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# Florida Scientist

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QUARTERLY JOURNAL OF THE FLORIDA ACADEMY OF SCIENCES

# FLORIDA SCIENTIST

QUARTERLY JOURNAL OF THE FLORIDA ACADEMY OF SCIENCES


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# Florida Scientist

QUARTERLY JOURNAL OF THE FLORIDA ACADEMY OF SCIENCES

WALTER K. TAYLOR, *Editor* HENRY O. WHITTIER, *Editor*

Volume 43 Summer, 1980 No. 3

*Academy Symposium*

## ANTHROPOLOGY IN FLORIDA: TODAY, AND DOWN THE ROAD

MICHAEL J. HANSINGER[1]

WELCOME to the 43rd Annual Meeting of the Academy. As we look around us, we see many accomplishments that we can be proud of. We also see much that needs mending. This 1979 session will address itself to both these areas.

It is important to give credit to our hard-working faculty and students, and it is a pleasure to recognize their achievements over the past year. We need also to identify the big problems and discuss possible solutions. This is a general meeting of the Academy's anthropologists, and it is professionally appropriate that we use this forum for this purpose.

Our discipline faces problems of funding in the schools, declining enrollments, and what might be called under-utilization of our people at the bachelor's and master's levels. These problems are not unique to anthropology, nor to Florida; moreover, in our State some enterprising steps have already been taken to solve the problems. You are invited to discuss these at will through the course of the sessions; perhaps we can focus on steps that will improve matters.

We have organized 4 symposia to carry out this year's theme. These represent areas of the newer movement or thrust in today's anthropology statewide: nutritional anthropology; applied anthropology in the employment of M/As; community colleges; and Florida archaeology. Other traditional sectors are also represented, along with an updating of the growing field of forensic anthropology. Careers outside of academia emerge as a consistent theme through many of the presentations.

EDITOR'S COMMENTS: The symposia highlight a renewed and reinvigorated thrust in nutritional anthropology, in applied anthropology in the employment of an-

[1]These introductory remarks were read at the 43rd Annual Meeting of the Florida Academy of Sciences, held on the campus of Florida International University, Miami, Florida.

thropologists at the master's level, and in discussing the pathways toward resolving the difficulties confronting anthropology in Florida's community colleges. Traditional anthropology in Florida has not been slighted, as witness the contributions from archaeology, physical anthropology, and primatology. To the workers responsible for these efforts, the Florida Academy of Sciences extends a hearty "Well Done."

The following individuals were organizers for the various symposia: 1) Symposium on Nutritional Anthropology—Leslie Sue Lieberman, Department of Anthropology, University of Florida, and Randy Frances Kandel, Department of Sociology/Anthropology, Florida International University; 2) Symposium on Anthropology in Florida Community Colleges Today—W. G. Glover, Edison Community College; M. M. Pardi, Polk Community College; R. E. Pinder, Jr., Indian River Community College; D. E. Shaw, Miami Dade Community College, and S. Clapham and R. H. Furlow, Broward Community College; and 3) Symposium on Applied Anthropology Internships at the Master's Level—Curtis W. Wienker, J. Raymond Williams, and Alvin W. Wolfe, Department of Anthropology, University of South Florida.

# SYMPOSIUM ON NUTRITIONAL ANTHROPOLOGY: A DEDICATION

LESLIE SUE LIEBERMAN

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THE participants dedicate this Symposium on Nutritional Anthropology to Dr. Margaret Mead, curator emeritus, American Museum of Natural History. Dr. Mead, perhaps the world's most well-known and influential anthropologist, died on 15 November 1978 on the opening day of the 77th annual meeting of the American Anthropological Association. Her career spanned more than one half a century of contributions to anthropology. Her first book, *Coming of Age in Samoa*, was derived from her dissertation. It was published in 1928 and is still widely read.

Once when asked what she would choose as an epitaph, she replied, "She lived long enough to be of some use" (American Anthropological Association, 1979). Margaret Mead has been "of use" in many areas of anthropology—most notably writing on Oceanic ethnology and the relationship between psychology and culture. This latter interest served as the basis for her exploration of the cultural contexts of food habits and nutritional patterns. World War II provided the impetus for the systematic study of food habits. The National Research Council formed the Committee on Food Habits in 1940 to investigate ways to improve the nutritional and health status of the United States population. The Committee under the guidance of Margaret Mead, the first Executive Secretary, engaged in interdisciplinary studies of food customs and food habits of American ethnic groups. The Committee produced 2 classic monographs, 1 on the study of sociocultural and psychological aspects of food patterns (NAS/NRC, 1943); the other, a procedural manual (NAS/NRC, 1945). In 1943 the Committee observed that: "A new science of food habits is developing. This will be a handmaid to and of equal importance with, the biochemical science of nutrition in efforts for the prevention of disease and facilitating man's progress towards optimum health" (NAS/NRC 1943).

For 35 yr, Margaret Mead continued to write about food habits and the importance of cultural beliefs in nutritionally-relevant behavior (Mead, 1964, 1977). She emphasized the need to maintain a holistic approach in the formulation and implementation of nutritional assistance policies and programs. She stressed that an understanding of the nutritional patterns of any people requires a careful analysis of their social, cultural, biological and inorganic environments. Mead emphasized that nutritional and dietary patterns including modes of food production, preparation, distribution, con-

sumption and preservation are learned behavioral patterns which are subject to change. If these changes in subsistence and nutrition patterns are accepted, they must be made within the framework of the indigenous value system.

Recently, great numbers of anthropologists have entered the area of nutritional research and have taken up Mead's challenge to explore these cultural patterns with a variety of approaches. Ecological, ideological, structural, functional and biomedical approaches are presently in use in interdisciplinary investigations. The symposium papers presented use a diversity of approaches in exploration of a variety of questions in today's nutritional anthropology.

ACKNOWLEDGMENTS—I thank L. Jill Loucks for her superb editorial assistance and diligence in preparing the symposium manuscripts.

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# *SYMPOSIUM ON NUTRITIONAL ANTHROPOLOGY THE NEW ROLE OF NUTRITION IN ANTHROPOLOGY*

## WORLD-VIEW OF HEALTH AND WELL-BEING: ITS EFFECT ON NUTRITION DURING PREGNANCY AND LACTATION—

*Jayne O. Lyons,* Department of Anthropology, University of Florida, Gainesville, Florida 32611

ABSTRACT: *The world-view of health and well-being found among the residents of San Juan Sacatepequez, Guatemala is presented. Effects of this view of health are discussed as they pertain to the population of pregnant and lactating women and their weanling offspring. Emphasis is placed on the theory of hot and cold properties found in food, emotions and activities. Other special properties that affect food and feeding are considered.*

ALL the world over, human societies have patterned sets of beliefs and practices concerning health and well-being. Each society has defined how these practices and beliefs will be applied to the special states of pregnancy and lactation. I present the world-view of health and well-being found among the residents of San Juan Sacatepequez, Guatemala and discuss the effects of this view on pregnancy and lactation.

RESEARCH SETTING—In 1978, data were collected through participant observation and informant interviews in 4 study sites located in the municipality of San Juan Sacatepequez. San Juan is in the central highlands of Guatemala, 25 km northwest of Guatemala City, the capital of the country. The 1973 national census (Statistics Bureau, 1973) showed that San Juan had a population of 43,116. Of this total, 87% classified themselves as Native Americans. The other 13% classified themselves as Ladino, or non-Indian which is a cultural rather than a racial classification. The dominant language in the municipality is Cakchiquel. The official national language of Guatemala is Spanish.

WORLD OF HEALTH AND DISEASE—A system of hot and cold properties, based on the effects on the body and not on temperature or taste, is seen as encompassing all aspects of life in San Juan. Foods, emotions, activities and physical states can be defined by virtue of their hot or cold properties. An excess of one of the properties can cause ill health. Cure is to be found in applying a substance or ingesting a food or medicine that is of the opposite property. Prevention is practiced by carefully limiting any form of excess to maintain the proper balance in the body. This underpinning of health is shared by Ladino and Native Americans alike and is common to the whole of Latin America.

Another aspect of health is the relationship between the physical body and the soul. Fright can cause the soul to leave the body, resulting in *susto*. This sickness is described as a slow-wasting of the body, characterized by prolonged bouts of diarrhea. Rejection by loved ones will cause the soul to

sadden and will lead to death. This condition is more often reported for small children who are "mistreated" or not "cherished" by their families.

Ill health is also caused by "wanderings" or strayings of bodily parts from one location to another. Two common sicknesses of this type are the fallen palate of a small child and fallen womb of the postpartum woman. Both sicknesses are cured by physically lifting the affected area.

Special properties not associated with the hot/cold system are possessed by other beings, things and foods. These properties can influence health and well-being. This is especially true for people in special states such as the pregnant woman or a newborn child. "Winds" (*aire*), eclipses, menstrual blood and internalized thoughts and desires can all possess damaging properties.

The experience of pregnancy is encompassed by the health and well--being categories described above. A pregnant woman is referred to in Spanish as being *enferma* or sick, but pregnancy does not appear to be regarded the same as other sicknesses; rather, it appears to be regarded as a special state of being that evokes many reactions and emotions.

People believe that intercourse is necessary to produce pregnancy, but there appears to be some uncertainty as to how much intercourse is necessary to produce and maintain it. One informant felt that for pregnancy to occur, the woman had to be calm or not afraid or under pressure during the sex act, and that she must truly desire children.

Children are desired because they give a couple adult status in the community. They solidify a marriage and they allow the young bride to start lobbying for her own house and kitchen. No woman included in this study expressed a desire for childlessness.

It is generally accepted that the unborn child is attached to the body of the mother via the umbilical cord. Some women felt that the unborn child was attached to the inside of the maternal body specifically at the site of the umbilicus. There was a general consensus that the unborn child could somehow get to the food eaten by the mother and that the unborn child could influence food cravings.

Food cravings are quite common among pregnant women in San Juan. One of the first recognized signs of pregnancy is pica. One form of pica, geophagy, is so well-established that small white clay blocks are sold in neighborhood stores and in the local market. This clay is from the sacred city of Esquipulas, located in the southeast of Guatemala. Women felt that the clay blocks, called *pan del Senor*, (the bread of Christ) have protective properties. Often, pregnant women consume one 1¢ block of clay every day. Some women admitted to eating adobe while they were pregnant, and they appeared to be embarrassed about this. One midwife felt that eating adobe during pregnancy would cause the baby to be born very dirty.

Informants believed that food cravings are the direct wish of the unborn child. If such cravings are not fulfilled, a miscarriage may result because the unborn child will feel rejected by not having the craving satisfied. People

believe that the rejected child will cause the miscarriage to punish the couple and their families and to escape a life of suffering with unloving parents.

There are no explicit food taboos during pregnancy although most pregnant women will avoid twinned fruits or double-yolked eggs for fear that a multiple birth will result. The pregnant women, it is believed, can cause damage to certain foods. For example, if a pregnant woman is involved in making corn gruel from young ears of corn, *atole de elote*, it is believed that the gruel will be burned in color and taste. If a pregnant woman stirs the pot where pork crackling, *chicharones*, are being made, they will stick to the pot and burn. Pregnant women may also cause the evil eye, *mal de ojo*, a sickness in small children and young animals. The state of pregnancy also endows the women with positive powers. Some informants felt that pregnant women influence the fertility of a field by helping in the planting. Following the birth of the child, if the mother walks through the cornfield carrying her baby on her back, the corn will bear larger and fuller ears.

Following the delivery, the mother is viewed as being in a cold state. If she is delivered at home by a midwife, as the majority of women are in San Juan, the midwife will offer her a small glass of sugarcane brandy and a cup of cocoa to help warm her up. The first meal for a newly-delivered woman should be chicken soup, a hot food. Cold foods at this time are viewed as inappropriate and dangerous. Many women who use Western medical treatment during the prenatal period will not deliver in the hospital because the meals provided to the new mother do not reflect the proper hot/cold balance thought to be necessary for good health.

Informants believed that the head and shoulders of the mother should be well-covered following the delivery. This is to prevent winds from entering the body and chilling her milk. The milk is easily damaged during the first 2 wk to 40 da after delivery and, therefore, the mother must be careful of her behavior and her diet. Chilled milk is believed to cause illness in the baby by causing the soft palate to fall or by chilling the stomach.

There are a number of behavioral proscriptions and food taboos following delivery. The mother must refrain from bathing or washing her hair until her milk supply is well-established. She must also not eat cold foods, including cabbage, eggs, avocados, white beans, fish, cheese or pork, for at least 15 da and in some cases up to 40 da following the birth of her baby. Pineapples, lemons and coconuts are believed to thin the milk (*se corte la leche*) and are best avoided during lactation.

Severe fright resulting in *susto* can cause a lactating woman to lose her milk. Following the earthquake in 1976, the emergency relief included powdered milk and baby formulas designated for women who had lost their milk as a result of *susto*. Goat milk, considered hot, is recommended to help increase milk supply as is an herb called *ixmut*, taken daily in the form of a broth.

Following a birth, whether at a hospital or at home, most women use the services of a midwife to "close their bones" and reposition their wombs. This

process can take anywhere from 1 wk to 40 da. The post-partum mother is massaged firmly in the abdominal region by the midwife. The midwife warms her hands over coals and uses a hot balm during the massage. This is thought to warm the womb and to soften it, which will encourage healing. This treatment is repeated every 2 or 3 da until the midwife feels that the womb has returned to its proper size and position and all postpartum bleeding has stopped. Following the massage, an abdominal binder is wound around the mother. The binder is made from a belt that has a corncob placed in it. The belt is put on in such a manner that the corncob is held quite tightly against the body, just below the navel, where the womb is thought to be located. The binder helps to "close the bones" and the corncob prevents the womb from falling.

"Cold" womb is one of the causes of infertility. The symptoms of a "cold" womb are heavy menstrual flow with associated pains, spontaneous abortions and breakthrough bleeding. Treatment consists of the massage and binding series described above as well as the drinking of a "hot" herb broth during the menstrual period. During this time, the body is considered to be in a very hot state. Bathing, a cold activity, is not considered safe. It is also believed that the pores of the skin are open, as are the spaces under the fingernails and around the eyes. Milk, oranges, coconuts and coffee are believed to increase the blood flow and are avoided.

Modern and Traditional Medicine—Infant mortality rates in Guatemala have improved over the past 10 yr for certain sectors of the population (USAID, 1977), but in San Juan this has not been the case (Lyons, n.d.). Maternal morbidity, mortality and still births also take their toll in the overall health patterns found in the village.

With increasing frequency, the residents of San Juan are relying on the services of modern medical practitioners. These changes in behavior do not necessarily reflect a shift in the traditional view of health and illness. Rather, the traditional views are flexible enough to include modern practices and medicines. People recognize the ability of modern medicine to deal with illness, often in a rapid and dramatic manner. The hot/cold system is extended to classify modern treatments and medicines. For modern medicine to be used more effectively, especially for the high risk population of pregnant women and infants under 1 yr of age, practitioners need to understand and consider the traditional view of health and well-being which is held by their clients (Harwood, 1971).

Acknowledgment—This research was supported in part by a fellowship from the Inter-American Foundation.

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# CAUSAL FACTORS OF EARLY WEANING AND MALNUTRITION IN FOUR RURAL AMAZON COMMUNITIES: A PRELIMINARY ANALYSIS

—*Susan Virginia Poats*, Anthropologist, International Potato Center–CIP, Lima, Peru

Abstract: *A nutrition survey in 4 Central Amazon villages during 1977–1978 revealed that 31.4% of 2069 children under 72 mo of age were moderately to severely malnourished according to Latin American standards for weight and age. Results from the survey and additional data from the author's field research indicated that the causes of malnutrition were imbedded in a complicated, interwoven mesh of social, cultural, economic and environmental factors. A preliminary analysis of these causal factors is presented.*

Surveys to determine the nutritional status of children under 72 mo of age in Brazil's Central Amazon region were carried out during 1977-1978 by Project Esperanca personnel and nutrition students from the Federal University of Para (UFP). Project Esperanca is a nonprofit health and education organization located in Santarem, Brazil, which provides internships in rural health care to students of the UFP. Of the 2069 children surveyed, 706 (31.4%) were moderately to severely malnourished according to the Gomez scale based on weight for age (Gomez et al., 1956).

In response to these findings, an intensive epidemiological survey using a 10-page questionnaire covering 88 topics was designed to determine the causes of malnutrition in the area. I report some preliminary results of this project. The survey was completed on 828 children in 4 rural communities—Mojui dos Campos, Castanhal, Alter do Chao, and Aramanai—located in 2 distinct environmental zones and at varying distances from Santarem, the major urban center in the Central Amazon region.

Results—In an initial examination of the questionnaire results from only 1 community, Mojui (Hartman and Jorge Joao, 1978), the following observations were made: 1) Children 12-55 mo of age were most vulnerable to malnutrition. Most malnutrition was in the 30-42 mo group. 2) Females were more malnourished than were males. 3) Malnutrition was most prevalent in primaparous mothers and grand multiparous mothers with 6 or more previous children. 4) Malnutrition was higher in the lower socio-economic level, although malnutrition was not absent in the middle and upper classes. These findings indicate that socio-economic status alone does not explain the prevalence of malnutrition. 5) Father's educational level showed no correlation with malnutrition, but illiteracy among mothers correlated highly with the incidence of malnutrition. Subsequent data analysis in the other 3 communities revealed similar patterns.

Many authors have stated that early weaning without nutritionally adequate substitutions is a direct cause of childhood malnutrition, particularly in the developing tropical world (Bader, 1976; Greiner, 1975; Jelliffe, 1968; and Wray and Aguirre, 1969). Analysis of survey data revealed that most of the children in Mojui and Castanhal were weaned at 1-3 mo, and by 6 mo, 69.7% of the children in Mojui were weaned and 73.7% in Castanhal. In contrast, Alter do Chao only had 19.8% weaned by 6 mo and 13.5% for Aramanai. Comparison of malnutrition rates among the 4 communities, however, revealed that Mojui and Castanhal, with the earliest weaning ages, had fewer malnourished children (28% and 38.4%, respectively) than did Alter do Chao and Aramanai. These communities with later weaning ages had greater percentages of malnourished children, 44.9% and 47.6%, respectively. This evidence counters the accepted idea that early weaning leads to malnutrition. Additionally, the fact that so many mothers in these rural communities are curtailing the breast-feeding period contradicts the belief that although the breast-feeding period is being shortened all over the world, that "in the tropics, this has yet affected mainly town dwellers, and the majority of rural people usually breast-feed in the traditional way" (Jelliffe, 1968). The "traditional way" refers to breast-feeding until about 1 yr of age as is done in Alter do Chao and Aramanai.

The principal reasons given for weaning in all the communities were: that "the child did not want to [breast-feed] anymore" or the "mother had no milk." Less frequently given reasons were the birth of another child or illness of either mother or child. In the 2 communities where there was early weaning, over 90% of the mothers replaced breast milk with powdered milk products in addition to local gruels based on rice and manioc. The milk product most frequently used was Nestle's powdered instant milk (*Leite Ninho*). There is no local source of fresh milk in any of the communities studied. In Aramanai and Alter do Chao where there was later weaning, only about 72.5% used milk products, relying more on the gruels that are high in carbohydrates and low in protein. To explain all these differences, it is necessary to examine the social and ecological contexts of each community.

SETTING—Mojui and Castanhal are located in the *planalto* or elevated plain south of Santarem. Mojui, a small rural town of 3000 inhabitants, is in the middle of the *planalto*, 41 km from Santarem via asphalted highway. Buses provide round-trip service to Santarem 6 times daily. Mojui is the social, commercial and religious center for 80 scattered *planalto* farming settlements. For half of Mojui's male population, agriculture is the principal economic activity. Families live in town and men walk to the fields each day. Women and children aid in harvesting but otherwise work in domestic activities. The other men engage in wage labor, commercial activities or they migrate outside the community for salaried employment at distant mining camps. Their families usually purchase food supplies. Thirty-two commercial establishments sell foodstuffs, but little fresh food is available locally

because excess produce goes to Santarem for sale in city markets. Because market prices for cash crops have not increased in proportion to production costs, men are increasingly seeking salaried employment in mining companies which results in their absence from the community. Male absenteeism has prompted women to assume new economic roles outside the domestic realm in such activities as subsistence agriculture, food processing and wage labor. According to economic standards for the Central Amazon region, about 9.5% of the total population are in the upper socio-economic range, 23.4% in the middle range and 67.1% in the lower socio-economic stratum.

Castanhal is a *planalto* settlement community of small family farms dispersed along 2 dirt roads that run south from Mojui. Roughly 500 persons live within the area and 90% of the families engage in agriculture. There are only 2 commercial establishments. Most people buy essential supplies in Mojui. No regular transportation to Mojui exists, although pick-up trucks charging high fares make unscheduled trips. The dirt roads receive little maintenance and rainy season makes them impassable. Walking between the 2 communities takes 30 to 120 min, depending on starting and destination points. Fewer men are leaving Castanhal for mining jobs than in Mojui and more women are more involved in farming. No families are in the upper socio-economic range, 5 families are in the middle range and the remaining 92.4% are in the lower socio-economic stratum.

Alter do Chao and Aramanai are on the Tapajos River, 1 hr and 2.5 hr south of Santarem by boat. By land, Alter do Chao is 45 min from Santarem via a tortuous, difficult, sand and dirt road. Aramanai sits on the edge of Belterra, a former Ford Company rubber plantation now run by the Brazilian government. Frequent transport to Santarem from Belterra exists, but only recently was a road completed to Aramanai allowing regular bus service. Aramanai has about 300 inhabitants and few commercial establishments, although numerous stores exist in nearby Belterra. The inhabitants work tapping rubber trees half the year and in the other half they engage in fishing and agriculture. Low rubber prices since World War II have depressed the economy of all rubber-dependent areas. Almost 94% of the families are in the lower socio-economic class, and none are in the upper socio-economic range. Women work primarily in domestic production activities.

People in Alter do Chao also engage in rubber tapping, but a greater percentage work in agricultural, fishing or commercial activities. Its proximity to Santarem and idyllic location with abundant beaches have attracted an incipient tourist trade resulting in some increased income for local inhabitants. Many of the wealthier families from Santarem are constructing weekend beach cottages there. Male economic activities are confined mostly to local areas and women are not employed extradomestically. Of the total population, 79.7% is in the lower socio-economic class, 18.6% in the middle class and 1.7% in the upper class.

Aramanai and Alter do Chao are old, established communities and tend to be more traditional. Inhabitants are native Amazonians or descendants of northeasterners who came in the 1800s or early 1900s as rubber tappers. Mojui and Castanhal are newer communities, at most 20-yr old. Inhabitants are recent migrants from northeastern Brazil who came in search of unoccupied land.

Discussion—Greater socio-economic wealth could be cited as the cause of early weaning in Mojui, but this argument does not hold for Castanhal which is much poorer than Mojui yet has the same early weaning rate and use of powdered milk. A more plausible explanation might be found in Mojui's facile communication with Santarem; hence, greater exposure to urban trends and ideas such as bottle-feeding as an improvement over breast-feeding. Bottle-feeding is viewed as a high status behavior while extended breast-feeding is equated with being too poor to buy milk. While Santarem is not directly accessible to Castanhal, there is close social contact with Mojui resulting in diffusion of ideas.

Another reason for early weaning may be the increased extra-domestic roles of women. In Mojui, the need to assume roles vacated by men leads to earlier weaning in order to leave a young child in the care of older siblings. In Castanhal, women need to participate in agricultural activities formerly carried out by wage laborers who have left for mining camps. Women may be weaning sooner to avoid either taking the child to the fields or having to return home to breast-feed. Mojui's lower rate of malnutrition than Castanhal's is likely due to the greater ability to purchase enough milk for the child plus the greater availability of a variety of foods in Mojui. Castanhal mothers may be feeding their children milk, but it is likely that because they are poorer, the milk is stretched further by diluting it with more water or reducing the amount fed resulting in inadequate nutrient supply and malnutrition.

Aramanai and Alter do Chao have been less influenced by urban-centered notions of early weaning. Malnutrition is highest in these more traditional communities because of the depressed economy of both areas and the seasonality of work which results in low food availability. Maternal nutritional stores are depleted because of poor maternal nutrition and multiple births; yet, because the means to procure replacement foods are lacking, breast-feeding continues. Prolonged breast-feeding in these 2 areas without proper supplementation beyond 6 mo results in malnutrition. Although some milk is purchased, the high cost results in stretching the supplies, usually by watering-down the mixture. Not only is the nutrient content decreased per volume, but also the chance of contamination through impure water increases chances of infection which also leads to malnutrition.

Regional food taboos prohibit using meat, most kinds of fish, eggs, beans, fruits except bananas, and vegetables in infant supplement or replacement diets. Permitted foods are all light in color and often described

as "white-like milk". It is possible that due to the more traditional natures of Aramanai and Alter do Chao, the food taboos are more strictly followed in these communities, thus aggravating either early weaning or extended breast-feeding and resulting in higher malnutrition.

CONCLUSIONS—The relationship between early weaning, the socio-economic-environmental context and malnutrition has been briefly explored. Further research is needed because early weaning is likely to increase in communities such as Aramanai and Alter do Chao where urban influence is growing. If proper food supplementation in such communities continues to be precluded by economic or cultural reasons, then early weaning to conform to urban values will result in increased malnutrition.

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# GROWTH AND DEVELOPMENT, NUTRITION AND ACTIVITY AMONG DIABETIC YOUNGSTERS

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ABSTRACT: *Ultrasonographic measurements were made of skin, fat and muscle depth at selected sites on the trunk and limbs and anthropometric measurements were made of stature, weight and skinfolds in 150 children with diabetes mellitus and in 87 control children matched for age, sex and race. Diabetic children weighed less, were not significantly shorter, had reduced muscle mass and greater adiposity than did control children. These anthropometric and body composition differences are related to diabetes pathology and treatment, diet and activity levels.*

THE present study was designed to investigate growth and development and body composition in children with juvenile-onset diabetes mellitus. This

ketosis-prone form of diabetes is a chronic disease which usually has an abrupt onset characterized by polyurea, polydipsia, polyphagia, hyperglycemia, weight loss and abnormal glucose tolerance. A lack or very low production of insulin by the beta cells of the pancreas necessitates the administration of daily doses of insulin. Dietary control focuses on the amounts of carbohydrates, fat and protein in the diet and the frequency of nutrient intake throughout the day.

Diabetics without proper insulin replacement therapy will experience a number of enzymatic alterations leading to an increased breakdown of protein and fats and impaired carbohydrate metabolism, thereby decreasing glucose availability to cells (Herman, 1974). These metabolic alterations lead to the symptoms of diabetes noted above and account for the frequently-seen critical problem of ketoacidosis precipitated by the excessive use of lipids for energy. Because of these abnormalities in energy metabolism regulation, juvenile-onset diabetics may suffer from retardation in physical growth and sexual maturation.

The published studies on statural growth and weight in diabetic youngsters present a complex picture which cannot be readily explained by diabetes-related syndromes, genetic predispositions, diet or insulin dosage. For example, some authors observed that youngsters at the time of diabetic onset were taller than their age-sex peers (Evans, Robinson and Lister, 1972; Petersen et al., 1978), while other researchers have observed subjects to be average in height at time of onset (Rayner and Jivani, 1973). Most studies have demonstrated decrements in stature that are related to prepubertal onset and disease duration (Evans, Robinson and Lister, 1972; Petersen et al., 1973). White (1960), however, using a large sample from the Joslin Clinic in Boston, found no retardation in height when comparing diabetic and nondiabetic siblings. More recently, a study of 12 sets of monozygotic twins discordant in prepubertal-onset of diabetes demonstrated that the affected twin was significantly shorter than the normal twin (Tattersall and Pyke, 1973). The mean difference in height was 5.7 cm. Significant statural differences were not found in discordant twin pairs in which there was postpubertal onset of diabetes.

Weil (1967) has demonstrated retardation in skeletal maturation or bone age of both diabetics and their non-diabetic siblings with decreases averaging 6 mo below standard values. These data are suggestive of an underlying familial alteration in bone ossification. Rosenbloom and his associates (Grgic et al., 1976) have documented decreases in bone density in diabetic children. Decrease in bone density was correlated with duration of diabetes, age, sex and race. Bone loss was most significant in the first 5 yr of diabetes. Bone demineralization of 10% or greater was found in decreasing frequency among white females, white males, black males and black females.

In addition to skeletal changes, a number of other tissues exhibit structural changes in diabetic adults and children. Most notably, increases in collagen lead to joint contracture, capillary basement membrane thickening

and loss of flexibility in the central diaphragm tendon (Hamlin, Kohn and Luschin, 1975). Fat distribution is also altered. Feldman and his colleagues (1969) found a centripetal distribution of fat in maturity-onset diabetics. While obesity is frequently associated with adult-onset diabetes, it is not generally seen in juvenile-onset diabetics (Perkins and Paulk, 1977). Evans, Robinson and Lister (1972), however, did find subscapular skinfold increases in both male and female juvenile-onset diabetics and overtreatment with insulin is known to produce obesity.

The present study was designed to investigate stature, weight and tissue composition in a well-controlled group of diabetic youngsters for whom there are good longitudinal and comparative data. A specific focus was the elucidation of subcutaneous fat depth and distribution utilizing traditional anthropometric and skinfold measurement and the new technique of ultrasonography.

METHODS—Subjects were 150 children and youngsters, 77 males and 73 females age 6 to 21 yr who were attending the 2-wk Florida Camp for Children and Youth with Diabetes in the summer of 1977. All subjects were insulin-dependent diabetics with a history of diabetes ranging from less than 1 yr to over 15 yr. Eighty-seven healthy control children from the University of Florida laboratory school were matched with the diabetic children for age, sex and race.

Anthropometric measurements were made by 2 graduate research assistants. These measurements included stature, weight, upper arm, waist and calf circumference, and triceps and suprailiac skinfold. Measurements were made on the right side of the body. The skinfold measurements were made with a Lange skinfold caliper.

All ultrasonic measurements were made by the author with an Ecoline 20 A Ultrasonoscope (Smith, Kline Instruments) using a 5 mHz transducer. Replicate measures for the determination of skin, fat, muscle and bone boundaries were made at the triceps, abdomen, side (suprailiac), back and calf sites in the diabetic subjects and at the triceps, side and calf sites for the control group. Ultrasonic measurement of the skin depth on the dorsum of the hand was made for both diabetic and control subjects. Measurements were made on the right side with the subject seated, supine or prone depending on the site measured.

Ultrasonography is a technique which has been little used in the field of body composition measurement, although it has been extensively used as a diagnostic tool and therapeutic agent in obstetrics and gynecology, oncology, orthopedics, ophthalmology and cardiology. Ultrasonography, however, has many advantages as a technique for assessing tissue changes in normal growth and development and in pathological states. Ultrasonography is 1) noninvasive, quick and non-destructive of tissues; 2) it does not distort the subcutaneous tissues during measurement; 3) it has a high coefficient of reliability for repeated measures (Bullen et al., 1965); 4) it is highly correlated with direct measures of body fat (Lieberman, n.d.); 5) it

is a useful technique for measurements on the grossly obese; and 6) the equipment is sturdy and portable, thereby affording potential use as a field technique.

The ultrasonic demarcation of tissues is dependent on the partial reflection of sound waves (acoustic energy) from contiguous tissue interfaces exhibiting different acoustic impedances. Skin, fat, muscle and bone are tissues which allow sound waves to pass through them without interference. However, these 4 tissues do have different densities and acoustical properties so that echoes arise at the skin-fat, fat-muscle, and muscle-bone interfaces. These ultrasonic echoes are reflected back to the transducer source, converted to electrical energy, amplified and displayed on an oscilloscope screen.

The effective measurement range in tissue is 0.1 mm to 35 cm (Alsmeyer, Himer and Thornton, 1963). Because of the sensitivity of the technique, the potential exists for extracting information in tissue surface area, depth, histological type and topographic relationships to other tissues. In the present report, ultrasound is used to measure skin, fat and muscle tissue depth.

Results—A comparison of the whole diabetic sample with the controls indicated a slight decrease in stature of 0.4 cm for the diabetics. An examination of stature for males and females grouped by 2-yr age intervals revealed that for all age-sex classes diabetic children were at or below the 50 percentile as established by the National Center for Health Statistics (1977). Although age-sex classes were often too small to permit adequate statistical manipulation, the class of 11 and 12 yr-old males composed of 16 diabetics and 13 control subjects did show a statistically significant difference in stature of 6.5 cm ($t = 2.12$, $p < .05$). Pearson's correlation coefficients for height with weight were not significantly different for diabetics and control subjects. However, the correlation of age with height showed a markedly lower correlation ($r = .46$) for diabetics than for controls ($r = .88$). Furthermore, a comparison of diabetic females age 10-14 yr who had diabetes for less than 1 yr ($n = 11$) with those who had diabetes for more than 5 yr ($n = 17$) indicated a trend toward increased statural decrement with increasing duration of diabetes.

A comparison of all age-sex classes for weight showed that diabetic children weighed less than the controls by 4.9 kg. Weights for individual age-sex classes for diabetics fluctuated around the means for the classes of control children and for the 50th percentile of the national sample (National Center for Health Statistics, 1977). Diabetic males age 11 and 12 yr did show a significant decrease in weight of 7.70 kg ($t = 3.79$, $p < .001$). Age-weight correlations and height-weight correlations were insignificantly different for diabetics and controls. Unlike height, the weight of 10-14 yr old diabetic females did not show a significant correlation with duration of diabetes.

