

Owen J. Furuseth, Jr. GEOPHAGY IN EASTERN NORTH CAROLINA. (Under the direction of Charles F. Gritzner) Department of Geography.

The purpose of this study is to examine and analyze the occurrence of the culture trait of geophagy on the coastal plain of North Carolina. The practice of geophagy, the deliberate consumption of earth, is found throughout much of the world. Its occurrence on the coastal plain, as well as other areas of the New World, is the product of cultural diffusion from West Africa. Although geophagy was found in several American Indian cultures, the practice was not widespread until its introduction from Africa by Negro slaves.

As an exercise in cultural geography, the study's initial objective is the assemblage of the culture history of geophagy, from historical African and pre-1865 New World data. The culture history of geophagy facilitates the understanding of the present-day distribution and the perception of the practice.

The principal objectives of the thesis are to compile and analyze the distribution of geophagy within an arbitrarily selected study area - a twenty-county area of the North Carolina coastal plain - and to discover the culturally perceived values associated with the trait.

Additionally, the phenomenon of starch eating is spatially analyzed. Starch eating is closely associated with geophagy, and evidence suggests that it is an acculturated form of the practice. The study attempts to validate this hypothesis.

In completing these objectives the study delimits micro-regional variations in geophagical practices (both earth and starch consumption),

and analyzes the role of cultural, economic, and physiologic factors in affecting spatial variations in the practice. These variations are analyzed, in terms of individual counties and the region as a whole.

In order to better understand geophagy, the thesis undertakes a cultural ecology of the practice in the black community. Through ecological analysis it is possible to investigate the value and importance within the subculture, and document the plethora of practices, traditions, and folklore associated with geophagy.

Finally, the thesis identifies trends for the future occurrence of the practices, in terms of both distribution and magnitude. In attaining these goals, the study attempts to analyze those factors which are seemingly causing and continue to affect the incidence of geophagy and starch eating.

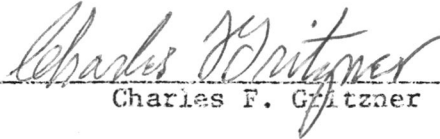
GEOGRAPHY IN EASTERN NORTH CAROLINA

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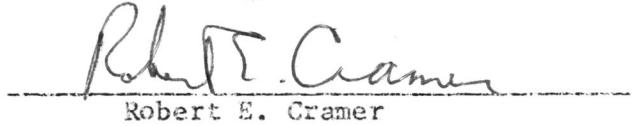
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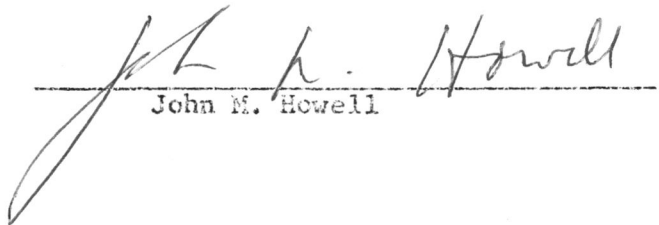
SUPERVISOR OF THESIS

  
-----  
Charles F. Gritzner

CHAIRMAN OF THE DEPARTMENT OF GEOGRAPHY

  
-----  
Robert E. Cramer

DEAN OF THE GRADUATE SCHOOL

  
-----  
John M. Howell

GEOPHAGY IN EASTERN NORTH CAROLINA

A Thesis

Presented to

the Faculty of the Department of Geography

East Carolina University

Geography Research Paper No. 18

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts in Geography

by

Owen J. Furuseth, Jr.

June 1973

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#### ACKNOWLEDGMENTS

I wish to thank those individuals who have contributed to the successful completion of this study, through their advice, aid, and encouragement. Grateful acknowledgment is made to the North Carolina Agricultural Extension Service, Home Economics Extension whose aid in data gathering made this study feasible and Mrs. Marjorie Donnelly and Mrs. Minnie Brown and their colleagues in all twenty study area counties for their enthusiasm and support during the data acquisition. Special thanks to Dr. Charles F. Gritzner and Mrs. Janet Gritzner, under whose guidance and encouragement this study was developed, and whose assistance and advice made this study possible. I am also grateful to Ms. Janet Petterson and Dr. Blanche Watrous for their invaluable counsel. Thanks also to Dr. Richard Stephenson, my fellow graduate students, and friends for their encouragement during the writing of the thesis. Finally thanks to Harriet and my family for their constant understanding, patience, and countenance during the tedious periods of research and writing.

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## INTRODUCTION

The phenomenon of geophagy, the deliberate consumption of earth, is one of the most misunderstood and stigmatized human practices in the world.<sup>1</sup> Throughout recorded history, observations and cultural analyses of the practice have been made by scholars, physicians, explorers, and other writers. In various parts of the world and at various times, the phenomenon has been given different names. These include cirra, malacia, maid'estomac, pica, erdessen, Negro consumption, geophagia, des Galusten der Swanfern Frauen, stomach evil, cachexia africana, and safura (Clayton, 1965: 35).

The form of earth eaten is strongly governed by tenets of cultural and individual preference. Only those types of earth that recommend themselves through certain qualities, such as color, odor, flavor, softness, and plasticity, are consumed. Nowhere is earth used as a normal item of diet on an equal basis with vegetable and animal food-stuffs; it is essentially composed of inorganic matter, and is indigestible. Earth was, and in some areas still is, used in times of famine as a food substitute, for it provides a sensation of fullness for the stomach. Various practitioners consume earth as a condiment or relish, usually in combination with other articles of food; as a delicacy for its own sake; as a remedy for specific diseases; and as a part of religions and ceremonies. And some medical evidence indicates, physiologic need may induce geophagy in primitive cultures (Hunter, 1973: 187).

Earth eating has been portrayed by numerous earlier researchers as

an "evil," or a "vice," while others have characterized it as "disgusting" or "depraved appetite" (Laufer, 1930: 102). Such ethnocentric evaluations are subjective and meaningless. Man will taste and experiment with anything offered by nature, and the consumption of earth is no more bewildering a practice than is the eating of salt, pepper, bark, insects, or the chewing of betel nuts, gum, or tobacco.

The practice of geophagy may be classified into two major subdivisions. The duality is based on the genesis of the practice. The first major group is cachectic or malignant geophagy. This form of geophagy is defined as the use of earth as a food substitute. Because it is linked with adversity and social calamity, this behavior cannot be considered "normal" in terms of the individual cultures incorporating the practice. Cachectic or malignant geophagy is merely a temporary adjustment made to ease the pangs of hunger. Following the return of regular food supplies the geophagy is terminated. Because of its temporal quality this form of geophagy is nebulous in terms of spatial distribution.

The second form of geophagy is benign geophagy. This practice is a culturally-based form of geophagy. In many cultures, benign geophagy is an important facet of the culture trait complex. The details and meaning of the practice may differ from culture to culture, but in every case geophagy is an integral part of the total culture.

The origin of benign geophagy is unknown. In 1906, anthropologist J. Deniker hypothesized the practice on the physiologic basis of salt deficiency (Laufer, 1930: 106). His theory has become a popular explanation among medical scientists examining the practice; it is, however,

highly debatable. In the first place, the earth consumed by man, as a rule, contains little if any salt. A second failure of this hypothesis is to explain the existence of geophagy among cultures with adequate supplies of salt, and the absence of geophagy among numerous groups which lack salt. Finally, as Berthold Laufer states, "the fact remains that all geophagists have access to salt and probably more easily than to clay" (Laufer, 1930: 106).

A survey of the literature has failed to disclose any seemingly acceptable explanation for benign geophagy. At this time, the most plausible answer is set forth by one of the nation's leading authorities on geophagy, Dr. Donald E. Vermeer, of Louisiana State University.

Professor Vermeer has stated:

I do operate [in his own research] on the assumption that the practice may have originated because of a specific lack in the overall diet but that through time geophagy has largely become cultural and the direct relation between nutritional deficiency and geophagy no longer exists or can be found (Vermeer, personal communication: 1972).

The ensuing study is concerned with benign geophagy, and more specifically with the cultural practice on the coastal plain of North Carolina. The primary purpose of this study is to discover the occurrence of geophagy in a spatial context, and to examine the culturally perceived and determined values attached to geophagy in Eastern North Carolina. In attaining these goals, the study identifies micro-regional variations in the practice of geophagy and analyze the role of cultural factors which may have a bearing upon the development of spatial variations in the practice.

The study also examines starch eating, in as much as it is closely associated with geophagy. Geophagy as a cultural practice is not static.

but is in a continuous state of change. Evidence indicates that starch eating can be considered a modification and extension of geophagy (Furuseh, 1972: 42). Preliminary research has identified a strong relationship between an apparent decline in geophagy and the apparent rise in starch eating. The author theorizes starch eating to be merely an "acculturated" form of geophagy. The study treats the occurrence of starch eating in the same manner as geophagy, identifying support regions, and analyzing cultural determinants of the practice. Additionally, the study will attempt to validate the hypothesis that starch eating is an "acculturated geophagy."

In the past, few researchers have focused attention on geophagical practices in the United States. Professor Vermeer has stated:

Little intensive research has been made of the practice [geophagy] in the rural South and Southeastern core despite its spread from this area over the past thirty or more years by emigration and resettlement of hundreds of thousands of Blacks in the urban centers of the North and West (Vermeer and Frate, unpublished: 2).

Geophagy and other black cultural practices deserve the attention of serious geographic research. To date, cultural geographers have tended to neglect the diffusion of African cultural practices and concentrated their research interests on aspects of European based cultures. This has resulted in a current lack of geographic knowledge pertaining to Afro-American culture. Hopefully, this study will make a contribution in filling this gap.

## CHAPTER I

### WEST AFRICAN GEOPHAGY AND ITS DIFFUSION

Geophagy is a widespread cultural practice in Africa. Practitioners can be found, among native cultures, from extreme Northern Arab Africa to the area now controlled by the Republic of South Africa (Figure 1). Consequently, the folk beliefs and social importance attached to geophagy vary as widely as the spatial environs. For the purpose of this study, the plethora of cultural values and folklore attached to geophagy are superfluous, and will not be pursued.<sup>1</sup>

#### HISTORICAL OBSERVATIONS

Early explorers, missionaries and travelers into coastal Western Tropical Africa reported with amazement the widespread geophagical customs and practices of the inhabitants. Writing in 1789, J. Matthews speaks of a white, soap-like earth found in Sierra Leone that the Negroes frequently eat with rice, because it melts like butter; it was also used for white-washing their houses (Laufer, 1930: 156). The same type of clay was reported by Golberry (1785 - 1787) in Senegambia, "... on the banks of the rivers which empty themselves into the gulph [sic] of the Los Idolos Islands" (Laufer, 1930: 156). Theodore Winterbottom believed that Matthew and Colberry were incorrect, but in 1803 wrote that children among the Bullom and Temne of Sierra Leone were geophagists, and ate preferably "a white kind of clay, resembling tobacco pipe clay which they dissolve in their mouths" (Laufer, 1930: 156).

# AFRICAN GEOPHAGICAL PRACTICES



SOURCE: AFTER ANELL AND LAGERCRANTZ

Figure 1

In the third edition of his Ansichten der Natur (1849), Alexander von Humboldt writes, "In guinea the Negroes eat a yellowish earth which they call caunac...They affirm that clay-eating is quite harmless in their home country" (Laufer, 1930: 156). C. G. Ehrenberg refuted the idea propounded by Humboldt that Guinea Negroes generally and habitually eat earth without endangering their health (Laufer, 1930: 156). Ehrenberg's conclusions were based on the observations of several missionaries stationed at points on the Gold Coast and Slave Coasts during a thirty year period. Ehrenberg admitted geophagy occurred in this area, but seldom, and principally on the part of children and "thoughtless" persons. Ehrenberg's research must be viewed in the context of its source, the objectivity of missionaries in viewing foreign cultures has often proven to be questionable.

