u>Occupation</u>	<u>Marriage Condition</u>
# 1					
# 2					
# 3					
# 4					
# 5					
# 6					
# 7					
# 8					
# 9					
#10					

Number of rooms in the house _____

Is there a family cookhouse separate from the living quarters? _____

Does the family have its own latrine (water closet)? _____

How long have you lived in this particular dwelling? _____

Have you ever been to the Sakpu secourist for treatment? _____

Have you ever been to the Bimbo dispensary for treatment? _____

Have you ever been to the General Hospital for treatment? _____

Other? _____

What? _____

QUESTIONS ON ECONOMIC AND POLITICAL PATTERNS

1. Do all men of the village work here in Yamboro? Do some work elsewhere?
2. How do people make their livelihood?
3. What is the difference between a cultivator and a planter?
4. Describe the process by which land is prepared for cultivation?
- How long is the land allowed to fallow?
5. Is there a cash crop grown in the village?
- How is this crop related to the national economy?
6. Give a list of all the crops grown in Yamboro?
7. Does the village engage in fishing and hunting?
8. Is meat difficult to procure? How is it procured?
9. What other subsistence items are carried on in the village? Describe.
10. Do people of the village sell food to each other?
11. What activities do men only perform? women only?
12. What is the average income of the village man?
13. How is the village governed? Describe.
14. Describe how any misdemeanor in the village would be handled?
15. How are children disciplined?
16. How does a person become a chief?

QUESTIONS ON ENVIRONMENTAL HEALTH/SANITATION

A. Water

1. Where do you get your water for drinking and cooking?
a) wells b) river c) stream d) marsh e) pump
2. Who brings this water into your home?
3. Are certain people restricted from carrying water because of age or malady?
4. Is the water source rapid moving or sluggish?
5. Is this water source used for bathing, washing clothes or swimming?
6. If water is used for bathing in the home, is it used for other purposes also?
7. Is water allowed to stand for many hours or days at a time?
8. What other events take place upstream from the water source? For example, do animals use the same water source?

B. Refuse Disposal

9. Are food or animal discards buried or burned or piled?
10. How close is any refuse kept to a public or private dwelling?
11. What is done with animal excreta near the home? Is it ever used for fertilizer or fuel?
12. How often are animal shelters (e.g. chicken, pigeon shelters)

C. Excreta Disposal

13. Are toilet facilities permanent or temporary?
14. If a child soils the floor of his home or building, how is it cleaned?
15. What cleaning agents are used after defecation? If water is used, does one seek a water source for elimination? If leaves or other such tissue is used, what is done with it?
16. Who keeps the toilet facilities clean? How often are they cleaned and in what manner?
17. Are the latrines used mainly by certain ages and sexes?
18. Are mosquitoes seen on the walls and ceilings of buildings?
19. Are they seen around water sources or near water containers in buildings?
20. What times of the day do most bites occur and around what areas?
21. Are any measures taken to repel insects? (e.g. fires, lotions, ointments)
22. Are there evidences of the tsetse fly? What precautions are taken against them?
23. Are there evidences of rats? What precautions are taken against them?

Questions on Environmental Health/Sanitation (continued)

E. Bathing

1. What is the source of water for bathing? (e.g. streams, ponds, etc.)
2. When do people bathe?
3. Do people bathe in groups or individually?
4. Is soap, sand, or other cleaning agent used to clean the body?
5. Is there a special bathing routine for the infant?
6. Who does the bathing of young children?
7. Who cleans the body of an injured or extremely ill person?
8. Does hand, face, or feet washing take place at appointed times?

F. Clothing

9. How often is clothing changed?
10. Where and how is clothing laundered? Are clothes beaten, soaped, or rubbed with rocks?
11. Where are the clothes dried?

G. Special Cosmetics

12. How often is the hair washed and the hairdo changed?
13. Are facial or body cosmetics used? Are they oils, grease, clay, or other materials? Describe.
14. When are ornaments inserted in the holes of the nose or ear?
15. Are any drugs or anesthetics used to curb pain or infection?
16. Do people have decorations placed on their body? Describe. What is the reason for these decorations?