A number of variables were used to assess subcutaneous fat distribution. The data indicate that diabetic children have a significantly greater amount of subcutaneous fat over the triceps muscles as measured by skinfold calipers

(diabetic = 14.1mm, control = 12.0mm) and by ultrasonography (diabetic = 29.1mm, control = 17.6mm). The differences in triceps skinfold measurements between diabetics and controls increased with age for both sexes. For example, 13 and 14 yr old diabetic females had a statistically significant increase in skinfold measurement of 4.7mm over their nondiabetic peers ($t = 1.96$, $p < .10$). The triceps skinfold measurement also increased significantly with duration of diabetes for females aged 10-14 yr.

The suprailiac skinfolds showed a similar age-related trend for females only. Diabetic females age 11-16 had greater suprailiac skinfolds than the controls. Triceps and suprailiac skinfolds were not as highly correlated for the diabetic ($r = .78$, $p < .001$) as for the controls ($r = .86$, $p < .001$) suggesting different fat patterns for these 2 groups. Furthermore, in all age-sex groups, except the 11-12 yr old males, the waist circumference of the diabetics exceeded the waist circumference of the controls indicating a centripetal distribution of fat for the diabetic youngsters. In addition, there is a significantly higher correlation of weight and waist circumference for diabetics ($r = .91$, $p < .001$) as compared to controls ($r = .83$, $p < .001$), while there are no significant differences in the correlations of weight and triceps circumference for these groups.

The anthropometric and ultrasound evidence highly suggest not only an unusual fat distribution, but also an increased adiposity in diabetic children. Higher correlations of weight with triceps and waist skinfold measurements seen in the diabetic children as compared to their peers indicate that fat comprises a greater portion of the weight in diabetic youngsters. Ultrasonic measurements for skin, fat and muscle depth on the trunk and limb sites are more highly correlated with each other both within and between sites for control children compared to the diabetics. These data can be interpreted as indicating that diabetic children have increased adiposity especially in the waist area and decreased muscle mass in the upper arm and lower leg. Specifically, the ultrasonic measurements of the upper arm and calf of 13-14 yr old girls show statistically significant ($p < .01$) increases in subcutaneous fat and decreases in muscle mass for the diabetics compared to the controls. Furthermore, calculations of the fat and muscle areas from the skinfold and circumference measures of the triceps region for the same age-sex groups yielded corroborative data (Gurney and Jelliffe, 1973).

Succinctly, diabetic children weigh less, are slightly shorter and have significantly more adipose tissue and less muscle mass than their nondiabetic age-sex matched peers. Diabetic children also show a tendency toward centripetal distribution of fat.

Discussion—Realistic long-term management goals for the diabetic youngster include normal physical and mental growth and development, full participation in physical and social activities and maximal responsibility in the management of his or her diabetes (Rosenbloom, 1977).

One aspect of diabetes management essential for the maintenance of normal growth and development is diet. The nutritional needs of diabetic

children do not differ from their peers without diabetes except that there may be a need to replace calories lost in urine. Current recommendations for a good diet include 12-15% high quality protein, 45-55% complex carbohydrates and 30-40% lipids (Dorchy and Loeb, 1977). Unlike earlier dietary therapy, many physicians today believe there is no rationale for carbohydrate restriction in normal weight diabetic youngsters and there is no need for expensive diabetic or dietetic foods (Rosenbloom, 1977). However, the intake of simple carbohydrates (e.g., candy) should be minimal. Because food intake has many social and psychological implications, it has often become the focus of conflict in many families with a diabetic youngster. Children and other family members may become compulsive about diets when this is apparently unnecessary for good growth and good control of diabetes. In fact, misguided attempts at control leading to short-term hypoglycemia may be more damaging to growth than slight-to-moderate hyperglycemia (Rayner and Jivani, 1973). Recent studies among diabetic campers have emphasized that the same individual can vary his or her dietary intake by 50-100% from day to day without adverse effects or changes in insulin dosage (Rosenbloom, 1977).

One frequently encountered problem in the management of children and adolescents with diabetes is overtreatment with insulin. When insulin is administered, it causes a drop in blood sugar level. This hypoglycemic state stimulates a number of counter-regulatory hormonal responses which lead to a state of reactive hyperglycemia. Of the many effects caused by metabolic see-sawing between hypo- and hyperglycemic states, the ones most pertinent to growth failure and delayed maturation are: 1) constant hunger due to hypoglycemia, often with weight gain and hepatomegaly; 2) decreased exercise tolerance with consequent decreased participation in physical activities; and 3) concomitant emotional and behavioral changes, mood shifts and decreased school performance.

Youngsters are particularly prone to overtreatment because of their rapidly changing emotional states, periods of high activity and eating patterns. Often these variables are not taken into account in diabetes management. For these reasons, many physicians now recommend their young patients be educated about diabetes and assume responsibility for the management of their diet and insulin dosages. Patients are also encouraged to pursue a vigorous exercise program because physical activity increases the efficiency of glucose utilization. Adjustments to exercise include an increased caloric intake and a reduced insulin dosage.

Clearly, there are physical limitations for some diabetic children that would preclude full participation in exercise activities. These limitations include joint contractures (Grgic et al., 1976) that may make holding a baseball difficult or decrease respiratory capacity causing a reduction in ability to engage in running sports (Hamlin, Kohn and Luschin, 1975). However, enjoyable physical activities can be found for all youngsters.

The linkages between the growth and body composition data and infor-

mation on diet, insulin therapy and exercise are presently speculative. The author suspects that at least some of the adiposity and the centripetal distribution of adipose tissue and expanded waist circumference may be linked to over insulinization. Camp records have been kept on insulin dosages for all children. They will be useful in examining this relationship. Secondly, the reduced muscle mass and retarded skeletal maturation are variables of complex etiology which, perhaps, have a familial basis linked to diabetes, may be the sequelae of ketosis-prone diabetes or may be a consequence of reduced physical activity. Much work has to be done to elucidate these relationships so that growth potential may be maximized and body composition normalized for the diabetic youngster.

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# DIET, OBESITY AND DIABETES MELLITUS AMONG THE FLORIDA SEMINOLE INDIANS

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ABSTRACT: *The incidence of adult-onset diabetes has increased dramatically since the 1950s among the Florida Seminole Indians. Four months were spent at the Brighton Reservation identifying economic, social and cultural factors which may: 1) influence dietary behavior and the incidence of obesity and diabetes, and 2) account for the inability of health care personnel to induce dietary modification and weight loss. Suggestions are made as to how changes in dietary behavior and weight loss might be achieved.*

IN the past 10-15 yr, increasing attention has been paid to the epidemiological evidence of rising rates of diabetes mellitus in North American Indians and other non-Western populations where diabetes previously was rare. Aside from problems of a clinical definition of diabetes and the lack of standardized testing procedures, abnormal glucose tolerance, as well as overt diabetes and its complications, are becoming more common in acculturating populations. Comparative analysis indicates that this is related to a change from a traditional to a Western lifestyle (Eaton, 1977) and suggests the importance of environmental factors in the etiology of diabetes (Keen and Jarrett, 1978).

Diet is a major variable in studies of diabetes in acculturating populations. Drastic changes in diet often occur and there are concomitant increases in diseases in which diet is implicated in the etiology (e.g., diabetes, obesity, hypertension and cardiovascular disease). Some researchers have proposed that altered amounts of specific dietary elements, such as increased sugar and refined carbohydrates or decreased dietary fiber, are instrumental in increasing rates of diabetes (Burkitt, 1973). Others have shown that rates of diabetes can be related to the prevalence of obesity in the population and have not found that any specific dietary components explain the prevalence of diabetes or obesity (West, 1974).

Since the 1950s, the prevalence of adult-onset diabetes has increased dramatically among the Florida Seminole Indians. Today, 21% of those age 35 yr or older receive oral hypoglycemis or insulin. If "borderline" cases and those being treated through dietary modification are included, this figure rises to 34%. Rates for the comparable age group in the United States population in general are 5-6%. Westfall and Rosenbloom (1971) found that the diabetes death rate among the Seminole is more than 5 times that for the U.S. population as a whole.

Obesity is also prevalent among the Seminole. A survey of patient records revealed that at least 60% of those age 20 yr or older are obese. Due to incomplete recording, this is an underestimation by possibly 10-15% of the actual percentage which may be as high as 75% of adults. Comparable rates of obesity for the U.S. population are 30-50%. Surprisingly, the rates for the age group 35 and over are only 7-10% greater than the U.S. population figures. Thus, obesity is not found to be disproportionate in the older

population segment but is also a problem of younger Seminole adults in the 20-35 yr age group. Within the last 2 decades, changes in economic and subsistence activities have led to a decline in physical activity and explain, in part, the prevalence of obesity. Dietary changes have also had a great influence on obesity.

METHODS—Four months were spent at the Brighton Reservation examining the relationship between socio-economic status, dietary composition and caloric intake, obesity and diabetes among the Florida Seminole. Answers to open-ended questions concerning food frequency and amounts, typical meals and snacks, and knowledge and attitudes about food and its relation to health were elicited from 10 female and 1 male household heads. Food consumption was also observed in homes, at work and at social events to supplement the questionnaire.

RESULTS—No differences in diet due to socio-economic level could be discerned. Families with the lowest incomes spent as much per person on groceries as did the highest income families. In all families, the largest monthly expenditure was for food.

The diet is high in calories. Consumption by those who are obese is estimated to be between 3000 and 5000 kc/da. Seventy-five to 85% of the calories come from carbohydrates in the form of corn, rice, beans and flour products, and fats. Frying in lard or shortening is the most common cooking method. *Sofkee*, a thin cereal gruel, is a favorite food. "Fry bread" and rice with gravy are frequent meal items. Carbonated beverages are consumed in quantity by the younger generation and add significantly to the total caloric intake.

There is adequate protein in the diet. Frequently purchased meats include hamburger, chicken, pork chops, stew beef and canned meats. Families that raise cattle or hogs butcher some for their own use and distribute some to relatives. Eggs are eaten for breakfast at least 4-5 times per week. Milk is consumed primarily by babies.

Vegetables, except for dried peas and lima beans, potatoes, corn, canned and fresh tomatoes and onions, are usually absent from the diet. Fruits, especially citrus, are eaten often.

The dietary study showed that the prevalence of obesity can be traced to high caloric intake. There are differences in the diets of the obese and nonobese but these differences lie not in specific dietary elements (e.g., fats and sugars) but, rather, in the amounts of all foods consumed. The same is true of the diets of diabetic and nondiabetic individuals. There is no evidence that consumption of refined carbohydrates or sugar is related to diabetes except as they contribute to obesity.

Differences in diet and sources of calories within the population are based primarily on age. Little sugar is consumed by those age 50 yr and older. Obesity in this group is not a result of excess calories consumed in sugar, but is due instead to the amounts of meat, *sofkee*, rice and fry bread they consume. Lack of exercise also contributes to obesity. Several old

women linked the onset of their obesity to the cessation of outdoor physical labor. Younger people also eat traditional foods and, in addition, have an affinity for carbonated beverages and "junk foods".

Factors common to all diabetics, young and old, are excessive caloric intake and obesity. Patient records and memories of Seminole health personnel indicate there have been no diabetics who were not obese at the time of diagnosis and that there are no "borderline" diabetics who are not obese. This correlation indicates that obesity is a major risk factor for diabetes.

In most cases (75% or more), onset of diabetes was not acute. The general pattern of treatment is to progress from oral hypoglycemics to insulin in ever-increasing therapeutic doses. Most of those taking insulin, however, are probably not truly insulin-dependent and weight loss would decrease their need for insulin. Diabetic diets are routinely prescribed but are not followed. A common attitude is that dieting is not necessary if one is taking medication. As a result, diabetes is not well-controlled as evidenced by the high rates of hyperglycemia.

Nutritionists have attributed the failure to follow a weight loss diet to an inability on the part of the Seminole to "take responsibility for themselves". They are not behaving in an "irresponsible" manner, however, if one considers that dietary behavior is a response to social and cultural cues. There are a number of aspects of the social and cultural environment which encourage eating and which lead to obesity and make weight loss and diabetes control difficult to achieve. The exchange of food and the offering of food as gestures of hospitality are important parts of the social fabric. Those who do not participate in this are considered to be "stingy".

The foods Indians are instructed to avoid (fried foods, *sofkee*, fry bread) are defined as uniquely Indian and are considered to be healthful foods. In diet counseling, the importance of weight loss is not always made clear. Emphasis is on changing the *kinds* of food eaten rather than decreasing the *amounts*. Patients are also encouraged to substitute vegetables for fattening foods. Vegetables, however, were not part of the traditional diet and are identified as "white man's food". They are not a food which gives one strength as do meat and *sofkee*. Significantly, there is no Indian word for "vegetables" and in translation the Indian word for vegetables is synonymous with "weeds". When health personnel tell Indian patients to eat vegetables, they are telling them to eat something which may be considered inedible and is not the kind of food that Indians believe they need to be healthy.

Discussions with Indians revealed there is no ethic of long-term self-denial of food to lose weight, even though diet restrictions are often imposed as part of the still-viable, traditional medical practices. Indian food taboos, however, last for 4 da or 4 mo, rather than the indefinite period prescribed by doctors. In addition, many vegetables and fruits are forbidden while using Indian medicine, making it impossible to follow diets.

The operation of the ethic of self-denial is also seen in parents' behavior toward children. They are reluctant to enforce limits on consumption of carbonated beverages and sweets. Old people tend to think that whatever the children want is good for them. Mothers who do try to monitor food consumption are scolded by the older Seminoles. The effect of high carbohydrate consumption is visible in rotted teeth and the increasing incidence of childhood obesity.

The increase in obesity, childhood or adult, is not a cause for concern among the Seminole. They do not share the American cultural ideal of "slimness". While they agree that some Indians are too fat, what they consider to be an ideal weight is consistently above the medically prescribed standards of weight for height. Furthermore, it is believed that thin people are sick people. Part of the cultural preference for a heavier body build may be related to a fear of slow, wasting illness that is induced by sorcery. Being somewhat heavy may be an assurance that one is not suffering from a wasting disease and is not subject to sorcery.

Discussion—Some suggestions for those who advise Seminole patients on diet can be derived from this research. Nutrition and medical advisors should be aware of some of the cultural beliefs and should try to work with them. For instance, the approach of health personnel is to encourage the addition of vegetables to the diet because they have less calories and are necessary for a balanced diet. Given the obstacles to increasing vegetable consumption, the emphasis in the older population where weight loss and better control of diabetes is the goal should be on decreased overall intake instead of substitution.

Dietary restriction could be recommended for specific time periods with re-evaluation of goals at the end of each period. With an end in sight, there might be more cooperation than if the period of diet restriction is indefinite or forever.

Finally, dietary counseling should include the whole family. Indian medical practices, especially for serious diseases, involve other family members in the treatment process. Moreover, there are usually other members of the family who are obese or have a disease that would benefit from dietary treatment. Women find it difficult to fix separate meals for themselves and their families and soon abandon a diet. This finding suggests that the one-to-one interaction of health personnel and client cannot be translated adequately into the family setting. New modes of treatment and education must focus on the family to eliminate the impediments to dietary management which arise from the social setting and cultural beliefs.

Diabetes in the Seminole is definitely related to the diet in the sense that all diabetics are, or were, obese at the time of diagnosis. Reduction in the incidence of diabetes and its associated morbidity would probably occur if the population were not so obese.

No specific dietary items can be related to diabetes except as these contribute to obesity. Rather, the increase in diabetes and obesity corresponds to

changes in the lifestyle which have led to decreased physical activity and increased food consumption. Some suggestions have been made as to how dietary counseling could be approached for greater success in this setting.

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*Academy Symposium*

# *SYMPOSIUM ON NUTRITIONAL ANTHROPOLOGY NUTRITION AND GERONTOLOGY*

## DIETARY PATTERNS AND STYLES OF SOCIAL INVOLVEMENT AMONG ELDERLY WOMEN IN DADE COUNTY, FLORIDA—

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ABSTRACT: *Based upon dietary recall and social questionnaire data from an economically and ethnically heterogeneous sample of elderly women in Dade County, Florida, I examine the relationship between dietary patterns and social involvement, using the concept of Dietary Flaw Number. Implications of the data for the relationship between life satisfaction and nutritional status are suggested.*

IN our own famed retirement Mecca of South Florida, the nutritional health of our elderly population is frequently a matter of public concern. Intermittently, sensationalist photographs appear in the press showing our downtrodden Senior Citizens, unable to scrape-by on their Social Security checks, becoming supermarket sneak thieves, or, even worse, garbage pickers. The success of the numerous congregate feeding and meals-on-wheels programs, however, is less well-known. And still less is known about the dietary habits of most elders who shop for themselves, cook and eat in their own homes.

I report some of the preliminary findings of a study of the dietary habits of elderly women in Dade County. The purposes of the study were: 1) to

characterize the diets of noninstitutionalized elderly women, 2) to explain in socio-cultural terms some of the reasons for dietary diversity within the group, in particular the impact of differential social involvement upon dietary adequacy, and 3) to identify and define, if possible, nutritionally-meaningful subgroups.

The research, sponsored by the United Way and the Florida International University Faculty Development Awards program, was conducted between January 1977 and May 1978. The sample consisted of 50 female residents of Dade County who were 62 yr of age or older. Additionally, the subjects were not living in institutionalized settings, were not dependent upon institutionalized feeding programs for the bulk of their dietary intake, and were not following medically prescribed diets. Subjects were deliberately selected to include both lower and higher income individuals from Dade County's major ethnic groups: Anglo, Jewish, Hispanic (Cuban and Puerto Rican), Black American and Black Caribbean. No Chicanos or Native Americans were interviewed. Subjects were recruited through senior centers, social and religious organizations, tenants' association meetings in public housing facilities, and, in some cases, through door-to-door canvassing and personal contacts.

The research instrument consisted of 3 oral interviews, conducted on 3 successive weeks. The first 2 interviews, which focused on dietary intake, used a protocol based on those employed in the 1971-72 National Health and Nutrition Survey (HANES). They included a 24-hr dietary recall, a food frequency, and 5 basic demographic questions each. The 2 dietary recalls were averaged to represent a typical 24-hr period for each subject and analyzed for nutrient content by the International Dietary Information Foundation. The third interview consisted of a 14 page orally administered questionnaire covering household size and composition, food shopping practices, meal preparation, social patterns surrounding eating, general social patterns, and ethnic and socio-economic background.

Analyzed as a whole, the diet of these elderly women appears to be one in which nutritional adequacy is provided through a superfluity of calories (mean caloric consumption = 2250). Averaged over the 50 subjects and expressed as percentages of the Recommended Daily Allowances (RDA) for women 51 yr of age and older, the nutritional value of the diet is as follows: calories 125.04%, protein 248.53%, vitamin A 242.87%, vitamin E 138.73%, thiamine 148.39%, riboflavin 233.51%, niacin 249.96%, vitamin $B_6$ 80.96%, vitamin $B_{12}$ 182.67%, ascorbic acid 273.74%, calcium 147.47%, phosphorous 232.50%, iron 269.32%, magnesium 111.10%, and iodine 113.95%.

But these averaged figures disguise a multitude of sins. Inspection of the data subject by subject reveals, for example, that, when deficiency is defined as intake below RDA, 84% of the subjects show some vitamin $B_6$ deficiency, 58% some magnesium deficiency, 56% some vitamin $B_{12}$ deficiency, and 44% some calcium deficiency; 40% fell below RDA in total caloric con-

sumption. In actual fact, a large percentage of the total nutritional content of the averaged diet is provided by the 22% of the women who consume 50% or larger caloric surplus above the known-to-be-generous RDA.

It has become a truism in nutritional anthropology research that elucidation of the reasons for intragroup diversity requires socio-cultural analysis of meaningful subgroups. An earlier study, in which the present researcher was a principal investigator, done on a similar but nonoverlapping sample of elderly Dade County women had compared dietary intakes along ethnic and economic lines (Easton, n.d.). In this instance it was decided to investigate a social variable which could be meaningfully applied across the ethnic and economic categories, one which might meaningfully influence the immediate context of dietary choice.

The variable of social participation or social involvement was judged to be particularly relevant. The reasoning employed was much like that used to justify the preference for congregate meals programs for the elderly, rather than meals-on-wheels or such home delivery services. That is, it is believed that people are motivated to eat better when they are in the congenial company of other people. There is much evidence to suggest that mortality during the retirement years is inversely correlated with life satisfaction. Studies have indicated that who one lives with, talks with, socializes with in the course of a day, how one spends and schedules one's leisure time, have a significant influence on feelings of well-being among the elderly (Hochschild, 1973; Rosow, 1973). I suspected that dietary patterns might comprise an intervening biological variable between the amorphous measures of life satisfaction and the hard facts of mortality. A generalized feeling of malaise accompanying isolation, alienation, or disengagement during the later years might be reflected in an "It doesn't pay to cook for myself anymore" syndrome. I hypothesized that social involvement would be positively correlated with dietary well-being, isolation negatively correlated.

It seemed unlikely that isolation would be related to any particular dietary inadequacy or excess. On the contrary, it might express itself in meal-skipping, habitual eating, or general disregard for meal planning. What I wanted was a simple additive measure of nutritional flaws in the diet that would reflect dietary disarray. For this purpose I devised a simple numerical scale, the *dietary flaw number*. A dietary flaw is defined as any greater than 25% deviation from RDAs. Thus a total caloric consumption of greater than 125% of the RDA or less than 75%, or a deficiency of greater than 25% of the RDA in any measured nutrient would constitute 1 dietary flaw. The mean number of dietary flaws for the total sample is 3.84. I assumed that isolation would be positively correlated with dietary flaws and that a relatively high measure of isolation on any variable would be associated with a flaw number greater than the mean value.

Because none of the subjects was employed away from home, I began my analysis with 3 measures of social involvement. These were: 1) whether the

subject lived alone or with others, 2) how many hours each day the subject spent socializing with people from outside the household and 3) how many hours per day each subject spent away from home.

As often happens in research, my results were exactly the reverse of what I had anticipated. The subjects who lived alone (n = 37) had a mean dietary flaw number of 3.24, lower than the mean of the total sample. The subjects who lived with other family members or friends (n = 13) had a mean dietary flaw number of 5.15, considerably larger than the mean of the total sample.

The mean number of hours each day spent socializing with persons outside of the household is 3.25 hr. Subjects who spend 3 hr or less socializing each day (n = 29) have a mean dietary flaw number of 3.39, again lower than the total sample mean. On the contrary, subjects who spend 3.5 or more hours socializing each day (n = 10) have a mean dietary flaw number of 5.

Finally, the mean number of hours spent away from home each day by the total sample is 3 hr. Subjects who are away from home less than 3 hr (n = 19) exhibit a mean dietary flaw number of 3.75, again lower than the total sample mean. By contrast, subjects who are away from home 3 or more hours per day (n = 19) exhibit a mean dietary flaw number of 5.27, considerably greater than the total sample mean.

It is, of course, premature to subject these measures to hard statistical treatment. Nonetheless, the results, while inconclusive, are totally consistent. Living alone is less of a dietary hazard for our well and thriving elderly than being a gad-about-town, just as, perhaps, it is for the rest of us. Perhaps those subjects who are caught in a greater social whirl simply have less time and money to devote to "less interesting" things like balancing one's diet. Certainly, anyone who has ever awakened with a heavy head after a night of happy partying knows, the demands of conviviality and the demands of good health are not always entirely consistent.

As Jerome (1975) has discovered, in our supermarket society, we respond to the overchoice of dietary diversity by developing highly idiosyncratic eating habits. The role of social networks and peer pressures in patterning these personalized choices has yet to be studied in any systematic way. The results of this still very preliminary analysis, however, point up once again the folly of classifying nutritional subgroups in an *a priori* fashion and the concept of *dietary flaw number*, extended, perhaps, into a more widely applicable *dietary flaw index*, appears to have considerable utility for the analysis of contemporary urban dietary patterns.

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## CHANGES IN DIETARY PATTERNS AMONG THE RURAL NORTHERN WELSH: AN HISTORICAL AND ANTHROPOLOGICAL OVERVIEW

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ABSTRACT: *An historical and holistic approach to delineating and analyzing changes in the Northern Welsh diet is presented. The Welsh diet is seen to have undergone some major transitions over the centuries, principally due to emerging socio-economic ties with external markets, and an indigenous development of transportation, political, and commercial structures. These factors have mediated the harsh environmental influences of the region upon the Welsh subsistence base and social system. Contemporarily, the Welsh diet is more diversified, stable, and nutritionally-balanced as a result of these historical developments.*

NORTHERN WALES is a region of diverse topography and ecosystems. The harsh climate and mountainous lands of the central zone have limited human activities to extractive resource industries (coal, slate, mineral ores, forestry) and a mixed pastoral-agricultural subsistence base. Upland conditions regulating human population distribution, herding densities, and productivity levels are typically more severe than those in the lowland areas. The latter were subjected to a greater number of foreign invasions and influences. Thus, upland regions in Wales by contrast tend to have remained more traditionally Welsh in social structure, lifestyles, and cultural patterns. The unpredictability of the weather, the rugged terrain, and pastoralism have oriented the Northern Welsh to adaptively develop strong community ties, identities based on kinship and reciprocity networks, and a "present-oriented" world-view.

Food and its production have always been key elements in the Northern Welsh social structure. The diet of this culture group, however, has experienced certain significant changes through time as a result of both internal (i.e., indigenously Welsh) and external (principally English) social and economic factors. These changes have been mediated by the strong environmental and existing social conditions present. Analysis of subsistence and dietary changes, therefore, requires a systemic and historical approach

cognizant of the dynamic interrelationships among these cultural and environmental variables. This paper addresses itself to such an analysis and its implications for the social or nutritional scientist.

The Welsh diet from pre-Roman times to the year A.D. 1536, when Wales politically united with England, was based on grains (rye, wheat, and in higher elevations, oats and barley), butter, cheeses, wild fowl and fish, mead (a fermented beverage), few vegetables, honey, and pigs. Beef cattle, and to a lesser extent sheep, were raised but it appears the former were principally sold at English markets. Sheep supplied wool for clothing and were sources of mutton for the indigenous populace (Finberg, 1972).

Lawbooks from medieval Wales indicate that food was an item of tribute between Welsh lords and their subjects (Finberg, 1972). Kin and community reciprocal aid in the production of foodstuffs, but especially grains, has long been a major social mechanism promoting local Welsh solidarity and community identity. Extended kinship groups and neighbors could pool resources and labor more effectively to produce food and meet other needs. The use of foodstuffs in the form of payments, tributes, and in reciprocity is reflective of the social significance attached to food in the Welsh culture of these early centuries.

Nutritionally, the starchy grains were important carbohydrate sources in a cold environment and rugged area stressful to human existence. Meats and the few green vegetables eaten (including peas and cabbage) provided for most protein, vitamin, and mineral needs except that of Vitamin C, which was unavailable in the form of fruits. The lack of fresh fruits was a condition common to the British Isles in general at this time. It is likely that poorer, transient Welsh lacked adequate sources of meat protein and iron, though this condition became more pronounced in the following centuries. Nutritional deficiencies would have also been offset somewhat by the high degree of sharing and hospitality which characterized a majority of the Welsh society then, as well as now.

The stability of the Welsh diet, however, was tenuous at times in this period. Severe weather could destroy or rot grain crops and reduce herd sizes with significant consequences. External trade through central marketing towns had not extensively emerged as yet, and internal communication and transportation networks were also generally poorly-developed. Two factors mediated ecological and other disruptive forces in this food system: the reciprocity networks redistributing food and labor as needed, and the reduced energy demands in winter due to reduced activity requirements in the farming pattern. Climatic fluctuations continued to plague Welsh subsistence activities, although a number of social and technological innovations eventually developed to further mediate the effects of the environment.

From 1536 until roughly the time of World War I, a series of important and far-reaching social changes emerged in Wales as a result of the unification with England. The most pervasive and significant patterns and shifts included: 1) The replacement of the traditional Welsh land tenure system of

gavelkind (which divided land equally among siblings, the youngest male generally inheriting the parental farmstead), with one based on primogeniture (wherein the first born male received the full or greatest part of an inheritance); farm sizes also increased; 2) Allowance of Welshmen to hold public office, generating a gentry class and individually-owned estates; 3) greater emerging dependencies upon foreign markets and increased use of foreign technology in production; 4) Greater foreign or Welsh gentry control over lands, capital, and other resources, with a subsequent rise in Welsh pauperism and a "displaced" populace; and 5) The formation of a more mobile sector of the population, acting as cattle drovers or merchants, not tied to a stable land base. (adapted from Finberg, 1967; Hechter, 1973)

In many areas of Wales, initial effects of such changes were typically detrimental for certain social sectors. Specifically, these effects were increasing human numbers in the face of altered land use and ownership patterns, and increasing external demands on Welsh produce and livestock. Furthermore, poorly-developed and poorly-controlled market systems within Wales tended to reduce the diversity and stability of the diet even more. The increase in pauperism made a notable class of the people dependent upon the grain, vegetable, and especially dairy products wealthier families could offer them. Meats were scarcely eaten among these poor (Evans, 1948; Williams, 1965).

It was not until foreign marketing forces became significant in the 18th and 19th centuries that Welsh market towns experienced most of their economic and structural development. This was characterized by greater nucleation, occupational diversification and concentration, and expanded commercial and transportation network links. These processes occurred slowly, however, especially in contrast to the case in England. Industrialization and its social consequences began emerging around 1835 in Wales. It was generally restricted to the coalfields, coastal areas, and those towns which had been transport and commercial "nodes" historically (Carter, 1965). This left a large part of rural Wales, and particularly in the north, untouched directly by these developments until much later. Evolving interdependency ties with external markets, however, had significant effects in the rural sectors which provided food for foreign export.

These external marketing and social forces tended to fluctuate radically because of various European conflicts and political realignments typifying the period. For instance, the severe drop in prices of Welsh agricultural products following the Napoleonic Wars, in conjunction with a series of harsh winters, led to widely-felt nutritional and economic instability and insecurity. Many productive lands were returned to waste as a result of overcropping during the war years and the ensuing depletion of the soil nutrients. When the War's end lowered prices farmers received for produce, it consequently diminished the return capital invested in soil and crop improvements. Eventually, sporadic riots over the scarcity of food and other essentials, and over the high cost of living in general, broke out (Howell,

1977; Williams, 1965). The depressed social conditions of the early 1800s indicate the degree to which the ecological and physical variables of this region interacted with the socio-political forces, thereby altering the indigenous Welsh social system and dietary patterns.

Crop losses due to inclement weather continued to hurt the small-scale farmer whose grain sales had now become major sources of income, especially if grain prices on the larger market were already depressed that year. Similar conditions held for pastoralists. They had some additional security, however, in the fact that sheep wool was usually in demand for clothing.

Today, continued development and stabilization of foreign market interdependency links (most recently with the Common Market), and emerging price controls and subsidy supports, have led to stricter food product specialization among the Northern Welsh. As a consequence, farms are typically no longer self-sufficient. Even local Welsh grocers and butchers may depend significantly upon the importation of non-Welsh produced foods. Yet, this has effectively stabilized and diversified the food items available to the Welsh, particularly by introducing more green vegetables and fresh fruits to the diet. A more nutritionally-balanced selection of foodstuffs is the single most important dietary benefit of modern Welsh market networks. Many government social welfare aids allow various social sectors, such as the poor and elderly, to take fuller advantage of these foodstuffs. Recent observations in Wales by the author indicate that the Welsh are indeed doing so. Furthermore, many Welsh have a proclivity for eating fresh foods, thereby retaining more of the nutritional value in what they eat.

Various social changes have paralleled these contemporary subsistence and commercial marketing developments. Welsh reciprocity networks are in decline or are being realigned in reaction to mechanization on the farms and in the factories, the money economy, urbanization, and related industrial processes. Money is now a primary exchange item for a number of social transactions rather than food or the obligation of labor. The social and physical mobility of the Welsh has increased dramatically.

One cannot separate dietary and subsistence factors from the larger socio-cultural context in which they are embedded. The Welsh case exemplifies the degree to which these factors are complexly interrelated. It also indicates that dietary changes should alert the social scientist to make note of social changes occurring elsewhere in the society.

In conclusion, an historical and holistic approach has delineated certain diverse and interconnected factors intimately related to changes in the Northern Welsh diet. Socio-political and economic forces were seen to be the principal causative agents behind many of these changes and the forms and directions they took. The development of greater marketing interdependencies and improved transportation systems have introduced a more diversified and stable food supply. Contemporary government programs allow disadvantaged Welsh access to these foodstuffs. The harsh physical constraints of

the environment of Northern Wales have been successfully counter-balanced by these measures.