Anthropologist, Winwoode Reade, in studying the Gold Coast area stated, "a white clay is frequently chewed or drunk in solution, the young people taking it as a sweetmeat and the old people as a medicine" (Laufer, 1930: 158). According to Reade, more detailed reports of the Gold Coast are available at least from Elmina, Odumasi, Anyako, Kitta, and "Christiansburg and other coastal towns." The geophagical practices were primarily among children and female adults. The earth was considered a delicacy. As a rule white clay was eaten; in Anyako and Kitta a black variety was heated before use at which time it became red and was eaten. In Akropong, the white earth eaten was probably consumed for its salt-content. In conjunction with well digging in Odumasi, large crowds of children gathered to collect the discarded earth.

Cardinall, in his book, The Natives of the Northern Territories of

the Gold Coast, discusses geophagical applications in connection with swearing oaths (Anell and Lagercrantz, 1958: 37). Among the tribes cited are the Eastern Malinke, Bamana, Lobi, Dian, Digari, Nunuma, Mossi, Kasonfra, Bura, Mamprusi, Dagomba, and others in the area.

Only a few historical studies are available from Togo, Dahomey, and Nigeria. Regarding Togo, anthropologist L. Kulz and Fr. Zeller state that geophagy is "common" (Anell and Lagercrantz, 1958: 37). Edible earth was sold in the markets of Dahomey. Usually this earth was a fine-grained clay earth in burnt discs of three to four centimeters in thickness and ten to fifteen centimeters in diameter. Among the Ibo, of Eastern Nigeria, the women eat a bit of clay (ulo) at "any time and not only when pregnant," because it tastes good and they also feel "light" afterwards (Anell and Lagercrantz, 1958: 37). The men disapprove of the practice, however, and they throw away any clay they may find in their wives' possession. Additionally, Tremearne reported, sometimes pregnant Hausa women eat a white clay "to secure an easy childbirth" (Anell and Lagercrantz, 1958: 37).

In the Cameroons and the areas just to the south, geophagy is extremely widespread in the coastal areas. According to D. Creig, geophagy is practiced "all along the coast from Small Batanga as far as the island of Corisco" (Anell and Lagercrantz, 1958: 38). Geophagy also occurs inland, anthropological reports include geophagical practices among the Fia and Shogo. Kulz and Zeller reporting on the area around Victoria documented geophagy among small children as well as pregnant women (Anell and Lagercrantz, 1958: 38). Mothers often give their children "clay pills." A number of persons use clay as a spice,



particularly with salt. Between fifty and sixty grams may be consumed per day by the geophagist.

Geophagy is well documented in the Congo region by Catholic missionaries, who paid special attention to the practice. As missionary, C. van Overbergh stated:

The Baluba frequently eat pembe or white earth. Result: appalling leanness and swelling of the abdomen. Pregnant women do not eat white earth. In general women eat earth; I have never seen men eat it, but I do not guarantee that men will not eat it (Laufer, 1930: 157).

References to geophagy throughout Africa are found in numerous diverse sources. The few cited were spatially limited to those areas in which trans-Atlantic slave seizure predominantly occurred.

#### CONTEMPORARY RESEARCH

The most recent research in West African geophagy has been conducted by Professor Donald E. Vermeer, of Louisiana State University. During the course of his doctoral fieldwork in 1960 - 1961, Professor Vermeer reported the widespread practice of geophagy among the Tiv of Nigeria. As he stated:

This paper treats geophagy among the Tiv of Nigeria, a group for whom the practice has hitherto been unreported. Somewhat surprisingly, perhaps, even medical missionaries who worked among the Tiv for years have been unaware of the custom despite its apparent universal practice within the tribe (Vermeer, 1966: 197).

Additional field research conducted by Professor Vermeer among the Ewe of Southeastern Ghana uncovered widespread geophagy among these peoples. As among the Tiv, Professor Vermeer's study is apparently the first scholarly research citing the practice within this culture. The ethnographic studies of the Ewe by Manoukian (1952) and Nukunya (1969)

have no mention of geophagy. Professor Vermeer's research provides additional insight into the role of geophagical clays in the total cultural ecology of coastal West Africa. As he has stated:

Certain sites within the Eweland environment are specially selected for their edible clays. Some of these clays find ready acceptance and are marketed throughout the tribal area; they are also marketed far beyond Eweland in other parts of West Africa. Still other clays are locally consumed but never enter the market system. In addition, geophagical clays penetrate Eweland from other source regions within Ghana, and also from more distant places such as Togo and Nigeria... (Vermeer, 1971: 57).

Professor Vermeer's cognizance of the extensive marketing of geophagical earth has been confirmed by Claudine and Claude Tardits in "Traditional Market Economy in South Dahomey" (Tardits and Tardits, 1962: 94). The authors observe that clay-earths are a recognized market commodity, which is reserved its own exclusive section of the marketing areas. These studies demonstrate the viability of geophagy among numerous indigenous cultures of West Africa.

#### DIFFUSION OF AFRICAN GEOPHAGY TO THE NEW WORLD

The previously cited studies have corroborated the premise that geophagy has been and continues to be a recognized element of the cultural ecology of West Africa. It is a facet possessing numerous cultural connotations, which may vary between tribal groups, but exists throughout the region. West African geophagy may have remained localized, or might have diffused into other parts of the continent. These questions remain unanswered.

Into West Africa was injected the need for cheap labor by the capitalist economies of the European colonies in the New World. Spain

and Portugal were the first countries to begin the modern African slave trade and the last to abolish the practice. In the Fifteenth and Sixteenth centuries, these hispanic nations carried the rudimentary slave-oriented plantation system from the Atlantic Islands to Santo Domingo and Brazil. In the Seventeenth and Eighteenth centuries, the Dutch, English, and French dominated the slave trade; during the Nineteenth century, Brazil and Cuba took the vast majority of the legally imported into the New World.

The total number of slaves imported into the New World is a point of major dispute. Estimates vary from Wiedner's 3.5 million to Rotberg's 25 million. According to Phillip Curtin, noted historian, the most reliable estimate comes from N. Deerr's The History of Sugar. Deerr's estimate is approximately 11,970,000 (Curtin, 1969: 13).

The origin of these human chattels is vague, as European traders had a distorted perception of African political geography. However these traders left a much clearer view of their commercial contacts of the African continent. It is therefore possible to discuss the coastal shipping areas of the slave trade with some degree of authority.

Using the nomenclature of the period, coastal slave exporting regions of Africa were known by name (Figure 2). This enables the researchers to arrive at a standard series of slave shipping coastal regions. The first of these regions is Senegambia, which includes the present-day countries of Gambia and Senegal. The second area was called Sierra Leone, but extends from the Casamance River in the north to Cape Mount in the south. This region includes Sierra Leone, Portuguese Guinea, Guinea, and a small portion of Liberia and Senegal.

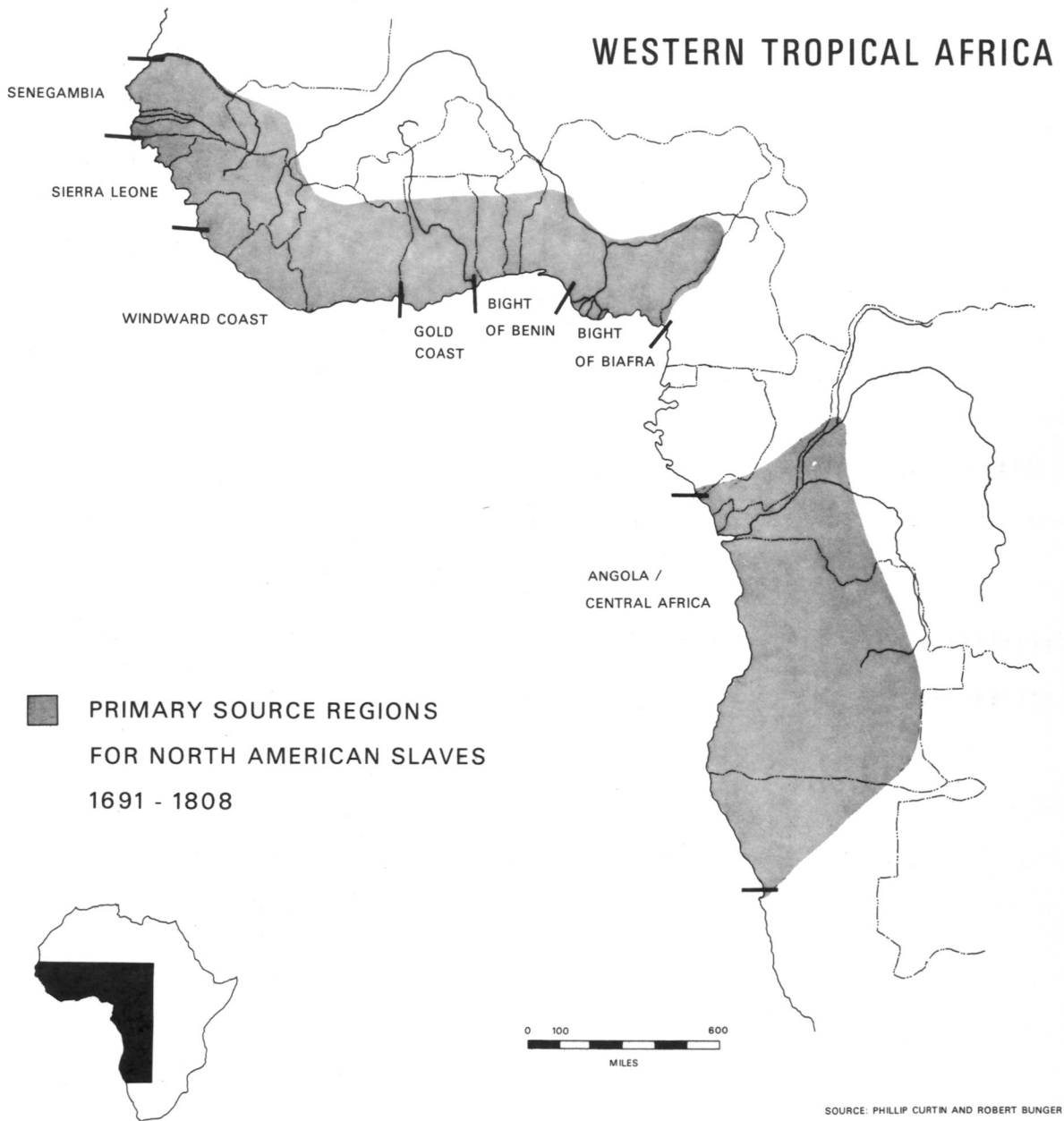


Figure 2

The third region, the "Winward Coast," is the area from Cape Mount to Assini. The Eighteenth century "Windward Coast" should not be confused with the Nineteenth century "Windward Coast," a term used to describe the area on either side of Sierra Leone. The fourth region is the "Gold Coast," the coastal area from Assini to the Volta River in the east. This region is roughly conterminous with the present-day nation of Ghana.

A fifth region is the geographic Bight of Benin, including the coast from the Volta River to the Benin River. The core of this area is the Eighteenth century "Slave Coast" of present-day Togo and Dahomey. Similarly, the sixth region centered on the Niger delta and the mouths of the Cross and Duala Rivers is designated the Bight of Biafra. Its northern boundary is the Benin River and Cape Lopez on the south.