QUESTIONS ON KINSHIP AND MARRIAGE

1. How is descent determined?
 - What class does the boy belong to?
 - What class does the girl belong to?
 - Who carries on the father's line?
2. Are there preferential marriage patterns in the village?
 - What are the prohibited degrees of marriage?
 - Is there a principle of exogamy in the village?
 - Is marriage between clans in the village prohibited?
3. How is inheritance determined?
 - Is there a principle of primogeniture?
4. What are the principles of residence?
 - Will a son live with his father, near his father, or away from his father?
5. What is the naming procedure for children?
 - Who names the child?
 - Do they keep this name for life?
 - When are they named?
6. What principles govern the ownership of property?
 - Is property by the right of the Usufruct? or is it individually owned?
7. What is the procedure of marriage?
 - Are all young people expected to become married?
 - When does a young man become married? A young woman?
 - Describe the process of courtship culminating in a marriage.
8. Describe the marriage ceremony?
9. Are there polygamous marriages in the village?
 - For what reason does a man have more than one wife?
 - Are these marriages harmonious?
 - What happens if there is a problem between the wives?
 - How are sexual relations governed?
 - Is any wife given authority over the other?
10. What rules govern the process of divorce?
 - Are divorces frequent in the village?
 - For what reasons are divorces carried out?
 - What is the process by which divorce is granted for both men and women?

QUESTIONS ON FOOD HABITS

1. How many times a day does your family eat?
2. At what times during the day does your family eat?
3. What foods do you eat most often?
4. What foods do you most prefer to eat?
5. Do people in your family all eat together or do some eat whenever they wish?
6. Which foods are taboed for men? for women?
7. Who is served first at mealtimes? last?
8. How often do you eat or drink?
a) meat b) fish c) fruit d) vegetables e) other
9. How are meals prepared?
10. How are sauces made?
11. Where do you get your foods?
a) garden b) market c) store d) other
12. What foods are not eaten when a person is ill?
13. How do you keep your food from spoiling?
14. How do you store foods for future use?
15. How long is your food stored before eating?
16. What containers do you use for each type of food stored?
17. Are your containers covered?
18. Do insects or small animals such as rats invade your food storage?
19. How do you prevent insects and animals from invading your food?

QUESTIONS FOR MATERNAL AND CHILD HEALTH

A. Conception and Pregnancy

1. When do girls usually get married in Yamboro?
2. Does the marriage take place shortly after their first menses or after an initiation ceremony?
3. When do women usually have their first child?
4. How many children altogether does a woman want?
5. How does a woman know she is pregnant? What signs are there?
6. What special foods should pregnant women eat?
7. What does a pregnant woman do for herself and the expected baby?
8. Do pregnant women work as much as other women?
9. What signs during pregnancy indicate what the baby will look like? (a boy? a girl? normal? deformed?, etc.)
10. Do other people relieve the pregnant woman of housework and other chores?
11. What kind of medical care do women seek during pregnancy? Do they treat themselves or ask help from others? Who?
12. What do pregnant women do when they have unusual pain, bleeding or other signs of trouble during pregnancy?
13. Is sexual intercourse with the husband allowed during pregnancy?
14. If women visit the local clinic (or dispensaire) during pregnancy, how often do they usually go there? Do they like to go there? Is the midwife or another person better to consult? Why?
15. At what age do boys and girls learn about reproduction? Who teaches them?

B. Childbirth

1. Where does a birth usually take place? (in her own dwelling? in a special hut? in a clinic? in a hospital? where?)
2. Who generally is called to assist a woman in childbirth?
3. Does the woman lie down on a bed (or mat on the floor) or does she squat? What is her position during labor and delivery?
4. What is done in the case of complications? (e.g. severe bleeding, prolonged labor, or breech birth)
5. Are local medicines given to the woman during childbirth?

(Questions for Maternal and Child Health)

6. What is done to make the birth go quickly?
7. Who cuts the umbilical cord? What is it cut with? What is done with it?
8. What care is given the mother after the childbirth if she is not in a clinic or hospital? (special diet, restrictions, etc.)
9. If a woman sickens during or after childbirth, what things are done for her?
10. How long after a birth does the mother see and hold the baby? (if a son? if a daughter? if sick? if dead?)

C. Child Health

1. What is done to the infant at birth? Is the infant washed? Clothed? put to the mother's breast? given water or food? other?
2. If the mother is unable to suckle her baby, how will it be fed?
3. Will another mother suckle a child not her own? What relation to the mother or child will this person be?
4. How do people feel about babies which are deformed? How are such babies cared for?
5. How do people feel about having more than one baby at a time? (e.g. twins)
6. What food, plant, or other techniques will increase a mother's milk?
7. How long do mothers nurse their babies? one year? two to four? until the next baby is born? until the next pregnancy?
8. Are any foods besides mother's milk fed infants?
9. After weaning, what foods are fed the child?
10. Is sexual intercourse with the husband allowed after a birth? How long after?
11. How do people wean a child? When?
12. How do people toilet-train a child? When?
13. What do you do for your child if:
 1. fever
 2. swellings
 3. dizziness
 4. coughing
 5. spitt. g blood
 6. blood in urine
 7. stomach pains
 8. diarrhea
 9. skin rashes or itchiness
 10. itchiness in rectum
 11. worms
 12. boils
 13. pain in joints
 14. pain in limbs
 15. pains in torso
 16. sore throat
 17. colds
 18. headaches
 19. other