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## SLAVE DIET AND EVIDENCE OF SUPPLEMENTS TO THE STANDARD ALLOTMENT—

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ABSTRACT: *Previous historical research suggests that slaves supplemented their weekly food allotments with domestic and wild foodstuffs. Our research project, which utilized ecological, archeological and zooarcheological data, provides concrete evidence that slaves extensively exploited the wild food resources of the coastal ecozone of South Carolina, Georgia and northern Florida.*

I DISCUSS food supplements available to, and exploited by, slaves on the rice cultivating plantations of the coastal plain and sea islands of South Carolina, Georgia and northern Florida. Recent evidence from plantation archeology indicates that between 1800-1860 slaves utilized wild food resources from the coastal ecozone to supplement their allotment of meat and cornmeal. A research design incorporating data from historical, archeological, anthropological, zooarcheological, ergonomic and ecological sources, yielded evidence indicating that slaves took an active role in supplementing their alloted diet. This evidence contradicts the previously held idea that the slave diet was controlled solely by the planters (Gibbs et al, n.d.).

Historians have established that hogmeat and cornmeal were the principal food items provided on a weekly basis to slaves (Fogel and Engerman, 1974; Genovese, 1976; Olmsted, 1856). Variety was added seasonally with distributions of vegetables, molasses and some beef (Genovese, 1976; Olmsted, 1856). The amount of allotted food often did not last 7 da. Either more food had to be given to the slaves or they had to supplement their diet

by raising animals and vegetables, hunting small game, fishing, or by stealing (Genovese, 1976; McFarlane, 1975; Otto, 1975; Stampp, 1963). In general, historians have failed to present data on the total supplemental domestic food and wild resources available to the slaves.

The amount of time that slaves had to devote to supplementing their diet was directly related to the task system under which they were organized for work. The nature of the task system allowed slaves who finished their assigned field work early in the day to devote part of the rest of the day to food gathering and other chores. It is probable that extra hours were few and that only the strongest and most efficient slaves could avail themselves of the opportunity to hunt or fish (Genovese, pers. comm.; Olmsted, 1856).

Recently, Genovese (1976) alerted historians to the increasing amount of relevant data issuing from archeological investigations of plantation sites and suggested that these data would shed light on complex nutritional issues. In general, the faunal and artifactual data from plantation sites strongly suggests that slaves living in the coastal ecozone utilized much of the available wild food resources through hunting, fishing, gathering and trapping activities.

Environmental data indicate that the coastal ecozone, with its many habitats, is rich in wild food resources (Shelford, 1974). The unusual richness of this area, however, is unique and extrapolation of dietary characteristics to slaves in other ecozones is unwarranted.

Seasonal availability of food resources is an important consideration to hunters and gatherers (Wilmsen, 1978). Nearly all of the species discussed below may be found year-round in a variety of habitats in the coastal zone. Some may have been more active during the breeding season (e.g., deer) or plumper during the fall and, therefore, more desirable in particular seasons. Most of the turtles are available throughout the year in the study area. Chicken turtles (*Deirochelys reticularia*) and pond turtles (*Chrysemys*) could have been captured in traps hung beneath the basking logs in any season. Turtles that remain in burrows on extremely hot or cold days, such as the gopher tortoise (*Gopherus polyphemus*), could be "hooked" out of their dens. Various species of turtles were part of the slave diet (Otto, 1975).

Mammals available all year included rabbit (*Sylvilagus*), opposum (*Didelphis virginiana*), squirrel (*Sciurus*), raccoon (*Procyon lotor*), feral pig (*Sus scrofa*), deer (*Odocoileus virginianus*), skunk (*Mephitis mephitis*), mink (*Mustela vison*) and otter (*Lutra canadensis*). With the exception of deer, most of these animals could have been trapped either during the day or at night. The setting of traps would require little time (Otto, 1975).

Feeding time for birds would be the best time to capture them. Some birds (e.g., ibis) might have been trapped or netted in their large rookeries. Seasonal migrations of birds would have led to increased numbers in the winter time in the coastal area.

In the coastal area, catfish (Ariidae), perch (Scianidae), trout (*Cynoscion spp.*), weakfish (*Cynoscion regalis*), whiting (*Menticirrhus*), croaker

(*Micropogon undulatus*) and drum (*Pogonias cromis*) form large schools near the water surface during nighttime feeding. The best time to catch any species of fish is when the tide turns. All of the above varieties of fish could be caught in tidal creeks with nets placed over the mouths of the creeks (Elizabeth Reitz, pers. comm.). Bank-fishing was probably very common, although 2 plantation sites had boats which may have been used by slave specialists (McFarlane, 1975; Otto, 1975).

Archeological and zooarcheological data from Ascher and Fairbanks (1971), Fairbanks (1972), McFarlane (1975) and Otto (1975) have shown that many wild game animals were consumed by the slaves and that these slaves had the tools to exploit these wild resources. At a slave cabin site on Cumberland Island, Georgia, occupied from 1834 until 1865, bone remains recovered included fragments of pig, chicken and catfish. Oyster (*Crassostrea virginica*) and clam (*Rangia cuneata*) shells and fish scales were also found. In one cabin, therefore, the occupants were able to add protein to their diet "apparently through their own efforts" (Ascher and Fairbanks, 1971).

At the Kinsley slave cabin site in Duval County, Florida, occupied from 1820 until 1850, Fairbanks (1972) unearthed lead shot within the cabin. This indicated that slaves were hunting, even though only slave specialists were supposed to have access to firearms in order to hunt for the planter's table. Although bones of small animals were found (e.g., raccoon), the absence of forest game animals suggests that tidal streams and the marshes surrounding the plantation were the major hunting areas. Tidal salt marshes are perhaps the richest habitat among the coastal environments, producing the greatest quantities of calories per acre in birds, reptiles, fish and shellfish (see also Shelford, 1974).

Slave sites on the Couper Plantation, St. Simons Island, Georgia, were examined extensively by McFarlane (1975). From the 25 species of game and fish remains that were recovered, she concluded that the Couper slaves exploited wild food resources: mammals, fish, shellfish, wild fruit, berries and nuts. Drum fish remains were common and she posited that a good catch made by slave specialists meant that fish were distributed to the other slaves. While the smaller bones may have been eaten, adding needed calcium to the diet, fish heads made up a large portion of the remains. A major find in the slave quarters was fish hooks made from nails suggesting that slaves were fishing on their own and that more fish were obtained in this manner than through allotments.

Otto (1975) examined a planter, overseer and slave site at Canons Point Plantation on St. Simons Island, Georgia, which was occupied between 1794 and 1861. He concurred with McFarlane's idea that fish were more important in the slave diet than in the diets of the planter and overseer. The fish provided a steady source of protein. Sea Island planters often appointed 3 or 4 slaves to fish for drum and these specialists often visited the sounds,

beaches, tidal and landward marshes and creeks. They rarely visited outlying regions (e.g., forest areas).

Otto's (1975; 1978) research suggests that differential access to plantation produce explains the difference in relative amounts of faunal material, both wild and domestic, and explains differences in the distribution of edible animal parts between planter, overseer, and slave. Furthermore, the planter had greater access to the facilities and utensils necessary for food storage and the labor needed for food production and preparation. The planter could provide for his family in lean times. The overseer had 1 or 2 servants to cook and produce his food, while the slaves had very few storage vessels and cooked for themselves in single pots over open fireplaces (see also Fairbanks, 1972).

Historians such as Fogel and Engerman (1974), Sutch (1976) and Genovese (1976) failed to present data on the food resources available to slaves. Furthermore, they generalized slave diet to the whole of the South when an ecozonal approach is more appropriate. The controversy over slave nutritional adequacy, presented as an argument over the caloric content of allotted foodstuffs, is minor when one considers the rich coastal region. Archeological evidence has revealed that many wild game animals were consumed by slaves. Moreover, this evidence is for foods consumed in the slave cabin and preserved in the archeological context. Food stolen and consumed elsewhere or wild resources caught or gathered and consumed at the capture site are not represented.

Clearly, a variety of wild resources was available on a seasonal basis. The coastal zone allowed the exploitation of woodlands, marshes, streams, rivers and most importantly, the tidal pools and the ocean. The many opportunities existing for slaves to exploit these resources cannot go unnoticed. Texts which assume the monotony of slave diet underestimate slave ingenuity to exploit available wild resources and enhance their nutritional status.

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## ASPECTS AND IMPLICATIONS OF SUPPLEMENTAL FORAGING AMONG PROVISIONAL MONKEYS—*Elizabeth Sarris*, Department of Anthropology, University of Florida, Gainesville, Florida 32611

ABSTRACT: *Despite seemingly adequate provisioning, free-ranging rhesus monkeys* (Macaca mulatta) *at Silver Springs, Florida continually supplement their diet with foraged food including 48 species of plants, soil and occasionally insects. All age, sex and status classes forage although not all foraging behavior yields an obvious nutritional benefit. The nutritional significance of this behavior deserves further investigation. The implications of foraging by provisioned monkeys may extend beyond nutritive need and provide a basis for understanding the origin of grooming.*

THE rhesus monkeys (*Macaca Mulatta*, Zimmerman) of Silver Springs, Florida provide an interesting example of human-assisted colonization of a habitat to which these animals would not otherwise have access. They are reported to be the descendants of 2 pairs of monkeys left behind by a motion picture crew filming a Tarzan movie in 1937. Because no records were kept, the actual numbers, the ages and the gender of the animals released into the wild at that time remain unknown. Also, largely anecdotal is our knowledge of the degree to which monkey presence along the Silver River was subsidized by provisioning during the early years (see Maples et al., 1976 for the first scientific report on this colony).

In recent years, the monkeys have been generously provisioned by the management of Silver Springs (a subsidiary of ABC Scenic and Wildlife Attractions) as twice daily distributions of fruit and commercial monkey chow are delivered to selected sites on each side of the Silver River. This attracts the monkeys to a limited section of the river where boatloads of appreciative tourists are brought to observe them; continuous feeding throughout the day by boat drivers usually keeps some monkeys near the water's edge.

A January 1979 census showed the population on both sides of the river to be in excess of 150 animals, seemingly distributed in 5 social groups. Starting in January 1975, the activities of 1 of the rhesus groups have been monitored by affiliates of the Florida State Museum. I have been in contact with this group in excess of 500 hr since August 1977. At that time the study group consisted of 21 animals but by October 1978 that number had increased to 29 as a result of 4 births, 5 immigrations and the disappearance of 1 monkey (probably an emigrant).

Foraging behavior was frequent throughout the period of contact with this group and the identity of wild foods consumed was determined as part of a more general attempt to understand how these animals have accommodated to this new habitat. Such information may help us to understand how these monkeys survived during periods of little or no provisioning and it may also clarify how animals who have wandered from the provisioned area (and who rely more exclusively on foraged foods) are affecting local ecosystems.

Studies of the autecology of forest-dwelling rhesus in India (Neville, 1968; Lindberg, 1971 and 1977) have indicated that these animals are predominantly vegetarians; observations of Silver Springs rhesus foraging habits substantiate this conclusion. Of 504 feeding bouts observed by the author between August 1977 and December 1978, 94% involved plants, 5% involved the consumption of soil, and less than 1% involved insects.

The Silver Springs rhesus monkeys show a substantial amount of dietary flexibility in their foraging behavior. The floral component of their diet includes the utilization of 48 species of plants and the full-range of plant parts including mature and new leaves, petioles, stems, twigs, bark, fruit, buds, flowers, roots, and the seedheads and blades of grasses. A complete list of food plants and parts utilized is available from the author. The most commonly-utilized plants include the tips of *Sabal palmetto* (cabbage palm) fronds, the leaves of *Smilax* and *Rhus radicans* (poison ivy), the fruits of *Sambucus simpsonii* (elderberry) and *Quercus* sp. in season, and the leaves of *Carya glabra* (pignut hickory), *Cornus foemina* (dogwood), *Fraxinus pauciflora* (swamp ash and *Quercus laurifolia* (laurel oak).

Insectivory in monkeys can be extremely difficult to ascertain by direct observation. Swatting at flying insects was common during the warmer months, but only on 3 occasions was swatting followed by a movement of hand-to-mouth movement, indicating a successful catch. The monkeys sometimes would bite on or pick away the bark from rotted wood (which had been invaded by wood-boring beetles of the family Lyctidae), but it was not possible to ascertain with any assurance that something had been consumed. Examination of fecal samples is currently in a preliminary stage of analysis, yet they seem to indicate that insects may occasionally comprise a more substantial portion of the diet than the 1% which direct observation during daylight hours would suggest. Additionally, it has been noted that many of the mature leaves consumed by the monkeys show evidence of insect damage so that incidental consumption of microscopic insects could be making a nutritional contribution to the diet.

Soil-eating was observed on 28 occasions. It could be inferred from flecks of soil on the lips or whiskers of animals on 12 additional occasions. All age and sex classes ate soil with the exception of infants. Soil-eating has been widely-reported in the primate literature and explanations for this behavior range from the supply of some nutrient which is otherwise unavailable (Struhsaker, 1975) to providing some factor which is itself not absorbable

but which enhances the absorption of other nutrients from the gut (Audrey, 1978). Soil-eating by rhesus monkeys in south Asia has been frequently reported (Blanford, 1888-91; Roonwal, 1956; Mandal, 1964; Mukherjee and Gupta, 1965; Lindburg, 1971; Puget, 1971; Krushnan, 1972).

Rhesus monkeys inhabiting the mangrove swamps of Bengal eat crabs (Mandal, 1964: Mukherjee and Gupta, 1965), but no examples of vertebrate consumption exist in the literature. A Silver Springs monkey was once observed to eat the head and the tail of a small lizard (*Anolis carolenensis*), but other nearby animals ignored the remaining carcass even when it was purposefully offered to them. It is probably safe to conclude that carnivory plays no role in the foraging habits of most monkeys.

As important as the question of what Silver Springs rhesus monkeys eat when they forage is the problem of determining why they forage at all in view of the fact that generous amounts of provisioned food (which involve none of the problems of detoxifying secondary compounds) are available to at least some of the monkeys. Because quantitative studies of food intake and activity budgets have not been done on these animals, we cannot rule out the possibility that some of the foraging may be motivated by a caloric deficit of provisioned food. However, it is reasonable to conclude that at least some of it is not as evidenced by the fact that foraging was observed when there was a surfeit of commercial monkey chow available nearby and foraging seems to be as common for dominant animals (who presumably are the least likely to be food-stressed) as it is for subordinate animals. In addition, there have been days (and sometimes weeks) when the group failed to show up at the provisioning site or left the area early in the afternoon before the soon-to-be-available (though not yet immediately present) packet of provisioned food was delivered. Such "irrational" behavior may be difficult to reconcile with our conception of the rhesus monkey as an adaptable animal, able to maximize energy yield under difficult circumstances.

Auffenberg (pers. comm.) has suggested that foraging which supplements provisioning may have the adaptive effect of enabling these animals to retain the gut microflora for detoxifying secondary compounds which provide the basis of their ability to survive in the wild. The ultimate effect, therefore, of supplementary foraging is to support the independence of this group from human ministration although the proximate cause is still unclear.

It is not yet reasonable to reject the possibility that Silver Springs rhesus monkeys use supplemental foraging to satisfy some specific hunger for a nutrient or digestive aid which their provisioned diet lacks. Because rhesus monkeys are a popular laboratory primate and commercial chow is widely assumed to meet the complete nutritional needs of this monkey, this is a possibility which deserves further investigation. One could also hypothesize that rhesus physiology may be adapted to continuous feeding over a greater portion of the day. Provisioning limited to twice per day may overtax digestive-absorptive mechanisms during some periods, while providing in-

sufficient caloric input at other times. Feeding by tourboat drivers throughout the day may partially offset this but such feeding is highly unpredictable for any individual animal.

There is another aspect of foraging by Silver Springs rhesus monkeys which requires explanation. All age, sex and status classes evidence a good deal of foraging behavior which does not yield any obvious nutritional benefit. Leaves on the ground are often picked-up, sniffed or mouthed, and then dropped. An acorn may be opened, chewed on, and then part or most of the contents extruded from the mouth without swallowing. A root may be meticulously extracted from the ground, carefully brushed off, and then after a single bite (or attempted bite) it is left behind as the animal wanders off to groom, play or forage.

Testing and rejecting some plant foods may be explainable as rational herbivore strategy to avoid the consequences of overstressing physiological detoxification systems by consuming too much of any single food (á la Freeland and Janzen, 1974). However, rejection of some foods should be followed by feeding on others and this is often not the case. Furthermore, repetitive foraging for a single plant food (e.g., acorns), which is not consumed in any great quantity, is sometimes observed. An alternate explanation for the casual nature of much of the foraging behavior of Silver Springs rhesus monkeys will be proposed.

At times, Silver Springs rhesus monkeys may not be hungry enough to eat less preferred foraged foods or to eat them in any substantial quantity. Yet, these animals continue to forage in the absence of any immediate physiological benefit almost as if they are engaging in a "vacuum activity" in the classical ethological sense of this term (Hinde, 1966). That is, the component behaviors of foraging and the motivation to use them are an integral part of rhesus nervous system and may be evidenced even in the absence of an appropriate releasing stimulus. "Senseless" ranging behavior may also be explainable in these terms.

To extend the explanatory power of this argument, it might be useful to point out that many of the component behaviors of rhesus when foraging on the ground are the same behaviors they use while grooming. That is, while foraging or grooming, monkeys will part the leaves or fur using both hands either alternately or simultaneously; the forager/groomer is extremely attentive and carefully inspects the ground/fur as if attending to a matter of great importance; a one-handed precision grip is used to retrieve "edible" objects and place them in the mouth; if an object is difficult to grasp, the mouth may be brought to the ground/body to retrieve it with the lips or teeth, while the hands are used to provide counter-leverage to the backward movement of the head. Silver Springs rhesus monkeys will eat fur while grooming, a behavior which probably has no nutritional significance. Yet it lends further support to the view that a close evolutionary relationship may exist between foraging and grooming behaviors. Grooming may have had its origin in some situation of fluctuating plenitude when the behaviors and the motiva-

tional energy periodically underutilized in feeding were redirected to become a form of social interaction.

Provisioned monkeys have been extensively utilized in studies of social behavior, yet their potential for elucidating concerns about the adaptive nature of feeding and ranging behavior has not been fully appreciated. The unrestricted colony of rhesus monkeys at Silver Springs provides a unique natural laboratory for investigations of these phenomena and represents a valuable scientific resource for Florida.

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DISCUSSANT'S REMARKS—*Randy Frances Kandel,* Florida International University, Tamiami Trail, Miami, Florida 33450

FROM the foraging habits of free-ranging monkeys to the supermarket habits of urban elderly ladies, the papers in this symposium have touched upon the diversity of food-getting ways. For the most part, their perspective has been ecological: Food is the medium through which an environment and its inhabitants become mutually adapted, subsistence patterns (be they food-gathering, food-growing, or food-buying) are the tools through which the dynamic life-sustaining equilibrium is forged. The papers also have highlighted the twin and often conflicting powers of biotechnical potential (as in Lieberman's paper on the management of diabetes) and ideological orientation in determining nutritional status. The paper by Cargill, Gibbs, and Lieberman on the food supplementation strategies of plantation slaves illustrates the ingenuity with which humans have been able to sustain themselves creatively under the seemingly harshest of conditions. By contrast, the papers by Susan Poats on childhood malnutrition in Brazil, Jayne Lyons on weaning practices in Guatemala, and Sandra Joos on diabetes among the Florida Seminole indicate how all-too-easily it is possible for whole communities to suffer with epidemic rates of nutrition-related diseases when they fall the hapless pawns of changes in power structure, fashion, or developmental trends. When "citified" ideas of child-raising are unsuitable for rural budgets, or traditional ideas on the strength and sustenance provided by cultural "superfoods" become maladaptive for modern sedentary lifestyles, the dissonance is felt organically in the deterioration of general health and well-being.

As Dwight Schmidt's paper on changes in dietary patterns among the rural northern Welsh so clearly shows, the influence of ever-changing macro-level forces in the social, political, and economic spheres is felt on nutritional systems throughout the world. Unlike the Welsh example, however, the distant changes do not always reverberate to the advantages of the home community.

In the half century since Margaret Mead and the Committee on Food Habits advanced their utopian plan for feeding the world, human society has rapidly edged itself to the brink of global disaster. The global food distribution system which brings New Zealand lamb legs to Miami supermarkets and Danish butter to the outdoor market in Nigeria has fostered a world in which undernutrition is implicated in the deaths of two thirds of the poor and overnutrition is implicated in the deaths of two thirds of the rich. Equalizing the inequities in food distribution on a grand scale is a political and diplomatic task. But balancing daily dietary intake is a task much closer to home—a job for each local community and a mandate for each personal conscience.

Food is a multi-purpose thing. On one level it is our clearest link to our biological environment, the most direct and deliberate instrument through

which we maintain or alter our health status. But it is also the sacred symbol through which we worship our gods through food offerings, food fasts, and avoidances. It is the sign of hospitality through which we celebrate our togetherness with family and friends. And the mark of our identity, through which we denote our ethnic belonging with traditional foods and announce our individuality with personal predilections. These needs and uses of food are often not in harmony with one another nor with the needs of other human beings.

An individual, a community, a society can be nutritionally adapted only when ideology and ecology are congruent and mutually supportive. The environment, ever changing, thrusts upon us new challenges, like periodic tidal waves, which demand not merely response but reorientation. The grand changes in social evolution from hunting-and-gathering to agriculture, from agriculture to industrialization, are being repeated even now as Brazilian national culture marches into the Amazon and Miami suburbia marches into the Everglades. The environment defies us to be wisely creative in our continual restructuring not just of food production and distribution systems, but of beliefs, attitudes, and approaches to food and nutrition.

It behooves us to remember that the gift of the human animal was adaptability not adaptation. Our brains and our passions are our survival kit into the twenty-first century. Sound research and sensible applications into pressing local and global nutritional problems are needed lest our world and mind-controlling skills become our suicide kit instead, and we, like the dinosaur, follow our food supply into extinction, to become the future fossil fuel of a wiser and more wary breed of being.

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# *SYMPOSIUM ON ANTHROPOLOGY IN FLORIDA COMMUNITY COLLEGES TODAY*

DIGGING-UP ANTHROPOLOGY—*Raymond E. Pinder, Jr.*, Indian River Community College, Fort Pierce, Florida 33450

ABSTRACT: *Through the means of a questionnaire, I attempt to assess the current status of anthropology programs in Florida Community Colleges. Particular attention is directed to enrollment, number of courses offered, frequency of course offerings, if an anthropologist is teaching the course, and the problems experienced in "selling" the programs. Suggestions are offered for raising the status of anthropology at the community college level in Florida.*

I ATTEMPT to assess the current status of anthropology in the Community College System of Florida. The data presented were collected from a questionnaire sent to each independent community college in Florida during January 1979. A total of 40 questionnaires was sent and 33 were returned. The data obtained are sufficient to allow some conclusions to be drawn about the status of our discipline.

Of the 33 questionnaires returned, 9 reported no anthropology course offerings. This represents 23%, and if we could then say 77% had anthropology programs it would be encouraging, but what of the nonresponses? If we assume these to be negative, that would raise the number to 16 which represents 40% of the total and this is not encouraging.

There is some hope, however. Only 5 of the 9 campuses not offering courses were completely negative, indicating they felt no need for any anthropology courses. Of the remaining 4 respondents, 3 had offered courses in the past but discontinued them due to declining interest. One of these hoped to try again in the future. The final respondent indicated that they anticipated offering 1 course, for the first time, during the spring quarter. Things are not as bad as they could be, but there is obviously much room for improvement. We need to do a much better job "selling" our discipline at the 40% of the campuses that do not offer anthropology courses.

Now for the "good news". Twenty-four of the 33 respondents report having an anthropology program. The programs range from the extremes of 1 course offered a year to a program that rivals some 4-yr-college programs. What are the characteristics of these programs?

It appears that 7 of these programs are fully-operational and can support at least 1 anthropologist full-time (5 classes per term). One program supports 2 full-time anthropologists. This is encouraging and makes one wonder why the other programs cannot approach this success.

The content of the programs is about what one would expect. The most common course is Cultural Anthropology (__410 in common course numbering system), with 17 campuses offering this course. Twelve offer Physical (__511) and 9 offer Introduction (__000). Surprisingly, only 2 campuses offer Archeology (__100). Also, given the "applied" emphasis of contemporary an-

thropology, only 1 campus offers an applied course. There is a wide-range of additional course offerings at some campuses, apparently reflecting the interests of the instructors. The most common of these is North American Indians. The traditional terrain seems to be covered, but little else.

Any anthropology program is only as good as the instructor, and one would think that an anthropology program would be better if there were in fact an anthropologist teaching it. This is the case in only 12 of the programs; 50% of the campuses have instructors who are not anthropologists teaching anthropology. These are not all small programs, either. Four of them have at least 3 sections per term and 1 appears to be a full-time position (taught by a psychologist). This situation is distressing and raises the following question. Is it better to offer anthropology courses regardless of who teaches them or would it be better to offer none if there are no anthropologists available? My initial response is that anthropology courses should be taught only by anthropologists. By insisting on this, though, we may effectively kill the small programs and we certainly do not need less exposure. There may be a solution to this dilemma, however.

As might be expected most non-anthropologists teaching anthropology were sociologists and the most common non-anthropology course taught by anthropologists was sociology, with "Introduction to Social Science" the next most common course. Which of these situations would seem more rational from an academic perspective?

Who are the true generalists? There is no doubt that the anthropologist is the generalist. To paraphrase one of my graduate professors—"all the social sciences are sub-fields of anthropology." If any academic individual is qualified to teach multiple disciplines (assuming anyone is) it is the anthropologist. Unfortunately, we have not done a good job demonstrating this to community college administrators.

Most people not familiar with anthropology tend to view it as a rather arcane and specialized field. If we can overcome this misconception we may be able to solve the dilemma referred to above. The best way to ensure that anthropology courses are taught by anthropologists is to promote our image as generalists and therefore the best qualified for positions that require teaching multiple disciplines. To further this end, graduate schools of anthropology should encourage prospective community college teachers to take graduate courses in other areas of social science; especially sociology, psychology, and human geography; or biological science. Until it becomes generally accepted that it is anthropologists who, if necessary, ought to be teaching sociology or psychology, rather than vice-versa, we will be at a disadvantage.

Something positive and different needs to be done if we want to improve the status of our discipline in the community colleges of Florida. We are definitely not a growth industry. Only 7 of the 24 programs reported any growth. Ten indicated they were staying about the same level and 7 reported a decline. None of the 24 indicated that they would need an additional an-

thropologist in the near future. One campus reported laying-off an anthropologist recently. Frelich (1970) once described the anthropologist as a "marginal man". This would seem an apt, if distressing, epithet for the status of our discipline in Florida Community Colleges.

Hopefully, in the papers that follow, there will be some clues as to how we can improve the status of our discipline. I am especially looking forward to the paper from our colleagues at Broward Central. They have, unquestionably, the most interesting and extensive program in the State.

Two of the papers that follow deal with nontraditional areas of anthropology—death education and human services. These represent attempts to make traditional anthropology more "relevant" to the needs and interests of the students. Some view courses of this sort with a certain amount of skepticism. This attitude may be self-defeating.

If we cannot "hook" students on the innate value of phonemes and kinship diagrams, of potsherds and australopithecine jaws, of mother's brother and reciprocity, may be we can interest them in these things indirectly, by teaching courses with anthropological content that focus on areas of student and community interests. We could teach the essence of anthropology, the insights, even if we could not deal with the specifics. This may be the key to developing the potential of our discipline without turning it into a medicine show.

It would seem naive to expect that an overloaded nursing student will elect to take cultural anthropology, unless required. It does not seem unrealistic to think she would take a course in medical anthropology, however, especially if it were well-organized and well-taught. As long as we do not pander and as long as the course retains academic content, why not? This may be a way of raising interest in the total anthropology program.

We are probably fooling ourselves if we think just because we are academically-oriented that our students necessarily are. If students are vocationally-oriented then let us accept the challenge and demonstrate to them that our insights do relate to their vocational interest. A course such as "The Anthropology of Work" might be of value. With more and more community colleges emphasizing vocational training, this may be a viable alternative to remaining "marginal men." De Laguna (1968) once argued that: Anthropology is the *only* discipline that offers a conceptual scheme for the whole context of human experience . . . It is like the carrying frame onto which may be fitted all the subjects of a liberal education, and by organizing the load making it more wieldy and capable of being carried.

We have obviously convinced ourselves of this. Now we need to convince others, especially community college students and administrators.

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# ROLE OF COMMUNITY COLLEGES IN DEATH EDUCATION—

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ABSTRACT: *In this article I discuss the evolution and development of a death education program at Polk Community College, Polk County, Florida. Included is an overview of the community role involvement typical of such colleges and a working model for enhancing that involvement in any college/community setting. The social and institutional resources usually available in the environment of most colleges are listed and discussed as areas of need and as justification for the development of death education programs at community colleges.*

FROM its inception the community-college concept has been one of mediating between the university and the real world of the laboring public. The needs of the community have traditionally crystallized into 3 basic areas: 1) the more personalized college transfer programs which provide the core for university degrees, 2) A.S. degrees which are vocational in nature and are now becoming transferable, and 3) self-enrichment on a non-threatening level for people of all ages, backgrounds and interests.

Most science courses today, including anthropology, are life-oriented even in fine detail, and have little to say about death. Death and even the process of dying are not included in most curricula as topics of study or interest. Even with the progress being made today, actual coursework in death studies is all too often restricted to medical schools, seminaries and some universities.

Granted, it is the social scientist and the professional who initially address the issues of human life phenomena which necessarily imply death phenomena. But death is an appropriate concern for all people, including the lay person.

Obviously the total life-needs of the community include ordered, considered and humanistic approaches to the multi-faceted issues of death. Such factors as probate court, insurance benefits, funeral costs and social security ramifications are most often reconciled on a learn-by-doing basis. Countless actualities involved in the dying process are, by default, left not dealt within our life-oriented society.

A purpose herein is to open and share an area of concern. The ultimate issue of life happiness must be realized in total. It must be realized in the ultimate perspective that life should come to a meaningful close.

Within the framework of this concept the community college has a unique opportunity. While not all its graduates will become university scholars, lab technicians or better policepersons, all will die. Indeed, the community college must reach the people who support it with the very best it can offer.

Most community colleges are relegated to a county area as the domain of influence and supportive justification. Within these county domains various structures such as hospitals, nursing homes, funeral parlors and cemeteries are daily involved in the realities of death. Additionally, several less obvious structures such as ambulance services, florists, laboratories, beauticians,

newspapers, police and fire departments confront death as a meaningful part of the daily routine which must sustain life.

Clearly the community college must not classify the study of death and dying as a level of inquiry beyond the scope of the everyday living student. But once having recognized the relevance of this study, how is the community college to institute the process in a way which best serves the needs of its students?

In an attempt to address my own question which I feel certain is a question asked by many in recent months, let me initially state that no one college department is by its nature or subject matter any better qualified to present itself as the exponent of the ways of understanding death. At Polk Community College the implementation of this new concept most comfortably fell into the hands of the resident anthropologist for no reasons other than my interest and willingness to get involved.

In 1973, I drafted a proposal for a general survey course entitled "Introduction to Death". The course was designed to utilize the archaeological and ethnographic data available from anthropology, the clinical skills available from nursing and psychology, and the interpersonal enrichment afforded by humanistic psychology, philosophy and comparative religion.

Not without difficulty, the course was accepted into the curriculum by a tie-breaking vote. Polk Community College opened 1 trial section of "Introduction to Death" with 35 seats available. Over 50 students were turned away for lack of room. Thereafter, 2 sections of similar capacity were offered and there has been no difficulty filling the available seats during the 3-yr life-span of the course. In fact, the community response to the course has been extremely positive in the form of demands for speaking engagements and community workshops.

The course is an open elective and therefore draws a wide variety of age groups, interests and backgrounds into the classroom setting. As indicated by questionnaires administered to the first 300 students who took the course, most felt strong personal need to be able to deal more effectively with the self and/or significant others regarding death. Additionally, most were able to accurately project their own expectations of death: males anticipated death at a younger age than females and they expected more traumatic circumstances than did females.

To further my own awareness and acquire new information for the "Introduction to Death" course, I accepted an invitation to attend the First International Seminar of Palliative Care held in Montreal, Canada, November 1976. A major portion of the seminar, attended by such notables as Drs. Elizabeth Kubler-Ross and Cecily Saunders, was devoted to the careful explanation and development of the hospice concept.

Very basically, a hospice is a residential/medical setting within which the patients are aware of the terminal nature of their respective illnesses. More than a nursing home, the hospice provides the attentions of a physician, nursing staff, volunteer help and a chaplain. More importantly, the

family of the patient is involved in the total process of helping the patient live until he/she dies. Usually this means a simple freedom of visiting hours, but it may go as far as allowing the spouse to share the room or suite with the patient. The understanding here is that the presence of the relative is both supportive of the patient in a familial sense and supportive for other patients in a community sense.

As the "Introduction to Death" course evolved, many students expressed interest in further work with the subject. In particular, several expressed the feeling there should be some way for more people in the community to benefit from their newly-acquired understanding. They had learned to cope with the ultimate issues regarding death and felt the need to share. Naturally the hospice concept was appealing to these students.

But, founding a hospice locally was out of the question. The hospice concept generally takes years of careful planning and tremendous funding to materialize. The students were anxious to put their skills to work during their community college careers.

It was within, and in response to such a need that the following working model was proposed, implemented and studied as a means of involving existing community facilities and interactions in the development of a "community hospice without walls".

ANY 299, Death Lab/Seminar, is a 3 credit-hr course which provides opportunities for applied follow-up for the "Introduction to Death" students and collegiate activity for medical professionals currently employed but also interested in acquiring additional college credit.

