

NUTRITIONAL ANTHROPOLOGY

AN IDIOSYNCRATIC AND INCOMPLETE INTRODUCTION

Nutritional Anthropology and Me

- Human Biology taken with ecological concepts in late 60s, early 70s
 - ◆ Energy flow studies: Rappaport, Thomas
- Coursework: genetics, physiology, nutrition
 - ◆ Dissertation proposal to study energy flow in the Tokelau Islands

Nutritional Anthropology and Me

- Study nutrition and physiology for input-output balance
 - ◆ Energy flow projects scrapped, switch to Samoan obesity
- Diet-activity approach:
 - ◆ Results: modernization of diet was not associated obesity, but modernization of activity patterns was
 - ◆ First publications based on dietary change
 - ◆ Follow-up on growth based on Well Baby Clinic Records
 - Influences of infant feeding practices on child growth
 - Results: bottle-fed babies are fatter children
 - ◆ Recent paper on Food, Power, and Globalization in Samoa to be given at the ASAO in February, 2006
- Joined Council on Nutritional Anthropology early 1980s
 - ◆ Vice President and Editor of the *CommuniCator*, 1988-1990

A pet peeve

- Biological anthropology approach to nutrition tends to be heavy on the biology, light on anthropology, tends to have little appreciation for behavior
 - ◆ See Johnston's (1987) Nutritional Anthropology
- The first few times that I taught Nutritional Anthropology the classes were heavy on nutrition, physiology, and biology
 - ◆ Nutritional intake, energy expenditure, anthropometrics, genes and diet

I supervised two M.A. projects that changed my focus:

- Nutritional survey of a small rural community in Hale County, 1984
 - ◆ Most interesting aspects were the informal trade networks based on hunted, gathered and gardened foods
- Study of foodways in the Bahamas, 1984
 - ◆ Interesting differences in the use of foods between urban rural areas, including the overwhelming influence of Miami on Bimini—including the celebration of Thanksgiving
- As a result, I got involved in trying to understand the cultural aspects of dietary change in Samoa, resulting in one of my articles assigned later in class

A brief historical background

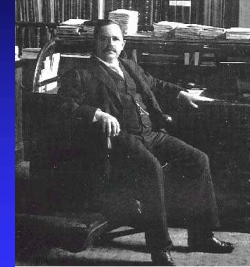
- Garrick Mallery's paper, "Manners and meals" (1888), appeared in Volume 1, No. 3, of the *American Anthropologist*.
 - ◆ Mallery takes a broad cross-cultural perspective on eating, commenting on various practices and seeking the origins of some habits
 - ◆ "Anciently (and still in the lower stages of culture) no regular hours for meals were observed. The avocations on which subsistence depended were spasmodic, at least in success, or periodic, in terms of seasons, not hours. Savages eat when they can get food and continue to eat so long as the food lasts."

A brief historical background

- The switch from experimental studies on animals to human food consumption studies relying on ethnographic material to contextualize the nutritional data occurred in the 1890s
- Von Rechenberg's (1890) study of the diet of Saxon handweavers.
 - ◆ Questionnaires, direct observation, and interviews provided the social background to his diet study.
- Dramatic change from the animal based studies of nutrition, or the strict study of consumed foods.

Wilbur Olin Atwater

- First Director of the Office of Experimental Stations of the U.S.D.A.
- Convinced Congress to fund nutrition studies
 - ◆ \$15,000 per state budgeted for 1890!
- Initiated diet advice based on nutritional composition of foods



Atwater

- Atwater and his collaborator, Charles Woods, selected Tuskegee, Alabama for the OES's first study of African American food habits in 1895
 - ◆ Took advantage of Tuskegee Normal and Industrial Institute and Booker T. Washington
 - ◆ Appointed Washington research supervisor
 - ◆ Enlisted 18 families
 - ◆ There was a spring and a winter phase to the study
 - ◆ Families were visited daily by a field worker
 - He weighed all foods brought into the household and collected ethnographic information over a period of 2 weeks
 - ◆ The families included villagers, tenant farmers and plantation workers living up to 9 miles away representing a range of social and economic conditions