The seventh region is the nebulous Central Africa or Angola region. It extends from Cape Lopez to the Orange River. The term "Angola" was the most frequent term used to designate the region. An additional slave region was Southeastern Africa, but few slaves from this region were imported into North America (Curtin, 1969: 157).

Research by the noted anthropologist, Dr. Melville E. Herskovits of Northwestern University has shown the spatial limitation of slave procurement was limited to the coastal areas of the continent. The previously accepted concept that slave coffles undertook "thousand mile" journeys is both economically unsound and foolish. As Professor Herskovits has stated:

Yet this disregards not only the vast distances involved...  
but also the dangers attendant upon such journeys in terms of  
the hostility between many tribes over the area and the absence

of adequate lines of communication, to say nothing of the slight economic gain from such hazardous commerce even were the highest prices to be paid for such slaves (Herskovits, 1966: 31).

Professor Herskovits's research is reinforced by the data gathered from recaptured slaves in the Nineteenth Century. Most of those repatriated individuals identified their former homes as coastal; with few exceptions, all had lived within 400 miles of the coast.

The West African slave torn from both traditional home and culture, was forcibly introduced to a new and in some ways hostile cultural and physical environment. The system of slavery could not totally destroy his cultural heritage, however. The black men and women carried their culture to the New World; many facets perished, but others were retained. Some of these "Africanisms" took on new meaning, in the light of the cultural conflicts, while others were adopted by the European cultures. American folklore, dance, cuisine, music, aesthetic tradition, and language are examples of this adoption. Numerous aspects of African-based culture survived intact. Geophagy is one such trait.

## NOTES

1

Because of the nature of this study the African cultural values and practices are not discussed. For a complete discussion of these, see Laufer, (1930) and Anell and Lagercrantz, (1958).

## CHAPTER II

### AFRICAN-BASED GEOPHAGY IN THE NEW WORLD

It is a popular myth among some sociologists and anthropologists, that the turbulent introduction of the Negro slave into the environment of the plantation system resulted in the rapid extinction of all African culture traits. As sociologist E. F. Frazier, a leading authority in Negro sociology, stated:

Probably never before in history has a people been so nearly completely stripped of its social heritage as the Negroes who were brought to America...Through force of circumstances, they had to acquire a new language, adopt new habits of labor, and take over, however imperfectly, the folkways of the American environment. Their children, who knew only the American environment, soon forgot the few memories that had been passed on to them and developed motivations and modes of behavior in harmony with the New World...the habits and customs as well as the hopes and fears that characterized the life of their forebearers in Africa, nothing remains (Herskovits, 1966: 13).

The existence of numerous African-based cultural traits in the New World, however, dispels completely this ridiculous hypothesis. As Professor Herskovits has stated:

...the fact remains that the present-day New World descendants of Africans have everywhere retained Africanisms, even though the degree of purity of these Africanisms varies widely with locality socio-economic class, and religious affiliation (Herskovits, 1966: 14).

The widespread occurrence of geophagy among Negro slaves in the New World has been documented extensively. Geophagy, as a culture trait, was common among the slave populations throughout the slaveholding areas of the New World, including South America, Central America, the Caribbean,



and the Southeastern United States. Because of the spatial nature of this study, discussion and documentation of geophagy will be restricted to the West Indies and the Southern United States. Both of these areas shared numerous cultural and economic factors related to the slave trade and plantation system, which warrants the analysis of geophagy to include both.

The cultural hearth of geophagy as practiced by the African slaves must be in the individual cultural background of the slave populace. As was discussed in Chapter 1, geophagical practices are widespread in West and Central Africa. The African slave brought with him to the New World numerous non-material culture traits. John Williamson has stated:

Christmas-day is allotted for the commencement of negro holidays, which continue three days...they parade round the place with music peculiar to their country, dressed in a gay and fantastic manner. (Williamson, 1817: 59).

Although discussed at length in medical and agricultural publications, a comparison of African and New World geophagy is rendered difficult by the fact that geophagy practiced by the slaves was judged for the most part from the point of view of the slaveowners. The slaves were thought to eat earth simply and solely in order to avoid work, become ill, and hypothetically to commit suicide. Geophagy was considered a major threat to the plantation system. Whereas numerous ethnocentric value judgments are evidenced in these historical sources, certain uniform elements emerge which indicate that geophagy assumed new meaning in this period of forced servitude. Apparently, geophagy among the Negro slaves assumed the cachectic or malignant form.

Cachectic or malignant geophagy, as well as benign geophagy were foreign to the European culture of the slave owners and managers. Thus

the occurrence of the practice was assumed to be a medical problem. Physicians of the period applied several names to the practice. Among the French colonies the "disease" was termed mal d'estomac, in the British colonies stomach evil or cachexia africana, while in the Southern colonies, and later the Southeastern United States it was coined cachexia africana or Negro consumption.

#### HISTORICAL MEDICAL DISCUSSIONS OF GEOPHAGY

Physicians were baffled and amazed at this "disease," which most believed had come from "distant Africa." As W. M. Carpenter, Professor of Medicine at Louisiana Medical College, stated in 1844:

...it must be admitted, that cases of cure are remarkably rare; owing to the inveterate obstinacy with which the habit is persevered in.--But few cases have come under my observation, in which the habit could be considered as eradicated, and the patient permanently cured. Mr. John Hunter, states that, in Jamaica, "a negro labouring under this malady, is considered as lost. On many estates, half the number of deaths, on a moderate computation, are owing to this cause." All other writers confirm his statements respecting the difficulties encountered in treating this affliction in the West Indies, and it is to be regretted, that in this country, the results of various expedients, and modes of treatment, have afforded but little better results (Carpenter, 1845: 148-149).

According to physicians, the symptoms of the "disease" were extreme sluggishness, great edema, pallor (particularly of the mucous membranes), great susceptibility to cold, thin blood with a livid purple hue, and diminished secretions. The leading and essential symptom was an ungovernable determination to eat earth. As F. W. Craigin M. D. stated in 1811:

The only appreciable signs of mental activity exhibited during the course of this disease are the crafty and cunning plans which the patient most subtly matures, and as stealthily

executes to procure his desired repast (Craigin, 1811: 25).

Numerous theories were developed as to the cause of the "disease" and an effective cure. D. Mason M. D., citing his practice in Jamaica, states that the disease is brought on by long abstinence from food, bad food, or an irregular or inadequate supply of food (Mason, 1833: 295). The treatment which he recommends is good food, cleanliness, and proper clothing together with a tonic, laxative, and some form of iron,... essential a part of the remedy to be omitted."

Another physician, J. Hancock, advocated giving the afflicted slave freedom, ease, and association with companions, a restorative diet, and above all a preparation of iron (Cooper, 1957: 25). Further, he reports that water drawn from an iron cistern on Tiger Island, Jamaica was extremely beneficial on one plantation.

A common cure found in French colonies was the most macabre. The geophagical slave was kept in confinement; he was chained on a plank floor, equipped with iron gags or a close wire mask secured by a lock, which prevented him from eating improper substances. As one might expect, this cure was called by many physicians in other colonies the least effective cure for the practice. As F. W. Craigin wrote:

...nor does the confinement of legs and hands in stocks and manacles exert the least influence and their preventative effect is as temporary as their employment. A metallic mask or mouthpiece secured with a lock is the principal means of security against their indulging in dirt-eating, nor does this effect a cure or save the life of the patient (Craigin, 1811: 23).

C. H. Jordan, M. D., cited several case histories to prove his hypothesis that the "disease" was associated synonymously with tuberculosis of the mesenteric glands (Jordan, 1832: 19). He felt this was chiefly due

to miasma, "filthy damp cabins," and inadequate diet. Professor Carpenter, of Louisiana, attributed the "disease" to hookworm infestation.

It is indeed unfortunate that these physicians were unaware of the anthropological studies of the era documenting the existence of geophagy in the homelands of the African slaves. A thorough understanding of the cultural value of geophagy might have aided their understanding of the practice.

It is theorized by this researcher that the "cultural shock" undergone by the African slaves, resulting from their kidnapping and subsequent enslavement in the New World, was the primary cause of the metamorphosis from benign to malignant geophagy. The African slave was in many respects treated as an animal possession, fed a culturally foreign diet, lived in some cases in a seemingly hostile environment, and was held in bondage by racially and culturally foreign peoples. A widely held myth among newly arrived slaves was that the white people were cannibals. The resulting "cultural shock" apparently resulted in a modification of geophagy from benign to the malignant form.

#### HISTORICAL BENIGN GEOPHAGY

Benign geophagy did occur on plantation, but was probably not documented as intensively. In most cases, the European plantation owners and managers were concerned with only those problems and cultural practices of the slave populations which affected the health and agricultural output of their slaves. Benign geophagy which could be practiced in private or without harming health was unimportant to the slave owner or manager. As John Williamson stated, while discussing the dreaded cachexia africana,

"...it is equally an incontrovertible fact, that negroes in perfect health, to appearance, have indulged a propensity to its clay moderate use, without affecting them by disease" (Williamson, : 264). Benign geophagy is also noted in Practical Rules for the Management and Medical Treatment of Negro Slaves in the Sugar Colonies, a highly respected book for individuals owning slaves. The author states, "...negroes continue to eat dirt for a long time with less injury than one might expect" (Craigin, 1811: 50). According to P. Dons of St. Thomas, earth-eating is not necessarily injurious, "...for many a Negro who indulges the practice daily may attain a high age and enjoy a relatively equally good health with the non-earth eater" (Anell and Lagercrantz, 1958: 55).

#### THE EFFECTS OF THE GEOPHAGICAL "DISEASE"

The dirt-eating "disease" was a matter of great concern to plantation owners and managers. Noted historian, W. D. Postell has stated, "Dirt eating (cachexia africana) was the dread of every planter" (Postell, 1945: 82). The "disease" was diffused on individual plantations by contact between non-geophagical slaves and those who practiced geophagy. Professor Carpenter, in describing conditions which prevailed on Louisiana plantations in 1844, observed that the practice is, "...disseminated through 'bad example,' since those who acquire the habit get into the way of associating together...young Negroes imitate their parents or other older Negroes and eat earth and the children readily imitate each other" (Carpenter, 1845: 161). It was observed that Negro slaves originating from certain "nations" were more susceptible to the earth-eating disease than were others. Thus the integration of heterogeneous African

cultures by the plantation owners aided the diffusion of the practice among blacks in the New World.

The results of the "disease" were often disastrous to the plantation system. On Jamaica, J. Hunter considered it probable that on many plantations "only a modest estimate" half of the annual mortality among the Negro slaves ascribable to earth eating (Carpenter, 1845: 156).

Williamson observed that several plantations, in the upland areas of Jamaica, were wiped out by mal d'estomac, "...sweeping away a great proportion of the gang" (Williamson, 1817: 217). In the Leeward Islands, plantation owners were surprised as geophagy broke out "as an epidemic" and with "incredible rapidity" spread to plantations where it was hitherto unknown (Williamson, 1817: 177).

In the Southeastern United States, the earth-eating "disease" resulted in the abandonment of numerous plantations. Drake reported at least one plantation in southern Alabama was forsaken because of cachexia africana, as were several others in Mississippi (Postell, 1945: 82).

Professor Carpenter reports:

There have been instances, in this State, of large planting establishments being broken up by the extensive mortality, resulting among the slaves, of this habit earth eating... There are many plantations situated on the banks of the rivers and bayous of this State, on which so many cases have occurred, as sometimes to create alarm, and, in one or two instances, to cause the desertion of the places. Instances of its extensive prevalence on plantations are common on Bayou Lafourche...on the Bayou Boeuf, particularly in the parish [sic] of Rapides, it seems now to be causing great mortality, and on the banks of the Mississippi River, and the Teche, instances have likewise come to my attention (Carpenter, 1845: 161).