The process of designing the course began with an analysis of the college faculty and administration. Nine people were chosen to cooperate as 'participating faculty'. The purpose here is to maximize the usage of college resources both in terms of interdisciplinary input and, more importantly, in terms of humanistic support. All 9 instructors, coming from biology, philosophy, administration and other fields, are caring people. Their role as participating faculty is also geared in the direction of assisting the flexibility of the course itself in terms of departmental transfer to universities. Enrolled students, of which there are never more than 21 per section, are divided into 3 major seminar groups and matched with faculty from their common areas of study and interest. The faculty members coordinate the seminar activities of their groups once each week in a 1-hr session on campus. As director of the program, I attend each session.

Aside from the on-campus seminar meetings, each student is required to spend at least 3 hr per week on-site in a community nursing home, hospital or private home engaged in direct inter-personal contact with a patient who has been medically classified as terminally ill.

The seminars include experience and idea exchange among all participants. Additionally, the faculty presents information regarding how to facilitate interaction with the patients, interaction between the patient and his/her family, how to offer information effectively regarding funeral laws

and arrangements, and techniques for helping the patient and family cope with death. The participating faculty members have been trained by myself and have access to a variety of resource materials including the textbook, *Death: An Anthropological Perspective.*

Students are selected according to the following criteria and procedures. They must have completed the ANY 208, "Introduction to Death" course, with a B or better, or they must be currently employed as a medical professional. Having satisfied either of these, they are interviewed by myself, the Director of Nursing and by 1 psychiatric nurse. Any student apparently more interested in academic credit than in people is weeded-out, as are those who feel duty bound to impose their religious beliefs on the patients.

The cooperating institutions are responsible for selecting the patients they feel would best benefit from the interactions with the student. The institutions also maintain all authority over the actions of the students and understand that, unless recommended by the attending physician, the students are to play no role whatever in the administration of medical services. This stipulation is clearly made to preclude any unauthorized behaviors on the part of the student and any conflicts of authority within the institution.

In the event that a patient/student match does not work well, adjustments are made. Also, if a patient dies during the course of the lab, the student is assigned another patient. Should a student complete the lab and his/her patient is still alive and in need of interaction, a student enrolled in the next semester's lab will be assigned. The interactions are planned for a minimum of 14 wk.

The interplay of expectations is a significant area of concern. Dealing first with the student, the guidelines are as follows: 1) the student is expected to interact with the patient and, if necessary, his family at the pace set by the patient and/or family, 2) the student is expected to help the patient and family develop appropriate means for solving problems associated with the dying process, 3) the student is expected to help the patient and family ventilate their needs and concerns, and 4) the student is expected to master academic knowledge of the techniques of easing the dying process.

A very obvious concern would be the area of legal liability. In the event that a student might slip and fall on a wet floor, or have a traffic accident en route, or if a family claims that the student relationship caused the patient to move into depression and die prematurely, certain safeguards must already be in place. An authority and release clause as well as a participant contract are 2 very simple instruments which may be used to avoid these potential problems. Such forms are easily drawn-up by an institutional attorney.

Because the students are in fact taking a 3 credit hour course there must be some means of evaluation. This is based on the following paradigm: 1) construction and presentation of an anonymous case study, 2) a central test unit given to all groups, and 3) individual test units constructed by the participating faculty closest to the student's major area. Parts (1) and (2) con-

stitute 80% of the grade and part (3) constitutes the remaining 20% of the student's final grade.

In conclusion, several interrelated personal variables should be noted. Among these are the potential benefits to the participants in the program.

Colleges—Starting with the community college, it must appear obvious that a death studies program of this scope represents very definite involvement with many hitherto isolated community groups. By taking an active role the college is serving as a coordinator for more meaningful and serviceable relationships. The increased visibility of the college as an involved and innovative institution brings positive returns that are pertinent to more areas than just the death studies program.

Participating faculty—Individually the participating faculty have abundant opportunities to experience the kinds of interactions which not only meet the issue of in-house isolation, but also provide rich source material for their own curriculum development. And, their participation as concerned persons facilitates their ability to express and examine their own feelings in an atmosphere of sharing.

Students—The potential benefits for the student are of monumental proportions. In a very real sense, those who do need academic credit for such things as renewing a nursing license can participate in an activity which is perhaps more relevant than sitting exclusively in a classroom. There is also the occasion for them to achieve new understandings of themselves and others. Furthermore, there is the high probability that the student will some day need to take an active role in the easing of the dying process for a loved one or even himself. Whereas experience may be the best teacher, an organized academic framework for the experience can be conceptually very helpful.

Cooperating Institutions—The nursing homes and hospitals participating in the program benefit in 2 related ways. Most patient-care staffs find themselves responding to their typically large caseloads by simply putting physical priorities first. And even those physical needs must be ranked in order of importance. This places a patient's possible need for reassurance, empathy or even a sounding board for anger at the very bottom of this institutional priority list. It is not uncommon to find the staff members harried and feeling guilty when the priority shuffle allows a needy patient to slip into quiet resentment. The presence of a trained and empathetic student goes a long way toward assuaging these professional guilts as well as lightening the load for these busy people.

Family—Unfortunately, the seemingly petty day-to-day problems of communication present in many families only magnify as a member is identified as terminal. Hitherto unresolved issues such as wills, funeral arrangements and long-suppressed needs become even further taboo, for fear (on the part of the family) of seeming too anxious to get on with the death. Conversely, the patient often feels guilt at having made a burden of him/herself both economically and emotionally. The students are well-

informed in the requirements of state laws covering all aspects of the dying and disposition process. While they certainly will not function as an attorney, they will be able to help the family select and obtain whatever professional supports it may require. And of course, the student represents an often-needed outside and neutral listener as the family attempts to sort out and understand its changing milieu.

PATIENT—The most critical valence of this now recognizably dynamic relationship is the one between student and patient. It is understood that grades cannot be applied to human relationships. Credit hours cannot be applied to such involvements. Before introduction to the student the patient is made aware that he/she is not being classified as an object of study. In fact, the direct aspects of his/her relationship with the student have no bearing on the student's grade. The patient is being afforded a companion with whom he/she may ventilate feelings without fear or guilt. Within the limits of obligations generated in broad relationships, the patient may come to expect certain kinds of aid pertinent to his/her situation. Thus, a simple request for a glass of water may be accomplished without feelings of being a burden to medical staff or family.

Much publicity has been given to Dr. Elizabeth Kubler-Ross', "Stages of Dying". One of these stages is called depression. We know that, in our high autonomy-oriented culture, even non-terminally ill persons experience varying degrees of depression when they perceive themselves as unduly dependent on other people. In the Death Lab/Seminar course it has been found that as the condition of the patient gradually deteriorates, an increasing fear of irreversible dependence manifests itself. The presence of the student offers a subtle, and hitherto untapped, means of helping the patient avoid deep depression. By encouraging the patient to ventilate feelings, the student, who is generally younger than the patient, is actually maneuvering the patient into the role of teacher. Thus, the patient is able to achieve and maintain a feeling of self-worth; a feeling of being useful and productive in the lives of other people.

As a final note, the participating faculty are aware that even the most stable students may find themselves very acutely in need of contact at the death of a patient. For this reason all faculty members participating are immediately available to their respective students on a 24-hr a day basis. While dedicated to the furthering of necessary academic skills, we applaud the courage and concern with which the students face their roles.

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ROLES OF AN ANTHROPOLOGIST IN A HUMAN SERVICE PROGRAM—*William Gerald Glover*, Social Science Division, Edison Community College, Fort Myers, Florida 33901

ABSTRACT: *An innovation was diffused to a regional human service system using the community college as a vehicle. The roles performed by the anthropologist in the project are described.*

IN THIS PAPER I illustrate the roles of an anthropologist in human services development. I discuss how one anthropologist was able to apply his training to a specific human problem.

In egalitarian societies the family unit and kin were primarily responsible for human service delivery. In stratified societies there has been an increasing elaboration of human services with an extensive institutional framework for their delivery. The concept of human services refers to a means of analyzing the allocation and distribution of resources in human societies. This concept provides a method for understanding and comparing the institutions developed in human groups and the cultural patterns which have evolved to meet their members' primary and secondary needs. Cultural evolution involved a process by which human services became the product of increasing specialization of roles, responsibilities, and functions.

Anthropologists can find new vistas for understanding human cultural forms by way of the concept of human services. It provides a useful tool for looking at an old issue, (i.e., how societies meet the needs of their members) and enables one to organize data into a new model for analyzing human activities basic to every society.

This anthropologist became involved in the organizational development of regional human service institutions in Southwest Florida. A research program was designed for the diffusion of an innovation; that is, a training program for human service workers. The local community college was the innovating organization and the complex institutional network of human service agencies in the region were the recipient organizations. These agencies included those that deliver mental health, health, mental retardation, aging, youth, public assistance, rehabilitation, and educational services in a 5 county cultural area.

The program goal was to provide new information to agencies by training paraprofessionals who were primarily involved in daily direct service delivery to consumers. This information included a transdiscipline curriculum based on basic helping skills, cultural knowledge about human service delivery, an appreciation for cultural differences, and practical experience by participant observation in agencies.

A second goal was to demonstrate the roles an anthropologist may have to perform to introduce and institutionalize an innovation in a development program. In many innovation processes it is necessary for the anthropologist to assume more than the consulting or information gathering roles. As an innovator in the Southwest Florida human services system, I performed 6

crucial roles: 1) planner; 2) evaluator; 3) policymaker; 4) advocate; 5) researcher; and 6) administrator.

The planner role included conducting a preliminary survey of human services in the area, the establishment of a steering and planning committee to eventually assume control of the program, and the overall design of the innovation.

The evaluator role was performed on a daily and long-term basis. Program evaluation requires constant awareness of feedback from the system in which the innovation is taking place. The feedback received by the anthropologist enabled him to constantly modify the program to system needs and reactions. The anthropologist, as evaluator, was able to determine, at various points in the innovation process, the number of acceptors of the innovation. This was a valuable indicator of program diffusion and the extent to which new information networks were being established within the human services system.

The policymaker role included policy change in the innovating organizations, human service agencies. Policy change in the community college was achieved in 2 areas: community needs influencing curriculum development and cooperation of the college with human service agencies. Policy change in agencies included rethinking of the roles of paraprofessionals in service delivery by human service administrators.

The advocate role was necessary in many cases. The anthropologist found it necessary to "push" when bureaucratic log jams threatened program development. Professional and disciplinary entrenchment required a convincing argument for the innovation by the anthropologist. The advocate role must be tempered with value and ethical considerations and, above all, an extensive awareness of the felt needs of the recipients of the innovation. Felt needs interpretation was often a result of compromise and consensus because of the diverse backgrounds and needs of the recipients.

The administrator role was often necessary for the anthropologist. College administrators did not immediately become involved in the daily management of the program until after the first year when it was obvious that the program was succeeding and their risks of involvement were minimized.

The final role, as researcher, was related to the entire program. A general systems perspective for program innovation was field tested. Data were constantly collected and analyzed. Research goals had to be field tested, while keeping the program operational.

Another consideration for the anthropologist was the power of many of the innovation recipients. "Studying up" (Nadar, 1974) required constant interaction with power elites who comprise the administration component of the community college and the human service system. These upper and middle class bureaucrats were at crucial junctures in the innovation network and had to be dealt with by the anthropologist. Many had considerable power in the community and the college. Actions and decisions made by the

anthropologist could have resulted in his employment termination or the failure of the program.

Fortunately, the anthropologist completed the implementation of the program. The accomplishments of the 2-yr research included the following: 1) the establishment of an appropriate resource base for the continuation of the program; 2) the field testing of a systems/information network model; and 3) the demonstration of how anthropologists may apply their skills and knowledge in finding solutions to contemporary human problems.

Specific developments in the 2-yr innovation process were directed toward program implementation and continuation after the anthropologist had completed his research. The institutionalization of the program was accomplished in the following ways: 1) resources, human and material, were obtained and redirected toward program goals; 2) community relations were carefully cultivated and maintained; and 3) the necessary structural changes were developed to continue program operation and evaluation.

Resource development included the involvement of 759 persons in the program. This figure includes 101 students in the academic program, 180 economically disadvantaged youth in a job-seeking skills training program, 248 employees of aging service agencies who received in-service training, 35 clients of the Women's Center who received training, 45 volunteer workers who received training in communications skills, 120 administrators and supervisors of human service agencies who participated as field supervisors and guest speakers in the classes. Material resources included $484,000 in federal and state funds that were obtained for program development.

Community relations were developed by a variety of methods. Mass media and informal information networks were used to create a community awareness of the program. Key individuals in the community college, human service agencies, and the general community were used to maintain constant flows of information and the resulting feedback.

Necessary structural changes included the development of an operational and steering committee for program continuation. Curriculum changes and policy changes were achieved during program implementation.

After 2-yr of research in this program I have formed several conclusions. First, the human service field and community colleges contain numerous opportunities for involvement by anthropologists who are willing to develop meaningful and relevant research programs. Second, innovation requires active involvement by the anthropologist. Finally, the systems perspective is a valuable and practical research tool for change programs.

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# STATUS OF ANTHROPOLOGY IN FLORIDA'S COMMUNITY COLLEGES

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ABSTRACT: *Anthropology at the community college has continually been viewed with skepticism by anthropologists at senior institutions. A primary reason for this is the minimal anthropological background of anthropology instructors at the community college level. A survey of the anthropology instructors in Florida's community colleges substantiated this. Consequently, a definite need exists for adequate preparation of these instructors.*

WITH the rapid growth of community colleges during the past several years, there has been a great deal of discussion concerning anthropology courses taught at the community or junior college level. Much of this discussion has been in the form of criticism from anthropologists at the senior institutions who have questioned the quality of the anthropology courses and the qualifications of the instructors who teach anthropology at the community college level. This attitude is one to which I have been repeatedly exposed during my 19 yr in anthropology, both as a student and professor.

Exactly what is the status of anthropology at the community college level? How much anthropology is being taught in community colleges? What is the background of anthropology instructors in the community colleges, and how do they view themselves in relation to anthropologists at the senior institutions? To answer these and other questions, I surveyed the 38 community colleges in the state of Florida. The data presented here are the results of that survey.

Of the 38 community colleges in Florida, 35 responded to my survey. The total figure includes individual campuses of multi-campus institutions counted as a single college. For example, Miami-Dade Community College has 4 campuses which have their own organizational structure and a high degree of autonomy. The 4 campuses, therefore, are considered as separate colleges for the purposes of this study. While a few other community colleges in Florida also have more than 1 campus, most are single campus institutions.

ANTHROPOLOGY OFFERINGS—Of the 35 community colleges that responded, 30 reported that anthropology was taught at their institution. The individuals responding to the survey were the anthropology instructors at the respective schools.

Ten of the schools offer only a 1 semester general introductory course in anthropology (combining cultural and physical anthropology). Ten offer both cultural anthropology and physical anthropology as independent 1 semester courses. Four offer cultural anthropology as their only introductory course. Three offer a general introductory course as well as separate courses in cultural and physical anthropology. Three others offer a general introductory course and a course in cultural anthropology.

Eight schools offer courses beyond the introductory level. Five of these offer only 1 additional course. One institution offers a course in primitive

societies, another teaches a course on the anthropology of Africa, while a third has a course dealing with death. Two schools offer courses on American Indians.

Two schools each offer 2 additional courses. One offers courses in field archaeology and underwater archaeology, while the other offers a lecture course in primatology as well as a field school in primatology.

One school offers 5 additional courses in anthropology: American Indians, ethnology, an introduction to archaeology, and field schools in both archaeology and primatology.

While 30 schools reported that they offer anthropology, 20 of them offer 3 or less sections per semester, and 13 of these offer only 1 section per semester. Five schools offer 4 or 5 sections per semester, and 5 others offer 7 or more sections per semester. Generally, the schools offering fewer sections per semester are those institutions with smaller enrollments.

Fifteen instructors felt that their administration had a positive attitude towards anthropology. Nine felt that their administration maintained an attitude of indifference or ambivalence. One instructor said that his administration had a negative attitude toward anthropology. The remainder of the instructors surveyed did not elect to answer the question concerning attitude of administration.

Fifteen schools offer some form of activities outside of the classroom. The majority of these activities (73%) are field trips to local points of anthropological interest. Three instructors reported that they encouraged their students to affiliate with the local chapter of the Florida Anthropological Society. Only 1 school reported having an anthropology club on campus. As previously cited, 3 schools additionally offer some form of field school.

The Anthropology Instructor—Of the 30 schools offering anthropology, 2 reported having 2 anthropology instructors. A total of 32 individuals have therefore responded as being anthropology instructors in a Florida community college. Of these 32 individuals, 15 (47%) possess either a graduate or undergraduate degree in anthropology. The remaining degrees represented are in social science, english, sociology, education, law, psychology, history, religion, zoology, asian studies, economics, and American Institutions.

Of the 15 individuals who have degrees in anthropology, 10 teach anthropology exclusively. The remaining 5 teach additional courses in political science, geography, sociology, history, and art.

Of the 17 individuals who do not have degrees in anthropology, 4 teach anthropology exclusively. The remainder divide their anthropology instruction between sociology, social science, psychology, political science, history, biology, ecology, and criminal justice. For the non-anthropology degree holders, the number of anthropology credits earned ranges from 4-127. The mean number of anthropology credits earned among this group is 25 semester hr. This figure is skewed, however, because of 1 individual possessing 127 hr and working toward a doctorate, and another individual possess-

ing 68 semester hr. When these 2 figures are excluded, the mean number of hours drops to 14. For a complete breakdown of preparation in anthropology refer to Table 1.

Twenty-three of the instructors reported that they had done some form of anthropological field work, while the remaining 9 had no field experience.

TABLE 1. Distribution of anthropology credits earned by anthropology instructors who do not possess a graduate or undergraduate degree in anthropology.

| INSTRUCTOR | UNDERGRADUATE HOURS | GRADUATE HOURS | TOTAL |
|---|---|---|---|
| 1 | 4 | 0 | 4 |
| 2 | 6 | 0 | 6 |
| 3 | 8 | 0 | 8 |
| 4 | 0 | 8 | 8 |
| 5 | 9 | 0 | 9 |
| 6 | 3 | 6 | 9 |
| 7 | 0 | 9 | 9 |
| 8 | 12 | 0 | 12 |
| 9 | 3 | 10 | 13 |
| 10 | 6 | 8 | 14 |
| 11 | 6 | 12 | 18 |
| 12 | 3 | 16 | 19 |
| 13 | 15 | 14 | 29 |
| 14 | 12 | 18 | 30 |
| 15 | 0 | 30 | 30 |
| 16 | 12 | 56 | 68 |
| 17 | 3 | 124 | 127 |

Nineteen of the instructors responding felt that their anthropology courses were parallel to those taught at the senior institutions, and 10 felt that their courses were not at the same level. One instructor felt that his courses were superior to those taught at the senior institutions.

When asked, however, how they felt that anthropologists at the senior institutions viewed anthropology courses at the community college level, only 2 felt that they were viewed as being equal. Eighteen felt that community college anthropology courses were viewed as being substandard by anthropologists at the senior institutions. The remaining individuals elected not to respond to the question.

Only 4 individuals felt that their role as an anthropology instructor was the same as that of anthropologists at the senior institutions. Twenty-two perceived their role as being different, and the remainder did not respond to the question.

A high degree of uniformity was found as to the reasons why the vast majority perceived their role in the community college as different from anthropologists in the senior institutions. The most frequent difference cited was that the nature of the community college student necessitated different teaching methods and techniques. In the same class one is teaching transfer

and nontransfer students. The problem here becomes one of satisfying the needs and interests of the nontransfer student, and concurrently motivating the transfer student to take additional courses in anthropology upon reaching the junior and senior levels. Anthropology at the community college is taken as an elective only, and the instructors do not see themselves as training anthropologists. This is also reflected in the small number of advanced or specialized courses in anthropology offered at the community college level.

The other major difference cited dealt with the teaching load itself. At the community college the emphasis is on teaching, not research, and less opportunities exist for research. Even in cases where research may be encouraged, the teaching load usually renders extensive research impossible. Another aspect of the teaching load is that, as already mentioned, anthropologists are frequently required to teach additional subjects.

CONCLUSIONS—Anthropology is becoming an ever more popular course in the community college system of Florida. This is attested to by the increasing number of community colleges offering anthropology and by growing enrollments in anthropology courses where they are already established.

There needs to be some method to insure that the students taking anthropology are not getting short changed. Many of the instructors of anthropology in Florida's community colleges have very little formal background in anthropology. The intent here is not to be pejorative, but to point out the need for adequate training. Several instructors commented that they read widely in anthropology, were enthusiastic, and were doing the best job they possibly could in teaching anthropology.

The purpose of this report is certainly not to be a fault-finding inquiry concerning those individuals who teach anthropology in Florida's community colleges. The main objective is simply to assess the status of anthropology and identify any problem areas.

The central problem seems to lie not within anthropology per se but within the context of the Florida community college system itself. The community colleges are looking for generalists. The question asked by the community colleges is not so much what subject can you teach, but rather, how many different subjects can you teach?

There are both positive and negative aspects to this situation. Of the 30 community colleges offering anthropology in Florida, only 7 offer enough sections per semester to comprise a full load for 1 instructor (in Florida, 15 semester hr constitutes a full-time teaching load). It is obvious, then, that in the majority of schools, an instructor must divide his time between 2 or more subjects. The community college instructor needs to be more of a generalist than a specialist, especially in the social sciences.

If it is then established that the community college instructor needs to be a generalist, it would appear that there is no problem when we observe that an individual regularly teaches sections of anthropology, sociology, history, geography, etc. The assumption would be, however, that the instructor had

adequate preparation in all of the subjects that he or she regularly taught. Unfortunately such is not the case in Florida.

The minimum requirement for a junior college teaching certificate (academic) in Florida is a Master's Degree. Nowhere in the state regulations is it stipulated that an instructor must have a specified number of semester hours' credit in the subject that he or she is to teach. While it is fairly obvious that an individual with an M.A. in physics is not going to be considered or hired for a position as an anthropology instructor, there is no regulation that would prohibit him from teaching anthropology if the administration of his college approved. While this is an extreme case (none of Florida's anthropology instructors have degrees in physics), it does account for the fact that many courses in anthropology are taught by individuals with minimal preparation in the discipline.

What is needed is some method to insure that instructors have adequate preparation in the subjects they teach. This preparation should most realistically be in the form of semester hours earned. A change in state regulations would be necessary to meet this goal. Another alternative would be some sort of workshop for anthropology instructors who lack some of the necessary background. Several instructors have indicated an interest in such a project. One instructor reported that he needed all the help he could get.

There is unquestionably a wide diversity of backgrounds among the anthropology instructors in Florida's community colleges. Many of them have little formal training in the discipline and freely admit their shortcomings. If we, as anthropology instructors in the community colleges, are going to earn the necessary respect for our courses from anthropologists in the senior institutions, we all must have an adequate command of our field in order to impart the necessary knowledge to our students. Then, and only then, will the anthropologists at the senior institutions cease to view our anthropology courses with skepticism.

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ANTHROPOLOGY IN THE COMMUNITY COLLEGE SETTING: A CASE STUDY—*Stephen Clapham and Richard H. Furlow*, Broward Community College, Ft. Lauderdale, Florida 33314

ABSTRACT: *The status of anthropology at 2-yr institutions appears ambiguous. At a time when many doctorates in the discipline are prepared to teach in a junior college, those in the curriculum-decision-making process at the 2-yr schools deal with anthropology usually with mixed feelings as to its viability as a social science offering. I examine these trends and attempt to define some of the problems and prospects involved in the teaching of anthropology at the 2-yr college. What can be accomplished is illustrated by the anthropology program at Broward Community College, Central Campus, which serves as a case study for this paper.*

INTEREST in the status of anthropology and the role of the teacher of anthropology at community colleges have recently increased. However,

reliable data-gathering is still in its early stages with only 1 or 2 efforts recorded (Brawer, 1976 and 1978). We have discussed elsewhere, largely from a impressionistic perspective, some of the prospects and problems facing anthropologist teaching in community colleges (Clapman and Furlow, 1978). We believe that more research is necessary before a detailed assessment of the status of anthropology at community colleges can be made. We are now engaged in collecting various data from community colleges across the Nation, as a by-product of the formation of an organization to represent anthropologists at community colleges. This organization, The Society for Anthropology in Community Colleges, hopes to determine, among other things, the number of teachers now teaching anthropology in community colleges. We hope very shortly to present the results from our data-collection efforts. In this we examine factors we believe influential in determining the status of anthropology at the community college today. These factors are here reduced to 2: those deriving from the nature of the discipline and those deriving from the nature of the institution. We contend that certain degrees of "fit" are possible given the nature of the discipline and the nature of the institution, and similar approaches could be utilized to describe the interfacing of anthropology at lower levels (i.e., the high school) and at higher levels (i.e., the university). Following our discussion of how the discipline and the institution come to terms with one another, we present a case study of this process by describing the emergence and development of an anthropology program at a community college.

Nature of the Discipline—Anthropology is far from being a mainline educational subject. The death of Margaret Mead in 1978 left the discipline without a nationally-recognized public figure, and there are still many lay individuals who lack an understanding of the anthropologist's concerns. Anthropology does impinge more on people's ability to make sense of their lives and the culture in which they live than do other somewhat insular subjects such as molecular biology and computer sciences. Indeed, whereas the difficulties of understanding the latter areas lie in the specificity of information in the field, the difficulty in the case of anthropology has often been its generality and apparent attempt to deal with everything and anything of relevance in understanding the total human condition, both historically and cross-culturally. What to anthropologists is a positive feature has often worked against the subject's interests by producing the ambiguities of image that continue to plague the discipline both within and without the field. The willingness of anthropology to eschew the narrowing of focus prevalent elsewhere in academia today (though within the discipline specialisms are to be found in abundance) seems to have been largely responsible for the wary relationships related disciplines have maintained with anthropology over the course of its development. It seems as though anthropology has sometimes engendered an intrusionist image as related disciplines perceive anthropology's wide-flung fronts of inquiry overlapping their concerns. In some cases, 'working' relationships were enacted. Such would be the case

with sociology where anthropology relinquished inclusion of modern societies within its frame of inquiry. In other cases, the division of labor was never as explicit. History, economics, political science, psychology, biology, anatomy, linguistics, and even subjects like theology and criminology, are all modes of inquiry whose subject matter is shared to some degree by anthropological research. The rationale for the anthropological concern with these already established subject areas has been that said subjects were too narrowly defined with relevance only to our society or to the development of Western civilization. Anthropology broadens the framework and revitalizes conclusions reached, but often practitioners of related fields are rather inhospitable to this position and inclined to adopt a reactionary stance. We do not wish to overemphasize boundary disputes between anthropology and those specialized fields dealing with human life that have evolved autonomous discipline status. However, they do occur and, in our experience, they are particularly likely to be encountered at the community college level.

Summarizing our discussion of factors arising out of the nature of the discipline which have to be considered, we have noted the equivocal image of the discipline in the public mind, the lack of good articulation of the discipline's concerns to the nonpractitioner, and the penetration of anthropological inquiry into the same subject areas as other disciplines with separate status. This might be an appropriate juncture to introduce the anthropologist as potentially a "maverick-type" of scholar in that many anthropologists define themselves by their anthropological knowledge, do so often by loosening their affiliation to their own society, and on occasions are openly critical of their society. This has produced a tendency for anthropologists to turn away from their own culture and accounts in part for the aforementioned failure to relate concerns of the discipline to our own population. For those anthropologists, mainly in the social/cultural area, who entertain the sort of romantic nostalgia for preindustrial societies expressed so vividly by Levi-Strauss (1970) in *Tristes Tropiques*, modern Western society is treated with disdain, and attentions and interests lie elsewhere. This posture of the anthropologist, living out the tenets of his discipline, uneasy within his own culture, also must be recognized when we consider the standing of the discipline at the community college. Let us turn our attention to the latter and provide some central definition of what the community college represents before going to our case study.

The Nature of the Institution—As an educational institution, the community college is janus-faced; on occasions appearing like high school "without the bells", as one student related to one of the authors. On other occasions, the community college shares with the university the structure and functions of the higher educational system. Community colleges are relatively recent arrivals on the higher educational scene, emerging during the last 2 decades in most cases and seeking to provide university parallel

streams for freshmen and sophomores, as well as offering vocational programs and community involvement. Beyond these general objectives, the academic ambience and general cultural environment of the community college is a variable influenced strongly by the policies and postures of those who make significant decisions about hiring, curriculum, and overall image of the institution in the local area. Community colleges are the vanguard of the democratic higher educational system of this society. They are frequently "open door" in their admittance policies; everyone gets a chance, often more than one chance, at higher education.

As a result of open admissions, the level of instruction at community colleges must, to be successful, reflect a wide-range of student capabilities. Community colleges tend to be utilized by minorities that prior to the appearance of community colleges might not have entered higher education. Overall, community college instruction cannot assume any academic performance level in normal classes; competencies can run from high to low as does level of motivation, the 2 often varying independently of each other. Teachers encounter well-motivated poor performers and bright students who do not want to work. Instruction, to be productive, has to grapple with these conditions. Instructors also encounter a great diversity in age at the community college level as adults and retired people in the community utilize their instruction. Subject matter, and the way it is articulated, has to be given careful attention if instruction is to be meaningful for this diverse audience. We need not emphasize that in the case of anthropology we are already assuming difficulties of articulation based on the points raised earlier in this paper.

These brief observations concerning the nature of the discipline and the nature of the institution allow us to suggest now the manner in which the 2 impact on one another. In general, anthropology accommodates to the institution, which in this case represents an accommodation to the principles of a democratic educational system. Anthropology, by association, becomes itself more democratic in the sense that its pronouncements are now more available for common consumption, both on campus to the student population, and off campus to the interested local citizenry. But to be viable in these circumstances, anthropology has to seek improved articulation of its subject matter to the nonspecialist audience. Thus, anthropology in the community college cannot afford to maintain the aforementioned neglect of the discipline to clarify its public image, to promote its relevance to modern society, and to explain its principles overall in a manner graspable by the layperson (in most cases "layperson" being synonymous with incoming community college student). The very survival of anthropology within the community college depends on making the subject more understandable and pertinent to resolving today's problems for individuals and societies. This requires, as already intimated, a willingness to modify the anthropological message to render it palatable to the general population. This process of modification might well be called the "democratization" of anthropology.

In the case study which follows we can discern this democratizing process at work.

A Case Study—Anthropology was introduced at Broward Community College (BCC) in 1970 by Maureen Hart as Sociology 225, Introduction to Anthropology. In 1972 the first professional anthropologist was hired; Ms. Hart is primarily a sociologist. Barbara Gortych obtained her first 2 yr of course work at BCC. She then went to Florida State where she obtained her B.S. in anthropology and her Master's in anthropology at the University of North Carolina. Upon her arrival at BCC the anthropology offerings were vastly expanded and anthropology courses were taught under the title of anthropology rather than sociology. The anthropology courses introduced by Gortych were Introduction to Physical Anthropology, Introduction to the History of Man (based on the Bronowski series *The Ascent of Man*), Introduction to Archaeology, and Introduction to World Ethnology. In January 1975, Richard Furlow was hired and because of his interest 2 other courses were introduced: Introduction to the North American Indian and Anthropology Field School. In 1976 Gortych returned to graduate school and was replaced for a 1-yr interim by Dr. Edwin Kozlowski, an anthropological linguist. In 1977, Dr. Stephen Clapham was hired, so, since 1975 there have always been at least 2 anthropologists on the staff at BCC Central.

When Furlow first came, both anthropologists taught anthropology full-time; that is, 5 courses each semester and 2 during the summer term. In the last 3 yr, primarily because of a new departmental chairperson, anthropology has been cut back to roughly half the number of courses previously taught with both anthropologists teaching some sociology and one of them teaching more sociology than anthropology. This points up the fact that anthropologists at the community college level must be quite flexible in teaching, both for the individual to survive and for the discipline to survive. At the 4-yr institution this is not so necessary.

At the same time, although being required to teach sociology by the departmental chairperson, the sociologists feel that their area is being intruded upon and also generally disapprove the text used by the anthropologists in their introductory sociology course—*Human Societies: An Introduction to Macrosociology* by Gerhard and Jean Lenski. They say that the Lenski book is anthropological not sociological in its perspective. Certainly, the Lenski book is not like the traditional sociological text (i.e., concerned primarily with United States society of the past 30 to 40 yr). However, the Lenski text is used by many sociologists at many institutions and was the preferred text at a sociological conference on teaching attended by the authors.

This brings up another point. We as anthropologists are not only being asked to teach sociology courses, but also being asked to be more interested in sociology as a discipline and to participate in sociological conferences. For example, one of the authors has been told that he should join the American

Sociological Association (which he has) and that he should also think about attending the Annual Meeting of the ASA rather than always going to Annual Meeting of the American Anthropological Association. The rational given was that at the community college level we cannot be as highly specialized as at the university level. On the other hand, sociologists or psychologists are not required to learn about or teach anthropology.

Or again, all members of the Department had flyers put in their boxes requesting them to join the Southern Sociological Society because one of the sociologists heads up a sub-section of the SSS devoted to community college teachers of sociology. In contrast, no one has been asked to join the Society for Anthropology in Community Colleges, a national organization founded by one of the authors with the other author being the editor of the *SACC Newsletter*.