Tuskegee study

- ◆ Class comparison:
 - Those near the village and attached to the Institute lived comfortably
 - Others, particularly families on large plantations, labored in hopeless poverty and were meant to be typical of most African American farm families in the so-called "Black Belt"
- ◆ Description of Material style of living:
 - Most families in the countryside around Tuskegee lived in one- or two-room log cabins with little furniture
 - One or two rope bedsteads, corn shuck mattresses, patchwork quilts and maybe a dock
 - Also usually a small cupboard, a few dishes, a wooden chest or old trunk for holding food and clothing, a pine table, a few chairs, a pair of andirons and an iron pot
 - Few people owned land. Most rented between 20 and 60 acres
 - Tenants generally had at least one mule or an ox, and most owned at least one pig and some chickens
 - People living in and near the village usually kept a cow

Tuskegee study

- ◆ People worked just over 7 months/year
- ◆ Farmers devoted most of their land to cotton
 - ◆ They grew corn (maize), sweet potatoes, sugar cane and sorghum for food, but rarely enough to meet their needs
 - ◆ Only a few had gardens for growing collards, turnips and other vegetables.
- ◆ Staple foods included fat salt pork, cornmeal, molasses, lard and wheat flour
 - ◆ Some families were unfamiliar with any meat other than fat salt pork, chicken and game such as possum and rabbit
 - Beef and mutton were eaten in just one African American household, and its head was an employee of the Institute.

Tuskegee study

- ◆ Tuskegee families prepared simple meals
 - ◆ Most people sliced their salt pork or bacon thin and cooked it in their fireplace
 - Bacon grease was mixed with molasses to make "sap."
 - People ate meat and sap with cornbread, which they made simply from cornmeal and water baked on a griddle or the flat surface of a hoe
 - This was the standard meal, 3 times a day, 365 days/year with few exceptions
 - During late fall or winter, fresh pork and sweet potatoes were served
 - Occasionally, someone prepared an opossum dinner seasoned with red peppers and baked surrounded by sweet potatoes in a big pot
 - People made "cracklin bread" by frying fat until brittle, crushing it into a mixture of cornmeal, water, soda and salt, and baking
 - They also boiled collards or turnips with pork fat to make the vegetables taste "rich"
 - Vegetables other than sweet potatoes were peripheral to the diet

Tuskegee study

- ◆ There was a seasonal decline in nutrition which was attributed to a sharp winter decrease in egg and dairy production
- ◆ Farmers in winter had less cash to purchase food
 - The underlying problem was a so-called "mortgage system"
 - The landowner or storekeepers would make loans for tenants to buy seed and tools to last from planting to harvest
 - The farmers signed a "wage note" giving the lender first right to whatever portion of the crop was needed to pay off the debt
 - Due to the high rates of interest, little was left to sell at the end of the season
 - The system favored the cash crop, cotton, over food production
 - As farmers exhausted their stores of homegrown corn and homemade molasses, they needed to increase purchases from the local store
 - The consumption of bacon, a store product usually purchased in small quantities every week illustrates the seasonality
 - Consumption averaged 194 g/d among tenants and plantation hands during the spring months versus 103 g/d

A brief historical background

- Goss (1897) studied Hispanic dietaries in New Mexico
 - ◆ Took a social perspective on their diet, including looking at class and diet
 - ◆ His sample included one middle-class household and two lower-class households
 - ◆ Neither lower class household ingested a single gram of animal protein over the course of 14 days of observation
 - This prompted a restudy of one of the same households a year later
 - Found consumption of 4 gm/d animal protein compared to 29 gm/d for the middle-class household studied the year before

Goss continued

- ◆ Families of both classes ate meals structured around a common core
 - ◆ Corn, wheat flour, beans, eggs, granulated sugar, potatoes, and chilies
 - ◆ Lard or "lard compound" was a core item as well, but meat products were peripheral
 - ◆ None of the families used dairy products
 - Animal products accounted for approximately 15% of the food budget for the lower-class families and 33% for the middle-class household
 - The middle class enjoyed a somewhat more varied diet, but still the family ate just 7.5 different foods per week compared to 5 for the lower-class families