THE DISTRIBUTION OF GEOPHAGY BEFORE 1865

Spatially geophagy was not limited in scope. Reports of geophagy were found throughout the Caribbean, including Jamaica, Haiti, Puerto Rico, St. Thomas, St. Johns, St. Martin, Guadeloupe, Dominica, Martinique, St. Lucia, Barbados, Grenada, and Trinidad. In the Southeastern United States geophagy was found on the plantations and estates throughout the region.

R. Little reported that on a journey through Florida he often saw Negro boys no older than ten to twelve years eating clay (Anell and Lagercrantz, 1958: 49). He found the practice throughout the state. Theodore Affleck observed that geophagy was extremely common in Mississippi and theorized that one child in forty was geophagious (Anell and Lagercrantz, 1958: 48). Additionally, he claimed that "one dirt-eater on a plantation will infect the whole."

Professor J. R. Cotting documented geophagy in Georgia. Professor Cotting analyzed a sample of clay from a clay pit "on the east side of the great road leading from Augusta to Savannah, about fourteen miles from the former..." (Cotting, 1837: 288). The clay pit was described as being "...large excavations...made by ignorant dirt-eaters..." (Cotting, 1837: 289). The author theorized the tremendous decline of dirt-eating since the inception of modern medical treatments for the practice.

Geophagy was well documented in Louisiana by the studies conducted by J. Duncan (1835), Professor W. M. Carpenter (1845), and J. Chabert (1851). In Alabama the practice was reported "in several parts" of the state (Anell and Lagercrantz, 1958: 48). In 1857, in the New Orleans

Medical and Surgical Journal, Humphrey Peake M. D. described his treatment of cachexia africana in Arkansas (Peake, 1857: 299-300).

E. Geddings, writing about the Carolinas, observed individual cases of "dirt-eating" occurring throughout the two states, but in the lowlands the "disease" was a serious problem (Anell and Lagercrantz, 1958: 50). C. H. Jordan, M. D., of Person County, North Carolina, observed "...the enslaved African is particularly the subject of this malady [cachexia africana]" (Jordan, 1832: 18). He admitted to treating numerous cases in the scope of his practice.

Dr. Joseph Pitt, in 1808, commented on the area along the Roanoke River. Of this region, which, coincides approximately with present-day Martin County, North Carolina, he reported geophagy to be widespread.

Dr. Pitt states:

Malacia or dirt-eating, as it is called...are endemic in this country. Dirt-eating prevails among the poor white people and negroes, and originates, in my opinion, from a deficiency of nourishment...I have no more doubt that starving is the general cause of dirt-eating in this climate than I have that septic acid is the general cause of fever...Malacia, so far as my knowledge extends, has seldom been cured in this country; and as seldom is there any opportunity of regular treatment, in consequence of the poverty of the sufferers (Pitt, 1808: 340-341).

#### WHITE GEOPHAGY

Pitt's account leads to the perplexing question of geophagy among white residents of the study area. Although a survey of the literature reveals little mention of white geophagy, historian Ulrich B. Phillips believes differently. Phillips states:

Cases of clay eating in authentic records are most numerous among negroes [sic], merely because masters procured for their



slaves far more medical inspection than poor whites procured for themselves; but probably the vicious practice was as common among the whites (Phillips, 1929: 105).

Phillips' contention is difficult to ascertain. But in 1849, Charles Lyell, the British scientist, stated that he believed geophagy was common among poor whites. Other occasional references to poor white "dirt-eaters" and "clay-eaters" are found in scattered sources.

Years later, in 1902, Dr. Charles Waredell Stiles demonstrated a correlation between geophagy and the hookworm disease (uncinariasis). This hookworm, which was the most common illness in many areas of the South, was believed to be the true cause of the poor white geophagy. The white geophagists were satisfying "...an abnormal appetite due to the anemia and abnormal condition of the intestinal tract," which marks the advanced stages of chronic hookworm disease (Buck, 1925: 54).

The origin of geophagy among the poor whites is a perplexing uncertainty. The more affluent white residents of the South were non-geophagical, and the basic common cultural origins of the white populace suggests that geophagy was not a culture trait. There was personal contact between freed Negroes and poor whites, but even the Negro slaves felt socially superior to the poor whites. Diffusion of the practice from the African culture is improbable; rather, the medical evidence indicates that clay-eating was physiologically related to the ascaris hookworm. Thus the geophagy of the poor white was cachectic or malignant in nature, and never classed as culturally based behavior.

The "hookworm theory" applied to poor white geophagy is not relevant to black geophagy. As Professor Marcia Cooper states:

...conclusive evidence was presented by Keller, Leathers, and Ricks who conducted a study of the incidence and intensity of hookworm infestation in rural areas of Mississippi. They reported that one out of every five white persons, but only one in sixty Negroes, showed hookworm eggs in their feces. Furthermore, among those who are affected, the intensity of infestation was higher in white, than in Negroes and they concluded that hookworm in the Negro does not constitute an important public health problem (Cooper, 1957: 79).

#### CONTEMPORARY GEOPHAGICAL RESEARCH

Following the American Civil War and the emancipation of Negroes in the Caribbean, cachectic or malignant in the form of "earth-eating diseases" disappeared from the medical journals. It is theorized that the end of the physical and mental abuse, coupled with the new found personal freedom, induced a transformation of cachectic or malignant geophagy to its original benign form. This return to benign geophagy is documented by 20th century anthropological, medical, sociological, and geographical studies.

Unfortunately, little scholarly research of benign geophagy was carried on until the early 1940's. In 1942, Dickens and Ford studied geophagy among black school children in Oktibbeha County, Mississippi. The results of their study indicated 25 percent of the children had eaten earth in a ten to sixteen day interval preceding the investigation (Dickens and Ford, 1942: 62). The authors concluded:

The third hypothesis is that dirt eating is a culture trait, the origin of which is lost. People now eat dirt because it is "good for you." The evidence available to date best supports this notion (Dickens and Ford, 1942: 60).

The results of Dickens and Ford provided the impetus for several other studies on this subject. In 1947, Hilda Hertz published Notes On Clay and Starch Eating Among Negroes In A Southern Urban Community.

Hertz's study dealt with geophagy in Durham, North Carolina. The study found geophagy to be widespread among black females in Durham (Hertz, 1947: 345). None of the women interviewed know of any male geophagists. An analysis was made of several clay samples, but no conclusions related to its consumption could be reached. Unfortunately, the author did not provide any percentages or sample sizes for her study.

Ferguson and Keaton conducted a study of clay and starch ingestion among pregnant women in Mississippi in 1948. Their study which was conducted in eleven counties in southern Mississippi, showed a high incidence of clay and starch eating among Negro respondents (Ferguson and Keaton, 1948: 461). As the authors stated:

Three hundred and sixty-one patients were investigated, 331 colored and 30 white. Of the colored 27 percent were eating clay and 41 percent starch. In the white group 7 percent consumed clay and 10 percent starch. A few of these women ate starch and clay when not pregnant, but the quantity and incidence were dwarfed by the habit in the gravid state... Reports from other observers and these patients have disclosed that clay and starch enjoy popularity outside Mississippi, at least in the South, or among people recently migrated from the South (Ferguson and Keaton, 1948: 461).

The study concluded that there was no relationship between geophagy and either caloric intake, or hookworm infestation. The authors felt the women ate earth and starch for personal reasons rather than physiologic factors, but concluded, "The reason clay and starch are eaten is unknown" (Ferguson and Keaton, 1948: 463).

In 1965, Margaret Clayton conducted a study of geophagy in the Black Belt of Alabama. Although Ms. Clayton's sample was restricted to fifty informants, she theorized geophagy was widespread in this section of Alabama. The author believed geophagy was cultural behavior. She stated:

Dirt-eating, as we found it, was probably an acquired appetite, a cultural phenomenon whose ultimate origins are unknown and whose future looks limited, which began as other acquired appetites do, through imitation and learning (Clayton, 1965: 54).

Another recent study in the "Deep South" was conducted by Professor Vermeer and Dennis Frate. Vermeer and Frate undertook an intensive study of geophagy in Holmes County, Mississippi. In their research, the authors analyzed the occurrence of geophagy and the cultural ecology of the practice. The research results revealed that geophagy was practiced by approximately 47 percent of the black pregnant females and 20 percent of the non-pregnant black females interviewed (Vermeer and Frate, unpublished: 7). As the authors stated in their conclusion, "Geophagy within the Black community of Holmes County is a custom deeply imbedded within the subculture" (Vermeer and Frate, unpublished: 17).

The most recently published study of geophagy is Dr. John Hunter's, "Geophagy In Africa And In The United States: A Culture-Nutrition Hypothesis." Professor Hunter discusses the widespread occurrence of geophagy in Africa and among Black Americans, but the substantive portion of the study deals with Hunter's hypothesis. Professor Hunter's theory concludes:

In essence, the culture-nutrition hypothesis suggests that geophagy is a cultural institution that evolved through stages as a behavioral response to the physiological imperative; namely, that, over a long period of time, a cultural practice subconsciously responds to, and gradually gives institutionalized form to, the physiological needs of the body under stress (Hunter, 1973: 184-185).

Unfortunately, Professor Hunter's hypothesis was not subject to field research. His evidence is based entirely on the physiological experiments with select animals, including cattle and rats, and

experiments with babies and small children's consumption of cod liver oil and other food preferences. Field research by other geographers, anthropologists, medical researchers, and the present writer has failed to detect a physiologic causation for geophagy in the Southeastern United States. This author must concur with Professor Vermear that the initial consumption of earth may have been physiologically associated, and indeed this reason may still be applicable in part of the Third World. But in the Southeastern United States, geophagy is definitely a culture trait.

Despite the comments of several contemporary researchers, the African origin of black geophagy is undeniable. Benign geophagy is a culture trait which was introduced into the New World by the imported African slaves. Like its black practitioners, geophagy has had a turbulent history in the Americas. But geophagy has survived this troubled period. Today it remains a viable aspect of the Afro-American subculture in many parts of the New World. The remainder of this study will seek to analyze the viability of geophagy in Eastern North Carolina.

## CHAPTER III

### THE SPATIAL DISTRIBUTION OF GEOPHAGY IN EASTERN NORTH CAROLINA

The incidence of geophagy in the Southeastern United States and Caribbean has been documented extensively in the previously cited sources. Prior contemporary research into geophagical practices has been spatially limited to piedmont and upland areas. The question may be raised as to what extent geophagy appears as a viable facet of the black subculture on the extensive coastal plain areas of the Southeast. The concluding section of this study addresses itself to this question.

In order to investigate the nature and prevalence of geophagy on the Coastal Plain of Eastern North Carolina, a sample area was arbitrarily delimited. The twenty county study area was selected on the basis of its spatial, economic, environmental, and cultural considerations, so as to represent a fair sample of Eastern North Carolina (Figure 3). Those counties selected extend from the state's northern border to the southern boundary, and from the outer coastal plain to Piedmont. The study area also included the largest counties and cities as well as some of the most rural areas of the coastal plain. Economically, the study area included both industrialized and agricultural based counties. Finally the study area included a representative sample of all three racial groups living in Eastern North Carolina, Caucasoids, Negroids, and Mongoloids.