There are interdisciplinary skirmishes in other areas as well. For example, a faculty member who teaches comparative religion regularly asks the anthropologists to come talk to his classes about religion from the anthropological view which he sees as necessarily antagonistic to religion rather than compatible to understanding religion—even comparative religion. The natural sciences do not want to allow physical anthropology to fulfill a natural science requirement. And lastly, the history department thinks the course, "History of Man", (the Ascent of Man course) should be taught as a history course and not anthropology.

There is no doubt that if anthropology is to survive at the community college level it, and its practitioners, must be flexible. They must also be willing to reach out into the community. Some of the ways this has been done at Broward Community College have been by giving talks to groups in the community (grade school and high school classes, Cub Scouts, amateur archaeological groups), forming an anthropology club made up of both students and members from the community, and having the Origins Speakers' Series. We shall discuss the last 2 of these briefly.

In 1977, the BCC Anthropological Society was formed. From the beginning it was felt its membership should include people from the community as well as students and faculty at BCC. One reason for this was that we are a community college. Also, in previous years a club for students only had been tried and it had failed miserably. As it turned out it was a wise decision to include the community because the community has been the Society's mainstay. The first meeting had about 50 people in attendance and there was discussion after the meeting between graduate students at a nearby university and the authors concerning the kinds of programs that should be given. Their position was the club should be "professional" (i.e., not give programs that were untheoretical in nature). Our position is that programs should be presented that would appeal not only to students of anthropology, but also to people in the community interested in the field at less than professional levels. We think that this has been achieved, although not to the satisfaction of the graduate students, because they no longer attend the meetings.

In September, we started the lecture series entitled "Origins of Man and the Cosmos", a 12-part series ending this May with Walter Goldschmidt talking about the "Origins of the Future". This series is funded by the Florida Endowment for the Humanities and BCC. The series has attracted an audience averaging 275 (150-450 range), people. Most of the audience is made up of people from the community. The School Board of Broward County also is giving in-service credit for attendance, so we get a few teachers. It has received great acclaim not only in the immediate area, but also throughout the country. The BCC administration has given tremendous backing in this endeavor from the President down to the Division level.

We have tried to sell anthropology to the community and we think we have been relatively successful. But one must sell the discipline to students to remain at the college.

To do this a number of things have been done. Two stand out as being significantly different from teaching at the university level. These are the use of films and the level of textbook. The films available in anthropology are numerous and are continuing to grow. The students at the community college are generally from a working class background and are not oriented to reading, a common problem for many students. To compensate for this, both of the authors tend to use a goodly number of films, showing films on the average once a week and in accordance with the topic being discussed that week.

Because of the low reading level, a text written at about the 10th grade level was chosen: Ember and Ember's *Anthropology*. We are not completely satisfied with it by any means (and we are contemplating changing texts), but we are also realistic enough to know that a student will not read a text he cannot understand. This reflects the reality of teaching at the community college level.

For those students who are highly motivated and want to get the "anthropological perspective" one of the authors encourages participation in field work using techniques and methods of teaching them developed by James Spradley. Both the more motivated students and the instructor enjoy the field work, but this is not for the unmotivated and many "fall by the wayside". However, for these there are other means to making the grade, such as attending "Origins" or doing critiques of anthropological books.

In the last few paragraphs we have been talking about ways we have reached out to the community and to students. Let us now talk about our summer programs, which we have in Merida, Yucatan and in Jamaica.

This year one of the authors will be taking 15 to 20 students to Merida Yucatan, for the third year and the other author will be taking students to Jamaica for the second year. One school is called an anthropological field school and the other is called a sociological field school, the major difference being methodological in nature. The anthropological field school uses methods developed by James Spradley to teach students data collecting by either participant observation or interviewing, depending if the student

speaks Spanish. The sociological field school incorporates course work taken in the universities in Jamaica and uses Jamaican personnel to give lectures on traditional sociological materials such as political sociology, family, etc. The students who take these courses have ranged in age from 16 to 72 but most are around 30, because the majority are Broward County school teachers wanting the 6 semester hr courses for State recertification. The out-of-country portion of the Yucatan course is 4 wk and the Jamaican course is 3 wk; costs this year are $325 and $450, respectively. These prices include air fare and hotel. In the past years students have collected material and written ethnographies on begging, selling in the market, and parent-child relationships in the Zocalo, among others. Both of these programs have been quite successful and we think both will continue in the future.

Although the administration was at first reluctant to start a field school project, arguing that it was an upper-division course, once they were shown that a number of schools had had field projects at the introductory level they went along with the idea, sending both authors on exploratory trips to the countries involved and sending one of the authors to a National Science Foundation Chautauqua Short Course taught by Spradley at Harvey Mudd College in California. Staff and Program Development money was used as well as the President's funds in one case.

Lastly, we should like to comment on the tremendous support given by the administration in allocating travel funds for anthropology. During the 1975-76 period in particular, one of the authors was given several thousand dollars to go to practically any conference or workshop he felt he should attend. That this is no longer the case is not because of any lack of support from the upper levels of administration. The major reason lies in the fact that more people want the available money. When any program gets administrative support, it is inevitable that it will be successful.

CONCLUSION—In this paper we have examined the manner in which the discipline of anthropology undergoes a kind of intellectual "re-tooling" as it is introduced into the community college setting. We have argued that anthropology adjusts to meet the realities of operating within the community college largely by attempting to mitigate or remove some of the traditional deficiencies the discipline has manifested. Low public profile, poor articulation of objectives, and lack of an integrated image are major obstacles to program success in the community college and thus it is largely at the community colleges that efforts appear centered on rendering anthropology more appealing and relevant to the general lay population. This process of change is illustrated by the case study.

We conclude that anthropology is democratized at the community college and may finally be approaching satisfaction of the discipline's original rationale: we study other cultures so as to better understand our own. Only Margaret Mead persisted in maintaining that traditional stance and communicating it to the wider society. Her loss leaves a void between the practitioners and the public which community colleges have the potential to alleviate.

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DISCUSSION AND SUMMARY: ANTHROPOLOGY AND FLORIDA COMMUNITY COLLEGES TODAY—*Walter J. Packard*, Manatee Junior College, Venice Campus, Bradenton, Florida 33935

THE topic of our symposium has been effectively dealt with by the authors of these papers. It is my intent to highlight some of the comments made in these papers in the hope that we will be able to generate a continuing dialogue among those of us who share an interest in this topic. Two of the papers, those by Pinder and Shaw, were based on surveys made of Florida community colleges attempting to assess the offerings in anthropology available, backgrounds of instructors and the general status of the discipline within the schools surveyed. Glover and Pardi each gave us examples of successful innovative programs established by anthropologists at community colleges and finally Clapham and Furlow gave us their impressions of the issues faced by anthropologists in community colleges and illustrated them for us by describing the development of anthropology at their own institutions.

Pinder and Shaw both indicate that while anthropology is taught at most of this state's community and junior colleges, in many instances it is not being taught by professional anthropologists. Perhaps the most telling point in this regard comes from Shaw's paper of those instructors teaching without a degree in the area, and not working on such a degree; the mean number of credit hours in the subject, both undergraduate and graduate, was 14. This by itself is not so important. But, when you combine it with the remarks made by a number of the respondents in both Pinder's and Shaw's surveys that some of them felt that they were not teaching their course at a level that parallels what would be offered in the equivalent course at 1 of our universities, then we indeed do have a problem. Those of us teaching in community colleges are well aware of the attitude of some of our university colleagues. It certainly does not help our position if some of the students being sent on to our universities through no fault of their own, are being poorly trained. I would like to return to this and related issues in a moment, but now I would like to comment on the papers by Glover and Pardi.

Here we have 2 examples of programs developed by anthropologists at community colleges that appear to be very successful. Glover has described for us the establishment of a human services training program. He suggests there are a number of roles which an anthropologist may need to perform

when establishing a program such as this. Rather than reiterating those points, I would like to draw attention to his statement that it was necessary to explain to those individuals in the agencies with which he was working why an anthropologist would be concerned with this type of program. This of course is a problem that anthropologists often must contend with. Glover has obviously found a convincing explanation for this reaction as has Pardi. Pardi digressed somewhat from his formal paper, but his remarks were directed toward his experiences in developing a death education program at Polk Community College and a Hospice in Polk County. In terms of our seminar, these 2 papers show us the potential of anthropology in a community college setting. At this point I would like to turn to a paper which deals with the interplay between the nature of our discipline and our institutional setting.

Clapham and Furlow make a number of valid points on the nature of community colleges and the nature of anthropology as a discipline. The fact that our discipline does not have a clear public image, and because of this lack often does not appear to relate to the concerns of the nonpractitioner, certainly can generate a problem when trying to make a convincing argument for its worth in the curriculum at our colleges. Anthropology with its broad interest base, which we might consider an advantage, in fact, does not make this task any easier. Even our colleagues in other disciplines may, as Clapham and Furlow point out, view our generalist tendencies as threatening to their positions rather than beneficial. The nature of the institutions themselves requires that the anthropologist carefully consider his approach to teaching. The open door policy and the fact that you will have both university parallel and vocationally-oriented students insures that students can vary greatly in motivation, ability and age which of course can have an impact on the approach one takes to teaching. Both of these areas, the nature of the discipline and the institution, are illustrated in the case study presented by Clapham and Furlow. Now let us turn to some issues the papers in this seminar as a whole appear to raise.

First, I would like to address myself to the area of who is teaching anthropology at the community college. The nature of the institution has a great deal to do with who teaches anthropology or for that matter any other subject at the community college level. In the community college it is common to find individual instructors in the position of necessarily teaching courses that are outside of his or her own area of concentration. This can mean that the quality of some courses taught may suffer, although clearly this is not always the case. This helps explain why people with a limited background in anthropology may end up teaching anthropology courses. From the perspective of anthropology with its eclectic nature it would seem that a good case could be made for those trained in anthropology as being well-suited for positions needing someone with a generalist background. Those of us who are trained in anthropology find the logic of this position to be perfectly clear. We must remember, as several of these papers point out,

that this eclectic nature, in fact, appears to be a contributing factor to the general lack of understanding about the nature of anthropology by those outside the discipline. This lack of understanding extends in some instances to those individuals involved in making academic appointments at our colleges. We cannot overlook the fact that positions in community colleges as with most other areas of higher education, are scarce. Thus our contention that we are admirably suited to teach courses from our own as well as several other disciplines at the community college level will obviously be threatening to our colleagues from those other disciplines. This does not mean we should not support our own position, but simply that we must make our argument carefully and with tact.

Another issue that these papers bring to mind is the needs of the community college itself. If we are to help these institutions meet their role in higher education, we must be flexible and innovative. Our potential for doing this was clearly demonstrated by Glover and Pardi. In both of their papers they have demonstrated the usefulness of the discipline at the community college level as well as applying it in innovative ways to community needs. This of course is one of the roles which community colleges are charged with filling. In a somewhat more traditional vein Clapham and Furlow discuss the growth of anthropology at Broward Community College. What this tends to demonstrate is that where you have energetic innovative individuals attempting to develop a program the chances are good that you will have a positive outcome.

From what we have heard today we can say that anthropology in community colleges shows signs of considerable potential. This potential will only be achieved if we take account of how our discipline can be used within the context of the community college. We must remember, however, that while we are innovating we must be careful not to sacrifice the general quality of our academic programs. Further, I think it would be beneficial to all of us to develop programs to aid those who feel they need help with their offerings in anthropology. If we put in some effort in improving the quality and usefulness of our discipline within the community college setting it will, in the long run, be of benefit to us all.

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*Academy Symposium*

# SYMPOSIUM ON APPLIED ANTHROPOLOGY INTERNSHIPS AT THE MASTER'S LEVEL

## INTRODUCTION TO SYMPOSIUM ON APPLIED ANTHROPOLOGY INTERNSHIPS AT THE MASTER'S LEVEL—*Alvin W. Wolfe,* University of South Florida, Tampa, Florida 33620

Two problems that have bothered anthropologists for some generations are: 1) Can the traditional anthropological techniques of data collection and analysis, so successful in studying smaller communities and societies, be adapted to the study of large and complex societies such as our own? 2) Is it feasible to train students for an applied science of anthropology?

In the early 1970s, the Society for Applied Anthropology came to believe that internships could be developed as a training mechanism in anthropology as they had been in other professions. The Society began to urge anthropologists at various levels of training (bachelor, master, and doctoral levels) to take advantage of opportunities offered in many institutions, primarily state, local and governmental agencies.

About the same time, the anthropology faculty at the University of South Florida (USF), Tampa, under the leadership of Gilbert Kushner, began to develop a graduate program that would focus on applications. These several developments came together very effectively as the USF people built an internship, full-time experience working on a useful community project under the dual guidance of anthropologists and clients, into their master's program. The program began in 1974, and got an additional boost when, in 1976, the National Institute of Mental Health funded the Applied Anthropology Internship Project as a part of that MA program. The purpose of that project is to develop internships as a method of training applied anthropologists to work in mental health fields, and to disseminate information about such training so that other institutions might replicate it if they find it helpful. Some of the work that is being reported in this symposium has benefited from the sponsorship of NIMH through the Applied Anthropology Internship Project.

Although this was the first master's program designed especially to produce only applied, not academic, anthropologists, the role of applied anthropologist is not a new one. Applied anthropologists organized the Society for Applied Anthropology in 1940, and anthropologists have been contributing to both research and service in a variety of fields for many years.

The graduates of USF's master's program are not identical to earlier exemplars of applied anthropology. The University of South Florida's trainees benefit from advantages that earlier applied anthropologists did not have when they were in training: They have deliberately selected applied an-

thropology as a profession, and they are immersed in a network supporting that selection. Furthermore, they are trained in an academic and experiential program deliberately designed to produce professional anthropologists for community service.

ACADEMIC COMPONENTS OF THE TRAINING—The full master's program in anthropology at USF includes 3 tracks: applied urban anthropology, applied medical anthropology, and public archaeology.

Urban anthropology deals with specific theoretical and methodological tools which equip the anthropologist to view the city as a pluralistic system made up of numerous socio-cultural subsystems, and to treat urban problems in terms of these systems. The relations between public service agencies and institutions and their clienteles, between other organizations and the urban complex, can be facilitated by the application of the holistic and comparative perspective of anthropology. The mental health of urban populations is of course an issue, but related issues and problems include delinquency and crime, old age, education, communication, employment opportunity, welfare programs, and the general quality of life in the city. The comparative perspective makes more understandable intergroup relations, race and ethnic relations, and the relationship of public schools and community education programs to multiethnic constituencies.

Medical anthropology has as its special focus health behavior in crosscultural perspective. It deals with the interrelationships of culture and health from both the biological and social standpoints. One of the questions which guides medical anthropological projects in the department is: "To what extent do local, state, and national health programs meet the wants and needs of the particular communities they serve?" Working with the community and with health specialists and agencies, medical anthropologists help in the design and evaluation of programs dealing with social pathologies like alcoholism and drug addiction, venereal disease, and disorders associated with ethnic, racial, and demographic groups, such as sickle-cell anemia in Blacks and hypertension among Blacks and the aged.

The third track in the program, public archaeology, focuses on applied urban issues. Public archaeologists are directly engaged in the discovery of man's past through uncovering and interpreting his material remains. Local, state, and national agencies carry-out a continuing program of investigating and reconstructing historic and prehistoric life in America. These tasks require close coordination with the parties and agencies involved in mining, road, and construction projects, entire urban renewal programs, development of sites as historical monuments, and preparation of artifact materials for presentation in museums. Public archaeology is deeply involved in cultural resources management devoted to locating, preserving, and disseminating information about previous habitation in given locations.

Prior to specializing in 1 of the 3 tracks, each student receives a solid grounding in the 4 basic subfields of anthropology (physical anthropology, archaeology, linguistics, and cultural anthropology), in the firm conviction

that the applied anthropologist must know general anthropology. The initial phase of the student's training consists of participation in core seminars covering the 4 areas, with the aim of providing the student with the conceptual, empirical, and methodological tools of the anthropologist. The seminars emphasize the existing and potential contribution of each area to defining and resolving problems of contemporary societies.

The formal internship does not begin until the students are thoroughly grounded in the science of anthropology. Thus, by the time the students reach this phase of their training they have achieved a level of competence that warrants their being treated as professional applied anthropologists. Although they are still to be carefully supervised, the internship is the beginning of their professional "practice."

INTERNSHIP PROPOSAL—In consultation with one's advisor, each student prepares a proposal for a field project with an eye toward the subsequent thesis requirement, and with consideration given to the need for faculty supervision in the course of the project. In line with the goals of this program, the ideal situation is a full-time internship position with a local community or human service agency or institution where the student can benefit from the supervision of a practicing professional in the field in addition to that of his academic mentor.

INTERNSHIP RESPONSIBILITIES—The *student intern*, having satisfied academic requirements to this point, is expected to devote full-time attention to the performance of a set of duties related to a particular role or project associated with an agency or institution in the fields of community or human services. Students at this stage of the program are considered practicing applied anthropologists, and will act in accord with the current Statement on Professional and Ethical Responsibilities approved by the Society for Applied Anthropology.

The *agency supervisor* should be responsible for on-the-job, day-to-day, supervision of the intern's work. The agency supervisor should be informed of the breadth of skills that the applied anthropology intern brings to the job, such that such anthropological expertise may be used in ways which will maximally assist the agency, organization or project in meeting its own objectives. The agency supervisor should provide opportunities for the applied anthropology intern to learn as much as possible about the agency's structure and functioning and its relationships with other organizations and agencies on a local and a national level. Realistic exposure to agency life is significant in that it permits the student to use the anthropological perspective, to see the problems of modern agencies and organizations in their widest relevant context. The agency supervisor is expected to consult with the academic supervisor both to provide feedback on the training of the intern and to find ways of improving the uses of anthropology in that specific context.

The *academic supervisor* should regularly consult with the student and with the agency supervisor regarding progress of the internship. The academic supervisor should be regularly available both to the student and to

the agency supervisor for consultation regarding any problems of an academic or anthropological nature associated with the internship project. The academic supervisor has responsibility for the evaluation of the student's performance as an intern.

*A thesis* is required for the master's degree in anthropology. Accordingly, the internship should be so planned and executed that the student can begin working on the thesis in conjunction with internship duties. The agency supervisor, academic supervisor, and student should, as the internship experience is progressing, be attentive to the fact that the student will use the internship experience as the basis for a master's thesis in anthropology.

The papers presented in this symposium are, for the most part, simply brief reports on recent internship experiences. They cover a range of issues illustrative of the kinds of activities applied anthropologists at the master's level can be expected to engage in. We hope they demonstrate that those 2 questions raised at the start can be answered: that the traditional anthropological techniques of data collection and analysis can be successfully adapted, with a bit more formalism and more quantification, to studying modern complex societies; and that it is feasible to train applied anthropologists who can render substantive service in community settings.

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## APPLIED ANTHROPOLOGY AND HYPERTENSION IN THE TAMPA BAY AREA—

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ABSTRACT: *An estimate calculated at the Florida Gulf Health Systems Agency indicated that the prevalence rate of hypertension was higher for the Tampa Bay Area (22.1%) than for the Nation (18.1%). It was my intent to develop recommendations for a model hypertension-disease-screening program in the Tampa Bay Area to reduce the rate of heart disease. Data for the study were collected from national statistics, available literature and local survey administered by the Agency. The results indicate that the goals of the locally-based programs are not specified, no target population is defined by most of the programs, and there is poor data collection and inadequate record keeping. Recommendations directed toward a more effective and accessible program according to the community's needs are discussed. The study demonstrates the valuable perspective and assistance an applied medical anthropologist can provide in designing a disease-screening program.*

CARDIOVASCULAR disease has become the leading cause of death in the western world. It is responsible for more than 1 million deaths in the U.S. alone each year (DeBakey and Gotto, 1977). The disease requires a concerted effort directed toward control and ultimate eradication through prevention. Risk factors have been identified which contribute to the cause of the chronic condition. Hypertension is thought to be one of the most common and probably the most neglected of the risk factors for cardiovascular disease due to its asymptomatic nature. Estimates in 1977 indicate that the prevalence rate of this disease is higher for the Tampa Bay region (22.1%) than for the Nation (18.1%). Screening programs designed to detect, treat and educate those individuals with hypertension are needed. I report the

findings and conclusions of a survey of 28 hypertension screening programs in the Tampa Bay region including Hillsborough, Manatee, Pasco and Pinellas counties.

This study evolved during my internship at the Florida Gulf Health Systems Agency (HSA). The Agency is a private, nonprofit corporation under contract with the U.S. Department of Health, Education and Welfare to do health planning for the West Coast of Florida. The HSA is required to develop a 5-yr plan, known as the Health Systems Plan, which is comprised of goals, objectives and recommended actions for improving the health of the residents of the Tampa Bay region and the delivery of services through the health care system. Task forces made up of active members of the community assist the staff in carrying-out the different goals and objectives of the HSP. This work was devoted to analyzing data for a technical committee whose objective was to increase early detection and treatment of chronic diseases through screening programs in the region. The committee's task was expected to be completed by 1978, but due to unforeseen changes in the staff the work was delayed. Gradually, my internship was transformed into a part-time job as a research assistant whose primary responsibility was to complete the project. My background in medical anthropology brought a human perspective to an otherwise impersonal analysis.

Six diseases were identified by the committee as the most prevalent conditions in the area for which screening programs were suitable. However, attention here shall only be directed to hypertension. The project consisted of 2 individual but interrelated parts. First, synthetic prevalence estimates were calculated by age, race and sex for each county; second, an analysis of a survey designed to collect inventory data of screening programs in the area was conducted.

Limitations of the study must be noted before discussing the findings and conclusions. The population frame was not comprised of all the screening programs in the region. The frame consisted of clinics, voluntary agencies, school boards and hospital emergency room services. Businesses, industries and private practitioners offices were excluded. Hence, generalizations regarding the status of screening activities in the area are limited. In addition, of those that did respond, many did not answer all the questions on the survey. Through lack of coordination, the survey was not reviewed by committee members prior to its use by HSA staff; hence, information which they considered important was not incorporated into the survey.

Synthetic estimates calculated to determine the population most likely at risk in the region were arrived at by applying national rates to local population data. The overall rates for all counties with the exception of Hillsborough, were markedly higher than the national rates. However, rates for nonwhites were lower. This pattern can be explained by the demographic structure of the region. The proportion of elderly among the white population is twice that of the Nation, whereas the age structure of the black population is more similar to the national population.

Attempts to compare the synthetic estimates to the results of the survey were not possible due to lack of information from the respondents. Many did not report the diagnostic standards they used; it was impossible to determine if the programs employed the same criteria to diagnose their clients. Moreover, not all of the clinics reported the number of individuals they screened.

On the basis of those 28 programs that responded, it appears that organized cooperation and coordination among the programs are practically nonexistent. The data indicate that the clinics are unevenly dispersed throughout the region. Presently many services are available in Pinellas County and few in Manatee. With the exception of hospital emergency room services, few programs offer testing services during the evening hours. The programs are situated in areas where large numbers of people congregate such as in malls or churches. However, other areas where there are concentrated numbers of high-risk groups perhaps have been overlooked.

Most screening programs offered the following services: most do not charge for their tests; suspected hypertensives discovered by the programs are referred to a private physician or a public health clinic (if medically indigent) to confirm diagnosis and obtain further treatment; and follow-up measures to find out if the patient has sought further care are conducted by the majority of the programs. In addition, over half pursued subsequent follow-up procedures if the patient did not comply.

The target population predominantly served by the program was defined as the general population. The lack of basic epidemiological data provided would suggest that specific demographic information is not being recorded at the time of the test. Nineteen of the respondents reported the number of people they screened during 1977-1978; however, less than 40% indicated the percent of positives they identified. It was not possible to determine if the programs were adequately and accurately detecting unaware hypertensives.

Public and private screening programs distribute literature to those people they screen. Voluntary Agencies and County Health Departments provide public education and speakers to interested community groups. However, only half of the programs made use of the mass media to advertise their services and educate the public.

Seventy-five percent of the programs reported themselves to be successful. However, what criteria they based their success on cannot be determined from the available information. Problems in programming included inadequate staff and equipment, general apathy in the community, and noncompliant behavior on the part of the positive screenees. Almost half of the programs intended to change or expand their clinics. Quite a few noted that they would like to shift their emphasis to noncompliance and follow-up, rather than mass screening. It appears that some of the programs are beginning to organize their facilities in accordance to the community's needs.

Tampa Bay has a significant hypertension problem. Considering the screening programs reviewed by the survey, there does not seem to be nearly

enough coordination nor as widespread geographical coverage as there should be.

Public education is partially effective. Literature and public speaking expose a number of people to knowledge of the disease, but many more should be informed. Unknown hypertensives must be identified and made aware of the seriousness of the disease. More use of mass media as a means of advertising and educating the population should be employed.

Most programs do not focus on a specific target population. The literature indicates that the disease predominantly afflicts the aged and blacks. Hypertension kills because it is not being detected and controlled. Considering the pluralistic population of America, educating the public about the disease is a much more sensitive and complex task than merely providing information to the people. Social attitudes, religious beliefs and ethnic differences must be considered. Screening for the sake of screening is senseless. The populations most likely at-risk should be identified and program characteristics should be designed accordingly. Of even more importance is to make the individual aware of the seriousness of the disease. Patients can attain support and encouragement from their social group, family and friends, but in essence they are in control of their health and well-being. This is an area requiring input from applied medical anthropologists.

Data collection techniques and internal record keeping systems are not satisfactory at the present time. A standardized information sheet could be designed to collect epidemiological data when administering the tests. This information could be sent to a centralized office to keep on record to assess the total population that is being screened in the region. Better internal record-keeping systems for each agency are also needed. Accurate information concerning characteristics of the programs such as the accuracy of the test, the test results, and features of the population being served are necessary to evaluate the efficacy of the programs and identify where attention should be directed or redirected.

For the programs that responded, it may be concluded that no target population is defined by most of the programs, the goals are not specified, there is poor data collection and inadequate record keeping. The programs need to be reassessed and organized to be more efficient and effective in the region. The need for adequate control and treatment of the disease is essential. Direct measures must be taken to improve the present status of these screening programs to work toward decreasing the mortality rate of the most prevalent disease in the Nation.

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SOME EFFECTS OF CRIME ON ELDERLY VICTIMS—*Andrea Shelton*, Department of Anthropology, University of South Florida, Tampa, Florida 33620

ABSTRACT: *Studies initiated by the Victim Assistance for Older Adults Program (VAP) confirm findings of federally-conducted surveys taken in major metropolitan areas that elderly persons (aged 55 + ) are more fearful of crime than any other age-group, although they are victimized least in proportion to population size. The VAP provides short-term crisis intervention, support and referral services, victim advocacy, and crime prevention information to all elderly victims of Part I crimes in Hillsborough County, Florida. The program, which began in January 1978, has aided more than 2,500 victims to-date. Still to be investigated are VAP findings that suggest anxiety accompanies fear, especially among victims who have been made aware of preventive measures that could have been taken to avoid the crime and its consequences.*

CRIME and the threat of personal victimization are doubtless a concern for all. Anyone is potential prey, as the criminal offender acts irrespective of one's sex, age, race, and ability to absorb a loss or sustain an injury. As crime increases, so does vigilance over the predator, but interest is also mounting in the plight of the victim.

Age-specific-crime victimization rates have been the subject of recent scholarly, journalistic, and legislative studies. Although none are conclusive, statistics confirm that the victimization rate among the elderly is as high or higher than younger people for robbery with injury and for larceny with personal contact, but considerably lower for most other crimes (Lawton et al., 1976). Such analyses of the patterns of crime committed against older persons suggest that the elderly constitute an unique class of crime victims demanding special attention (Goldsmith and Goldsmith, 1976).

The present study results from an analysis of a data-collection and assessment device administered to elderly victimized individuals, through the Victim Assistance for Older Adults Program (VAP).

BACKGROUND—The VAP of the Northside Community Mental Health Center, Inc., in Tampa, provides short-term crisis intervention, support and referral services, victim advocacy, and crime prevention information to all elderly victims, of crime to person and property in the local Tampa area (excluding commercial establishments). The program, which began in January 1978, has aided more than 4,000 victims aged 55 yr and older. It is one of a growing number of programs funded by the Law Enforcement Assistance Administration (LEAA), making all services available at no cost to clients.

Demographic characteristics gathered through interviews and other means revealed the following profile of those aided by the VAP. The victim tends to be a married white male, aged 65.7 yr, and living in a single dwelling home with his spouse. He is most frequently the victim of burglary in the home. Usually retired, he reports 11.5 yr of formal education and an annual income below $5,000.00. Damage and/or loss due to the criminal victimization generally amounts to $50.00. Less than 4% of the victims sustain personal injury.

METHODOLOGY—A data-collection and assessment device was distributed to individuals who were victimized between November 1977 and September

1978, both before and after the VAP was conceived. This device was to gather information on the effects of crime from those victims who received direct services from the VAP and from others who were only made aware of services through introductory correspondence. The research design involved the comparison of 3 victimized populations: Group I, the control, contacted by VAP whose victimization predated the formulation of the VAP; Group II or 48 hr follow-up, contacted by the VAP for services and participation in the survey within 48 hr of their victimization; and Group III, the 2-3 mo follow-up contacted for the delivery of services after the offense, and again 2-3 mo later to take part in the VAP survey.

All 164 respondents were randomly chosen through an examination of crime reports filed with the Tampa Police Department, the Temple Terrace Police Department, and the Hillsborough County Sheriff's Office. To be included in the sample, the victim had to be 55 yr of age or older and a victim of a Part I offense—criminal homicide, rape, robbery, assault, burglary, larceny, auto theft (FBI, 1966)—that took place in Hillsborough County, Florida, between November 1977 and March 1978.

The assessment device consisted of 3 separate instruments: The Crime Attitude Questionnaire (CAQ), the Changes Since Victimization Questionnaire (CSVQ), and the State-Trait Anxiety Inventory (STAI). All 3 instruments were included for the purpose of measuring the relationship between the elderly's "personal adjustment, . . . perceptions of that neighborhood, the police and the court system, the extent to which they cooperate with criminal prosecutions, any changes in . . . daily routines . . . and the source to which they attribute any attitudinal and behavioral changes they have gone," as a consequence of their victimization (Victim Assistance for Older Adults Program, 1977). I discuss only the findings of the CAQ.

Results—The mean scores on the CAQ for the 3 victimized groups were 36.2 (n = 63, S.D. = 8.4); 33.9 (n = 56, S.D. = 8.7); and 33.85 (n = 40, S.D. = 6.6), respectively. No apparent meaningful difference exists between the groups' scores. The scores result from a factor and item analysis of data that demonstrated that 11 of the 31 items on the CAQ were congruent. Responses to some of the remaining questions will be discussed briefly.

Concern for one's immediate personal safety was measured by 2 questions. All groups responded positively to question 1; they felt safe and secure at home (66%, 69%, and 60%, respectively). In response to a question relating to personal safety outside of the home, the control sample (Group I) answered that they were not fearful of their safety when going out (49%); whereas, both service recipient groups (Group II and III), expressed some uneasiness about going out (50% and 52%, respectively).

The next series of statements was included to facilitate examination of the relationship between fear of crime and risk of victimization. Reaction to the statement, "I worry about being the victim of crime", divided the service and nonservice groups. Service recipients appear to be preoccupied with fear

of crime and the risk of victimization, with 57% and 55%, respectively answering "yes". The nonservice group on the other hand, answered noncommittedly with a split decision (44% answered both "yes" and "no").

Some apprehension is again evident among the respondents of Groups II and III who do not appear convinced that criminals are not "just waiting to prey" on them. Responses were negative to the question, but not overwhelmingly so (50% and 42%, respectively). Group I, in comparison, responded more assuredly, with 57% answering "no". Antunes (1978) found that elderly victims are more likely to be preyed upon than treated violently, while the reverse is true for younger victims.

Responses are even more diverse concerning fear of crime and victimization in regard to seeing strangers in their neighborhoods. The Control group was evenly divided in its' responses to the following statement: "I am afraid when I see strangers in my neighborhood". The 48-hr, follow-up group conveyed some misgivings about going out when they saw strangers in their neighborhood (46% answered positively). The 2-3 mo group seems less apprehensive (45% answered negatively).

Only 1 item was included regarding the nature of the criminal offense. The 48-hr, follow-up group believes most crimes involve violence. The Control group expressed the opposing view and the 2-3 mo, follow-up group was evenly divided in their response.

Amending Antunes' findings, Cook et al., (1978) concluded that when the elderly are victimized, crimes against them are generally unplanned and carried out by young, inexperienced, unarmed criminals as opposed to more systematic crimes carried out by professional criminals.

An interesting association emerges when these findings are coupled with the results of other statements which question portrayals of criminals and criminal acts in the media. All groups believe that television does not exaggerate the amount of crime that goes on, but that the police programs do not accurately show criminals and police officers interacting.

The 3 groups agreed upon several other points. All are of the opinion that the elderly are victimized more frequently than younger persons (for all crimes: 82%, 73% and 87%, respectively). All respondents showed a favorable attitude toward law enforcement and civic responsibility, agreeing that they would report crimes regardless of the nature of the offense or the realization that the offender may not be apprehended (65%, 60%, and 57%). No group was of the opinion that the private citizen is hopelessly devoid of recourse.