QUESTIONS ON RELIGION

1. Who created the universe? (What is God's name?)
2. Did He do it by Himself?
3. Describe how He did it?
4. Where does God live?
5. Who lives there with Him?
6. What is the center of the universe?
7. Is God Omniscient?
8. Is God Omnipresent?
9. Is God Omnipotent?
10. Is God eternal? (Can God ever die?)
11. Is God a spirit?
12. What are some of the activities of God?
13. Do the M'Baka people have special stories, legends about God?
14. How should a person worship God?
15. If you pray for things, will God give them to you?
16. Does believing in God bring a man prosperity?
17. Does every person have a soul? (Do animals have souls)
18. Can he lose his soul?
19. If a person is ill, is his soul in danger?
20. Is it good to have a lot of dreams?
21. Are there any other spirits besides God?
22. Describe them. Do they have names? Are there different types?
23. Where do these spirits live? (Rocks, trees, fields, volcano, wind, rain, sky)
24. Do people who die become spirits?
25. Do clans have guardian spirits? (Does every clan have any animal?)
26. Are there spirits who are evil (mechant)?
27. Are some people able to do witchcraft (magic noire)?

28. How do they do it? Do they choose special victims?
29. Can this make a person ill?
30. How can you be protected from witchcraft?
31. Does it make a person prosperous to wear a charm? Will this help him?
32. Can people who are evil-speaking hurt you? (medisance)
33. Can people who have the evil-eye hurt you? Are they dangerous to children?
34. Are there apecial medicaments to protect you from evil people?
35. Does it help to pray?
36. Are there special songs to protect people from evil?
37. Is the rainbow a good sign?
38. Are there other good signs in the universe?
39. What is the season of the year which is the most prosperous, rainy or dry?
40. Describe what is a good man.

41. Is it possible for God to become a human?

QUESTIONS FOR TRADITIONAL HEALTH PRACTITIONERS

1. How many practitioners are in this village?
2. Are they male and female? Which is more frequent?
3. Is there a choice of practitioners?
4. What type of training do the health practitioners receive? Does their training involve actual studying (e.g. apprenticeship, etc.) or do they become practitioners through other means (e.g. visions)?
5. At what ages do health practitioners become recognized as practicing practitioners? How long do they practice?
6. Do the practitioners direct their attention to curative medicine or preventive medicine? Or both? Which is most frequent?
7. Are there diviners who practice also? What is their function?
8. How do traditional health practitioners cooperate with government health personnel?
9. How do government health personnel cooperate with traditional health practitioners?
10. Does religion have a part in traditional healing? In what ways?
11. How many midwives are there in this village? What is the nature of their training? Are they older women, younger women?
12. Which health practitioners are male? Which are female?
13. Is the practitioner usually married?
14. Does a practitioner work in a private area, or his own property, at the dwelling of the client?
15. What other economic activities does a practitioner engage in?
16. How does a practitioner get paid? (e.g. cash, food, services, etc.) Does he get paid each time he performs a service?
17. Do practitioners train others to be practitioners? How long?
18. Do the clients of the health practitioner travel long distances?
How far?

QUESTIONS FOR MORBIDITY

1. At what point in a disease course will a person leave town and seek modern medical care?
2. For what specific maladies is European trained medical help sought outside the traditional medical sphere?
3. For what maladies is aid from clinics (dispensaires) sought? Please specify.
4. What treatment do people receive for emotional problems?
5. What preventive medical practices are found in this village and neighboring rural areas. Are there inoculations, vaccinations, etc.?
6. Are illnesses regularly reported to town leaders or governmental health officials? What types of illness are reported? Who does the reporting?
7. Do sick people continue to work? For what duration?
8. What is the general understanding of disease cause?
9. What is the general understanding of disease transmission?
10. What is the people's understanding of germ theory?
11. How do people identify a sick person?
12. What do people think is the cause of emotional problems?
13. What is the understanding of western drugs for prevention or curing? Do western and traditional medicines work differently?
14. Do the people regard one specific drug as being beneficial for any particular illness?
15. Do people regard one drug (or some drugs, or types of drugs) as not being beneficial? Are some drugs regarded as being harmful? Which ones?
16. Do people regard one type of traditional drug, or herb, as being more efficacious than others? Specifically, what traditional drugs or herbs work for particular diseases?
17. What is the explanation of the causes of injuries or accidents?
18. What other explanations do the people have for curing?
19. Do people believe that there is a vulnerability to disease at particular periods of a person's life? (e.g. infancy, childhood, puberty, old age) or under certain conditions (e.g. menstruation, after extended hard work, etc.)
20. Is one type of disease feared or considered more reprehensible than others?
21. Is it dangerous to participate in the curing of a particular disease which another person has? Why is it dangerous?
22. What is the attitude toward specific traditional health practitioners? Are male or female practitioners held in higher regard?
23. Is there a preference for European medicine over traditional medicine? For what specific maladies is traditional medicine preferred to European medicine?