Field interviews constituted the primary source of data. Over 1200 interviews were obtained, the majority of which followed a structured

# EASTERN NORTH CAROLINA

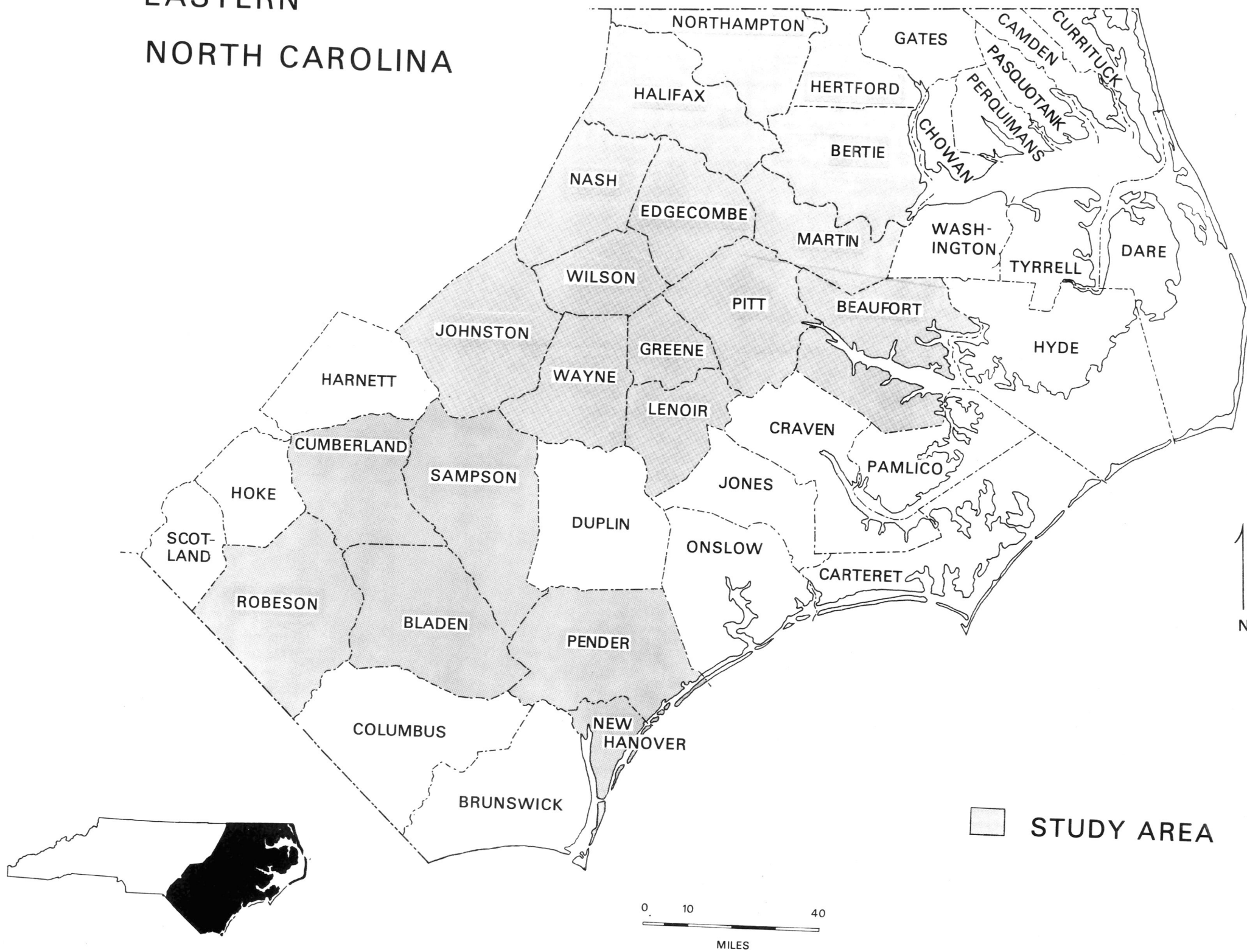


Figure 3

format. The bulk of the interviews were conducted by female Program Aides from the North Carolina Agricultural Extension Service. The cooperation of these women aides proved to be an invaluable component for the successful completion of the study, as these interviewers had a rapport with the informants. The aides' personal relationship with the interviewees allowed the gathering of information which would have been precluded to other sources.

In order to examine possible geophagical diffusion, the population sample included members of all three racial groups in the study area. The mean age of the informants, who varied from seven to ninety-nine years, was thirty-five. Male informants comprised less than five per cent of the sample; previous research had precluded the practice of geophagy among men. This conclusion was later verified by the interviews.

The results of the interviews indicated that geophagical practices were more extensive than previous studies in the Southeast have disclosed. Among the 1200 residents surveyed, 25.9% were actively engaged in geophagy, 14.8% were actively practicing starch eating, and 7.2% were consuming clay and starch concurrently. Analysis of the results of all interviews disclosed that 48.1% of the sample population were actively engaged in some form of geophagical practice (either clay or starch eating or both concurrently). Not unexpectedly, the nature and incidence of geophagical practices varied among the populace of individual counties (Table 1).

In order to obtain an effective analysis of the variation in the occurrence of geophagical practices, the common statistical measure of dispersion, i. e., standard deviation, was applied to informant responses. Use of standard deviation provides an index of the deviation of individual



TABLE 1  
 SURVEYED INCIDENCE OF GEOPHAGICAL  
 PRACTICES IN THE STUDY AREA

COUNTIES SURVEYED	CLAY EATING (%)	STARCH EATING (%)	CONCURRENT CONSUMPTION (%)
BEAUFORT	22.1	17.1	2.0
BERTIE	12.5	20.0	7.5
BLADEN	27.2	34.5	9.0
CUMBERLAND	26.6	15.5	8.8
EDGECOMBE	57.7	8.8	15.5
GREENE	41.6	5.0	16.6
HALIFAX	33.3	10.0	6.6
HERTFORD	11.4	31.4	2.8
JOHNSTON	30.6	18.0	26.0
LENOIR	21.2	10.0	5.0
MARTIN	32.7	14.5	5.4
NASH	25.9	2.8	-
NEW HANOVER	8.0	48.0	6.0
NORTHAMPTON	33.3	20.0	26.6
PENDER	14.7	11.7	2.9
PITT	15.0	7.0	10.0
ROBESON	32.8	5.8	1.4
SAMPSON	33.3	8.3	13.0
WAYNE	26.6	3.3	-
WILSON	15.3	18.4	16.9
MEAN COUNTY INCIDENCE	25.9	14.8	7.2

county data, both positive and negative, from the mean for the entire study area. This made possible a more precise analysis than could be rendered through the use of percentages and mean. Standard deviation measures, hereafter to be designated by  $S'$ , were determined for each  $\frac{1}{2} S'$ . Those counties within  $\frac{1}{2} S'$  of the mean were interpreted as the average or expected occurrence of geophagical practices. Counties between  $\frac{1}{2} S' - 1\frac{1}{2} S'$  were defined as moderately above average. Counties with a  $S'$  greater than  $1\frac{1}{2} S'$  were categorized as well beyond the mean and could be expected to have either a very high or very low incidence of the phenomenon. Though the limits set might have first appeared arbitrary, fieldwork has supported them as natural breaking points.

#### INCIDENCE OF GEOPHAGY

Geophagy was found to be extremely widespread and variable within the study area. The occurrence of geophagy for individual counties ranged from 57.5% in Edgecombe County to 8% in New Hanover County, with a mean of 25.9% for the region as a whole. The standard deviation for clay eating was 10.4 (Figure 4).

Those counties within  $\frac{1}{2} S'$  included Beaufort, Bladen, Cumberland, Johnston, Lenoir, Nash, and Wayne. Nash County paralleled the mean, and all other counties except Lenoir and Beaufort were slightly above the mean. With the exception of Beaufort County, these average counties were concentrated in the western and central sections of the Coastal Plain.

Halifax, Martin, Northampton, Robeson, and Sampson counties fell between  $\frac{1}{2} S' - 1 S'$ . All of the foregoing counties exhibited geophagical practices that were moderately above the mean of the study area. The

# INCIDENCE OF GEOPHAGY IN THE STUDY AREA

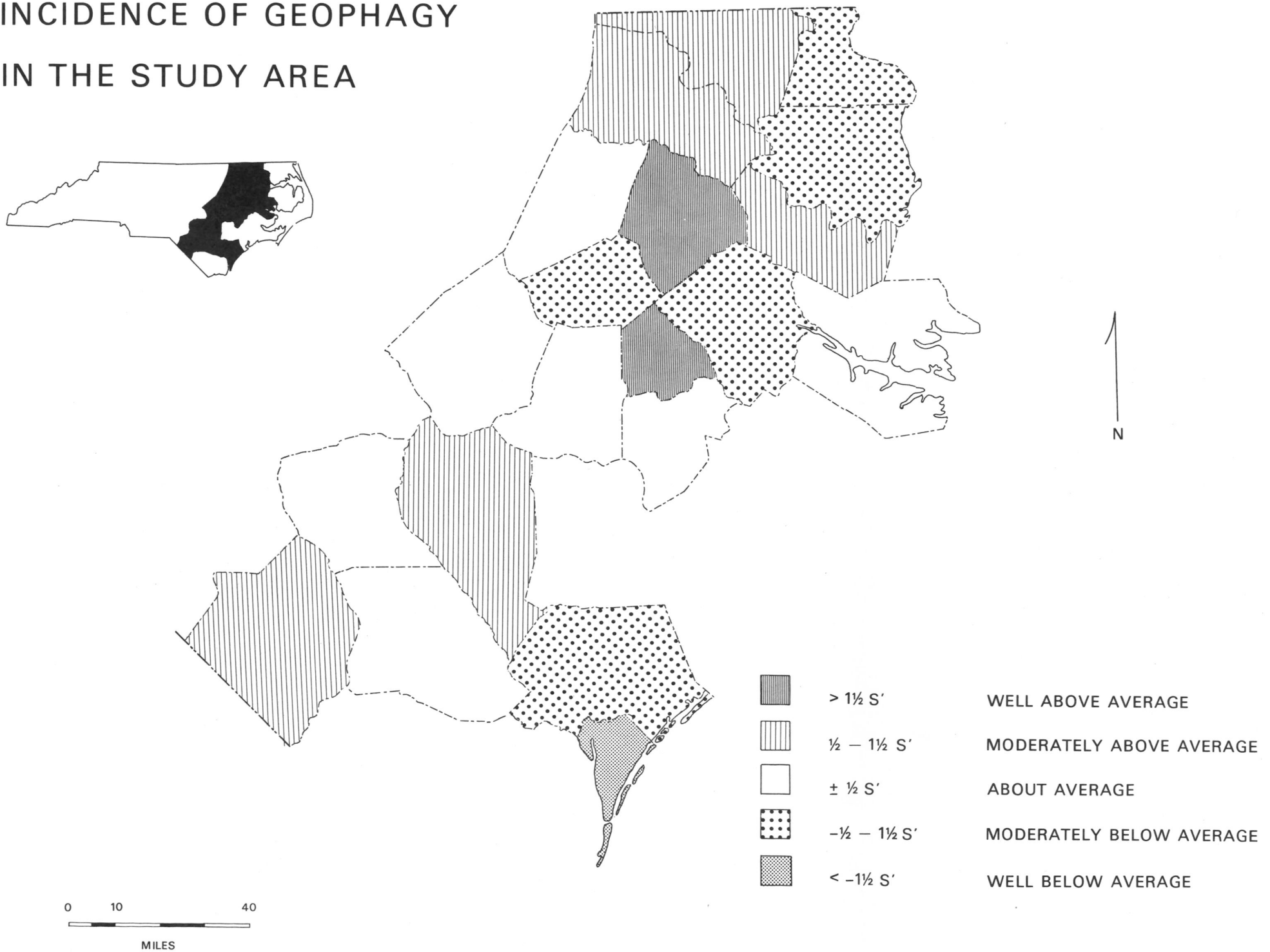


Figure 4

counties found to deviate between  $1 S'$  -  $1\frac{1}{2} S'$  were Bertie, Hertford, Pender, Pitt, and Wilson. In all of the counties in this grouping statistical scores were below the statistical mean for the entire study area. Although Wilson County's sample was below the mean, its inclusion in this group was deceiving. Whereas clay eating was reported in only 15.3% of the sample, a very significant percentage of the sample (16.9%) was consuming both clay and starch concurrently. Concurrent consumption was not calculated, into either clay or starch consumption, thus suggesting an apparent lower incidence for Wilson County.