Finally, when questioned about a possible means of personal protection, the groups responded unanimously that owning a gun does not lessen one's chances of being victimized. Respondents are more convinced that cooperating with police is the best way to prevent crime (92%, 94%, and 85%, respectively).

Summary—This preliminary investigation is the first in a series of studies of elderly victims in the Tampa area. Elderly people are diffentially suscept-

ible to crime-related anxieties and reactions vary. These findings suggest that service recipients are perhaps more sensitive to crime and victimization.

The means of measuring these anxieties or concerns, specifically the fear of crime and risk of victimization, are not yet well-developed. Each measurement technique devised, including the CAQ, is subject to many errors.

In the future the VAP hopes, by reconstructing the CAQ and incorporating other devices, to minimize some of these sources of error and gain greater insight into the unique problems of this select group.

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# A PLAN FOR INTERVENTION TO FACILITATE SUCCESSFUL FUNCTIONING IN FAMILIES WITH CHRONICALLY-ILL CHILDREN

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Abstract: *Interviews were conducted with parents of chronically-ill children, both within a clinical setting and in their homes. An interest in the coping strategies utilized by such problem families was pursued. A plan for intervention in the form of a self-help-oriented parent's group within the clinic setting is proposed. The group is intended to provide a formal and direct line of communication between parents and clinic personnel. The concept behind the project is interpreted as advocacy anthropology and the function of the anthropologist within the group is considered to be catalytic.*

From September through December of 1978, I pursued an internship with The Children's Medical Service (CMS), a division of the Florida Department of Health and Rehabilitative Services, with a branch in Tampa. CMS is designed to provide medical care for children with chronic medical problems that will, if untreated, interfere with the growth, development and life of the child. Care is free to those families whose income indicates

that they cannot afford the cost of necessary care. There is also a "participation" program whereby more affluent families may receive treatment for their children, if they agree to assume part of the economic responsibility.

There are several clinics included in the program. Some of these are: pediatric cardiology, neurology, orthopedic, oncology, renal, ostomy, diabetic, surgery, plastic surgery and cleft palate.

I initially attempted to acquaint myself with all of the services and clinics of the program. I did this by attending the various clinics and by speaking with the parents of the patients. Eventually, I restricted myself to a close association with the pediatric neurology clinic.

Through the association with the pediatric neurology clinic and its staff physicians, I selected various cases for further study. The plan was to extensively interview selected families to achieve an understanding of the coping strategies that are employed by families with chronically-ill children. The ways in which these coping devices were utilized by the involved families to function both within the clinic and in the family setting was of particular interest. I felt this setting to be a suitable learning arena for an applied medical anthropologist because it provided the opportunity to study the functioning of a complex, multiservice, public health establishment and to view its effect upon the lives of its clients.

Unstructured, but directed interviews were conducted with clients in the clinic waiting rooms before and after appointments. Twenty-seven clients were interviewed at least twice. From the "waiting room interviews", 6 families were selected to be interviewed in greater depth and to highlight the other cases. These families agreed to be interviewed in their homes, where closer observation and evaluation of personal coping strategies were possible.

The families were selected primarily on the basis of their desire to talk and have further contact with yet another clinic figure, and for interesting "management syndromes" which they seemed to illustrate. Thus, selection was affected less by the type of medical problem than by the initial assessment of the overall functioning of the family.

There were many areas of functioning that were suggestive of consistent attempts at successful management of a severe family problem. Three of these areas were brought up often enough by different parents during the interviews to deserve mention within this brief paper. These are the utilization of extended family, neighborhood, or community support systems; formal religious involvement, or the ability to translate their problems with their afflicted child into religious terms; and what has been referred to in the literature as "the one-day-at-a-time orientation" (Burton, 1975). Parents were frequently able to allude to ties with relatives in the area or neighbors who could be called upon in an emergency as a requirement for daily functioning. As one parent stated, "If you have that situation that you can't depend on church, family, and friends, then you can't depend on anything."

In reference to their relationship to the clinic, parents often expressed

feelings of powerlessness, inferiority, and isolation. Expressions of powerlessness and a sense of inferiority came in the form of statements that indicated that they were afraid to ask too many questions about the care their child was receiving because, "If you get into things with people, then sometimes they will have it in for you". Further, I was frequently asked if I, or the doctors and nurses, had negative feelings about people who cannot pay for medical care for their children.

The isolation that parents of severely-ill children often feel has been well-documented (Talbot and Howell, 1971). My observations within the clinic waiting room indicate that the parents often attempt to combat this sense of isolation by developing informal relationships with other parents while waiting for appointments. It thus seems appropriate to consider the possibility for drawing-upon this dynamic tendency among parents to form loose associations within the clinic, in order to help combat not only the isolation, but also the expressed feelings of powerlessness and inferiority.

It is therefore suggested that 1 appropriate means of intervention would be the arrangement for a formal and institutionally-affiliated parent's group. Primary goals of such a group would be to give the involved families a better understanding of how the clinic actually functions and to give clients a sense of personal involvement in clinic services.

The parent's group would be defined in terms of an original pilot project that would attempt to bring parents together on a self-help basis. The group would thus be 1 possible means of intervention to help such families within the clinic setting. The pivotal figure within the group would be a member of the clinic staff, hopefully the director of clinic services. The self-help function of the group would then relate to its ability to provide a formal avenue for communication with clinic personnel who hold enough power to effect change within the institution. To provide a direct and formally institutionalized line of communication between clients and staff would be one of the chief goals of such a group.

The self-help-group concept directed toward systems change is defined as a form of family advocacy. A group of parents is put in direct contact with a clinic representative who has the ability to direct information and change. The anthropologist may be figuratively positioned between the 2 parties in order to function in a catalytic fashion.

It is hoped that the clinic representative would view their role in terms of their ability to answer questions immediately and directly, to provide necessary explanations when indicated, and to suggest a change in policy if the representative should become convinced, as a result of group input, that such change is in the best interests of the clients.

Among the recommendations that I would hope to make as a result of the project, would be that it become an institutionalized part of the agency program. I would hope ultimately to be able to define the project in terms of indirect, internal advocacy. For this to be justified, "the benefits should be permanent and affect all future users of the system" (Riley, 1971).

Several anthropologists have alluded to the marginal status of anthropologists within agency programs (Schensul and Schensul, 1978). Furthermore, it has been suggested that "possible uses of research findings should be communicated to those who are in a position to implement decisions" (Williamson et al., 1977). It must be recognized that student anthropologists do often have a marginal role within agencies. Given this marginality, they are often not in an optimal position to effectively recommend change within an institution. The proposal for the organization of a parent and staff contact group is thus one means to maximize the possibility that change will be implemented.

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# MANAGEMENT OF CULTURAL RESOURCES AT THE FLETCHER AVENUE PARK SITE, HILLSBOROUGH COUNTY, FLORIDA—

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Abstract: *An archaeological investigation was conducted on the proposed site of the Fletcher Avenue park for 8 wk during the summer of 1978. Site boundaries were located during the early stages of park planning so that adverse impact from park development could be minimized. Data-recovery was designed to produce cultural-historical information about the park's sites for use in on-site public displays. At the same time, problem-oriented excavations will contribute to an understanding of regional cultural processes in prehistory. Recommendations to park developers include site preservation techniques whose long-term effectiveness can be measured in the future. Scientific site preservation, coupled with public interpretation of the park's cultural resources all contribute to an overall program of management of cultural resources at the Fletcher Avenue park.*

Since September 1977 archaeologists at the University of South Florida Department of Anthropology have been working closely with private developers and county officials to produce a comprehensive program of natural resource management at the Hillsborough County Fletcher Avenue park. The park lies at the intersection of the Hillsborough River and Fletcher Avenue in northern Hillsborough County, northeast of the city of Tampa. Urban growth is rapidly encroaching upon the park property as the city of Tampa expands.

The park property contains a wide-range of ecological communities including river forest wetlands, hardwood forest, pine-palmetto flatwoods and cypress heads. These ecological zones support a representative cross section of the county's natural wildlife. The archaeological resource base of the park is also diverse, representing cultures ranging temporally from 5000 B.C. or earlier to the 18th century.

This broad natural and cultural resource base provides an opportunity to build a management program designed to preserve and protect a portion of the county's natural assets. The historic preservation component of this management program is the concern of this presentation.

Five archaeological sites were located on the Fletcher Avenue park property during a survey conducted in 1977 under the direction of David McCullough. The sites are: the Cherbonneaux, the Canoe, the Lettuce Lake, the Playground, and the Parking Lot. Students in the University of South Florida archaeological field school excavated portions of the Lettuce Lake, Playground and Parking Lot sites in the summer of 1978. These students were supervised by the author.

At the Cherbonneaux site, located on the riverbank in the river forest wetlands, Spanish earthenware sherds dated to the post-1700 period were recovered, possibly representing an overnight campsite of Francisco Maria Celi, Pilot to the Royal (Spanish) Fleet, who surveyed Tampa Bay and the Hillsborough River in 1757. The sherds could also represent a trade vessel used by the Timucuans who inhabited the area during the period. Several visits to the site did not produce evidence to confirm either of these possibilities.

The Canoe site is also located on the riverbank in the river forest wetlands. Wakulla check stamped rim and body sherds, and Belle Glade Plain body sherds were recovered from this site, suggesting a cultural association to the Weeden Island period. The site is located directly across the river from the mouth of Cypress Creek. Approximately 1 mile upstream on Cypress Creek is the Buck Hammock site, a Weeden Island or Safety Harbor burial mound and associated village site. Although the distribution of these 2 sites suggests a possible cultural link, no evidence was recovered to confirm this.

The Lettuce Lake site is located on the riverbank in a hardwood forest adjacent to the river forest wetlands. The artifact assemblage includes Florida Archaic-stemmed, Clay, and Hernando projectile points and medium to fine sand-tempered ceramics with a gritty surface texture. An abundance of cortical lithic flakes, as well as heat-treated fine pressure flaking debitage suggests that the site could have been a lithic workshop where chert nodules, prepared at one of the many nearby quarry sites, were transported for refinement. Dates between 1000 B.C. and A.D. 500 can be tentatively assigned to this site covering the Florida Transitional and Deptford cultural periods. Because it is believed that coastal subsistence was the main focus during this period, more work needs to be done to understand the nature of inland cultural activities during this time range.

The Playground site, located at the interface of a hardwood forest and a pine-palmetto flatwood is a small Archaic period lithic scatter. Florida Archaic stemmed projectile points and noncortical lithic debitage were distributed over a gentle hillslope. No aboriginal ceramics were recovered from the site. Dates between 5000 B.C. to 2000 B.C. are assigned to this site, placing it in the Late Archaic cultural period.

The Parking Lot site stands on a sand ridge which forms the highest elevations in the park property. It is located in the pine-palmetto flatwoods of the park. The site's boundary follows a contour line part way down the slope of the sand ridge, suggesting that the site's extent could have been limited by a natural feature regulated by elevation, possibly a high water table. A relic water table, observed in the site's soil profile as a dark humic layer and bright red iron oxide layer, corresponds in elevation with the site's contour line boundary. No data were secured which could confirm the relationship between the site's deposition and the relic water table. No aboriginal ceramics were recovered from the site. The presence of Florida Archaic stemmed points in the artifact assemblage suggests that the site should be temporally placed within the Florida Archaic period.

In developing a program for the management of the park's cultural resources it was important to recognize the potential adverse impacts that threatened the sites. The urban development that is being planned will eventually surround the park. The county's action of securing the property for park development has a mitigating effect by sparing the land from dense urbanization. In the recent past the park property has become a favorite area for artifact thieves and site looters. County ownership and maintenance hopefully will serve to deter collectors from destroying the cultural resources, again producing a mitigating effect. The overall resource management program envisioned by the county will help arrest erosion and other natural processes that are detrimental to the archaeological sites. Therefore, the county's park plans help mitigate impacts that threaten the cultural resources.

However, development within the park's property also threatened the archaeological resources with adverse impact. Because the park's developers were committed to a program of general resource management, they were willing to cooperate in efforts to protect archaeological sites from developmental activities. These efforts included alteration of ground modification plans that would disturb subsurface archaeological resources, placement of borrow pits and construction access roads away from archaeological sites, and, when avoidance was not feasible, protective measures such as the placement of fill over portions of the sites.

The program of cultural resource management at the park also attempted to foresee adverse impacts from public use after completion of the park's development. Recommendations were made that would reduce adverse impact from park maintenance and grounds keeping.

In addition to recognizing adverse impacts and recommending mitiga-

tion procedures, the program of resource management at the Fletcher Avenue park incorporates plans to provide the public with an interpretation of cultural resources. On-site displays are planned which will present the cultural-historical and cultural-ecological aspects of the park's resources, as well as a general presentation on archaeological methodology and regional prehistoric and historic chronology.

Public interpretation of archaeological research is a professional obligation that is often overlooked by archaeologists. Archaeology is impinging upon the public more and more, through tax support to archaeological research, compliance with government regulations, or requests from archaeologists for voluntary cooperation. The community should have an opportunity to understand why these requests are being made of them. Also, an informed public will, hopefully, serve to protect and preserve our nonrenewable cultural resources.

Historic preservation in the United States pivots on the National Register of Historic Places. Archaeological resources which are judged to be significant are those eligible for placement on the National Register. In assessing a resource's significance the following general criteria are usually employed: its research potential, and its potential for public appreciation. Document 36 CFR 60 states that sites "that have yielded or may be likely to yield, information important in prehistory or history" are significant for their research potential. On this basis, there are few sites that could not be considered significant. The investigative potential of an archaeological resource becomes more relevant when it is considered in the context of a research design. A resource's potential for public interpretation considers its applicability in training future cultural resource managers and also providing the general public with an understanding of the resource.

The program of cultural resource management at the Fletcher Avenue park has attempted to be comprehensive in scope. The park's investigative potential and potential for public interpretation have been considered. The archaeological survey and subsequent excavations were designed to define the nature of the resources so as to facilitate protection and preservation, as well as to gain an understanding of their cultural-historical and cultural-ecological aspects. Adverse impacts from community growth and internal park development have been identified and efforts have been made to mitigate their effects. The visible results of the program will include a representative group of archaeological sites whose integrity is preserved and whose value is interpreted to the public in the midst of urban growth.

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# AN APPRAISAL OF HARDEE COUNTY ARCHAEOLOGY: HINTERLAND OR HEARTLAND?

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ABSTRACT: *Recent archaeological research has indicated that certain areas of Florida which traditionally have been designated as "hinterland" may in fact be "heartland". Cooperation between local amateur archaeologist and professional archaeologists has enabled us to record sites previously unknown or unrecorded. Knowledge of these sites will require a reevaluation of Hardee County's role in Florida prehistory.*

ARCHAEOLOGICAL research in the region of Tampa Bay has traditionally focused on the Gulf Coastal strand, where, it is presumed, the major cultural developments of prehistory occurred. Meanwhile, the inland zone has, to a great extent, been largely overlooked by archaeologists of the region. One consequence of this imbalance is total misinterpretation of the archaeological import of this inland zone. This has especially been the case with Hardee County. The current interpretation of the county's role in the overall cultural development of the Tampa Bay region has been characterized by some as, at best a recipient of prehistoric cultures whose origins and development lay elsewhere, or, at worst, a "hinterland" or cultural buffer zone, or as otherwise inhospitable to intensive human occupation. However, there are a number of archaeological sites in the County that suggest a different interpretation, one that argues for a far greater role on the part of prehistoric populations living there. It is further suggested that significant cultural groups were in residence on a year-round basis, and that they were participating in the same cultural evolutionary developments taking hold elsewhere in the region—such as the emergence of more effective systems of agricultural production, and the rise of nonegalitarian (or ranked) social organization.

We became interested in the archaeology of Hardee County during U.S.F.'s 1977 Summer Field School in northwest Hardee County, where excavations were conducted at Fenceline Orchard Site. During the session inquiries were made around the local area in search of individuals who might inform us of sites not already recorded by the State of Florida's Division of Archives. Of the local informants consulted, Mr. Mitchell Hope, curator of the Peace River Museum in Zolfo Springs, proved an invaluable source of information on the whereabouts of a number of major sites in the County. It is on the basis of Mr. Hope's admirable efforts, and the efforts of a number of survey archaeologists, that this overview of Hardee County archaeology is presented.

Hardee County is located in the interior portion of Florida's Central Gulf Coast, situated east of Manatee County and southeast of Hillsborough County. Physiographically, the County encompasses the middle third of the Peace River Basin, and includes the northern and southern termini of the Polk Uplands and the Desoto Plain, respectively. Immediately adjoining on the east is the Central Lake Ridge. Hardee County is an area marked by con-

siderable environmental microzonation, with an abundance of floral, faunal, and mineral resources. Major streams of the Peace River include Charlie Creek, Oak Creek, Horse Creek, and Payne and Little Payne Creeks.

The first professional archaeological investigations were conducted at the Davis Mound Site (8Hrl) in east-central Hardee County by Bullen (1954). The mound is similar in many respects to the Goodnow Mound Site in western Highlands County (Griffin and Smith, 1948), and to the Parrish Mounds 1, 2, and 3 in Manatee County (Willey, 1949). A burial mound measuring approximately 40 ft in dia and 4 ft in elevation, the Davis Site produced over a 2-da investigation sherds of Belle Glade Plain, secondary bundle burials, red ochre with some of the interments, and evidence of sub-mound preparation. Based on burial form information and other minor traits, Bullen placed the site in the early or prehistoric portion of the Safety Harbor Period.

Following a 20-yr hiatus, archaeological investigations were resumed, these largely a consequence of the development of phosphate industry lands. Milanich, Marinan, and Martinez (1975) conducted a survey west of Zolfo Springs in west-central Hardee County where a number of small sites were recorded. They concluded that this area of pine-scrub flatlands, marginal to the more ecologically bountiful Gulf Coastal Strand on the west and the Central Highlands and Okeechobee Basin on the east and southeast, offered little in the way of subsistence resources to its prehistoric inhabitants. The aboriginal sites were assessed as either Archaic Period hunting and/or quarry camps, or much later period sites that purportedly represent a northern migration of peoples of the Belle Glade culture.

Subsequently, Milanich and Willis (1976) surveyed mining properties in northwest Hardee County, again in the pine-scrub flatlands, and again concluded that the area was at best sporadically occupied. By then, a number of other archaeological assessment surveys had been completed in the flatlands of adjacent counties, and in a preliminary synthesis of this data by Padgett (1976), it was concluded that this interior portion of the Tampa Bay region served only as a "hinterland" zone of exploitation by coastal peoples. In essence, it is Padgett's contention that this hinterland, which includes a small portion of Hardee, Polk, and Desoto counties and the eastern portion of Hillsborough, Manatee, and Sarasota counties, was exploited primarily as a hunting reserve. By implication there should be a "conspicuous lack of village sites."

More recently, investigations by Deming (1976) and Wood (1976) have disclosed a number of potential village or hamlet occupation sites in this "hinterland," including a Weeden Island Period burial mound, 5 apparently "domiciliary" mounds, and 2 sites bearing ceramics. Subsequently, the ceramic sites were salvage-excavated by Ellis (1977) and myself (Wharton, 1977), and our preliminary results strongly suggest that this "hinterland" may indeed have been a "heartland" in its own right.

Despite these important findings, some archaeologists persisted in their view that Hardee County served as a hinterland, or worse, that it functioned solely as a "no-man's land" or buffer zone between the cultures of coastal Tampa Bay and the Okeechobee Basin—that ". . . at no time during the prehistoric period was the region ever an important culture area" (Willis and Milanich, 1977).

Most recently, we have carried-out, in conjunction with Mr. Mitchell Hope, a reconnaissance of the eastern half of Hardee County where a number of unrecorded and/or undocumented major sites are located, including a truncated platform mound of immense proportions, 3 village sites, and at least 3 burial cemetery sites. Within a one-fourth mile of the Davis Burial Mound is situated the platform mound, mysteriously left unrecorded by Bullen during his investigations. Although precise estimates of the size of the platform mound have not been made, it appears to be about 200 ft in length and 15 to 20 ft in elevation above the surrounding terrain. Surface collections have yielded pottery, including Wakulla Check Stamped, Weeden Island Plain, St. Johns Plain, and possibly Englewood Plain, and lithic tools, including a Pinellas Point, blade flakes, scrapers, and biface fragments. Two distinct village occupation areas extended in 2 directions away from the mound, these now under pasture and citrus groves. The mound itself has been lightly disturbed by a local troop of Boy Scouts (M. Hope, pers. comm., 1977), where reportedly nothing was found. Based on this preliminary information, the Davis platform mound and associated village occupation can be roughly placed in the late portion of the Weeden Island Period, or possibly very early Safety Harbor, the latter assessment being in accord with Bullen's (1952) temporal placement of the associated burial mound site. This site complex has important implications for the cultural development of complex societies of Tampa Bay's late Weeden Island and Safety Harbor period, as will be discussed later in this paper.

Other sites of great potential significance in Hardee County are the Elclair Mound, located 3-1/4 mi northeast of the Davis Complex, and the Republic Groves Site (8Hr3). While the former has yet to be investigated, the latter has received the attention of Mr. Hope, whose efforts at this site have preserved a substantial body of archaeological information that would otherwise have been lost. During a channelization operation the site was discovered when human burials were exposed by the dragline. In an effort to salvage what information he could before the site was destroyed, Mr. Hope conducted controlled excavations of the peat bog area where the skeletal material was found. In addition to a large number of burials, Mr. Hope recovered beautifully preserved wooden stakes (pointed at one end), incised bone, antler, and wood, and most notably, the preserved remains of human brain. Bullen, who visited the site during Mr. Hope's investigations, estimated that the site fell in the early-to-middle Orange (or Norwood) Period, or approximately 1500 B.C. Dr. William Sears, who also visited the site, placed it tentatively around 500 B.C. Some of the incised artifacts show

undeniable affinity to materials recovered from the Tick Island Site in Volusia County, a famous Archaic and Orange Period site that is now largely destroyed. A short distance from the Republic Groves Site, Mr. Hope mapped in areas producing pottery. A Belle Glade Plain rim sherd was found. This site is of tremendous importance for Tampa Bay archaeology, for there are no reported "pure" Orange Period sites known for the region, although it is highly probable that more sites of this period lay well offshore in the waters of Tampa Bay.

Still another important, and unrecorded site, the Keene Mound Site, is located in southwest Hardee County. This site is a Glades culture-like burial mound/horseshoe embankment structure, similar to sites worked by Sears (1974) in the Okeechobee Basin. According to Mr. Hope, one "incised red sherd" was recovered along with a number of lithic items. Bullen (1952) reported that the Jones Mound in Hillsborough County was also a burial mound/horseshoe embankment structure. The cultural-temporal affiliation of the Keene Site is presently unknown, but its importance to the interpretation of regional prehistory can hardly be denied.

Last year, another assessment survey of mining lands, conducted by Batcho (1978) in northwest Hardee County, resulted in the location of still more evidence of sedentary occupation. Among 9 new prehistoric sites recorded during the survey, 1 (probably 2) burial mound was documented. The Little Payne Creek #7 Site, a burial mound whose above-surface component was earlier destroyed, yielded sherds of the Weeden Island Period Dunn's Creek Red and possibly Englewood Plain. Also, located during the survey were a number of ceramic-bearing sites probably associated with the burial mound. Another burial mound was locally reported, but efforts by Batcho failed to reveal any evidences of the site, which was destroyed years ago.

A question one may well ask is why, in the glaring presence of all these important sites, Hardee County has been so unfavorably characterized? I suspect that one of the main reasons lies in the fact that archaeologists tend to believe that all the really big happenings in Tampa Bay prehistory occurred along the coast, an interpretation spurred on in part by the imposing size of the region's shell middens. Another reason apparently is the implicit notion held by some archaeologists that the inland Tampa Bay region is meager in terms of food and nonfood resource potential. Perhaps in light of the information presented here, a drastic re-orientation in perspective is required. We will offer one such novel viewpoint that is consistent with what we know about the evolutionary development of agriculturally-based cultures.

A very promising working hypothesis dealing with the transition from Weeden Island to Safety Harbor culture is that as the coastal environments were being depleted in collectible food resources, such as the resources of the marine-estuary, the growing populations of Tampa Bay were forced to turn to other subsistence pursuits. One procurement strategy, that of hor-

ticultural food production, was probably a minor part of the total subsistence regime during the early Weeden Island Period, and once the environmental depletions began to be felt by these peoples, they began to intensify their horticultural production. Societies dependent upon horticultural production in the subtropical environment tend to follow a swidden or shifting plot system of farming. Such systems are notoriously land-hungry (Percy and Brose n.d.; Price 1977), and in their quest for new farm lands these systems began to seriously compete for the rapidly-dwindling lands still available. Once agricultural production enters zones previously lacking it, such as Hardee County, the result is often the upset of the balance of political power, and previously marginal areas may eclipse ones formerly nuclear, such as the Tampa Bay coastal zone (Price, 1977). Furthermore, generally accompanying the spread of swidden systems is the emergence and proliferation of nonegalitarian societies, such as could be inferred in the case of the Davis Site complex. Nonegalitarian societies are operationally defined by Sanders and Price (1968) as having monumental civic architecture, sumptuary goods, and intrasystemic site stratification, all of which are present at the Davis Site or associated sites in the immediate vicinity.

Ethnohistoric support for this upset in the political balance of power and the emergence of nonegalitarian societies exists in the de Soto chronicles wherein is mentioned a chief named Paracoxi (or Urribarracoxi) who lived some "20 leagues" inland from the point of entry of the de Soto expedition. This chief is said to have held dominion over all the peoples living along the coast (Smith, 1968). Depending upon the landing point of the de Soto expedition, Paracoxi (his personage, his principal town, and his province) could be located anywhere from Hardee County north to Sumter County. One suggestion as to the location of the province of Paracoxi is in Bullen's (1978) "Tocobaga Indians and the Safety Harbor Culture," wherein he states that ". . . (a)s de Soto marched to Paracoxi (Smith 1968:35-36) *beyond* Mococo, he encountered, according to Garcilaso (1605), "grape, walnut, evergreen oaks, mulberry, plums, pines, and oaks." This more accurately describes the territory around Arcadia and Wauchula rather than that of the Caloosahatchee River" (1978:52).

In any event, it is clear from the foregoing that the archaeology of Hardee County is a tremendously important and untapped source of information directly pertinent to the study of Tampa Bay prehistory. The information on hand demonstrates there has been occupation of the Hardee County area from remote Archaic times, through the enigmatic Orange Period, and during and subsequent to the transition from Weeden Island to Safety Harbor times. Without the benefit of this largely unrealized potential, any interpretation of the archaeology of the Tampa Bay region can only reveal a part of the story. The remaining chapters might have gone unread if it were not for the diligent efforts of private citizens such as Mitchell Hope. We feel we owe a debt of gratitude for his unswerving attempts at preserving and salvaging the archaeological record of this "hinterland" known as Hardee County.

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# REPORT OF EXCAVATIONS OF THE FORT BROOKE SITE (8-HI-13)

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ABSTRACT: *Excavations conducted in a portion of the Fort Brooke site located in downtown Tampa revealed no subsurface structural remains of the fort-period; however, several fort-period artifacts were recovered. These findings, revealed in a context of modern disturbance, provide some substantiation to the evidence available in historical documents. The nature of the archaeological evidence at the site demonstrates the nearby location of the Fort, as well as some of the circumstances of its existence. During the excavations a relatively intact aboriginal shell midden was also encountered. This aboriginal component consisted of lithic tools and debris, along with animal remains and pottery, and it tentatively associated with the late Weeden Island cultural period.*

THE excavations at the Fort Brooke site (8-Hi-13) in downtown Tampa, conducted during the summer of 1978 as part of the University of South Florida's Summer Archaeological Field School, reveal some interesting conclusions regarding the nature of the area's cultural resources and the problems of conducting archaeological investigations in an urban setting.

These excavations were conducted to mitigate the impacts from the construction of a city parking lot on the site. Preliminary testing of the site, during the spring of 1978, resulted in the recovery of numerous Fort Brooke period artifacts and the recommendations for further investigations (Deming, 1978).

The establishment of Fort Brooke was significant in terms of Tampa's cultural heritage. Fort Brooke was a military cantonment established in 1824 to deal with the growing tensions in the area that developed between the First and Second Seminole Wars. Its occupation ranged from 1824 to the 1880s and was thus an important factor in Tampa's early history. The military reservation of Fort Brooke encompassed 256 square mi at its largest boundaries and included most of the present area of downtown Tampa.

Most of the information associated with the Fort's occupation has been well-documented in archival material. However, the evidence of actual subsurface structural remains of the Fort has not been well-established. One of the problems that hampered effective data recovery was the lack of adequate historic documentary research prior to the excavations. This research is a necessary step in dealing with the cultural remains of the historic period; it generally provides ample information, if not always accurate information, that can be useful in the fieldwork phase of archaeological investigations. The documentary material provided for the Fort Brooke excavations was weak. It consisted only of an 1838 map of the Fort on which was placed an overlay of the present downtown Tampa street plan.

According to this map, 3 buildings occupied the area that the Field School excavated: 2 commissary buildings and the Quartermaster's storehouse. It was on the basis of this information that the city of Tampa decided to have the area investigated before building the parking lot. The preliminary fieldwork strategies were also developed from the information provided by this map.

Other documentary evidence reveals information about the disturbances to the site's integrity which is a significant factor in the interpretation of the cultural remains recovered during the excavations. Most of the Fort was burned to the ground during its occupation in 1834. In 1848 more than half of the Fort's buildings was washed away during the devastating hurricane of that year. According to the Sanborn Insurance maps of the late 19th century a large wood frame building, housing the Cuban-American Veneer and Transportation Company, was located within the locus of the 1978 excavations for several decades until its demolition in the 1920s. Since that time there have been several buildings constructed and demolished on the site, including a gas station, a truck repair shop, an auto sales and service establishment and a liquor store. The negative evidence associated with the Fort Brooke occupation as well as the positive evidence of the later destructive activities in the area was clearly shown by the excavations.

Of course, the accuracy of the historical documentation is largely associated with the outcome of the archaeological investigations. Although the results of thorough documentary research cannot substitute for archaeological evidence, the cooperative efforts of the 2 disciplines can be used effectively for the recovery and interpretation of cultural remains. The concept of viewing archaeological research only as a means to substantiate the historical record is no longer a viable one. Unfortunately, the effective combination of the 2 fields is not yet being used for the research goals of explaining the cultural processes as reflected in the remains of the historic period.

However, the problem encountered during the Fort Brooke excavations that seems to be the most pertinent to the discussion of applied anthropology is the situation that revolved around the opposite opinions of the city's political powers. Its effects on the archaeological investigations were both numerous and far-reaching.

According to the available documentary information concerning the Fort's history, it was presumed that the locus of the excavations would yield valuable information regarding evidence of the Fort Brooke period. The need for preliminary testing of the site was urged by one of the political factions. This work was carried-out as part of a feasibility study associated with a proposal for the construction of an historic park as an alternative to the parking lot. The other political faction favored the parking lot's construction. These differing opinions were firmly in place by the time of the summer excavations and the work seemed to represent a major political issue.

According to the antiparking lot perspective, the recovery of significant evidence associated with the Fort's occupation would serve to stop the parking lot's construction; according to the contractual agreements forming the basis of the archaeological investigations, the excavations were considered to be mitigative work associated with the parking lot's construction, which was to begin immediately following the fieldwork.

The archaeological investigations, then, became the focus of a dispute between different factions of the city's political structure. The problem

created for the archaeologist is obvious—attempting to remain uninvolved in a situation in which the archaeological project plays a major role. Of course archaeological investigations do not exist in a vacuum, and many outside considerations are usually dealt with as a matter of course during excavations. Archaeologists are beginning to realize that they need to learn how to effectively deal with the political aspects of their work. This sort of knowledge can only be acquired through the continued practice of archaeology in the public arena—applied anthropology, public archaeology.

There was a great deal of publicity generated by the excavations, due to both the object of the excavations and the political issue. This resulted in a constant stream of visitors to the site. The increase in public awareness and understanding of archaeological goals, methods and problems were significant in terms of the goals of public archaeology.

In terms of the archaeological data recovered during the excavations, the results can be summarized as follows: the evidence of severe disturbances as a result of both 19th century and modern land-altering activities were clearly represented at the site. The upper levels, at a depth of approximately 50 cm below surface, produced a mixture of 20th Century, 19th Century and aboriginal material within a highly disturbed matrix. The evidence of the Fort Brooke occupation, along with the later 19th Century occupation, was confined to these levels, with a major portion of these remains concentrated in Level 2 (30-50 cm below surface). This evidence consisted, for the most part, of glass and ceramic fragments datable, through the analysis of the manufacture techniques, to a mid-19th Century context. There were no subsurface structural remains associated with the Fort Brooke period revealed during the excavations. The accuracy of the map used during the excavations was questioned, and portions of the entire framework of Fort Brooke period research orientations within the downtown area were redefined as well.

The lower levels, extending to approximately 100-120 cm below surface, revealed a decrease in the evidence of both the disturbance and the quantity of modern and 19th Century remains. A fairly undisturbed aboriginal component was encountered within these levels which consisted, for the most part, of a relatively intact shell midden. It was tentatively identified to be a locus of a long, though intermittent, occupation possibly extending from preceramic through post-Weeden Island times.