Questions for Morbidity (continued)

24. For what maladies are people separated from their families?
25. How far is it to the nearest dispensaire (or clinic or health post)?
26. How do people travel to the dispensaire (or clinic or aid post)?
27. Are there many townspeople who are outpatients at a dispensaire? For what maladies? How many people?
28. Maladies (Diseases)

Symptom

fever
swellings
dizziness
coughing
spitting blood
blood in urine
stomach pains
vomiting
diarrhea
skin rashes or itchiness
itchiness in rectum
worms
eye pain or redness
boils
pain in joints
pain in limbs
pain in torso
sore throat
colds
headaches

Disease

amoebic dysentery
bacillary dysentery
hookworm
gonorrhoea
syphilis
infectious hepatitis
leprosy
malaria
measles
meningitis
shistosomiasis
trypanosomiasis
tuberculosis
typhoid fever
whooping cough

Question: What are the traditional health measures for these sicknesses? Describe the techniques used in local traditional medicines.

QUESTIONS ON MORTALITY

1. When death occurs, what is the first thing done?
2. Is the death announced? How? (to village, to the kin group)
3. Is the death reported to the health authorities?
4. What equipment does one use to encase the dead person? (e.g. clothing, coffin)
5. Is there a post-mortem examination of the corpse? Who does this?
6. Are there any special mortuary practitioners? If so, who are they?
7. How much time elapses between the announcement of death and preparation of the corpse for burial?
8. What role does the family play in the preparation of the corpse?
9. Are health officials ever called in to help prepare the corpse? If so, under what circumstances?
10. What reasons are given for death? (e.g. natural, accidental, religious)
11. Are distinctions made between different types of death? (e.g. a sudden death, death of old age, death by sorcery, illness, death after illness)
12. Is there a type of death that is particularly feared?
13. At death do people stay away from the body? (e.g. fear of getting ill, fear of tabu)
14. Who is allowed to touch the body?
15. Is the body cleansed before burial? Who cleanses it?
16. What solutions are used for such cleansing? What equipment?
17. Is the cleansing equipment disposed of in any particular way? Is it allowed to lie around? Is it thrown away? Is it destroyed? How?
18. Are the body orifices stuffed? What materials are used?
19. Are there any special ointments or scents used to prepare the body for burial? What are they? Who applies them?
20. Must those who prepare the body practice a purification rite previous to this? If so, what is done?
21. Where is the body prepared for burial? (e.g. in the home, etc.)
22. Is the body decorated in any special way? (e.g. special mortuary garments, medallions)

23. Is there a religious ritual connected with the preparation of the body for burial? Who is responsible for this?
24. Are there customary ways of preserving the body? (e.g. embalming, mummification, dessication, special ointments and preservatives)
25. How long a time occurs between death and internment?
26. Where is the corpse buried? (e.g. cemetery, tomb, at the home)
27. Is this the usual location for burial? Is everyone buried there?
28. Is there a procession to the burial site? Who usually attends this procession?
29. Is anyone forbidden to enter the burial site? (e.g. aliens, non-kin)
30. What ceremonies are practiced at the burial of the dead person? Who leads these ceremonies? Do they take place previous to burial or after burial?
31. Are there special mortuary practices because of the nature of the death? (e.g. loathsome disease, communicable disease, tragic death)

CLINIC QUESTIONNAIRE

1. Name:

2. Sex:

3. Age:

4. Marital status:

5. Living children:

Name

Age

Sex

6. Deceased children:

Sex

Age at death

Cause of death

7. Husband's occupation:

8. Wife's occupation:

9. Husband's education:

10. Wife's education:

11. Religion:

12. Tribe:

13. Village:

14. Distance from clinic: _____ (km)

15. Mode of transportation to clinic:

16. Do you have a latrine? Yes _____ No _____

17. Private or communal?

18. Where is your water source?

19. Is the source different in the rainy (dry) season?

20. How far is this source from your home _____ (km)

21. Why did you come to the clinic today?

22. What illnesses has each of your family member had?

Name

Ailment

Consultation at hospital
or clinic, etc.?