Survey results in Greene and New Hanover Counties indicated a deviation from the mean of between  $1\frac{1}{2} S'$  -  $2 S'$ . Although the absolute mean deviation was the same for both, Greene with 41.6% practitioners was a positive departure from the mean, while New Hanover with 8% practitioners was at the negative end of the statistical range. Only Edgecombe County with 57.7% geophagists had a higher percentage of clay eating. The standard deviation of Edgecombe County was in excess of  $3 S'$ .

Counties scoring within  $1 S'$  of the mean tended to be located in the western and central sections of the study area. These counties had few divergent scores, with geophagy generally found among 25% - 30% of the sample. The normality of the scores from these counties indicates the uniformity of geophagy within each; interviews obtained in these counties confirmed the statistical inference.

The concentration of counties well below the mean on the eastern fringe of the study area warranted additional attention. Five of the six easternmost counties were below the mean of the study area, with Bertie, Hertford, New Hanover, and Pender greater than  $1 S'$  from the

mean. A possible correlation between environmental considerations and the negative incidence of geophagy may be indicated by this concentration of counties. The data provided by informants has suggested an environmental limitation on geophagy in tidewater and coastal sections of the study area. One informant in New Hanover County stated, "I used to eat clay back home (Robeson County, North Carolina) but couldn't find no<sup>2</sup> sic good dirt around here." Similar responses were recorded in Beaufort and Hertford Counties.

Informants' comments about "bad dirt" were related to the quality of clay found in these coastal counties. Informants had suggested that the quality of clays found further east was substandard to Piedmont clays. Quite probably this taste preference was linked to the types of clays found in the more coastal counties which differed chemically from those clays found further inland (Stuckey, 1965: 382). Clay is also less plentiful in coastal areas due to pedogenetic factors and the character of soil material. The younger coastal soils have both a higher organic content than Piedmont soils, and lack the necessary age to develop horizons and concentrations of clays.

Although the quality and quantity of clay discouraged the practice of geophagy in the eastern counties, a sizeable proportion of the sample (17.4% in the six coastal counties) continued the practice. This was accomplished by consuming less desirable clays or "importing" clays from areas farther west.

The greatest diversity in sample percentages occurred in the north central coastal plain, which includes Edgecombe, Greene, and Pitt Counties. Edgecombe and Greene Counties had the highest incidence of

geophagy in the study area, whereas Pitt County, which is located between these counties, was significantly below the mean. Informants believed that the disparity reflects an influence in Pitt County of the urban influence of Greenville and East Carolina University. Many interviewees in Edgecombe and Greene Counties believed Pitt County blacks have "lost" many of the "old ways," which might signify a breakdown of antecedent cultural practices. The high percentage of geophagy in Edgecombe and Greene Counties was attributed to the continued viability of traditional cultural practices among members of the rural-based black subculture in these counties.

#### INCIDENCE OF STARCH EATING

The percentage for starch eating varied less than the incidence of clay eating. Deviant counties, and their degree of departure from the norm, were of less significance in the starch eating survey. The mean percentage of starch eating was 14.8%, with a standard deviation of 11.4 (Figure 5).

Counties scoring within  $\frac{1}{2}$  S' included Beaufort, Bertie, Cumberland, Halifax, Johnston, Lenoir, Martin, Northampton, Pender, and Wilson. These counties which were spatially noncontiguous were located throughout the study area. Lenoir, Martin, and Pender Counties were below the mean, and all others above it.

Those counties between  $\frac{1}{2}$  S' - 1 S' included Edgecombe, Greene, Pitt, Robeson, and Sampson Counties, and were all below the mean of the study area. These counties were located in the southern and northern central coastal plain. Hertford, Wash, and Wayne Counties vary between 1 S' -

# INCIDENCE OF STARCH EATING IN THE STUDY AREA

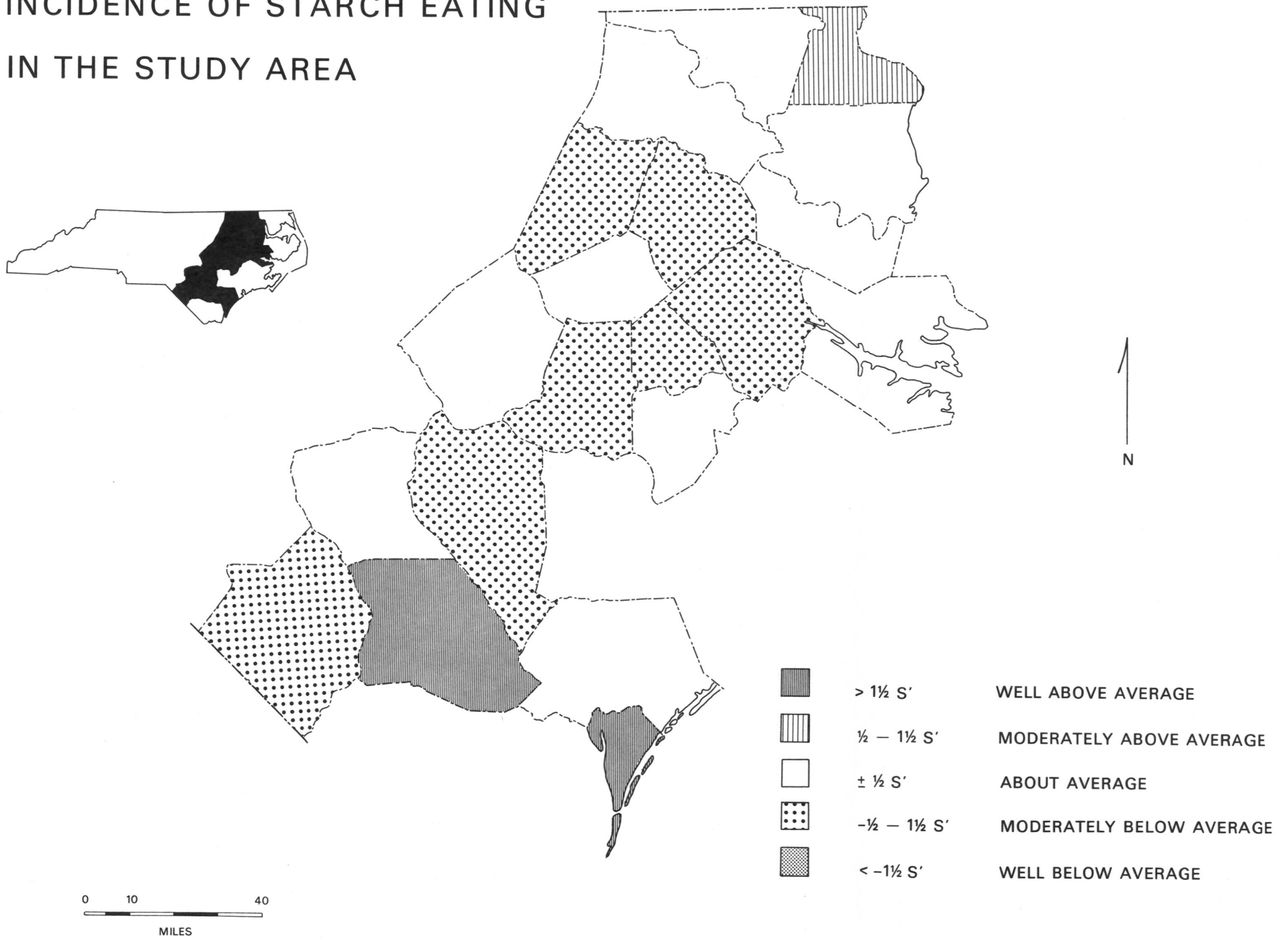


Figure 5

1½ S'. Of these only Hertford was above the mean.

Bladen and New Hanover counties had a standard deviation between 1½ S' - 2 S'. Both counties which were significantly higher than the mean, were located in southern section of the study area.

An analysis of starch eating indicated a somewhat higher incidence of starch consumption in the eastern section of the study area. Hertford and New Hanover Counties had percentages more than twice that of the study area mean. Other eastern counties which included Beaufort, Bertie, and Martin also had a higher percentage of starch consumption than the mean, while Pender County was slightly below the mean. It is hypothesized that in the coastal areas, where clay is less prevalent, there has been a substitution of starch for clay. Survey results indicated that blacks moving to the coastal counties from the Piedmont or interior coastal plain, often switched from clay to starch because of the scarcity of good "clay earth" in the area. It appears that this environmental constraint on geophagy has similarly affected long time residents of the coastal areas, thereby affecting a shift in the consumption of clay to starch.

In addition to coastal areas, a high incidence of starch eating appears in Bladen County. The high percentage of starch consumption in this county, which amounts to twice the study area mean, was evidently linked to cultural tradition in the black community. Informants indicated a long history of the practice, quite possibly tied to the close cultural ties with New Hanover County (Wilmington) within the black community.

Throughout the remainder of the study area, starch eating was widespread, but secondary in importance to geophagy. The greatest occurrence



of starch eating was among younger informants. Among this group the consumption of starch appeared to be a substitute for earth, which many young informants indicated that they would not consume.

#### URBAN GEOPHAGICAL PRACTICES

Geophagical practices (both clay and starch consumption) were nearly as prevalent in urban areas as in rural areas. The larger cities, including Fayetteville, Wilmington, Wilson, and Rocky Mount, had only slightly lower positive percentages than their rural hinterlands. Starch eating was found to be more widespread in the larger cities; the lack of clay sources seemed to be the primary contributing factor. In the smaller cities, the percentages of clay and starch eating tended to parallel the rural sample.

The incidence and spatial arrangement of geophagical practices within the study area was not affected by socioeconomic levels of the individual counties. It is a widely held belief among some social scientists that antecedent culture traits are viable only in areas of economic and social deprivation. The examples of Appalachia and the rural black man in the South, have often been used to illustrate this conclusion. In order to test this possible hypothesis for the distribution of geophagy, survey data were correlated with several socioeconomic variables. These variables included median family income, median schooling for females, percent of population below the poverty level, and the composite factor scores for the study area (Stephenson and Hartshorn, 1972: 1 - 2). No correlation was observed between socioeconomic conditions in the individual counties and the incidence or distribution of geophagical practices.

ETHNIC CHARACTERISTICS OF GEOPHAGICAL PRACTICES

The population sample of the survey included all three racial groups in the study area, with Caucasoids constituting 50% of the sample, Negroids 45%, and Mongoloids 5%. Racially, blacks composed over 95% of the positive geophagical responses, less than 1% of the white informants admitted to having ever consumed either clay or starch. A particularly intriguing response was the total lack of knowledge of the practice by the majority of white informants. It has been hypothesized that the lack of awareness is linked not only to the lack of precedent for such a trait among Anglo-Americans, but to the racially polarized society of Eastern North Carolina as well.

Among Indian informants, in Robeson, Cumberland, and Halifax Counties, 29% were geophagical (consuming either clay or starch). The most common practice was clay eating. The Indians appear to have acquired geophagy from contact with black residents of their home counties. Several older Indian informants stated they had learned the practice, "from a colored [sic] woman." Indian geophagy appears to be declining rapidly, as the mean age of Indian geophagist interviewed was forty-seven, and no practicing informants under thirty years of age were disclosed. As one sixty-seven year old informant in Robeson County stated, "My daughters think I'm crazy, because I eat it (clay)."<sup>2</sup>

Survey results showed geophagy and starch eating to be extremely widespread in the black community of Eastern North Carolina. Analysis indicated that limited clay prevalence and quality in the coastal soils seemingly affects a reduction in the incidence of the practice. Apparently, in areas where clay procurement was hampered, starch eating serves

as a compatible substitute.