The recovery of significant data regarding the aboriginal occupation of the area also served to re-orient some of the research priorities associated with continued archaeological research within the downtown Tampa area. Further research within this area will be focused on the continued, though intensified, studies resulting from the combination of both archaeological and historic research as well as the additional research concerned with the aboriginal component in the area.

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# A NEEDS ASSESSMENT OF MIGRANT FARMWORKERS IN SOUTHEASTERN HILLSBOROUGH COUNTY

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ABSTRACT: *I present some of the findings of a needs assessment survey among migrant/farmworkers in rural southern Hillsborough County. The study concentrates on educational levels, family size and income levels of the predominantly Hispanic target population. Some attitudinal data are presented.*

I DESCRIBE the results of a research project concerning migrant farmworkers, conducted in the Ruskin area of southeastern Hillsborough County, Florida, between September 1978 and January 1979. The research was conducted while I had an internship with Bay Area Legal Services, Inc. This was part of the Applied Anthropology Internship Project, supported by a grant from the National Institute of Mental Health.

The focus of this research was dictated largely by the needs of the Migrant Unit of Bay Area Legal Services, Inc. The Migrant Unit supervisor, Alvaro Ruiz, requested that I conduct a study which would concentrate on selected social, demographic and economic conditions as they appeared among the migrant farmworker population of southeastern Hillsborough County. These include family size, income levels, and medical problems, along with a host of other variables.

This project is a preliminary study. The reason for this qualification is that the temporal, financial and personnel constraints under which this project was conducted necessarily limited its scope. Even so, it is hoped that the findings of this project will be helpful to those, including Bay Area Legal Services, Inc., who are working to improve the conditions of migrant farmworkers.

Bay Area Legal Services, Inc., is a nonprofit corporation chartered under the laws of the state of Florida. Its primary source of funding is from the Legal Services Corporation in Washington, D.C. Bay Area Legal Services also receives funds from the U. S. Department of Health, Education and Welfare, under Title 20 of the Social Security Act. These funds are channeled through the Florida Department of Health and Rehabilitative Services.

The Migrant Unit consists of 2 staff attorneys, a paralegal and a staff secretary. Inasmuch as recent reports indicate that the percentage of Spanish-speaking workers, especially Mexicans in the farm labor force is in-

creasing (Lewis, 1976; N.A.F.O., 1977; Stockburger, 1977), it is appropriate and a distinct advantage to the Migrant Unit that 3 of its 4 full-time staff are completely bilingual.

The Migrant Unit's efforts, while largely in the area of immigration, also include the full-range of noncriminal legal services. These include employment disputes, domestic relations, consumer fraud, and landlord/tenant actions.

One major problem which I noted during my internship was that, due to the transient nature of the migrant population, paperwork and court cases were often delayed while workers travelled north for work or home to Mexico or Texas for a short visit.

The first problem encountered by researchers who attempt to focus their efforts on migrant farmworkers, is the lack of a standardized operational definition of migrant farmworkers. One report, commissioned by Region III of the United States Department of Health, Education and Welfare in 1977, offered 16 pages of definitions for the terms migrant and seasonal farmworkers (N.A.F.O., 1977).

The problem of developing standardized operational definitions for the various categories of farmworkers is an important and immediate concern. It is obvious that unless there is consensus on a definition, efforts to enumerate and serve this group will be fragmentary and incomplete.

On the national level, estimates for farmworkers in general, range from 255,000 to more than 5,000,000 (N.A.F.O., 1977). The wide range of estimates may be attributed to "problems with definitions, methodologies, and surveying techniques . . .," (N.A.F.O., 1977) employed by the agencies conducting the count. Three primary sources for data concerning the national farm labor population are: 1) *In-Season Farm Labor Reports* which are prepared by the Employment Service of the U.S. Department of Labor, 2) *The Hired Farmworking Force* by the U.S. Department of Agriculture, and 3) *Migrant Health Program Target Population Estimates* compiled by the U.S. Department of Health, Education and Welfare, 1973. These reports have been identified by N.A.F.O. as "the data most frequently relied on by government policymakers . . ." (N.A.F.O., 1977). The N.A.F.O. report carefully delineates the reasons why they believe such data do not represent the actual population, and should consequently not be used for purposes of federal policy formulation and program planning. Once again, it is useful to note that the lack of standardized definitions, differing methodologies and inadequate sampling have contributed to the confusion which abounds concerning the figures for the national and local farmworker population.

In Florida, estimates for the total farmworker population range from 90,000 to 150,000 (Sandon, 1977). However, Pedro Narezo, an investigator for the Florida Migrant Labor Program, suggested in an interview that the actual count may be up to 200,000 for migrant and seasonal farmworkers during the peak months January to June.

The data for this project were gathered through personal interviews with migrant farmworkers. The interview methods employed included the use of a survey instrument, along with open-ended discussions with migrants concerning those issues which they perceived as important and critical. Initially, I began interviewing migrants at the Ruskin Community Service Center. This approach however, provided me with a necessarily biased sample. The reason for this is that the Ruskin Community Service Center is a site where a broad range of human services agencies are located and service the needs of some portion of the area's migrant farmworkers, as well as non-farmworker rural poor. It may be argued that the simple fact that a migrant had arrived at the center to avail himself or herself of the services offered, might result in a sample which was not representative of the total migrant population residing in the Ruskin area during the time period in which this project was conducted.

With this in mind, I arranged with Carlos Betancourt, a paralegal with Bay Area Legal Services, Inc., to accompany him to several migrant labor camps in the area. Mr. Betancourt would, on Tuesday and Friday evenings, travel to camps to obtain signatures on immigration forms or vital information from those clients who were unable, either due to work or lack of transportation, to arrive at Bay Area Legal Services, Inc. outreach office in the Ruskin Community Service Center or its downtown Tampa offices.

Mr. Betancourt had been working in the area for more than a year. I soon learned that he had established a reputation as a hard-working and concerned individual, as well as being a close friend to many of the farmworkers. Thus, being introduced by Mr. Betancourt, as a friend of his was extremely helpful in allaying the fears or doubts that inevitably arise when a stranger appears at one of the labor camps. I have no doubt but that due to the large numbers of undocumented and illegal workers in these camps, their initial response to me would have been much more cautious and restrained had it not been for Mr. Betancourt's long-standing and cooperative relationship with the migrants.

Most often Mr. Betancourt would visit with 1 or 2 families in a camp. I would interview these families and usually during the interview, partake of a simple meal of frijoles y tortillas. Then I would ask the head of the household or his wife if they could suggest someone else living in the camp who would not mind being interviewed. They would invariably take me to a friend's dwelling and introduce me as a friend and university student who was conducting a study of conditions among migrant farmworkers. I used this method with considerable success.

On several occasions, Mr. Betancourt and I would arrive at a camp toward sunset when there would be a group or groups of men standing outside talking. Usually, Mr. Betancourt knew, or would at least recognize one of the men, thus opening the door for me to interview several of the men, as a result of the initial link through Mr. Betancourt.

The following study provides an interesting example of what can happen

when you start "cold". One of my very first interviews was with a Mexican couple whom I approached "cold" at the Ruskin Community Service Center. I introduced myself and explained my purpose for being there. The couple agreed to cooperate and be interviewed. We went through the questionnaire and talked for a while. Later that same day, this couple had occasion to speak with Mr. Betancourt about the fact that I had interviewed them. When Mr. Betancourt explained to them that I was a friend and that the results of my project would be useful to Bay Area Legal Services, they became somewhat upset. They revealed to Mr. Betancourt that they had been uncertain of who I was and as a result had provided me with some inaccurate information. Needless to say, this questionnaire was excluded from the survey.

There has been a considerable shift in the ethnic composition of the migrant farmworker force in Florida. Until recently, Blacks were the predominant group. More recently, "there has been a significant increase in the number of Mexican Americans, and it is estimated that persons of Hispanic origin are now in the majority" (Cavenaugh, et al., 1977). Evidence indicates that this same trend is occurring in the Ruskin Area of Hillsborough County. My own sample is limited, to the extent that 83% of those sampled were Hispanic (mostly Mexican-American) with the remaining 17% being Blacks. There are no White migrant farmworkers in my sample, so that if any inferences may be drawn from these findings, they must be confined for the most part to the Hispanic segment of the migrant farmworker population of the target area.

There exists no reliable figures as to the ethnic composition of the migrant farmworker labor force in Hillsborough County, much less Ruskin and its immediate surroundings. However, in-depth interviews with staff personnel at the Migrant Health Project Clinic in Ruskin produced the following estimates of the ethnic composition of the area migrant labor force. These estimates are based on the numbers of migrant farmworkers from each ethnic group, that utilize the medical services provided by the clinic. It is essential that we remain aware of the limitations of these data.

The various Hispanic sub-classifications (i.e., Mexican, Mexican-American, Puerto Rican, and Cuban) have in this case been collapsed into 1 single category. Hispanics at present are estimated to make up approximately 85% of the farmworker population in the immediate Ruskin area, while the number of Blacks is estimated to be 12% and Whites the remaining 3%. The 85% estimated Hispanic population for the target area corresponds closely to the 83% for Hispanic respondents in my own survey example.

While Rowe and Smith (1976), in *The Hired Farm Working Force of 1975*, state the mean age of all hired farmworkers in 1975 was 23 yr, my own findings for the Hispanic farmworker population in the Ruskin area indicate an average age of 34.

Rowe and Smith (1976) report that 53% of all hired farmworkers nationally are "not in the labor force most of the year; the majority were

students". These figures contrast strongly with the evidence which I found indicating that 100% of the adult Hispanics interviewed earned income only through farm labor and were not enrolled in educational programs of any kind.

For the adult male head-of-households included in the sample, the mean age was 34 yr. When individuals from the sample connected with single member households were included, the mean age rose to 38 yr. The mean age for wives in the households sampled was 32 yr. The youngest wife of a head of household was 17 yr, while the oldest was 56. These data may be compared with 18 yr and 67 yr respectively for youngest and oldest male head-of-households sampled. The average family size was just over 5, ranging from 1 to 10 persons. The average number of children still living within the household was 3.5.

While several respondents indicated that they had in the past been employed in areas other than agricultural labor, both in the United States and Mexico, including construction, factory labor, restaurant cooks, roofers and welders, 100% of the survey sample indicated that at present the primary and only source of income was through farm labor. At the same time, the number of years employed as farmworkers varied from 1 to 60 yr; with the mean for all being 17 yr. The oldest respondent (67 yr) in the sample had begun his career as a farmworker at 7 yr of age. He was still working in the fields, although, due to severe rheumatism, his income was minimal.

The survey included inquiry as to the minimum and maximum weekly incomes which a male farmworker in the Ruskin area, working primarily on the tomato harvest, might expect to earn. The mean figure for the minimum income earned in 1 wk was $47. At the same time, the mean for the maximum weekly income earned was $144. Use of these 2 figures to calculate the mean weekly income for an individual male farmworker resulted in a figure of $95.00/wk. This figure is only an estimate based on the income data provided by respondents. One must recall that these income figures are relevant to the harvest period between September 1978 and January 1979, during which time the study was conducted and do not represent annual weekly income figures.

Inquiries concerning the frequency and rate of pay revealed that over 70% of the workers (both male and female) received payment for work by check on a weekly basis. It is only very recently that farmworkers have been included under the Federal Minimum Wage legislation. Although 79% indicated that their income was figured on a piece rate basis; that is, that for each basket of tomatoes picked between 35¢ and 40¢ was earned, there were in fact jobs that paid the minimum hourly wage rate of $2.90.

One respondent did not know how his wage rate was calculated. He simply received his check at the end of each week and apparently confided completely and totally in his crew leader or labor contractor.

On the subject of medical care, 65% of the farmworkers indicated that they had not required medical care at any time during the previous 12 mo

while residing in Hillsborough County. Of the 35% who responded in the affirmative, 62% said that they had been made aware of the availability of medical services in the area by a friend or a neighbor, 28% said that a social services agency representative had informed them, and 10% had received the information from a relative.

Asked if they had applied for food stamps in Hillsborough County, 63% of my respondents answered "yes", 64% had waited less than 1 wk for an intake appointment after making initial contact with the food stamp office, and 29% had to wait for more than 2 wk after the initial contact. The most common source of information concerning the local food stamp office was a friend or neighbor.

The data presented here are based on a very small sample of the migrant farmworker population in a county that is estimated by Rosalie Serrano, director of the Migrant Health Clinic in Ruskin, to have as many as 12,500 farmworkers, both seasonal and migrant, during the peak seasons. Any comparisons made with data collected by other researchers are, strictly speaking, not statistically valid due to the small size of my sample. I do, however, feel that the comparisons presented are useful, inasmuch as they may provide a point of reference from which to view these findings.

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# APPLIED ANTHROPOLOGY IN THE PUBLIC SCHOOL SYSTEM: FOLKLORE COLLECTING AS A METHOD OF ENHANCING MOTIVATION TO LEARN

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ABSTRACT: *I present various methods explored and utilized for teaching folklore on the sixth grade level and the actual results obtained from an AAIP internship at the Williams Elementary School, Tampa, Florida. The study is ethnographic in nature and deals with the training of 260 six graders in the basics of both folklore collection and archiving. The scope of the project included the use of the collected material as a vehicle for teaching values clarification and the anthropological perspective, and utilizing the basic fieldwork techniques as a methodology for addressing the basic problem of student anomie.*

THIS PROJECT applied folklore and anthropology as vehicles to enhance the level of scholastic achievement of sixth grade students. My approach to the problem was to design a curriculum that would moderate certain negative effects of a rapport problem: between peers within the student population, between students and teachers, and in general, between school and community.

The basic method utilized was to train students in folklore and have them collect folklore data from local community contacts. Data and analysis were obtained during an applied anthropology internship project conducted under the supervision of Dr. Patricia Waterman, Department of Anthropology, University of South Florida. The internship was conducted at Williams Elementary School located in a residential/industrial section of north-central Tampa, Florida.

The sample selected for the project was 260 students comprising 9 classes and 46% of the entire student population. The classroom hours per week allotted to folklore studies varied within the sample: 3 classes with 2 hr/wk, 2 classes taught twice per week on a bi-weekly basis and 4 classes taught daily on a block rotating basis.

Unique aspects of the investigator's project include folklore and folklife studies as a vehicle to teach all aspects of social studies, the introduction of folklore into the curriculum of more than 1 classroom in a school, and teaching entire classes at all levels of scholastic achievement from remedial through advanced classes.

In the following ethnographic analysis, I discuss the methods related to all classroom activities with special emphasis on the discussion and demonstration techniques utilized. The actual classroom activities varied for each class and for the purpose of the following discussion, the investigator will regard composite discussions and reactions to each topic as units, regardless of the actual sequence of events.

Defining folklore was accomplished by establishing basic parameters and having students think of things that fit the parameters. Emphasis was placed on folklore being a traditional method of doing something, with the stipulation that the information related to it should have been passed down for at least 3 generations and be in verbal format. Folklife artifacts, the physical

objects associated with the verbal lore, were defined as being traditional handmade objects.

An operational definition of folklore was obtained by the socratic method of questioning with the students setting their own parameters of what was to be included or excluded. Thus, a basic understanding of folklore was obtained for each class and the more exacting delimitations of academically-defined folklore were sacrificed for a generalized concept.

The technical jargon of each genre, or specific folklore topic, was introduced by taking up 1 genre per class session. The divisions between folklore/folklife and verbal lore/material culture were also introduced by this technique.

The anthropological concept of a culture, as a society's traditions and values, was introduced during the initial sessions by inquiring about the objects to be sent to another culture to demonstrate our own culture. In this manner the concepts of symbolism and cultural holism and the interrelatedness of all facets of a society, were introduced into the classroom discussions.

This led to an explanation of the enculturation process in which children are trained in the beliefs and values of a society, in this instance, by the material objects manifest within the culture and the differential value placed upon them.

As the academic subject of folklore is not extremely well-known, the introduction was not only directed toward the students, but also to the teachers. Once there was a consensus of opinion among the network of teacher-investigator-students regarding definitions, collecting procedure, and direction of study, the sessions of active collecting began and the classes proceeded to study the genre of folk cures.

The following discussion will not only include the details of teaching, but will also serve to illustrate the problems encountered during the initial phase of the project.

During this initial trial at collecting, many of the data sheets were returned without sufficient descriptive narrative. The lack of essential information was alleviated on the next genre, that of folk games, by having the students write their reports to "Dear Man from Mars, this is an earth game". In this manner, they understood the need to describe everything very thoroughly to someone who does not understand the basics of our own culture.

The technique employed for introducing the concepts of cross-cultural similarities and diffusion of cultural traits was the use of texts on children's games. Texts on New Zealand and British games were used in the following manner: selected portions of the New Zealand text were read and used as a "guess the country" game, the British text was then used in similar games. The games selected from each text were the same and they were games the students were currently playing.

The approach to culture change and continuity entailed the collecting of

a folk game from a community contact as part of the assignment and the recording of a game played by the student as the other portion of the homework. With these data, from every class several items relevant to the topic emerged. Some of the games remained intact, with little or no change in rules or names, throughout several generations. The majority of the older games had the following similarities: a loosely-structured set of rules, any number could play and any objects used were inexpensive or handmade. The collection of modern games revealed the following pattern: more rigid rules, more competitiveness, many having a fixed number of players and in most instances were much more expensive.

The genre of folk tales was introduced by the playing of a children's folk game, that of telephone or gossip. The game is simply an attempt to pass a message, by whispering, from 1 person to another through a group and end with the original message. The results come out quite garbled and often totally different from the original message. This done, the discussion was turned to folk tales and by comparison of tales to the results of the game, the students understood how a verbally-transmitted tale spanning generations could have been a description of a true event that is now modified beyond recognition.

The genre of folk tales was not as amenable to standard collection techniques as were the genres discussed previously. The length of many tales prevented their being written in their entirety by many of the sixth grade students. The ability of most informants to tell a complete tale was also lacking and the class initially attempting to collect tales brought in extremely sporadic results. The sessions with other classes were modified so a second option existed, that of writing a selected passage from a folk tale or folk hero epic. If this option was selected, the student then described what he or she considered the moral of the tale to be. In this manner, folk tales became a functional vehicle for discussions related to cultural transmission of a society's values and beliefs through verbal tales.

The next topic was introduced during the discussions relating folklore to the transmission of culture within a society. This genre, future folklore, dealt with selecting objects currently within the realm of mass or popular culture that may become the folklore of the future. The student's reports ranged widely in subject matter with energy conservation, or lack of it, being the predominant theme. This became a vehicle for discussion about the social structure and its relationship to available energy.

The genre of traditional foodways was quite productive with a wealth of data for the students to collect. Many of the parents became involved with these sessions and several of the classes were treated to the tasting of various folk foods.

The most successful of the audio/visual techniques, video taping, was utilized during these traditional foodway sessions. Short skits and demonstrations were rehearsed and taped for instant replay.

The students were divided into small groups of 4 or 5 individuals to a

group, and given instructions to design a television type commercial advertising the folk recipes. The results were quite creative. Several groups designed parodies of current commercials or skits involving a restaurant format.

Video taping related to one of the original objectives of the project, that of peer rapport and cooperation. The knowledge that each skit was being taped and replayed for the entire class brought positive pressure upon the groups to work in a cooperative manner.

The genre of traditional foodways lends itself to the topics of ethnicity and regional variation within a society. It served as a vehicle for various discussions related to cultural diversity within a single political social structure and the benefits derived from having alternative philosophies and patterns of thought available to utilize during times of crisis. The sessions were also useful in discussing the topic of technology and how it has changed many facets of our culture by using the modification of dining habits as an example.

The folk recipes were utilized as the basis for discussions ranging from cultural diversity to the logistics of modern industry and, in the investigator's opinion, represent the widest range of possibilities for further discussions related to other aspects of social studies.

One of the culminating projects of the internship was the collection of random samples of the children's folklore collection and printing them in a 16-page school publication. This served both to give added importance to the children's work and to allow the parents a greater understanding of the folklore studies project.

As a brief critique, in most classes each folklore topic was expanded or contracted from the initial number of sessions allotted to the genre in the curriculum. This was due, in part, to the students' varied input into class discussion.

Various class sessions involved the students in discussions relevant to social studies that were initiated by the folklore topics. It appears that setting the curriculum into an exacting schedule would detract from the original intent of the program.

Diverging from a preselected folklore topic to other social studies topics often elicited a greater response from the students involved. The other reason for expanding a genre was the students' interest in, and response to, various demonstration objects used for each genre.

A detailed listing of demonstration objects—the curriculum, in daily lesson plan format; a selection of the children's folklore collection; texts and audio visual techniques utilized; recommended curriculum modifications and a project assessment—are described in detail in the author's thesis (Goodwin, 1979).

The applied anthropology internship project that formed the basis of this report was deemed a successful pilot curriculum project by all participants. Several classes at Williams Elementary School are currently engaged in fur-

ther folklore studies, utilizing additional lesson plans provided by the investigator.

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FUNCTIONS OF JOB ATTITUDES IN A BUREAUCRACY—*Ann M. Pytynia,* Department of Anthropology, University of South Florida, Tampa, Florida 33620

ABSTRACT: *I discuss the results of a 5-mo study that is concerned with work-related activities and attitudes of nonsupervisory white collar workers in a bureaucratic setting. Problems and advantages of the ethnographic method of study are addressed. Job functions are related to attitudes towards supervisory personnel, job attitudes, and job tasks. Suggestions are made as to input by the nonsupervisory staff.*

EMPLOYMENT, for most of us, is the most prominent focal point of our lives. Our days on the job often govern our outside lives—when we can perform our outside activities, finances for these activities, and often the people with whom we associate outside of work.

From April through August, of 1978, I had the opportunity to carry-out an ethnoscientific study of the nonsupervisory white collar workers employed by a quasi-governmental agency in a large metropolitan area in Florida. Ethnoscience as a technique is relatively new to anthropology, although the subfields that comprise it (ethnography and linguistics) are essential to the definition of anthropology itself. Ethnoscience utilizes ethnography, but it pays particular attention to what informants tell the researcher, as opposed to concentrating upon what the researcher would like to obtain from his respondents. Informants, then, establish the course in which their own responses will be elicited. The ethnoscientific technique as used in this study is basically patterned after James P. Spradley and David W. McCurdy's (1972) work. Two other members of the research team investigated blue collar workers and supervisory personnel for the same agency. Access into the agency was facilitated because 2 members of the research team had previous contacts with the agency doing work on a contractual basis. This particular study was conducted without charge to the agency.

At its inception, it was the team's purpose to develop a program designed to improve the work environment of this and similar agencies. This program was to be developed from information compiled by all 3 researchers so that a

sense of perspective could be attained from all 3 categories of workers. The team-research approach failed in this case when 1 member of the team failed to maintain a consistent schedule of contacts with the agency personnel. Hence, the remaining 2 members of the research team then were left to compose their own separate recommendations.

My own entry into the agency began with the Director of Administration introducing me to the staff on a one-to-one basis. This initial contact allowed me to give a brief introduction as to the purposes of the study and the anticipated final result. In this regard, my previous contacts with the agency as a paid consultant put me at a disadvantage. Because my previous work had been with the development of job descriptions and pay scale adjustments, employees initially assumed that I was not being entirely truthful about my purpose at that time.

Not surprisingly, initial contacts with the staff elicited confusion as to the ethnoscientific method. Overall, however, it proved to be a valuable tool in that so much more information was obtained this way. The problem of it being more time-consuming inadvertently was a blessing in that it forced the researchers to spend more time with the staff and allowed them to delve deeper into the true feelings of the employees.

The first stage of my study centered around one-to-one interviewing with each of the staff personnel that I would be working with. Comments about work, supervisors, the administration, and practically all phases of employment drew incredibly positive responses. Only a few negative responses were elicited, and those were concerned with pay. I could detect no boundaries that would indicate any differences in job attitudes among any classes or categories of employees.

The second phase of my research was handled quite differently. Information on job attitudes was obtained by merely "sitting in" with individual employees for up to 4 hr at a time in their respective work areas. Initially, this technique prompted more confusion than did the one-to-one interviews, but as the months progressed, this personal contact proved invaluable for obtaining information. Being able to speak with respondents as individuals rather than merely as informants opened up worlds of data.

Job function among the group I was studying was largely clerical, and all but 1 informant was female. Of this group, most were in their mid-20s, unmarried, and with 1 or more children from a previous marriage. Racial breakdown weighed slightly in favor of Blacks. Because of the general demographic breakdown of these employees, many of them, were trapped by their jobs. Owing to their responsibilities to themselves, and even more to their children, they were in no position to take time off from their present jobs to seek other employment. Some of the women took the view that "at least it's money," but by no means was this the case with all segments of the group. Distinct segments of the group began to break-off in terms of not only what their jobs entailed, but also more importantly, what their direct supervisors were like. It should be noted that the Administration had rare contacts

with the staff. The Executive Director, at times, seemed so remote as to be nonexistent.

The most negative work attitude surfaced in the group of women who had the bulk of the contact with the agency's clients. These employees were assigned to an area at the rear of the building with a separate entrance for clients. Surroundings were stark, while the business reception area was much more plush. The supervisor for these employees was an elderly woman who had been with the agency for over 15 yr. Although the operation of this department ran smoothly, there was little room for innovation or any kind of excitement. The supervisor's attitude was largely laissez-faire. This group had incredibly close ties to each other, but they were alienated from their jobs. No sense of cohesiveness could be detected in relation to the actual completion of job tasks.

The second discernible group consisted of 4 female employees of fairly diversified backgrounds who really had no contact with each other as to the accomplishment of their separate duties although they shared a common room. The supervisor in this case was also an elderly woman, although in this instance, job dissatisfaction led to her voluntarily leaving her position. Her group of subordinates always had an air of tension about them, and it was very difficult to get them to relax in the given research format.

Several individuals had a more or less one-to-one contact with their supervisors. In all cases these workers had routine and almost tedious jobs, but relations with their supervisors made a tremendous difference. In one case, the employee's supervisor's job had no relation to hers. This incurred an unnecessary case of both dissatisfaction and tension for the female employee. This same person had a different person with a different job title and function as her supervisor on a previous occasion. The former supervisor had been in the process of training the clerical worker to perform other than the rather mundane duties she had been assigned when the switch had occurred. No apparent reason was given for the switch.

A somewhat unique situation involved the supervision of several clerical staff by another clerical staff person whose duties were essentially the same as those of her subordinates. This became a point of stress. The supervisor often overutilized her power over this segment of the staff in a possible attempt to bolster her own position. No other group of employees had the sense of being constantly "watched" as did this group.

The last group of workers that surfaced was distinct in several ways. Their duties were more professional, their supervisor shared the room with them with no attempted separation from her staff, and the supervisor also functioned in the training of her subordinates. A certain degree of flexibility was allowed when it came to violating agency rules, but dedication to the job and to each other was the most intense of any other group that was studied. Joint effort on certain tasks was not uncommon. Pay was still a complaint, but it did not come into play in conversation nearly as much as in the other groups. Staff input was considered by the supervisor.

It became more and more obvious that, as the study progressed, the ethnoscientific technique had become a valuable tool for the 2 researchers who continued in their pursuit of information. Developing ties with respondents outside of the realm of their actual job duties was inevitable when hours were spent with an individual on any given day.

If there is one overall conclusion, it is that employee-supervisor contact, its quality and quantity, is important. A staff-wide effort must be made to improve communication, beginning with executive directors and reaching all levels of the agencies.

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## PRODUCING A COMPREHENSIVE PLAN: PRACTICING ANTHROPOLOGY IN THE PLANNING PROCESS—*C. Martin Banspach*, Department of Anthropology, University of South Florida, Tampa, Florida 33620

Abstract: *In 1975, the Florida Legislature adopted the "Local Government Comprehensive Planning Act". This act requires all counties and municipalities to create a comprehensive plan to guide future urban development. I discuss the application of anthropological techniques and skills to the production of a comprehensive plan. I demonstrate the integration of ethnography and ethnoscience into the urban planning process. The perspective of this report is that of an interdisciplinary approach, as practiced through a private consulting firm.*

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Editor's Comment: The remainder of this manuscript will appear in *Florida Scientist*, Volume 43(4).

*Academy Symposium*

## *GENERAL SESSION SYMPOSIUM*

# THE PRACTICE OF FORENSIC PHYSICAL ANTHROPOLOGY—

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ABSTRACT: *The identification of human skeletal remains by physical anthropologists has changed during the last decade. New techniques have been introduced and more physical anthropologists are active. The need for proper training, continuing education, and facilities is discussed and the procedures used in a typical analysis of unidentified human remains are described.*

WHEN physical anthropology is used in a court of law or other legal setting, it becomes a forensic science. In various countries, different areas of physical anthropology are more commonly used as forensic science. In the U.S. and Canada, forensic physical anthropology usually refers to the identification of human skeletal material, but it may also be the identification and nondermatoglyphic analysis of human foot or hand prints, hair analysis, or facial reconstruction by various techniques. In Europe, it is more typically human genetics and serology in such applications as paternity cases. Most human identification is practiced by pathologists in Mexico, with physical anthropologists usually confined to facial reconstruction.

The need for the identification of human skeletal remains is not new. Luntz and Luntz (1973) report that the remains of General (Dr.) Joseph Warren were identified in 1776 by the maker of the General's false teeth, Paul Revere. Oliver Wendell Holmes and others identified the remains of Dr. George Parkman who was murdered by a faculty member of the Harvard Medical College within those sanctified walls in 1849 (Thomson, 1971). In 1898, just 2 yr after George A. Dorsey received the first Ph.D. granted by Harvard ". . . in the field of anthropology (actually archaeology). . . ." he testified in the sensational trial of a Chicago sausage-maker who attempted to dissolve his wife's body in a large vat at his place of business (Stewart, 1978).

Since those beginnings, most physical anthropologists have been called upon to assist in the identification of skeletal remains but only a few, such as those at the National Museum which is located near the FBI laboratory, have regularly participated in this activity. Now, many physical anthropologists are frequently consulted in identification cases. This is not the result of an increase in the number of decomposed bodies, because Al Capone, Murder Inc., and similar notables have done their best to keep the supply constant. Instead, it seems that better communication with forensic pathologists is the most important factor in the increased involvement by physical anthropologists. This is partially the result of better understanding

of anthropology by the general public, but the establishment of a Physical Anthropology Section within the American Academy of Forensic Sciences has been of greater importance. Although it is the smallest section of the Academy, it has had profound impact upon the other sections because of its enthusiasm, research orientation, and relentless dedication. Now, medical examiners are the source of most of the cases instead of the police, sheriff, and prosecuting attorneys as in the past. The revisions in the laws of most states, such as Florida, have resulted in more professional medical examiner or coroner systems.

While the anthropologist has been brought more into the system, the exact relationship remains vague. In some large cities, forensic physical anthropologists have been appointed as deputy medical examiners, deputy coroners, or to similar positions and thus have a more official role in the medico/legal process. This status conveys certain protection and privileges to the anthropologist, such as the retention of specimens.

The increased interaction between the forensic pathologists who are the medical examiners and the forensic physical anthropologists is extremely important. Without doubt, it has strengthened the process of death investigation. It has also opened new vistas for these anthropologists. It is not hard to imagine the day that many full-time career opportunities will develop in this applied field.

The physical anthropologist is consulted whenever normal means of identification are no longer possible as a result of decomposition, fire, trauma, dismemberment, or other mutilation. They are increasingly used in air crashes, floods, and other disasters. Some are even consulted about all unidentified bodies found in their areas. They use their expertise to determine the age, sex, race, stature, body build, previous skeletal pathology, and time since death. Testimony by anthropologists concerning cause of death is now accepted by many courts.

In the past it was usually assumed that all physical anthropologists, and perhaps even archaeologists and ethnologists, were competent to work in this rather exacting area. It may have been true at one time when most anthropologists were broadly trained and most techniques were simple. This assumption can no longer be made. Indeed, not every physical anthropologist is trained and equipped to practice forensic physical anthropology. Those narrowly trained in such specializations as primate behavior or even human genetics may not have received the careful introduction to the techniques and literature of this field. Unless the physical anthropologist was trained by someone interested in forensic application, it is doubtful that sufficient training was received. Sufficient training is also unlikely if proper facilities were lacking during training, especially necessary laboratory equipment and adequate comparative human skeletal collections. Calipers, a few anatomical supply-house skeletons, and some Indian burials are not sufficient.

Some procedure must be established to judge the competence of a poten-

tial practitioner. One solution is certification which is now available in all major fields of forensic science. In the future, more courts will require certification for all expert witnesses. The American Board of Forensic Anthropology offers certification for prospective forensic physical anthropologists. Qualified applicants who successfully complete examination by this board receive certification. At present, there are only 24 diplomates certified by the Board. Without this certification, qualification by the courts as an expert will be increasingly difficult and material will usually be referred to certified forensic scientists.

Even after excellent training some form of continued education is necessary. This must go beyond what is provided in anthropological meetings and journals. Most of the more active practitioners belong to the American Academy of Forensic Sciences where they receive the journal and are actively involved in the annual scientific sessions. Only through activities such as these is it possible to remain abreast of this rapidly changing field.

It is impossible to do adequate work in this field by using the technology of the 1940s which is commonly found in most anthropology departments. More specialized facilities are required than are usually found in physical anthropology laboratories. The typical identification case investigated at the Florida State Museum requires osteometric instrumentation, stereomicroscope, compound microscope, manual and power bone saws, diamond blade thin-section saw, thin-section grinder and polisher, specialized photographic facilities and equipment, ultraviolet light, a programmable calculator, and an X-ray unit equipped with a fluoroscopy viewer. In some cases, a microtome and other equipment may be used. A review of the procedures used might better explain the need for this apparatus.

When skeletal remains are received at the Florida State Museum, they are arranged in an approximation of anatomical position and itemized after confirmation as human remains. At this point it is possible to note the presence of bones from several individuals. Clinging hair, evidences of insects, and any cultural remnants such as scraps of cloth, are removed, examined, and packaged for further analysis by other laboratories. The remains are then cleaned sufficiently for unobstructed examination. Measurements are made for discriminant function analysis for race and sex. The measurements that will later be used for stature determination are also taken at this time, but calculations of stature must wait until the sex, race, and age of the deceased have been determined. If reconstruction is necessary before any of these measurements, it should be carefully documented, including before and after photographs.

Race is considered first. Cranial and facial morphology are considered and discriminant function analysis is used for racial determination. All formulas used for discriminant function analysis and all regression formulas used for age determination are stored on magnetic cards that are used to program a calculator equipped with a printer. This not only reduces the chance of mathematical error, but also furnishes a permanent record of the calcula-

tions. Next, the morphology related to sex determination is observed with particular attention to features of the pelvis, skull, and heads of the femora and humeri. The conclusion is recorded and discriminant function analysis for sex is calculated.

The skeleton is completely examined for anomalies, evidence of previous trauma or disease, degenerative changes, recent damage (including rodent or carnivore tooth marks), unfused or partially fused epiphyses, and nonmetric variables. The pubis is examined for "pits of parturition" and the pubic symphysis is used to determine an age estimate.

The entire skeleton is examined by fluoroscopy for lead streaks, old pathology or fractures, and recent damage. Unerupted teeth, partially fused epiphyseal lines, Harris' lines, and partially-healed alveolar sockets, are also noted. Any significant findings are recorded on X-ray film. Radiographic examination is an indispensable step in the identification process.

The number, position, and condition of teeth are then noted. Disease, professional repair, and abscesses are recorded for each tooth that is present. Missing teeth are categorized as unerupted, lost premortem, or lost postmortem. They may also be congenitally absent, of course. It may also be possible, in some cases, to estimate how long premortem a tooth was lost if only partial alveolar resorption has occurred. This examination is not meant to replace one by a forensic odontologist.

The skeleton is then extensively photographed using proper techniques and backgrounds recommended for scientific photography. Extreme close-up views are frequently used. Photographs are properly documented using metric scales and identifying numbers. The use of a databank or similar device to record the number automatically on each photograph is recommended. Careful attention is given to those portions of the remains which will be altered by sectioning or other procedures.

All teeth that can be removed without damage from the jaws are examined with transmitted light for measurement of dental sclerosis (root transparency). One or more teeth, usually incisors, are embedded in epoxy resin and longitudinally sectioned to 400 microns. The resulting sections are examined at 10X with a stereomicroscope. Measurement of dental sclerosis is made, "Gustafson scores" (Gustafson, 1950) are recorded for dental sclerosis and secondary dentin. The results are used with the proper regression formulas to derive age estimates.

One long bone, usually a fibula, is cross sectioned at the midpoint and a section of approximately 100 microns is prepared on the thin-section saw. Further reduction in thickness is often necessary by grinting and polishing. The section is then examined at 100X using a compound microscope and polarized light. Histological features such as number of intact osteons and osteon fragments are determined in 4 subperiosteal fields. Regression formulas are again used for age determination.

If there is insufficient material available for these aging techniques to be useful, the cranium may be opened with a cast cutter for evaluation of the

endocranial sutures, a somewhat imprecise aging technique. Indeed, the exact procedure varies depending on the amount and nature of the available skeletal material. Different techniques, for example, would be employed for the age estimation of very young individuals.

The stature estimates are prepared using long bone measurements and the regression formulas for the correct race and sex with a suitable adjustment for age. The Fully and Pineau Method (1960) may be used in the case of very complete skeletal remains.

An estimate of time since death may be made using ultraviolet light, slide stains, plant root growth, and other observations. There is great variation in skeletalization and mineralization. Great care should be used in making this estimate.

A report is prepared containing the data and conclusions reached. Appendices are usually attached listing all bones represented and showing anatomical views of the complete skeleton with shading to indicate missing bones or fragments as well as any relevant fractures or other damage.

Great caution must be used throughout to insure an intact chain of custody. This requires proper receipts for the evidence as it comes into and leaves the laboratory, and secure areas and cabinets for the storage of the material. The material should not be altered in any way by reconstruction, sectioning, or other tests, without prior knowledge and approval by the medical examiner or other authority in charge of the investigation.

After the report has been submitted, additional work may be necessary. Records of missing persons who might be the deceased may be compared with the skeletal remains. These records vary from inaccurate kinds such as driver licenses, to more revealing sources such as medical records, premortem X-rays, and photographs. Skull/photo overlays or facial reconstruction may be done at this point. It is best to avoid knowledge of these records and the opinions of the investigators until after the report has been prepared to lessen the chance of bias.

The forensic physical anthropologist cannot work in an intellectual vacuum. Archaeologists, zooarchaeologists, paleontologists, orthopedic surgeons, and pathologists are consulted. The medical library on campus is readily available and frequently necessary.

The role of the forensic physical anthropologist has changed considerably during the last 10 yr. More training, better facilities, and more time, are required than in the past. The practitioner must be committed enough to submit to the certification process and to pursue an active program of continuing education. The demands of the job will accept no less.

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# POSSIBLE PRESENCE IN SOUTHERN AFRICA OF EAST AFRICAN TAXA: *HOMO HABILIS AND AUSTRALOPITHECUS BOISEI*

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ABSTRACT: *A statistical analysis was made of cheek teeth of Plio/Pleistocene hominids. Samples used were Kenya National Museum specimens usually classified as* Homo habilis *and* Australopithecus boisei, *and Transvaal National Museum teeth assigned to* A. africanus *and* A. robustus. *Certain of the South African distributions appeared anomalous. These included a lower first premolar, first and second lower molars, and an upper third molar from Makapan; and upper first and third molars from Sterkfontein. The anomalies are explained by teeth having dimensions appropriate, within reasonable confidence limits, to populations of* H. habilis *and* A. boisei, *as these are known in the East African record.*

THERE is a lack of agreement as to the number of distinct lineages and species into which the hominid stocks of Africa were divided during Plio/Pleistocene times, some 5.5 to 1 million years ago. The evidence is also unclear as to their maximum geographical distribution. This is because the fossil record has major gaps in both time and space, a situation that is common in paleontology and one that hampers understanding and brings out divergent interpretations (Coppens et al., 1976; Walker and Leakey, 1978; Johanson and White, 1979).

Early hominids are best known from 2 narrow land arcs, one in Eastern and the other in Southern Africa. The East African arc contains more than 75 sites in a swath less than 100 km wide along the Rift Valley axis. The South African arc has 5 localities strung-out within an arc some 800 km long. At their closest points, the 2 arcs are separated by some 2200 km. Scholars in the past have usually studied these arcs separately.

More than 70% of the fossils are teeth, the part of the body that is most often preserved. This study combined fossil cheek teeth from both the East and South African arcs and treated them as a single assemblage, the first time that these fossils have been studied as a whole. The method used was a univariate statistical analysis that plotted the key tooth measurements of length and breadth. The program displayed the clustering in space of these variates and measured their dispersion structure. Discriminant analysis permitted individual teeth to be assigned within reasonable confidence limits to the groups (species) that they most resembled. The method has promise for other primate studies (Gingerich, 1974; Pilbeam and Gould, 1974; Hansinger, 1976).

From the 409 hominid teeth that were analyzed it is seen that the East African record has at least 2 lineages. The South African record also has 2 lineages, with species distinct from the East African stocks. In each region 1 lineage samples large-toothed "robust" populations whose dentitions differ from each other to about the same degree as lowland and mountain gorillas. The large-toothed groups at present are contained within the genus *Australopithecus*. A second lineage samples smaller-toothed populations, now usually assigned to *Homo habilis*, the earliest species of our own genus. The dimensions of most *H. habilis* teeth blend smoothly into the distribution of the later *H. erectus*, the recognized human ancestor (Hansinger, 1976; Walker and Leakey, 1978).

A factor that complicates the lineage and species problem is that the hominid samples were deposited and recovered under very different conditions. The East African Rift sites are found among layers of ash or sediments and are widely spread in time and distance. Throughout the arc the larger and smaller-toothed specimens have been found in roughly comparable numbers overall.

The 5 South African sites are limestone caverns that were filled in by talus cones and other detritus. Most specimens come from the same district, and the fossils are thought to have been deposited during a short time span. The collection seems to be a relatively "intense" sampling of local populations rather than being a broad regional assemblage (Cooke and Maglio, 1972). In terms of numbers the South African record is heavily skewed towards the large-toothed lineage. The reasons for this are not known.

Of the South African fossils, all those coming from the sites of Taungs, Sterkfontein, and Makapansgat have been assigned to *Australopithecus africanus*; that is, belonging to a single species of australopiths. Fossils from the remaining 2 sites, Swartkrans and Kromdraai, were assigned to a larger species, *A. robustus*. An exception was a group of fossils from Swartkrans, whose teeth and jaw morphology place them in an early *H. erectus* stage (Robinson, 1956; Hughes and Tobias, 1977).

There has been some question if all specimens assigned to *A. africanus* do indeed belong to that taxon (Tobias, 1972). The question was looked into after certain of the *A. africanus* teeth showed overlarge Dispersion Areas. Dispersion Areas, a special feature of this study, are a measure of the clustering in space of the length and breadth coordinates of a given tooth sample. The calculation is designed to set the boundaries of an ellipse that includes 95% of the population, as defined by the sample of the population being considered. In practice this means that about 19 in 20 of each group of teeth should fall inside the vertices bounding the probability ellipses. Such was the case for the model ape and fossil species that were tested; moreover, the calculations reveal reasonable species boundaries. In brief, when Dispersion Areas for a given tooth sample are overlarge, it may mean that more than 1 species is present.

Outsized plots of *A. africanus* teeth from Makapansgat and Sterkfontein

were caused by large teeth with dimensions appropriate to *A. robustus* (known only in South Africa from sites estimated to be 1 million years younger) and *A. boisei* and *H. habilis* as known only in East Africa.

The individual teeth in question are identified by their museum designations for simplicity. Three of the teeth were from the same mandible, MLD 2 from Makapansgat.

The *A. africanus* sample in South Africa totals 5 lower first premolars. Of these, MLD 2 is more than 1 standard deviation larger than the *A. robustus* mean itself. A second specimen, Sts 24 is within 1 standard deviation of tooth shape (Crown Index), and total area, of the *H. habilis* mean, as known in East Africa. The tooth departs widely in these traits from the remainder of the South African sample.

The lower first molar sample in South Africa includes 8 specimens. Of these, MLD 2 and Sts 18 have occlusal areas more than 2 standard deviations larger than the mean of the remaining *A. africanus* sample and exceed the *A. robustus* mean (n = 21) itself.

MLD 2 has a second lower molar whose mean is more than 1 standard deviation larger than the mean of *A. robustus*. Likewise, the upper third molar sample of *A. africanus* contains specimen Sts 28, with an occlusal area of 275 $mm^2$, that compares with the *A. robustus* sample having a mean occlusal area of 250 $mm^2$ and a standard deviation of 20. The *A. africanus* sample remaining has a mean of 199 $mm^2$. It would seem that Sts 28 is almost 4 standard deviations larger than the remainder of the *A. africanus* sample.

An upper first molar of the *A. africanus* sample includes specimen "STW. Hom. 7/70", that departs from the means for *A. africanus*. The breadth for the specimen is 2.4 standard deviations narrower than the *A. africanus* remainder and the Crown Index is 2.6 standard deviations away from *A. africanus*. The tooth measurements fall well near the centroids of the *H. habilis* sample from East Africa.

Two upper third molars, STW. Hom. 6/69 and STW. Hom. 2/69 are huge teeth, with dimensions approaching those of mountain gorillas. The first of these accords with *A. boisei* dimensions, while the second is on the boundary of the 95% confidence ellipse for *A. robustus*.

DISCUSSION—All of the foregoing is based solely on analysis of the dental variates. To seek other evidence in the South African assemblages is difficult because the fossils are scrappy and the cave stratigraphy has many problems. Yet, other evidence exists. Certain pelvic parts from Sterkfontein approach the size of an adult modern Bushman, which suggests that it comes from an individual considerably larger than *A. africanus*. More recently, however, Hughes and Tobias (1977) reported the finding of new cranial parts at Sterkfontein. Enough of the morphology is present to suggest affinities with *H. habilis* specimens OH 16 and OH24 from Olduvai Gorge.

The net result of all of the foregoing reinforces Tobias' suggestion that more than 1 taxon was present at Makapansgat and Sterkfontein. These "*H. habilis*" fragments and the earlier-discussed teeth should be considered in

any overall assessment of early hominid distribution. The presence of *H. habilis* and the large teeth of *A. boisei* dimension suggest the real possibility that at least 2 "East African" species ranged as far south as southern Africa.

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# MALE CARETAKING OF INFANTS IN PRIMATE GROUPS—

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ABSTRACT: *The participation of males in infant care among the primates is linked to both evolutionary and ecological factors and is positively correlated with the intragroup to intergroup competitive ratio experienced by the primary social group. Not only does such caretaking enhance offspring viability, but it also permits reducing aggressivity within the social group by altering neonatal hormonal secretions, thereby affecting later adult endocrine responses. As most primate societies are comprised of kin groups, the raising of aggression thresholds in high intragroup competitive situations would permit the operation of kin selection and secure enhancement of reproductive success. Conversely, a clear correlation of high male aggressivity and low male caretaking of young is demonstrable throughout the primate order, including the social groups of man.*

INCREASED fieldwork and laboratory experimentation in recent years have brought about a marked expansion of primatological knowledge. As a result of this accumulation of new data, the phenomenon of infant caretaking by adult males of some primate groups has attracted the scientific and human interest of several investigators concerned with this unexpected male involvement in socialization practices. Behaviors of holding, grooming, carrying, play, baby-sitting and even adoption by some males toward the young of the group represent an investment of male time and energy which is noticeably absent in many other primate groups. The protection of young and their rescue in times of danger by adult males is not, however, herein considered as a diagnostic feature of such caretaking because these behaviors are found as general traits throughout the various social groupings of the primate order. The question which must then be addressed is why some males of some groups engage in extensive caretaking of young? What reproductive advantage elicits such behaviors in a predominantly female-offspring bonded order, and what biological mechanisms operate to induce it? To best answer such queries, and to descry any phylogenetic, social or ecological commonalities existent among groups displaying marked male participation in infant socialization, it is first necessary to briefly catalogue the various species displaying the behavior in question.

Of the Platyrrhine species of the New World, several genera are particularly distinguished in their marked involvement of the male in offspring care. These species are all monogamous, territorial groups and include the titis (*Callicebus*), the tamarins (*Saguinus*), the marmosets (*Cebuella*, *Callithrix*, *Leontopithecus* and *Callimico*), and possibly the night monkey or dourocouli (*Aotus trivirgatus*). Male caretaking in these New World forms is quite extensive, with the adult male taking the twin offspring at birth and carrying them continuously until maturity, only returning them to the mother for nursing bouts. Baruch has found in his investigations of these forms that male caretaking among the predominantly frugivorous *Callicebus* species may be altered by the presence of extragroup adult males.

Of the Old World monkeys several species show extensive male caretak-

ing. These include the barbary ape (*Macaca sylvanus*), the bonnet macaque (*M. radiata*), the savannah baboon (*Papio*), the hamadryas baboon (*P. hamadryas*), and the Japanese macaque (*M. fuscata*). The type and extent of the male behaviors manifested in these various species is quite variable. Some groups of Japanese macaques, for example, display quite extensive male caretaking behaviors which intensify during the birth season; other groups of these macaques show no male caretaking of young at all. Furthermore, not all males of a multimale group engage in such activities. There is a notable, though nonlinear, correlation between a male's status in the social hierarchy, (and, thus, his probability of being the progenitor of most group offspring), and the amount of caretaking engaged in. Generally, it is the dominant, leader males of a group which manifest the behaviors aforedescribed, as would be predicted by genetic investment theory.

When male involvement in infant care is examined among the great apes, a particularly interesting comparative study is provided by the hylobatids—the gibbon and the siamang. For, although the gibbon has traditionally been considered the "sui generis" family man of the primates, recent studies of this genus by Ellefson (1967) in the Malay Peninsula have forced a revision of these views. In fact, compared to his predominantly folivorous cousin, the siamang, the gibbon is, at best, a poor and often abusive father to his offspring. Of the frugivorous gibbon Ellefson (1967) notes: "Of all the group members, the adult male, his father, paid the least attention to the infant during the four months I observed it. There was nothing paternal in the attention he did pay the infant. . . ." This is in striking contrast to the reports on siamang behavior offered by Clutton-Brock (1977) in which adult males were found to carry, play with and even sleep with their offspring. Moreover, while gibbon offspring are forcibly expelled from the natal territory at a relatively early age by the aggressive adults, the siamang adolescent chooses his own moment to depart from the group, usually doing so on the best of terms with his parents.

Although studies of the remaining great ape genera do not provide as uniform and clear a picture of male caretaking as that seen in the hylobatids, in general it may be asserted that such caretaking does exist, is variable within a single species, and is apparently correlated with ecological variables, to be examined forthwith.

A comparative examination of the above, admittedly a sketchy summary of primate species engaging in male caretaking behaviors, underlines 2 important findings: 1). Phylogenetic interpretations for the participation of males in infant care are untenable. The variability within, as well as between closely-related species observable in both natural and laboratory settings renders such a position invalid. 2). Social organization does not predict male behaviors vis-a-vis the young, nor is there a direct correlation between types of social organization and male caretaking postures. Male caretaking is found not only in monogamous, territorial groups, but also in ranging, multi-male species as well. Moreover, an absence of caretaking is evident in both types of social organization for particular cases.

Having rejected both phylogenetic and social parameters as causative factors in the adducement of caretaking behaviors, that which we are left with are possible ecological variables which may be common to these various "paternalistic" primate forms. Although it is clear that gross habitat or dietary categorizations are inadequate to the task at hand, a pattern does begin to emerge when intergroup, and intragroup relationships are considered and the nature of the primary interindividual competition existent for a group assessed. It would appear from the available data that groups experiencing daily or frequent intergroup competition over resources that are either clumped, as large fruit trees on territorial boundaries, or scarce, as in range resource areas of high population density and, hence, high exploitation, are those groups, as well, in which male care of young is either extremely attenuated or entirely absent. The high density rhesus and pigtail macaque populations of Asia, the southern Hanuman langur populations of India, and the Lolui vervet populations of Africa all support such a conclusion. This would, in fact, be expected, as male energies in such a situation would necessarily be centered upon territorial or resource defense as primary to both ego's and the group's ultimate welfare and success.

Yet, the converse of this hypothesis (i.e., that populations in which intergroup competition is infrequent or absent due to either the even distribution of resources throughout a territory, or to the need of a group to exploit such large range areas that intergroup contact is extremely infrequent and avoidable maintain high male caretaking of young as a behavioral trait, although equally supported by the data) is less readily explained. It does not necessarily follow that primate males with time on their hands will spend that time baby-sitting rather than foraging, resting, or watching football games. Indeed, among the exceptional patas monkeys, with their one-male groups and general female dominance to the harem male, these adult males do have time on their hands, yet do not caretake young. So why, in so many other species, does such caretaking occur?

One must bear in mind that an absence of intergroup competition does not imply an absence of interindividual competition, but merely a redirection of it toward other members of the social group rather than toward strangers. Yet, because nearly all primate groups are kin-based, such a rechanneling of competitive relations necessarily implies competition between individuals sharing genetic material and interests. Genetic investment theorists posit, however, that the inclusive fitness "r" of the individual is based not only upon his own reproductive success, but also on that of his kin as well. Therefore, in a situation of kin-competition, it is to the advantage of each individual within the group to insure the success of his own offspring in a manner least detrimental to the success of his competitors who are, in fact, his brothers, cousins, uncles and nephews and who contribute to his own "r". One expedient manner of realizing these apparently antithetical objectives would be to secure for one's own offspring a privileged position in the male dominance hierarchy through a dominant male's "protectorship". This does, in fact, appear to comprise an important function of male caretaking

of young, particularly in multimale groups. (It also explains, incidentally, why patas groups do not need such male caretaking because females are dominant anyway and can secure their offspring access to favored resources without male aid.) Possibly more important overall, however, would be a mechanism to reduce general levels of aggression within these kin-competing primate groups. It is in regard to this function that male participation in infant care may play an extremely critical role.

A body of experimental research termed "infant stress theory" has been developed in recent years and demonstrates a linkage between stimulation during critical periods in early infancy and the later emotional reactivity of the adult organism. In particular, this theory posits that hormonal organization and response in infancy is the crucial determinant for later endocrine functioning in the adult. Subjecting an infant to novel stimuli increases his "hormono-stat" range and thus reduces later emotional reactivity as a result of raised threshold levels in the organism. Therefore, infants experiencing a greater range of novel stimuli during these critical periods of central nervous system and endocrinal organization will display reduced emotionality, and concomitantly, aggression, as adults.

Now, in a mammalian species with its close female-offspring bonding, what stimulus could be more novel in the natural settings of primate groups than the definitionally different adult male? This would be particularly true for such sexually dimorphic species as the baboon and the macaque. Moreover, male infants, owing to the hormonal basis of sexual differentiation, have been shown to be more susceptible to hormonal modifications than are females. Thus, it might be hypothesized that groups in which the male caretaking of young is practiced are groups that produce less emotional and aggressive adults, particularly males.

Interestingly, such a postulation fares extremely well when subjected to the primate data. Highly aggressive species, as the pigtail macaque (*M. nemestrina*), and the rhesus monkey (*M. mulatta*), are also species of high maternal restrictiveness and low, or absent, male care. In contrast, species ranked as low in aggressivity by such workers as Redican (1967) and Jolly (1972), including the bonnet macaque, the barbary ape and the Japanese macaque, are also low in maternal restrictiveness and high in adult male care. In such groups male caretaking apparently serves, not only to secure favored resources for individuals at the bottom of a male-dominated status hierarchy, but it also concurrently functions to reduce interindividual aggression, and so permits an optimization of the individual's inclusive fitness as a result of the enhancement of both ego's reproductive success and that of his kin. Primate societies experiencing a high intragroup to intergroup competitive ratio would, therefore, be expected to adopt a high male care strategy as ultimately more adaptive for both the individual and the group.

The hypotheses herein presented have been tested against the available data for both monkeys and apes, and have been found to be generally valid for the species cited. What of the remaining primates—the prosimians and

man? Although it remains for future studies to attempt an application of these findings to the prosimians, such an attempt has been undertaken for our own species utilizing the cross-cultural coded data available and Human Relations Area Files ethnographic information. Two separate indices considered to be indicative of a higher intragroup than intergroup group competitive situation for world cultures were used; these were low population densities, as that experienced by marginal environment hunter-gatherer groups (e.g., Kung San) and geographic isolation, herein defined by island cultures (e.g., Andaman Islanders). When these 2 parameters were individually tested for association with the father-infant proximity factor as coded for world cultures by Barry and Paxson (1971), a positive and highly significant correlation with high father-infant proximity was found for both. (For low population density cultures, with island societies deleted from the sample, a $\chi^2 = 6.92$, $\propto = .01$; for island societies, $\chi^2 = 7.08$, $\propto = .01$). In contrast, positive correlations between either an agricultural or transhumant herding subsistence base and low father-infant proximity have been found. Interestingly, these subsistence modes are also well-documented in the ethnographic literature as typical of societies displaying high inter-group competition. The fact that such societies are overall more numerous and "successful" than are high intracompetitive cultures has been discussed by Divale and Harris (1977) as have the evolutionary and ecological reasons for this success.

More central to the present concern, however, is the correlation of such societies with high aggressivity, as indexed by such socially-sanctioned traits as warfare, raiding, and prolonged and painful initiation rites, and by such nonsanctioned behaviors as rape, crime and theft, homicide, bride-theft and feuding. For while the former forms of aggression may well constitute socio-cognitively mediated behaviors, the simultaneous high incidence of the latter, socially-disruptive practices in these cultures bespeaks the presence of a hormonal component to the aggressivity of the individual within such groups. It would, therefore, appear that the correlation apparent between high aggressivity and low male-infant proximity among the lower primates is no less true of human societies, a fact which lends additional support to the biologically-based tenets of infant stress theory. Indeed, within our own western industrial society the phenomenon of heightened aggressivity and violence in father-absent youth has long constituted a major concern of sociology. Without resort to Freudian interpretations or cross-sex identity hypotheses, we are at last able, with the aid of our increased knowledge of our primate relatives, to understand both the biological and evolutionary bases of the complex, yet constant behaviors of our species.

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CREWLEADER ALTERNATIVES TO COERCIVE POWER—*Mary-Margaret Taylor,* Department of Anthropology, Florida Atlantic University, Boca Raton, Florida 33431

ABSTRACT: *The utilization of power by crewleaders in the control, manipulation, and exploitation of agricultural laborers was observed for 14 mo in 6 south Florida counties. The more successful crewleaders employed a multi-dimensional power base with only a partial reliance upon the use of coercive power to achieve their goals. This finding is in contrast to most previous studies which stressed coercive power as the primary, and sometimes exclusive, element in the power base foundation of crewleaders.*

CREWLEADERS in the literature, media, and among the general public have been typically viewed as individuals who control, manipulate and exploit farmworkers in their drives for profit. Crewleaders are seen as accomplishing this goal mainly through the use of coercive power in such varied forms as physical and psychological threats and abuse, the withholding of food, wages, medical care, transportation and other necessities of life, directing social pressures against individuals, and blackmail. While it is true that most crewleaders do control, manipulate or exploit their farmworker employees and that many do use some kind of coercive power, it is equally true that most utilize several other, perhaps more subtle types of power in combination with coercive which forms a more stable and cohesive power base.

THE STUDY—While studying farmworker and crewleader interactions for 14 mo in Charlotte, Lee, Glades, Collier, Hendry, and Palm Beach counties, I found that the more successful crewleaders employed a multidimensional power base with only a partial reliance on coercive power. It was also found that even though the less successful crewleaders utilized coercive power as the main type of behavior in controlling, manipulating, and exploiting farmworkers, they also employed other types of power although to a much smaller extent.

POWER TYPES—Power was differentiated into 5 different categories according to the French-Raven (1959) power scheme for easier conceptualization. This particular power scheme is designed from the perspective of the subordinate toward the superior in an authority relationship. The authority position of the crewleader appears to be derived from the authority position of the farmowner or manager, in part, and also from the agricultural labor system itself whereby farmworkers are dependent on the crewleader system to find employment. The 5 types of power discussed include reward power, which is the ability to administer positive reinforcements such as increased pay, better living and working conditions, increased food, alcohol, credit, and other extras. Reward power also includes the ability of the crewleader to remove or decrease any unpleasant variables that may be occurring in the farmworker's immediate environment or work situation. Legitimate power is based on the belief of the subordinate that the superior has the right to give orders to him; the crewleader is the boss. Expert power is contingent upon the amount of knowledge or expertise an individual has or is believed to have

in a field. The crewleader knows where the work is, whom to contact, and how to get there in the eyes of most farmworkers. Referrent power is based upon the degree of friendship felt by the subordinate for the superior. Referrent power appears to occur with less frequency than the other types of power probably because of the distance most contractors impose in their social relationships with their employees. Coercive power is the ability to administer negative reinforcements or to decrease or remove any positive reinforcements.

Crewleader Success Criteria—Successfulness of crewleaders was determined by the long range stability of their work crews, the better than average work productivity of their crews, and the ability to organize and mobilize their workers in order to take advantage of the better pay rates and fields, as well as the ability to fulfill their work contracts with the farmowners and managers. These criteria are crucial in terms of making a profit over the long run as opposed to making a quick profit in 1 or 2 seasons and then folding due to the inability to keep crews and fulfill work contracts.

Income and property holdings were not used as a measure of success due to the absence of reliable data. Crewleaders either refused or were very reluctant to discuss income and property due to the fear of farmworker crew jealousy, being robbed, and in particular, the fear of the Internal Revenue Service or the Department of Labor finding out the crewleader's actual income. It appears that many crewleaders do not file income tax returns or file reduced ones claiming migrant status. However, it has been reported that an income of $40,000/yr is not uncommon for some crewleaders in Collier County, Florida.

Types of Power Utilization as Related to Success—Crewleaders appearing less successful as judged by the previously mentioned criteria seemed to use coercive power in some form as the primary means of manipulation, control, and exploitation of their farmworker employees. Legitimate and expert power were the second and third types of power most utilized, with reward power fourth and only 1 instance of referrent power observed. These less successful crewleaders, although able to make a profit at first, appeared to have had much difficulty in maintaining a relatively stable and contented work crew and so were constantly losing workers and work contracts. These crewleaders consistently recruited less able personnel, especially those older individuals with drug and alcohol dependencies as well as legal problems whom they were able to hire at much cheaper rates. But they had problems even with these individuals who constantly ran away or quit due to abusive treatment by the crewleaders. In addition, many of the crewleaders who used physical and economic coercion consistently had legal and governmental authorities investigating them. Many were put out-of-business for periods of time as a result of their treatment of farmworkers or were forced to leave the area or State.

The more successful crewleaders utilized a combination of reward, expert, legitimate, and coercive power in general playing equal parts. Refer-

rent power occurred more frequently than with the less successful crewleaders. These crewleaders had relatively stable work crews, could usually count on the majority of the crew returning year after year, could mobilize the crew quickly and were not harrassed as much by legal and governmental authorities as were some of the less successful crewleaders who used coercive power as the primary means of control and exploitation. The more successful crewleaders were able to expend less energy maintaining a work crew after the initial recruitment stage and therefore could maximize their profits by being able to calculate ahead to a greater extent.

Cultural Influences—It appears that cultural background plays an important role in determining the amount and intensity of coercive power exercised by the crewleader over his crew. Many crewleaders tend to recruit individuals from similar ethnic backgrounds such as Mexican-American, Puerto Rican, southern rural blacks, or whites. The ideas, values, and behavior of ethnically similar crews and crewleaders appears to make for a much more cohesive and stable work and living relationship. It would also appear that in the south Florida area, at least, many of the more successful crewleaders come from cultural backgrounds where many of the traditional values such as the importance of kinship ties and reciprocity are still very much in force. This is particularly true of many Mexican-American crewleaders who tend to hire employees of the same background, many with real or fictive kinship ties with the crewleader. The need for coercive power here is much less because the crewleader is viewed as the head of a large family with legitimate power rights even though he may be, in reality, making a very large profit off his crew. There is also a tendency for the members of such a crew who have been acculturated into the traditional values to view their relationship with the crewleader as a type of patron-client one, which further reinforces the crewleader's authority position and seems to lessen the need for coercive power.

In contrast, many black and white American crewleaders recruit farmworkers from the urban northern and rural southern areas of the country. These leaders are in many cases single, drug and alcohol dependent, have become alienated from family and friends, and seem to employ coercive power to a much greater degree. There is rarely the kind of solidarity and stability here as found in crews with Hispanic and Caribbean area rural backgrounds, work productivity is far less, the farmworkers are constantly leaving and there is more of a general atmosphere of distrust and hostility. It may be that coercive power used over these types of crews is the most effective means of gaining control and exploitative opportunities from the perspective of the crewleader. But, a heavy reliance on coercive power is less effective in the long run. Coercive power appears to be becoming increasingly less effective too, due to the growing awareness of farmworkers of their rights and opportunities possible as emphasized by the farm labor and other movements in the national media. It appears that farmworkers are less apt to

put up with some of the abuses they endured in the past in spite of declining future prospects for employment in farm labor.

CONCLUSION—In conclusion, all crewleaders use more than 1 type of power as is the case in subordinate-superior authority relationships in interpersonal situations. The power types, though presented here as independent categories for the purpose of conceptualization may be applied in combination. It was found that the more successful crewleaders in terms of crew stability, work productivity, and contract fulfillment utilized a combination of reward, expert, legitimate, and coercive power. Referrent power occurred more frequently than with the less successful crewleaders. The less successful crewleaders appeared to use coercive power as the main force in exploiting and controlling their employees which resulted in a large turnover rate and lost contracts.

Cultural influences seem to play a large part in determining the types, amount, and intensity of power used by crewleaders over their farmworker employees. Crewleaders and crews with more traditional backgrounds appeared to have more stable and cohesive relationships that may result in a decreased need for coercion. On the other hand, crewleaders with a large number of American workers with urban or rural black or white backgrounds appear to use coercive power to make a fast profit. The solidarity is lacking with the crews that is present in many of the crews with a more traditional background, so the crewleader seems to feel less responsibility for using other less abusive ways to achieve his goals of profit.

It is obvious that much more in-depth research remains to be done in the area of crewleader power and interpersonal relationships. Perhaps a greater understanding of the way the American agricultural labor system functions could help reduce or circumvent some of the problems that may occur in other countries undergoing the transitional stage from traditional to industrial societies, particularly in regard to farmworker exploitation.

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