Date(s)

23. How old were you (or wife) when you had your first baby?

24. Where were each of your children born and who assisted at the birth?

Name of child

Place of delivery

Assistant at delivery

25. Did you use traditional medicines before coming to the clinic today?

26. Do some village medicines cure certain illnesses better than medicines from the hospital or clinic?

Medicine

Disease

27. Are there some illnesses a doctor or infermier cannot cure but someone else in the village can?

Ailment

Treatment

APPENDIX C

SUGGESTED READING LIST

SELECTED READING LIST

- Ackernecht, Erwin, History and Geography of the Most Important Diseases, Hafner, New York, 1965.
- Alland, Jr., Alexander, Adaptation in Cultural Evolution: An Approach to Medical Anthropology, Columbia University Press: New York, 1970.
- Benenson, Abram S. (ed.), Control of Communicable Diseases in Man, American Public Health Association, Washington, 1970.
- Bohannon, Paul, Africa and Africans, American Museum Science Books, Natural History Press, Garden City, 1964.
- Bryant, John, Health and the Developing Country, Cornell University Press, Ithaca, 1969.
- Dubos, René, Man Adapting, Yale University Press, New Haven, 1965.
- Dubos, René, Mirage of Health: Utopias, Progress and Change, Harper and Row, New York, 1959.
- Forde, Daryll (ed.), African Worlds: Studies in the Cosmological Ideas and Social Values of African Peoples, Oxford University Press, London.
- Fortes, M. and Dieterlen, G. (eds.), African Systems of Thought, Oxford University Press, London, 1965.
- Freidson, Eliot, Profession of Medicine, Dodd Mead, New York, 1971.
- Geertz, Clifford, 'The Impact of the Concept of Culture on the Concept of Man,' in Man Makes Sense, Hammels, E., and Simmons, W. (eds.), Little, Brown, and Co., Boston, 1965.
- Gould, P.R. (ed.), Africa: Continent of Change, Wadsworth Publishing Co., Belmont, California, 1961.
- Herskovits, Melville, The Human Factor in Changing Africa, Knopf, New York, 1964.
- Hoijer, Harry, 'The Relation of Language to Culture' in Sol Tax (ed.), Anthropology Today, University of Chicago Press, 1962.
- Kiev, Ari (ed.), Magic, Faith, and Healing: Studies in Primitive Psychiatry Today, Free Press, Glencoe, 1964.
- Jaco, E. Gartly (ed.), Patients, Physicians, and Illness, Free Press, New York, 1972.
- King, Maurice (ed.), Medical Care in Developing Countries, Oxford University Press, Nairobi, 1966.

Selected Reading List (continued)

- Lloyd, P.C. (ed.), The New Elites of Tropical Africa, Oxford University Press, 1966.
- Mbiti, Joan, African Religions and Philosophy, Anchor Books, Garden City, 1969.
- May, Jacques J., The Ecology of Malnutrition in Middle Africa, Hafner Publishing, New York, 1965.
- Mechanic, David, Medical Sociology, Free Press, New York, 1968.
- Mead, Margaret (ed.), Cultural Patterns and Technical Change: A Manual Prepared for Mental Health, UNESCO, Mentor, New American Library, New York, 1955.
- Parsons, Talcott, "Definitions of Health and Illness in the Light of American Values and Social Structure," in E. Gartly Jaco (ed.), Patients, Physicians, and Illness, Free Press, New York, 1972.
- Sapir, Edward, Language: An Introduction to the Study of Speech, Harcourt, Brace, and World, New York, 1921.
- Susser, M.W. and W. Watson (eds.), Sociology in Medicine, Oxford University Press, London, 1971.
- Tuden, Arthur, and Plotnicov, Leonard (eds.), Social Stratification in Africa, Free Press, New York, 1970.
- Van Amelsvoort, V., Culture, Stone Age, and Modern Medicine, Van Gorcum & Co. Netherlands, 1964.
- Wicket, F.R. (ed.), Readings in African Psychology from French Language Sources, African Studies Center, Michigan State University, East Lansing, Michigan, 1967.

SUGGESTED JOURNALS

African Affairs

African Urban Notes

American Journal of Tropical Medicine and Hygiene

Annals of Tropical Medicine

Central African Journal of Medicine

East African Medical Journal

Journal of African History

Journal of Health and Social Behavior

Rural Africana

South African Medical Journal