Despite environmental constraints, the determining factor in geophagical practices was cultural. The personal decision to consume earth was governed by the cultural heritage of the individual and not her socio-economic status. The lack of geophagical practices among white residents and the apparent decline in the practice among Indians was the result of culturally dictated choices. Likewise, in the black community the choice of clay or starch eating was regulated by the prevailing geophagical attitudes in the family and community. Only through a thorough understanding of this cultural background is it possible to understand fully the practice of geophagy and its spatial distribution.

## NOTES

1

Throughout the remainder of this study Caucasoids will be referred to as Anglo-Americans or whites, Negroids will be designated by Afro-Americans or blacks, and Mongoloids as Indians. The use of these terms reflects both the current useage in scientific literature, and the personal preference of the individual racial groups.

2

A criterion for the cooperation of the Agricultural Extension Service was the anonymity of the informants, for this reason the informants' names have not been divulged.

## CHAPTER IV

### THE CULTURAL ECOLOGY OF GEOPHAGY

"As a cultural trait, geophagy plays an influential role in the total dietary practices of the black community" (Vermeer, n. d.: 1). Dietary practices reflect both environmental and cultural components; the environmental biotic resources form the medium within which cultural selectivity and preference determines dietary habits. Dietary habits are not as simplistic as they may appear. As Max. Sorre has stated:

Diet, like settlement, is one of the most characteristic and least simple expressions of culture, for it absorbs all the other elements that enter into the definition of a genre de vie (Sorre, 1962: 445).

The consumption of clay has a direct relationship with the natural environment which few dietary habits possess. The results of this direct involvement has been the development of a number of distinctly unique cultural practices and values attached to geophagy. The cultural ecology of geophagy is concerned with the variety of processes involved in the practice of this cultural tradition. Through ecological analysis it is easier to understand the context in which geophagy is practiced in the black community.

#### BLACK SETTLEMENT

The black community of the study area comprises 39% of the total population of the twenty surveyed counties (United States Bureau of Census, 1970: 35). The size of this group is significantly larger than

the North Carolina mean black population of 23.3% (United States Bureau of Census, 1970: 34). Of the black populace, 70.6% of that residing within the study area is classed as rural (United States Bureau of Census, 1970: 47). This rural concentration is largely the product of antecedent settlement patterns related to a labor intensive agricultural system in Eastern North Carolina.

Black settlement tends to be linear in occurrence, with miniature neighborhood units developing along the roadway network. The grouping of housing units is apparently linked to the formerly dominant labor intensive agricultural systems. The church remains the center of the community with small fundamentalist congregations frequenting the landscape. These small churches serve a diminutive hinterland for which they provide the focal point for a variety of community, social, and welfare activities. Close knit kinship ties are strengthened by the strong impact of the church and the spatially restricted neighborhood settlement patterns.

#### BLACK KINSHIP AND GEOPHAGY

Prior to the advent of widespread agricultural mechanization, black kinship was limited generally to small territories. The effect of mechanization has been the displacement of large numbers of black residents, particularly those who are unable to obtain full-time work in the rural environment. A result of this has been the accelerated movement of rural blacks to urban areas within the study area. This forced migration must be differentiated from the voluntary migration of young blacks to the large urban areas of the North and South, a phenomenon which also results

in part from agricultural mechanization.

The product of this economically motivated migration has been the spatial extension of kinship ties, which in almost all cases remain intact regardless of the degree of geographical separation. The urban black community therefore, maintains both a strong physical and cultural linkage to the rural environment. Only two areas in the study area, Fayetteville and Wilmington, could be considered large enough to effect an acculturation of their black residents. But even in these more "urban" locations, long standing rural-based cultural practices, such as geophagy, continue. A well maintained road system, a reasonable degree of mobility, and the initial strength of kinship ties are factors which facilitate the continuation of the rural-based subculture of the black community.

The continuity of geophagy is closely related to the kinship system in the black community. The typical family unit appears to be matrifocal. Although many anthropologists and sociologists will deny the continued existence of matrifocal families in the black community of Eastern North Carolina, the writer's findings dispute this assumption. The existence of the matrifocal family is seemingly a product of: (1) historical factors - the social structure of slavery and the plantation system; (2) social conditions in contemporary society - the emasculation and degradation of black masculinity by the white community, and (3) economic conditions - which force the emigration of many black males out of the area in search of meaningful employment.

In the matrifocal family the raising of the children is almost entirely imposed upon the mother or other female guardians. The strong matriarchal association provides linkage for the perpetuation of the

practice of geophagy. In the course of rearing the sibling, the female practitioner introduces geophagical practices either intentionally or inadvertently, through example, to the child. Among interviewed practitioners, the introduction normally occurred quite early, usually before ten years of age. If the child is not introduced to the practice in the home, the prevalence of the practice within the community makes outside introduction extremely probable. Thirty percent of the informants indicated this means of introduction to the trait in their own experience.

Geophagy is prevalent among children of both sexes until puberty. At this point in the child's life geophagy assumes a new meaning. To the female it becomes a symbol of womanhood. The female adolescent has seen it practiced by adult women, both relatives and family friends, and now adopts the practice as a part of her own behavioral pattern. The practice is strengthened during her first and subsequent pregnancies. In contrast, black males reject geophagy at puberty. The trait is closely associated with black femininity, and at puberty the young man attempts to rid himself of those feminine influences and/or associated practices which detract from his masculinity. The practice is considered to be "foolish," and in maturity the black husband will attempt to dissuade his wife from the practice by chiding her or disposing of her clay.

Geophagy takes on a special importance during pregnancy. Informants indicated that at the time of pregnancy it fulfilled a dietary longing. The ingestion of earth provides satisfaction for an unusual "craving" during pregnancy. The clay represents a culturally perceived means of satisfaction for the special needs of pregnancy. It is also recommended as a remedy for upset stomach and other stomach related illnesses during



the pregnancy. During gestation, geophagy is most apt to be diffused to many non-geophagists by friends and neighbors. During periods of pregnancy, "clay earth" is suggested and provided by such persons for "cravings" and upset stomach.

Following pregnancy many women continue the practice regularly, while others suspend use until periods of craving or another pregnancy. Numerous geophagists mentioned an especially strong desire for clay after a hard rain when the air smelled of wet earth. Other infrequent practitioners cited periods of mental stress or periods of extreme physical labor as times of unusual desire.

Among habitual consumers clay is ingested almost constantly. Many informants compared "clay eating" to cigarette smoking, or a seemingly unbreakable habit. A number of informants nibble on clay throughout the entire day, consuming up to one-half pound of earth a day. Periods of greatest desire are often after meals, during moments of physical stress, and prior to retiring for the evening.

#### CLAY SOURCES

Clay is obtained from numerous sources. The most common source of earth is along road cuts. (Figures 6 and 7) Owing to the relatively flat nature of the coastal plain the gathering of clay from the B horizon is apparently facilitated at road cuts. Informants obtain the earth by digging horizontally into the bank with hand tools. The depth of the hole is dependent upon the extent and nature of the clay bed and taste preferences, with holes usually varying from one to four feet in depth. In order to avoid frequent trips to the "clay hole," clay is usually



Figure 6

Clay Source Area in Rural Greene County



Figure 7

Clay Source Area in Rural Pitt County

collected in large quantities, such as in large shopping bags or bushel baskets.

The infrequent trips to "clay holes" are often approached as a social function. It is common for large numbers of female relatives, friends, and children to gather at a clay source and socialize while taking turns digging for their clay. Such prearranged gatherings act to strengthen already strong kinship and community ties.

Informants in rural Beaufort, Martin, Edgecombe, Bladen, Cumberland and Robeson Counties indicated that clay is also obtained from wells. The well bucket is lowered and raised against the well shaft to collect clay. This method of obtaining clay requires less travel but is dependent on ownership of a well with "good clay."

Another source of clay in some localities is the natural deposits which are exposed along the banks of streams. Though this source tends to be of greater significance in areas of low relief, such as is found in portions of Hertford, Edgecombe, Beaufort, and Martin Counties, isolated responses to stream bank sources were recorded throughout the study area.

The location of exploited clay deposits depends on several human factors. As clay acquisition is carried out with the use of basic hand tools (shovels, hoes, picks, etc.), environmental conditions often restrict the location of "clay holes" to areas where easy access is afforded. All conditions being equal, however, the dominant factor in determining a selection site is cultural preference based upon individual partialities in taste preference. Because of these individually strong taste preferences, readily accessible clay sources are often ignored in

favor of more desirable clays, albeit located at a greater distance. Thus, relatively accessible clay does not necessarily determine its utilization as a geophagical resource.

#### THE ROLE OF CULTURAL PREFERENCE

The cultural preference is especially influential concerning clay taste and color. Slightly more than 90% of the informants indicated a preference for clay of a particular color, a factor which directly affects the taste of clay. Here again, the allegiance to pipe clay (grey), white clay, red clay, orange clay, or "lean" clay (a white and red streaked clay) was subject to personal preferences which are often expressed by entire families as well as individuals. Most informants would consume other clays, but only if the preferred variety was unavailable. All informants sought clays which were free of grit, sand, and silt.

The distance traveled for "good clay" varied with the individual geophagist. Those geophagists who have been lifetime residents of one area tend to travel only short distances to familiar clay sources. (Figure 8) The location of the "clay holes" are well known in the community. Many geophagists and non-geophagists have general knowledge of clay sources within their own home county, and often in neighboring counties. Whereas in the past, the location of family "clay holes" was often held secret, most informants interviewed for this study spoke openly of their sources of clay.

The increasingly frequent relocation of geophagists within the study area to urban areas or relatively distant rural areas has caused these

June 7, 1994

Geophysical Survey Map of Pitt County

was omitted from this thesis and is  
unavailable from the author.



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May 24, 1994

Professor Owen J. Furueth  
Department of Geography and Earth Science  
University of North Carolina at Charlotte  
Charlotte  
North Carolina 28223

Dear Professor Furueth:

We recently discovered that the illustration "Geophagical Survey Map of Pitt County," page fifty-four of your M.A. thesis, "Geophagy in Eastern North Carolina," is missing from the copies in the North Carolina Collection and the University Archives at our library. I shall be grateful if you can supply me with a copy of this map so we can tip it into both copies. Thank you for your assistance.

With best wishes,

Sincerely,

*Maurice C. York*

Maurice C. York  
North Carolina Librarian

Dear Maurice:

Per your request I pulled out my thesis to make a copy of page 54 and discovered that my copies do not have that page included in them. I am not sure what happened to this page and I am embarrassed that I found this error before now. Sorry I can't help you out.

*have it*

*[Signature]*

geophagists to travel long distances, or often to depend on friends or relatives from their former home areas to bring clay to them during visits. This is especially the case among older geophagists who tend to resist the introduction of new clays, and prefer to rely on kinship linkages to furnish clay from a particular "clay hole." It is not unusual for urban geophagists to discontinue or reduce their intake of clay rather than consume "foreign clays." Interviews attested that geophagists would travel as much as fifty miles to procure familiar clays. These clay gathering trips are often combined with visits with relatives. This demonstrated preference for particular clays indicates the premium placed on familiar "clay holes" and the degree to which cultural preference influences the consumption of earth.