A brief historical background

- Jenks (1900) studied Native American wild rice gatherers in the upper Great Lakes region
 - ◆ Ethnography had a minor component of nutritional analysis in what was primarily an ethnographic account of "primitive" economics for the Bureau of American Ethnology
- This study provides a model for treatment of food in many of the 20th century ethnographies, where it occupies a peripheral position

A brief historical background

- As part of the Office of Experimental Stations series, Woods and Mansfield (1904) studied foods of Maine lumbermen for the U.S.D.A., and provided a dietary study within an ethnographic account
 - ◆ Includes nutritional and metabolic analyses of recorded diets
- McCarrison (1928) studied the diets of Sikhs, Pathans, Bengalis, and other Indian groups by feeding their diets to laboratory animals
 - ◆ He concluded that "the striking differences in the physique of different Indian races are due, in the main, to differences in biological value of their national diets"

A brief historical background

- 1930's the Brits started to do work on the colonies, especially in Africa
 - ◆ Gilks and Orr (1931) did metabolic studies among two East African groups, the Masai (ostensibly carnivores), and the Akikuyu (vegetarians)
 - ◆ They concluded that nutritional status was related to diet, and that anthropological factors (the cattle complex) influenced food intake

Audrey Richards

- Richards (1932, and others) is generally taken as the beginning of the anthropological study of food habits
 - ◆ She studied the Bemba of Northern Rhodesia, using a functionalist model to illustrate the interrelationship between diet and other cultural institutions
 - ◆ Richards concluded that the reasons natives did not work harder (a primary concern for British mining and other economic interests) was not a question of sloth but of undernutrition
 - Since men had been drawn away to labor in the mines, women found it difficult to perform the heavy clearing tasks traditionally assumed by men, in addition to their own cultivation and gathering roles
 - During the period of the year when women most needed food energy to sustain clearing and planting of fields, food was in shortest supply
 - Thus, the women were enmeshed in an ongoing cycle of underproduction and undernutrition.

Audrey Richards

- Richards carefully examined all social relations as they related to food exchange
 - ◆ She considered the emotional qualities assigned to different foods
 - Their desirability in terms of taste and digestibility, their importance in the native ceremonial life
 - E.g., the importance of grains used in beer brewing, and the excitement that accompanied opportunities to eat meat
 - People's perceptions of the nutritional qualities and physiological effects of different staple grains and relishes eaten with them
 - The Bemba seemed to recognize the relationships between low energy intake and lack of energy to perform work, and consciously conserved energy during the lean, cold season

Audrey Richards

- They had a concept of the ideal proportion of grain to relish in the ordinary diet, and some women, when they were too tired to gather ingredients for relish, might not prepare the grain either, since it was hard to get the grain down without the lubrication of the relish
- The social dimensions of food production, preparation, distribution, and consumption
 - All kinship relations were marked by prescribed rules for sharing
 - These obligations break down in times of dearth, when people tended to hoard meager supplies

Audrey Richards

- Her reports, collected by selective observations, interviews, and informant diaries over a relatively short period of time, include general descriptions of gardening, crop successions, and time allocated to different food production, collecting, and food processing tasks
- Her model for the "food" aspect of culture was also interdisciplinary, as she employed botanists, nutritionists, and biochemists to aid in identifying and assessing the nutritional values of foods
- Her work influenced later studies of the changing interrelationships between social organization of production and distribution of food, diet, and nutrition

A brief historical background

- 1935 the British International African Institute appointed a Diet Committee to construct a comparative nutritional databank
 - ◆ Meyer Fortes and Audrey Richards were among the anthropologists collaborating in this effort
- An early study of the effects of westernization of food products among non-industrialized groups was done by Price (1939)
 - ◆ His title "Nutrition and Physical Degeneration" gives an indication of his bias
- Benedict and Steggerda (1937) studied diet among modern day Mayans in the Yucatan, trying to explain high metabolic rates

A brief historical background

- Early 1940's: U.S. National Research Council Committee on Food Habits
- Set up to study the psychological and cultural patterns of diet
 - ◆ One major goal was to understand ethnic food habits to make culturally acceptable recommendations to improve and ration nutrition during WW II
 - Margaret Mead and Ruth Benedict were anthropologists on the committee
 - Mead (1943) cautioned about the use of anthropology to shape behavior in unknown directions
 - Beware the Law of Unintended Consequences
 - ◆ Nutritional anthropology took off with the instigation of studies of applications of ethnographic knowledge to nutritional problems

A brief historical background

- Regional food habits in the Southwest U.S. were studied in the 1940's, by the Bureau of Indian Affairs and the University of Chicago
- Three Indian areas and two Hispanic areas were surveyed by Pijoán (1942)
- The research was used to make changes in the diet of the people with the goal of improving nutrition
- Two spectacular examples of failure based on cultural misunderstanding were noted
 - ◆ Discouraging pre-mastication of infant foods
 - ◆ Advocating consumption of choke-cherries

A brief historical background

- Pre-mastication of supplementary infant food was discouraged, and as a result, infants began turning up with anemia
 - ◆ Breast milk alone is insufficient as a source of iron in the second semester (six months) of life
 - ◆ Without economic resources to buy infant supplements, the children were becoming malnourished
 - ◆ In consultation with the Indians, a decision was made to go back to pre-mastication.

A brief historical background

- In an attempt to increase Vitamin C intake, the consumption of the fresh choke cherry was advocated
 - ◆ From increasing this consumption, several Indians became sick from cyanide poisoning as the amygdalin in the seeds was transformed to poison in the digestive tract
 - ◆ After one young woman died, the Indians were advised not to eat the seeds, but the way the warning was translated, the fruit was abandoned as a food

A brief historical background

- Oliver (1943) was studying the inhabitants of Bougainville in the Solomon Islands about the same time
 - ◆ He described the failures of two attempts to change ("improve") their dietaries:
 - ◆ One group were mountain dwellers with taro as a dietary staple
 - They had calcium and protein deficiencies
 - Women were responsible for planting, harvesting, cooking, and apportioning taro
 - Residence was matrilineal and inheritance was matrilineal

Oliver, continued

- ◆ The other group lived in the lowlands with several staples in addition to taro
 - The diet was well balanced, and the society functioned as ambilocal and ambilineal
 - Men were responsible for some of the food preparation and cultivation
- ◆ A colonial official gave packets of seeds to the chiefs with instructions how to plant them, and a message that taro was of little nutritional worth
 - ◆ In the mountains, by giving the seeds to the chiefs, not the women responsible for cultivation, the project was immediately doomed

Oliver, continued

- The credibility of the official was severely undermined by his belittling of taro, which was a highly valued prestige food in the mountains
- ◆ In the lowlands, the chiefs chosen to receive the seeds were not necessarily gate-keepers
- ◆ In the villages where gate-keeper chiefs were given seeds and convinced of their worth, the new crops took hold
- ◆ In villages where gate-keepers were ignored, or where the official failed to convince gate-keepers of the value of new crops, they were shunned

A brief historical background

- Lewin (1943) came up with the channel theory
 - ◆ Conceptualizes the movement of food through a group as flow through channels
 - ◆ Marketing, processing, producing channels
 - ◆ controlled by gate-keepers
 - ◆ Chiefs, priests, nurses, etc.
 - ◆ He claimed it was essential to understand and gain the confidence of the gate-keepers in order to effect dietary change
 - ◆ This perspective reemphasizes the importance of ethnographic work

A brief historical background

- A study of the introduction of a high-yield variety of maize was in New Mexico was reported by Apodaca (1952)
 - ◆ A State Agricultural Extension Agent analyzed all the environmental aspects and concluded that the new variety was needed
 - ◆ The agent worked through the local leadership, and didn't start until everyone understood what needed to be done, and why
 - ◆ Within four years, all the local farmers had abandoned the new variety in spite of threefold increases in yield

A brief historical background

- ◆ The new variety made cornmeal that was not good for tortillas because of the texture and color
- ◆ The farmers wives would not use the new maize, and so had to revert to the older, lower yielding variety
- ◆ Part of the agent's error stemmed from his lack of understanding that the local people would not contradict the opinion of an "expert", out of their cultural tradition of courtesy

A brief historical background

- There are numerous other examples of the application or misapplication of anthropological studies to solving nutritional problems
- In addition to the applied area, nutritional anthropology rose in importance in the 1960's in response to infusions from ecology: Human ecology, cultural ecology, socioecology
- Two famous works from this time period focused on energy flow or input and output of the subsistence regimens: Rappaport among the Maring and Lee among the !Kung

Rappaport and the Maring

- Rappaport studied a Maring village in highland New Guinea, and proposed an ecological explanation for the ritual cycle found among the Maring
- He found that as pig populations increase in size, more and more energy is devoted to maintaining the pigs and keeping them out of the gardens, until a critical point is reached and a ritual is performed that includes slaughtering large numbers of pigs and going to war with neighboring groups

Lee and the !Kung

- Lee performed an input-output analysis of !Kung Bushmen subsistence practices, concluding that hunter/gatherers have a very easy life in terms of the amount of work that must be done to support the population
 - ◆ This work started the school of thought of the original affluence and complicated arguments about the origins of agriculture

A brief historical background

- In the 1970's, work progressed along both cultural and biological dimensions:
 - ◆ Thomas produced the definitive energy flow study with his work on energy flow at high altitude among the Quechua
 - ◆ One of his students at Cornell started applying the optimal foraging model to human populations
 - ◆ Mary Douglas and others approached diet from the perspective of symbolic anthropology
 - ◆ Harris was explaining dietary choices from an adaptive perspective to validate his cultural materialism

More History

- In 1974, the Committee (then Council) on Nutritional Anthropology (CNA) was formed at the AAA meetings in Mexico City
- For several years, CNA was affiliated with the AAA as a special interest group within the Society for Medical Anthropology
- In 1987, the council became a separate unit of the AAA
- The CNA became the Society for the Anthropology of Food and Nutrition SAFN in 2004

More History

- The SAFN has these goals:
 - ◆ to encourage research and exchange of ideas, theories, methods and scientific information relevant to understanding the socio-cultural, behavioral and political-economic factors related to food and nutrition;
 - ◆ to provide a forum for communication and interaction among scientists sharing these interests and with other appropriate organizations;
 - ◆ to promote practical collaboration among social and nutritional scientists at the fields and program levels.

More History

- ◆ I served as Vice President of the CNA and Editor of its newsletter, *The CommuNicAtor*, from 1988 to 1990
 - ◆ Volume 13 number 1 through volume 14 number 1
 - ◆ <http://libdata.lib.ua.edu:2053/doi/pdf/10.1525/nua.1989.13.1.1>
- SAFN began the publication of the refereed journal *Nutritional Anthropology* in Spring 1998, continuing the numbering from volume 21 number 2 of the newsletter
- ◆ <http://libdata.lib.ua.edu:2053/loi/nua>

Some useful reviews

- Haas JD, and Harrison GG 1977. Nutritional anthropology and biological adaptation. *Annual Review of Anthropology*, 8:69-101.
- Mintz SW, and Du Bois CM. 2002. The Anthropology of food and eating. *Annual Review of Anthropology*, 31:99-119.
- Messer E. 1984. Anthropological Perspectives on Diet. *Annual Review of Anthropology*, 13:205-249.

Journal sources from Messer

- *Ecology of Food and Nutrition*
- *Food and Nutrition Bulletin* (and other publications of the United Nations University)
- *Food Policy*
- *Nutrition Research*
- *World Review of Nutrition and Dietetics*
- *Medical Anthropology*
- *Social Science and Medicine*
- *Medical Anthropology Newsletter (Medical Anthropology Quarterly)*
- *The CommuNicAtor (Newsletter of the Council on Nutritional Anthropology)*

Journal sources from Messer

- *Culture and Agriculture*
- *The Digest* (Publication of the University of Pennsylvania Food Group of the Department of Folklore and Folklife)
- *Food and Foodways*
- *Appetite*
- *Human Ecology*
- *Ethnobiology*
- and a gastronomic section in *Social Science Information*