#### URBAN GEOPHAGY

Among those urban geophagists who are either without private transportation or unable to travel to rural "clay holes," clay is usually purchased. Often the clay may be procured from geophagists in the community for a nominal fee of twenty-five cents for a small paper bag (averaging about one and one-half to two pounds) of clay. Informants indicated that clay could be purchased in Kinston, Greenville, Wilson, Fayetteville, and Lumberton. Another source of purchased clay is commercial business establishments. These may include grocery stores, feed stores, and other small businesses serving the black community. These clay selling establishments operate purely for the profit motive, and are usually owned by whites. Urban areas including Tarboro, Wilmington, Goldsboro, Wilson, and Durham (which is outside the study area) contain



businesses which sell clay. The price of clay in these commercial operations tends to be higher than noncommercial sources ranging twenty to thirty cents per pound. The quality of commercial clay tends to be "poorer" than that obtained from other sources. There are indications that the commercial sale of clay is more prevalent than is suggested by the data obtained through this study. Commercial clay sellers tend to discourage publicity for fear of discovery. Reasons for this secrecy can only be conjectured.

Another source of obtaining clay in urban areas is the location of accessible clay sources within the urban environment. Although not as numerous as rural "clay holes," the clay holes within several cities in the study area yield substantial quantities of clay. Urban places with reported "clay holes" include Greenville, Farmville, Rocky Mount, Clayton, Wilson, and Lumberton. Clay holes in urban areas are generally found in locations with high relief, usually along railroad beds, road cuts, and stream banks. Most urban informants believed that clay holes in urban areas were not as clean or sanitary as rural clay sources. For this reason, clay from urban "clay holes" was deemed to be the least desirable of clays.

#### CLAY PREPARATION

Following the acquisition of clay, several methods of preparation are undertaken. Few geophagists eat wet clay or clay as it is found in the natural state. Only in cases of extreme desire, or when prepared clay is unavailable, will wet clay be consumed. The majority of informants indicated that the clay is prepared by placing it in an oven for

baking. Many geophagists spoke of baking the clay until the dried earth "crackles." Although most informants believed this to be merely a drying process, many older informants indicated that this baking process killed any harmful organisms in the earth. It was repeatedly stated by the older informants that this preparation method evolved as a folk disinfecting process for the clay. However, younger geophagists were apparently unaware of the significance of this method of preparation.

Another preparatory step which is apparently devised for disinfecting clay, is to smoke it. The wet clay is daubed or pressed on the walls of a fireplace or tobacco barn until it is secured. Following the drying and smoking process, the clay is removed when needed. In addition to providing aseptic clay, some geophagists believe the smoking process adds additional taste. Interviews indicated that the smoking method of preparation is spatially limited in the study area to Martin, Greene, and Beaufort Counties. Informants suggest that the smoking of clay is on the decline. Factors affecting this decrease include the decline of open fireplaces and wood-burning tobacco barns, as well as the relative ease of oven drying.

Air drying of clay is the second most popular and spatially widespread method of preparation. Following the procurement of earth, the clay is divided into small chunks, and set in any dry place until it dries out completely. The drying process may take from twenty-four to seventy-two hours, depending on the size of the pieces and atmospheric conditions.

Interviews provided little evidence of a spatial pattern for baking and air drying methods of clay preparation. Informants attested that both methods were extremely widespread. The method used in the preparation of

clay is culturally determined. Most informants prepared their clay in the manner in which it had been introduced to them by their mothers or other female relatives or friends. The decline in smoke drying clay appears to coincide with a rise in the frequency of baking or air drying of clay.

#### NORTHERN DIFFUSION

A measure of the importance of geophagy in the black subculture is its diffusion with the migration of blacks out of the study area. Over 10% of the informants send boxes of clay from particular "clay holes" to relatives living in the North. Many informants stated that blacks visiting out-of-state relatives dig large boxes of clay to transport to New York, Washington, Baltimore, Pittsburgh, and other urban centers. Out-of-state blacks visiting home will also procure a supply of "home" clay. Northern relatives indicate that they cannot obtain "good clay earth" in their present locations, and so must depend on relatives to provide them with it or make procurement trips themselves. One informant in Lenoir County commented that relatives in New York City knew of a grocery store that sold Southern clay to Harlem residents.

#### ACCULTURATED GEOPHAGY

The practice of geophagy, as is true of any culture trait, has not remained static; this is exemplified by the change in clay preparation from smoking to air drying to baking. A more significant modification of the practice has been the shift from clay consumption to starch consumption. Information gained from the interviews suggests that starch

eating is probably an acculturated form of geophagy. The continuity of both practices is demonstrated by the high percentage of informants (7.2%) who consume both clay and starch concurrently.

The shift to starch is especially important among younger blacks. The mean age of geophagists interviewed was 34. In contrast, the mean age among starch eaters was 25. The apparent transfer from clay to starch consumption is primarily a phenomenon occurring among the younger generation of black females. Numerous middle aged informants said their children do not like clay, but eat large quantities of starch.

The transference to starch is apparently linked to a "cultural stigma" against eating earth. The younger generation is better educated, less restricted by social and racial barriers, and has been indoctrinated by the mass media. The consumption of clay, although culturally acceptable in the black community, is greeted with great disdain by younger blacks. This generation has been taught that earth is something to wash out of clothes, or raise plants in, not to consume. Many young informants felt clay eating was "unsanitary" or "unclean."

Starch is a substitute which is believed to be cleaner and less harmful. Although the taste is different, both clay and starch provide the same tactile sensation in the mouth sometimes described as a "slippery" feeling. The universally consumed starch is Argo, a brand name form of dried laundry starch. This starch can be inexpensively purchased in most grocery stores.

Interviews suggest that the introduction of starch consumption, and the perceived value of starch eating during pregnancy, are identical to clay eating. Additionally, starch was consumed following pregnancy in a

similar context as was clay. Therefore, it can be hypothesized that starch eating is indeed an acculturated form of geophagy.

Information gathered during this study indicates that the increase of starch eating, or "acculturated geophagy," is increasing at the expense of clay consumption. Survey results demonstrate that this acculturated form is extremely widespread (14.8%), and its importance among younger geophagists suggests its continuation and future expansion. As the starch eaters pass the practice on to their children, its importance and incidence will surpass that of geophagy.

Geophagy has numerous attendant practices and processes which contribute to the total scope of the trait. Hopefully, through the analysis of these processes a better understanding can be gained of the culturally dictated facets of the practice, and the role it plays in the total make up of the subculture in which it is practiced.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND EXPECTATIONS

Geophagy diffused to the New World from the coastal areas of West Africa. The practice, which was identified from the outset with the African slave, persisted throughout the era of slavery and continues today as a widely practiced trait of black American culture. Geophagy is but one of a myriad of culture traits brought to the New World by African slaves. Many of these culture traits have disappeared completely. The continued existence of geophagy, however, demonstrates the high regard in which this trait is held by the black community and its intrinsic value to individual practitioners.

Today, geophagy is a viable aspect of the black subculture in Eastern North Carolina. Within this subculture, geophagy plays a prominent role in the dietary practices of children and adult females. This role is delimited by the mores and customs of the subculture. Those individuals who violate the culture trait, either by eating too much earth or not consuming it at all, are viewed with disdain and pity by traditionalists within the community.

Although nutritionally unfounded, geophagy is perceived as a folk remedy for numerous gestation related illnesses, and as a dietary supplement. Among older women, numerous folk beliefs have developed regarding geophagy. For example, there is a belief that earth consumption is Biblically based. It is held that God made the first man and woman from earth; the need for replenishing the basic element of creation,

clay, is strongly believed in, especially during child bearing years.

Geophagy is an extremely common practice in Eastern North Carolina. Among informants, 25.9% of the sample were actively engaged in geophagy. Geophagy is least prevalent in the eastern section of the study area, but nearly uniform elsewhere, with the exception of Edgecombe and Greene Counties.

The spatial arrangement of geophagy is stringently governed by cultural factors. Some of these important factors include the traditional role of geophagy in the family and a positive attitude of the black community toward the practice. The exceptionally high incidence of geophagy in Edgecombe and Greene Counties appears to be a reflection of the continuation of traditional cultural practices among the dominantly rural black populace.

Environmental constraints are a plausible factor accounting for the decreased consumption of clay in the eastern section of the study area. The relative lack of sources and the distasteful quality of that which is available, may discourage the practice by imposing natural restrictions on earth acquisition. Cultural preferences and traditions have often overcome any environmental dissuasion, however, as is evidenced by an increased incidence of starch eating and the importing of clays.

The location and distribution of "clay holes" reflects both the prevailing technology and cultural preferences for certain qualities of clay. The unsophisticated means of clay procurement demands a relatively accessible source. For this reason, road cuts, stream banks, and wells are the primary source of geophagical clays. Easily obtainable clay does not, in itself, determine that it will be used as a geophagical source.

Spatially distant clays which are preferred will be used extensively, while closer but less desirable clays are often ignored. Methods of clay preparation have a varied distribution in the study area. Color and taste preferences largely reflect family and community choice.

No correlation could be found between socio-economic factors and the spatial distribution of geophagy. Statistical comparisons, made between several socio-economic variables and geophagy, failed to disclose any correlation.

Because it is a culture trait, the practice of geophagy has not remained static but is constantly changing. The latest and most striking modification is the shift from clay to starch eating. Although a manufactured product, the consumption of starch is a cultural modification of geophagy; having assumed all the cultural values of geophagy, with identical methods of introduction and use. For this reason, the author suggests that starch eating is an acculturated form of geophagy. This acculturation is most significant among younger blacks, to whom traditional geophagy has become stigmatized. Through mass media and educational facilities, these young people have developed a disdain for and disapproval of earth consumption. They reject geophagy, but retain the associated traditions and cultural values in starch consumption.

The value attached to geophagy and "acculturated geophagy" within the black community is evidenced by the diffusion of the practice. Prior to the early 20th century, geophagy had remained a strictly regional culture trait of Southern blacks. Those blacks who moved north prior to the Civil War became acculturated in their new environment and discarded the practice. But with the recent out migration of large numbers of



Southern blacks, geophagy diffused throughout much of the black-populated United States. Today geophagy and its acculturated form (starch eating) are both common practices within many non-Southern urban ghettos.

The future of geophagy in Eastern North Carolina is not promising. Among many younger blacks geophagy is no longer meaningful; education and mass media have discouraged the practice of geophagy. Among the individuals surveyed, numerous families already show evidence of a decline in the practice. The elder women continue the practice, but their children have either completely rejected the trait or are consuming starch instead. It is hypothesized that geophagical practices will continue to exist in the black community in the future, but with a steadily decreasing intensity. The decline of geophagy will, in all probability, be accompanied by an increase in the practice of acculturated geophagy. As today's young black women mature, they will pass acculturated geophagy to their children, along with the values and beliefs that were originally part of geophagy.

Geophagy is but one of many traditional culture traits which are disappearing as the American Negro moves toward the European-based norm of the nation's cultural complex. The trait deserves and needs additional serious research, for only through an understanding of geophagy can one gain the objectives of understanding both the workings and movements of this or other antecedent culture traits on the contemporary landscape.

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APPENDIX A: SURVEY QUESTIONNAIRE

Name \_\_\_\_\_

Age \_\_\_\_\_

Do you or have you ever eaten clay or starch?  
(If informant has stopped, why?)

How old were you when you started eating it?

Who introduced you to clay or starch?

Is there any particular kind of clay you prefer?  
(color, texture, etc.)

Where does your clay come from?

Do you prepare your clay in any particular manner?  
(bake, dry, smoke, etc.)

Have you given your family or friends any clay or starch to eat?

Do any of your friends, neighbors, or family eat clay or starch?  
What do they think about it?

Do you think there is any medical or health value to eating clay/starch  
or is it for pleasure? (Do you eat it - during pregnancy only?)

Interviewer's Comments: