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CHAPTER 2 MIGRATION STUDIES IN ARCHAEOLOGY

2.1 Introduction

In this chapter I provide a brief review of the history of migration studies in archaeology. This is followed by a summary of current trends in migration theories in archaeological studies and the general shift in focus from cultural to social archaeologies. I then discuss key insights and concepts drawn from anthropological perspectives on migration including the main aspects and issues pertaining to migration processes. This chapter concludes with a review of migration studies in Caribbean archaeology, past and present.

2.2 Archaeological Approaches to Migration

“One of the challenges facing archaeology today is to come to terms with the past movements of people and develop methodologies by which such movements can be identified, studied and understood” (Lightfoot 2008:1). Migration has a long and complex intellectual history within the discipline of archaeology and has played a key role in the development of cultural histories for many regions of the world (Adams et al. 1978; Anthony 1990; Hakenbeck 2008a) [for more extensive recent discussions of the history of approaches to migration studies see also (Anthony 1992, 1997; Brettell and Hollifield 2000; Burmeister 2000; Cameron 1995; Chapman and Dolukhanov 1992; Chapman and Hamerow 1997; Clark 2001; Curet 2005, 2011; Duff 1998; Greenwood et al. 1991; Härke et al. 1998; Härke 2004; Lucassen and Lucassen 2011; Manning 2005),]. In fact, during the first half of the nineteenth century when a normative and culture-historical approach dominated archaeological thought, there were very few attempts to address migration theory in any explicit or systematic way. As Hackenbeck has noted recently “The cultural-historical paradigm has been one of the most powerful and enduring frameworks of thought in archaeology worldwide, and it has so profoundly shaped our notions of

migrations in the past that in many regions of the world it continues to dominate the archaeological discourse” (2008:13). During this era, migration was generally invoked, somewhat uncritically, as an explanatory mechanism for a wide range of cultural change. Meanwhile, theoretical and methodological approaches for identifying migration in the archaeological record were developed and proposed as early as the 1950’s (Childe 1950; Haury 1958; Rouse 1958; Willey et al. 1956). These were, however, generally disregarded when processual or ‘New Archaeology’ was the dominant paradigm in American archaeology beginning in the 1960’s (Adams et al. 1978; Anthony 1990). Although in other regions where prehistory was less directly and explicitly linked to a systems-oriented, empiricist approach, migration as an explanation did not diminish as much in importance during this time (Burmeister 2000; Chapman and Hamerow 1997; Härke et al. 1998; Härke 2004).

As noted, the “Retreat from Migrationism” (Adams et al. 1978) that occurred during the height of the processual era witnessed a general dismissal of the possible explanatory role of migration in archaeological research. This work (Adams et al. 1978) represents a (largely ignored) plea to the broader archaeological community concerning the importance of migration(s) in past and present human societies. Nevertheless, migration continued to be a topic of particular interest in the fields of demography, history, geography, sociology, and anthropology throughout the middle of the nineteenth century (Brown and Neuberger 1977; Clark 1986; Lee 1966; Lewis 1982; Sjaastad 1962; White and Woods 1980; Zelinsky 1971). Nevertheless, one of the only other major works on the topic of archaeological migration to come out of this era was Rouse’s (1986) seminal contribution to the study of prehistoric migrations, which was partly based on decades of research on human migrations in the Caribbean. This contribution should be commended not only for continuing to highlight migration as an important and interesting topic of study but also because of the explicit effort to develop systematic and scientific theories and methods for the detection of migrations from the archaeological record. Nonetheless, there are some serious conceptual, theoretical, and epistemological problems with Rouse’s perspectives that severely limit their utility for studying human migrations.

Interestingly, the year before the publication of Irving Rouse's (1986) treatise on migrations in prehistory, Jonathon Ericson (1985) had proposed a very different method and approach for identifying prehistoric human migrations. Ericson's approach drew on advances in isotope ecology and isotope geochemistry, and specifically proposed a number of significant archaeological research topics that could be addressed through the analysis of the strontium isotope composition of human skeletal remains. There is a certain irony to the timing and historical context of these two very important publications. Despite their vast differences in approaches both of these scholars recognized the importance of migration as a legitimate and important topic of archaeological study. Nonetheless, at the time of their publication neither had an immediate impact on migration studies in archaeology and it was only in the early to mid-1990's that migration began to emerge once again as a focus of serious and concerted research efforts in archaeology.

This reemergence was related to connected developments of both migration theories and methods as illustrated especially by: 1) Critical reappraisals of the theoretical and epistemological bases of migration studies initiated by the work of Anthony (1990, 1992) and 2) Early applications of Ericson's (1985) proposed Sr isotope method to archaeological migration and mobility studies by T. Douglas Price's research group at the University of Wisconsin, Madison (Ezzo et al. 1997; Grupe et al. 1997; Price et al. 1994a; Price et al. 1994b) and Nikolaas J. van der Merwe's research group at the University of Cape Town (Sealy et al. 1995; Sealy et al. 1991; Sillen et al. 1995). The second irony is that although Rouse (1986) does not cite Ericson's (1985) work in his book, he makes certain prescient statements that seem to predict this subsequent transition in migration studies. For example, Rouse states "In theory, archaeologists should also be able to obtain reliable hypotheses from the physical anthropologists to whom they entrust the study of the human teeth and bones they find in their sites, for these objects supply direct, empirical evidence about the local populations" (Rouse 1986:15). He goes on to note that "Some success has been achieved with teeth but, regrettably, bones do not preserve well and their range of variation is often too small to rule out the possibility of local development" (Rouse 1986:15).

Thus there has been renewed interest amongst archaeologists in exploring migration, from an explicitly anthropological perspective (Anthony 1997; Burmeister 2000; Cameron 1995; Clark 2001; Curet 2005; Duff 1998; Snow 1995; Spielman 1998), beginning in part with Anthony's seminal treatment of the topic (Anthony 1990), and coinciding with a greater appreciation of its theoretical complexity and a belated acknowledgement of its essential and important role in human history. More recent approaches to anthropological theories of migration stress that migration is best regarded as an informed, patterned, social behavior (Anthony 1990, 1997). Furthermore, it is apparent that migration is a complex, multi-faceted, and dynamic process, not an event (Curet 2005). Perhaps most importantly, archaeologists have generally tended to make the assumption that migration had not occurred in the absence of definitive evidence for its occurrence, instead of the more accurate assessment that we just do not know, or in other words "leaving presumed immobility (rather than simple uncertainty) as the default hypothesis" (Snow 1995:62).

These trends have also been paralleled by recent shifts in archaeological theory more generally, which have become increasingly focused on behaviors and processes at finer scales e.g., a broader shift away from larger units such as 'cultures' and culture areas with a corresponding greater emphasis on smaller scales and units of analysis, such as ethnic groups, minorities, communities, households, kin groups, and individuals. This shift is encompassed within a larger change in the dominant archaeological paradigm that increasingly highlights the complex, dynamic, contested, and negotiated practice of human groups at varying scales and with particular foci on intra-societal differentiation, corresponding with a move away from normative perspectives. The broadening of archaeological research avenues in the last few decades, to encompass a wider range of perspectives has included increased attention to issues and problems that are social, as opposed to purely cultural. Amongst these, the importance of individual persons and processes operating at the scale of individuals has been highlighted (Fowler 2004; Hodder 2000). A theoretical and analytical focus on individual persons permits more nuanced and contextualized interpretations of individual actors and agency (Clark and Wilkie 2006; Stodder and Palkovich 2007). Current research also increasingly focuses on disentangling the complex histories or life courses (Gilchrist 2000) of specific individuals that lived and

died in the past, through explicitly integrated and inter-disciplinary approaches. Some of the most significant advances in this regard have been made within the broad field of bioarchaeology.

As a discipline, bioarchaeology has greatly matured and developed both methodologically and theoretically (Buikstra and Beck 2006; Knudson and Stojanowski 2008; Larsen 1997) since the basic tenets of the discipline were first systematically put forward over 35 years ago (Buikstra 1977). The enormous growth of the field of bioarchaeology (Buikstra and Beck 2006; Knudson and Stojanowski 2008) in part reflects its unique capacity “As a materials-based empirical methodology... united with a social science inherently committed to understanding the human social world..., we move effectively between the social and biological sciences to address both models of social process and issues of a historical nature” (Knudson and Stojanowski 2009a:2). The growth of the discipline has been paralleled by a broadening of emphases on contextual analysis (Buikstra and Beck 2006; Gowland and Knüsel 2006; Rakita et al. 2005) and an increasing focus on issues of identity at the level of both communities and individuals (Knudson and Stojanowski 2009b; Stodder and Palkovich 2007).

Bioarchaeology perceives of the human body as material culture, occupying a position at the interface of socio-cultural and biological processes (Buikstra and Beck 2006; Sofaer 2006). The human body is conceived not simply as a reflection of one or other process but as a creation of the embedded character of these interrelated phenomena (Sofaer 2006). From this perspective, the human body is the appropriate class of material for which to examine the articulation of a wide variety of biological and socio-cultural patterns and processes, including especially migration. These premises lie at the heart of bioarchaeological including biogeochemical approaches to studies of ancient migrations. Human provenance studies involving bioarchaeological approaches provide a unique means for addressing various issues of identity, as natal origins are clearly an important aspect of individual and community identity (Fowler 2004). Much recent research on intra-societal differences in migration behavior and differential origins at the level of individuals have derived from the explicit integration of social archaeological and bioarchaeological theories and perspectives. Amongst these, one of the dominant trends is

the development of contextualized interpretations of human behavior based on chemical and isotope studies of individual human remains [see chapter three].

The last few decades have witnessed fundamental shifts and changes in archaeological epistemologies, theories, methods, and approaches. The convergence of several recent developments have contributed to a renewed interest in migration studies in archaeology, especially: 1) a shift in focus from normative cultural-historical perspectives to more socially oriented ones with increased attention to finer scales of social differentiation, smaller scale units of analysis, and multi-dimensional aspects of the lives of specific people and individual agency; 2) the application of more anthropologically informed theories of migration with a recognition that migration is a multi-faceted, dynamic, patterned process that is worthy of study in its own right; 3) the maturation of the field of bioarchaeology, a greater appreciation of human remains as an important source of information about social and biological aspects of human behavior; 4) scientific advancements in biogeochemical analyses in general, and isotope methods in particular, that permit more precise and direct identification of the movement of individuals in the past. In summary, there are several significant differences between these approaches that are relevant for the present study, and which highlight the main distinctions between the approach advocated herein and most previous archaeological studies of human migrations in the Caribbean. The main distinctions between approaches center on the: 1) materials analyzed: cultural remains versus human remains; 2) units of analysis: assemblages versus individuals; and 3) scales of analysis: populations versus individuals.

2.2.1 Critical Assessment of Irving Rouse's Contributions to Migrations Studies

Rouse's approaches, perspectives and contributions to migration studies in archaeology have recently been thoroughly and critically evaluated by Antonio Curet (2005, 2011). I summarize the main points of these critiques herein with a specific focus on the limitations of Rouse's approach to migration studies in the Caribbean. This critical assessment of Rouse's work and contributions is not presented merely for the sake of being critical and in fact more extensive assessments and critiques of his approaches to

both migration studies and Caribbean culture-history have been recently summarized by a number of other scholars working in the region [e.g., (Curet 2003, 2004, 2005, 2011; Pestle 2010; Rodríguez Ramos 2010; Rodríguez Ramos et al. 2010)]. Some discussion of his work is necessary, however, not only because his body of work has been hugely influential to the archaeology of the Caribbean but also to migration studies in archaeology more generally.

Curet has recently provided the most extensive reviews and critiques of Rouse's approach and methods to the study of ancient migrations (Curet 2005, 2011). Curet notes three main problems with Rouse's approach: 1) "the idea that regions have to be culturally homogenous & occupied by a single tradition. In his view, in cases where heterogeneity occurs, the 'dominant' culture either absorbs, pushes away, or eradicates the less-developed group; coexistence is not an option."; 2) "his normative perspective, particularly, his assumption that cultures, not people, migrate. This brings out several problems since, sheltered on the idea that everyone in a culture follows the same norms, it eliminates from the analysis the role of human agency and any social, economic, political, or even religious factors involved in migrations."; and 3) the empiricist approach and the classificatory basis of Rouse's model. It is clear from Rouse's discussion that he believed that once data is spatially and chronologically organized in charts, the identification of migrations will be obvious." (Curet 2011:19). Thus, in summary, Rouse's approach is only a descriptive method for identifying the large-scale migrations of cultures or peoples (actually supra-cultural units) based primarily on inferences drawn from the spatial-temporal distributions of cultural remains.

Of these criticisms, Rouse's approach is particularly problematic for developing a more nuanced understanding of past human migrations that are more reflective of how people generally behave in the 'real world'. His normative perspective is well illustrated by the following statement "A people carries its culture with it when it migrates. We may therefore trace its movement by plotting the distribution of the norms that characterize its culture" (Rouse 1986:4). However, recent research into migrations clearly demonstrates the limitations and problems associated both with conflating migrations with population movements and secondly with the normative conceptualization of human cultures more generally (Anthony 1990, 1997). A reconsideration of migrations from a wide range of

fields including cross-cultural ethnographic studies led Anthony (1990:908) to conclude that “‘Cultures’ do not migrate. It is often only a narrowly defined, goal oriented subgroup that migrates”. Thus the decision to migrate (and perhaps more importantly the act itself) “is made at a lower level than culture, such as the individual, household, community, or descent-group level” (Curet 2005:33). This contradiction was already noted by Rouse himself who stated that “migrants may be atypical of their parent population, in which case they will not carry their entire cultural complex with them” (Rouse 1986:10). As noted by Curet (2005), this statement represents a clear contradiction, as Rouse acknowledges that smaller scale social units are the ones that likely migrate but also insisted that higher level units such as culture (actually *series*, which is a supra-cultural unit) are the more appropriate units of analysis.

2.3 Anthropological Insights into Migration Processes and Patterns

In this section, I discuss various facets and complexities of multi-dimensional migration processes beginning with a discussion of the problem of defining migration. This is followed by a review of many of the more important factors and variables concerning migrations and migration processes, especially as they pertain to archaeological studies. This review is not exhaustive and is a synopsis of several recent works and reviews concerning the development of more anthropologically oriented theories of migration (Anthony 1990; Clark 2001; Curet 2005; Duff 1998; Manning 2005).

2.3.1 Defining Migration (What is Migration?)

A persistent problem in dealing with the concept of migration is that it is difficult to define and to differentiate from similar concepts, such as mobility (Kelly 1983; Kelly and Todd 1988; Lightfoot 2008; Sellet et al. 2006). All migrations consist of the movement of people from one location to another. However, this broad conception alone also encompasses much behavior that is not considered migration, for example the

movement of traders, foragers, hunters, warriors, visitors, and others. Migration may be perceived as a long-term, permanent, or semi-permanent relocation of residence, as opposed to other similar behaviors, which generally lack permanence. However, the stress on permanence is itself problematic when dealing with groups that are habitually relocating, as is often the case with prehistoric (and modern) foragers, nomadic herders or pastoralists, or others whose subsistence strategy includes seasonal or regular relocations of residence. In other words, there is generally, but not always, an implied degree of sedentism or permanence of residence that must be present for a movement to be considered migration.

Migration is also interconnected, implicitly and explicitly, with a wide variety of other phenomena, particularly invasions (Chapman and Hamerow 1997; Rouse 1986) and colonizations (Rockman and Steele 2003). A need to distinguish migration from other similar processes has prompted a concern with definitions (Otte and Keeley 1990). For example, Gamble defines five interrelated, migration-related processes; migration, dispersal colonization, adaptive radiation, and exaptive radiation (Gamble 1994). While Rouse distinguishes between two distinct but related types of movement; population movement and immigration, that are subsumed under the term migration (Rouse 1986). Concerning terminology, Rouse provides the following definitions “*Population movement*, in which the people of one area expands into another area replacing the latter’s population. This process should not be confused with immigration, in which individuals or social groups from one population penetrate the territory of another population without overwhelming it. We shall use *migration* as a cover term for both processes” (Rouse 1986:13) [emphasis in original].

Although there is nothing wrong with these definitions per se, and I agree that “there is nothing sacred about definitions. We can define a word how we like for our own purposes, provided we do so *clearly* and *unambiguously*” (Dawkins 1976:12) [emphasis mine]. Regrettably, however, Rouse tends to use the terms population movement and migration interchangeably throughout this work (Rouse 1986) and later works (Rouse 1992) and tends to totally disregard, or at least ignore the potential importance of immigration or the movement of smaller scale social units. This is illustrated for example by the subtitle of the volume (Rouse 1986) to which I am referring ‘*Migrations in*

Prehistory: Inferring Population Movements from Cultural Remains' where Rouse's use of the term population movement is also problematic owing to his colonialist perspective on the outcomes of interactions between peoples of different social or technological complexity. For example, he states that "In population movement a people *invades* another's territory, traveling *only in one* direction, and establishes residence there. Its presence becomes so *overwhelming* that it is able to *replace* or to *assimilate* the local population" (Rouse 1986:12) [emphasis mine]. To me this definition would seem somewhat more appropriate for the term conquest than population movement.

In reference to migration studies in archaeology more generally, Curet has noted that "A fundamental problem with past migration studies is that they considered migration as an event rather than as a process" (2005:31). He goes on to summarize the four main problems with Rouse's definition of migration, and particularly of using the size of migrant groups to distinguish between different types of migration: 1) "it limits migration studies to a very narrow range of possible population movements; 2) "it is a post hoc definition, where the process is defined and studied based on the final conditions"; 3) "it does not consider that many major migrations are the result of multiple sequential smaller population movements"; 4) "it ignores situations in which the migrant group does not drive out or absorb the local population" (Curet 2005:33-34).

These criticisms of Rouse's model, methods, theory and the premises that they are based upon contributed to Curet's recent reappraisal of the concept of migration and how it has been used in archaeological migration studies in the Caribbean. Beginning with the issue of definitions, Curet asserts that "a more useful and analytically powerful definition for migration can be developed" (2005:33) and suggests the use of a definition initially proposed by Clark that a migration "is a long-term residential relocation beyond community boundaries by one or more discrete social units as the result of a perceived decrease in the benefits of remaining residentially stable or a perceived increase in the benefits of relocating to prospective destinations" (Clark 2001:2). Although this definition provides a needed and much improved version than the one used by Rouse (1986), I find it problematic to include the causes of migration in the definition of the term. My main concern is that the inclusion of causes ignores the possibility that decision making groups and migrant groups may not be coeval and thus many types of migration

that fall under the general heading of ‘forced migration’ would not be considered migration according to this definition. This is of particular concern, regarding the profound roles that forced migrations have played in world history and especially in the history of the Caribbean region. As such, I prefer to use a much more simple and straightforward definition that does not include possible causes within the definition itself and propose the following modified version from the *Encyclopedia Britannica*: ‘Human migration is the permanent change of residence by an individual or group’. This definition is preferable not only in the sense that it removes considerations of causation and decision-making (which although very important may also be highly variable, unknown, and not in the hands of the people that actually migrate). More importantly, this definition focuses on the actual behavior and is not restricted to migrations of a certain size, occurring over a minimal distance, or only those with specific outcomes.

2.3.2 Types of Migration (Scale, Distance, and Boundaries)

There are two general approaches to migration, macro-level and micro-level. The former tends to focus on processes involving larger groups, aggregate social behavior and/or the structures causing them, the latter on smaller groups or individuals, and associated decision-making processes (Cadwallar 1992). Approaches emphasize one or the other, or both, depending on the questions each is seeking to address. Most traditional archaeological studies have emphasized macro-level approaches or the long-term effects of aggregate social behavior. Macro- and micro-levels are not mutually exclusive categories, and there may be utility in focusing on intermediate social units and time scales where the two may overlap (Hofman and Hoogland 2011) [see also (Rivera-Callazo 2011)].

Clark’s definition of migration emphasizes movement beyond community boundaries and points to a distinction made by some researchers between internal and external migration (Clark 2001). Internal migration refers to residential mobility or movement within a (cultural, social, environmental, or geographic) boundary, it is generally intra-regional and occurs amongst “habitually interacting” social groups

(Anthony 1990). Internal migration is generally characterized by shorter distance movements and may coincide with various life-events, such as reaching adolescence or adulthood, marriage (post-marital residence relocation), having children, or even changing occupations (career migration). These more frequent, short-distance movements are regarded as internal migration by some researchers (Anthony 1990, 1997; Brown and Neuberger 1977) and are not considered migration at all by others (Clark 2001).

Long-distance migration is expected to be less common, especially prehistorically, owing to the friction of distance or distance impedance (Burmeister 2000). The friction of distance refers to the relationship between spatial distance and the logistical and organizational difficulties associated with migration or transportation costs. There is an inverse correlation between distance and frequency, but it is mediated by other geographical, social, and transportation factors. It is necessary to acknowledge the possibility of a lack of direct correlation or correspondence between social and spatial distance in certain contexts. Short and long distance migrations are often conflated with internal and external migrations. A relationship exists between the two in that longer distance moves are more likely to cross boundaries, but the relationship is non-linear. Depending on a variety of factors, short-distance migrations may be external and long-distance migrations may be internal.

External migration is considered to occur less frequently but to be potentially more complex, more likely to result in major changes in material culture, and therefore potentially more archaeologically visible (Duff 1998) than internal migration. A similar tendency may be expected for the movement of larger versus smaller social units, necessitating the distinction between the terms population movement and migration (Rouse 1986), with the former being a subset of the latter. This denotes a difference in scale via the size of the migrating unit, and potentially the nature of the causes and consequences of migration, as long-distance and/or external migration may not only be more difficult and less common but also may have more profound consequences for migrants. While some researchers stress attention to scale and note the relationships between macro- and micro-level processes (Anthony 1990, 1997; Curet 2005), others doubt the possibility of examining micro-level processes archaeologically or focus

specifically on macro-level processes (Adams et al. 1978; Burmeister 2000). The main distinction between internal and external migration is related to distance and scale but stresses boundaries which may be cultural, social, political, or physical (Clark 2001; Duff 1998). In reference to distance, Keegan has recently noted that “island archaeologists have tended to emphasize geographic distance...Yet there are other ways to measure distance” (2010:15). These include economic, demographic, ceremonial, political, and social distance. “All of those dimensions of distance are interrelated and codetermined” (Keegan 2010:15) [see also (Keegan 2004)].

Many other types of migration exist, some in specific social contexts. For example, local or internal migration is a circumscribed form of migration within a particular social milieu and is a relatively common form of movement (Brown and Neuberger 1977). Although potentially important for the creation and maintenance of regional cultures, internal migration may also leave little evidence because it does not necessarily involve the movement of people, goods, or ideas across discernible or detectable boundaries. Circular migrations are regular or semi-regular movements with the intention of future return, the movement of migrant laborers is a common form of this type (Anthony 1997).

Wave (or ‘wave of advance’) is a commonly employed migration model in which there is an incremental movement of people across a region usually as the result of population increase, or demic expansion (Ammerman and Cavalli-Sforza 1973), generally occurring over long periods of time, such as generations or centuries. This model was first applied to account for the Neolithic expansion of agriculture through Europe, whereby slow but continuous population increase resulted in the gradual expansion of farming populations, which are characterized as waves (Ammerman and Cavalli-Sforza 1973). Some have critiqued this model, claiming that waves are unfounded in migration theory, are the result of the coarseness of archaeological data, and that the available data can be better interpreted as representing a leapfrog model [e.g., (Anthony 1990, 1997)]. Leapfrogs are characterized by intentional migration or colonization to ideal regions or locations, and not necessarily to the nearest available area, leading to open expanses which may only later be filled in by further migrations. The importance of this distinction is that social aspects of migratory behavior (micro-

level) such as directionality, intentionality, strategy, and decision-making processes, can be blurred and distorted over long time periods and may appear as the movement of peoples or cultures in waves across space and time (macro-level).

Chain, stream, flow, and current are similar types of migration patterns where later migrants follow earlier migrants, often to similar destinations and along similar routes. These types of migration may contribute to the formation of enclaves, usually characterized by the presence of spatially and socially clustered minority or immigrant groups and their descendants. The existence of enclaves provides evidence that immigrants are not always completely assimilated or acculturated into their new social milieus. An ancient example of an enclave may be represented by the Oaxaca Barrio, at Teotihuacán, Mexico (Spence 1976). Nevertheless, enclaves are often characterized as possessing 'hybrid' cultural traits or qualities intermediate between those of their parent and destination groups. Enclave migrants are often placed into a context where they are exposed to or interconnected with two or more somewhat distinct social networks and must be able to mediate and oscillate between them. Because the process of acculturation and 'hybridization' may happen quite rapidly (within the lifetime of an individual), migration into enclaves may lead to relatively rapid ethnogenesis, for example as amongst twentieth-century Puerto Rican migrants in New York or *Nuyoricans* (Bourgois 2003).

Another possible consequence of chain migration is that earlier migrants (pioneers, settlers, founders) may come to prominence owing to their roles as early migrants. Earlier arrival may give individuals or groups a 'head start' concerning the learning of physical, social, legal, economic, and political landscapes. Possession of such knowledge may allow for later differential access to power, prestige, status, or resources. The term 'apex family' refers to the situation whereby an immigrant group (and/or its descendants) possesses unequal access and special prominence within a migrant community owing to their experience or history of early migration relative to other later migrants [Alvarez 1987, cited in (Anthony 1990)]. A possible ancient example of which may be the supposed founder, and founding lineage of the ancient city of Copán, Honduras (Buikstra et al. 2004). Interpretations of the founding of Copan suggest that it

may have been an intentional maneuver by an elite lineage seeking a place to manifest its political aspirations (Demarest 1988).

Involuntary, coerced, or forced migration may be caused by many factors and may result in the classification of certain migrants or migrant groups as refugees or displaced persons (Burmeister 2000). Interestingly, except under certain extreme conditions, even when the decision to migrate is not in the hands of the migrating group such as with some types of refugees, the routes and destination may still be partially or wholly determined by the migrating group (Anthony 1997). Coerced migration may also be an explicit manifestation of social control and political strategy. Various examples include the forced or coerced movement of various peoples (especially minority ethnic groups) by the Inkan, Roman, and Soviet empires.

Patrick Manning (2005) has developed a typology of different types of migration that are suitable to a wide variety of scenarios. Although originally developed in reference to language communities, I suggest that a more open and flexible definition of the concept of community would permit the application of his typology to a wider range of contexts and scales. Manning defines four primary types of migration as follows: 1) “*Home-community migration* involves movement of individuals from one place to another within the home community”; 2) “*Colonization* is the departure of individuals from one community to establish a new community that replicates the home community”; 3) “*Whole-community migration* is the displacement of all the members of a community”; 4) “*Cross-community migration* consists of selected individuals and groups leaving one community and moving to join another community” (2005:9). As a broad generalization, until recently, most archaeological studies of migration and mobility, especially in the Caribbean, have focused on colonization and whole-community migrations and have generally neglected home-community and cross-community migrations. This imbalance is particularly troubling considering that cross-cultural migrations studies indicate that the latter two types are much more common overall.

The concept of boundaries is potentially problematic especially in relation to that of community, which is often variably defined and perceived, contested and negotiated, or even imagined (Anderson 1991). Since there is an essential emic quality to both

communities and their associated boundaries, there is a correspondent subjectivity in distinguishing movement within or between boundaries, and thus between internal and external migration. For example, Barth has noted that boundaries are often maintained despite the movement of people across them (Barth 1969). Meanwhile, the movement of peoples across and within boundaries may result in profound cultural and social changes of the sort that archaeologists are particularly interested in studying (Burmeister 2000; Duff 1998; Rouse 1958, 1986). Thus, in this study, I take the perspective that all migrations have potentially important implications and consequences, not only for the individuals or groups that move but also for groups from where they originate and to where they migrate. These consequences may differ substantially depending on a wide range of factors, including for example the size of the migrant group, the distance migrated, and the crossing of borders or boundaries but these are essentially differences of degree, not differences of kind.

2.3.3 Migrants and Migrant Groups (Who migrates?)

One of the main distinctions of modern approaches to migration, compared to traditional approaches, involves a greater emphasis on the nature and composition of migrant groups. Research in various social sciences indicates that migrating social units are neither random nor representative samples of the populations from which they are derived (Lee 1966; Lewis 1982). In other words, there is a strong degree of selectivity (and in some cases predictability) concerning the composition of migrant groups. Although quite variable, there appears to be biases related to age, gender, class, health, and possibly other variables as well (Anthony 1990; Curet 2005; Duff 1998). General patterns indicate that men, young adults, and unmarried people are highly migratory (Curet 2005; Manning 2005), although these are clearly very broad generalizations that are highly variable under different cultural, social, economic, political, and ideological conditions.

Various reasons for such patterning may exist and the causes for such patterns may themselves be quite variable depending on context. Gender bias may reflect a general cross-cultural tendency for males to be more oriented toward the public domain

and thereby operating within larger and more complex networks of social interaction. This orientation may be interrelated with tendencies for males to travel further and more frequently, as hunters, fishers, traders, warriors, and scouts. Thus they may be expected to have greater direct experience, contact, and access to information concerning other peoples and places, including possible migration destinations and other migrants. Again though this is highly dependent on a number of other factors, not the least of which are the social, cultural, political, and economic context of the migration and there are of course numerous studies indicating the existence of the opposite pattern, e.g., where females are the more mobile or more migratory sex.

Similar reasons may be proposed for apparent age-related biases, concerning the seemingly high rates of young adults in modern times. This may denote social structures in which migration is a better and more feasible option for this subset of society relative to other members or groups within a society. For example, children would be expected to be less apt to migrate in the absence of parents, family, or adults except in particular circumstances, while older adults may have reduced motivations, in that they may have less to gain and more to lose by migrating, relative to younger adults. On the other hand, secondary or ancillary migration refers to the movement of individuals via the agency of another person, for example the migration of dependent children by parents or the head of the family (Manning 2005), and secondary migrants may represent a large proportion of migrant groups under certain condition.

Class and status patterns amongst migrants are more variable and more difficult to interpret. Within modern world-systems perspectives there are obvious structural forces and motivations behind the movement of peoples in response to fluctuations within global, regional, and local labor markets (Kearney 1986). However, it is less clear how to interpret relationships between socioeconomics and migration outside of these contexts. In any situation involving differential access, one may presume that those with less access to power, prestige, control, or other resources may derive greater benefits from migration, but may also possess reduced capacities to overcome the costs of migration. This may be especially true in contexts where the initial costs of migration are relatively high. Such interpretations are further exacerbated for prehistoric contexts in which the recognition of intra-societal differentiation is potentially problematic.

Other influences on the size and structure of migrant groups include the relationships between decision-making units and migratory units. Duff notes that these units need not be the same and yet their relationship may be patterned (Duff 1998). For example, in situations where decision-making is centralized there may be an increased likelihood of movement at the level of community or population, involving coordinated planning (Duff 1998). If decision-making is decentralized it may allow for greater flexibility of behavior allowing for smaller units such as households to both make the decision and to migrate (Duff 1998). Nevertheless, one should not expect a direct linkage between the two in that even in contexts of strongly centralized decision-making, migratory units may still consist of small, sub-groups. In other words, just because the decision-making is out of the hands of those migrating, this need not indicate that the entire group, community, or population migrates.

Who migrates appears to be highly influenced by who has migrated and research suggests that the best predictor of future migration is past migration, in that once someone or some group moves they seem to have an increased likelihood of moving again (Anthony 1990). This may be an effect of lowered thresholds for the initiation of migration as the result of past experiences. In addition, past migration not only influences migration-related behavior for the migrants themselves but also appears to have a corresponding effect on others. The persistence and maintenance of social interactions and contacts between migrants and parent communities has direct links not only with the likelihood of future migration between these locations but also the routes that they may take. Migration streams or currents refer to the movements of migrants from specific origins to specific destinations, following well-defined routes (Anthony 1990). Future migrants tend to be those that have access to information or prior knowledge concerning potential destinations, often obtained through social ties with previous migrants.

There is a definite relationship between selectivity and causality (Burmeister 2000) within migration. The nature and source of various causes for migration (including various push/pull factors) tends to structure the size and composition of migratory units. Forced, involuntary, or coerced migration as a direct or indirect result of war, famine, drought, plague, flood, abrupt or extreme environmental change, or other natural or human-induced circumstances may condition selectivity by inducing the movement of

larger units than other types of migration (Burmeister 2000). The exact size and composition of the units will be relative to the nature of mediated pressures on groups or individuals, whereby selectivity is determined both by external factors and internal social structures influencing responses and abilities to respond to stimuli beyond just migration, not to mention the perceptions and agency of individual agents and actors. A classic example is refugees, who are generally less selective than most migratory units but also are often not mere random samples of the groups from which they originate (Burmeister 2000).

2.3.4 Reasons, Causes, and Models (Why do people migrate?)

As Anthony has noted “If archaeological approaches to migration have been slowed by a failure to ask the right questions, then one of the greatest culprits must be the question of causes” (Anthony 1990). However, our ability (or lack thereof) to determine the causes of migrations does not mean that we can not still identify basic patterns and structures of migration. Furthermore, since migration is closely linked to various other phenomena, its study is worthwhile and important even in the absence of concerns with causality. Perhaps, more importantly most migrations are likely the result of multiple causes (Burmeister 2000).

Causation in migration studies can be divided into four basic categories or types:

1) Push/Pull theories- based primarily on neoclassical economics and the spatial/temporal imbalance of resources, such as land, capital, and labor. These theories are characteristic of most traditional anthropological studies which tended to focus on or assume economic, ecological, and especially demographic reasons and motivations behind migration. 2) Decision theory- based on rationale, agency, information flow, and subjectivity. This perspective makes the important distinction that decisions are based on perceptions of reality, which may or may not be accurate. To some extent decision theory helps to account for migrations that seem to conflict with expectations derived from simplistic cost/benefit analyses, whereby people do not always move when and where they would most benefit but often to destinations where they have preexisting social ties. 3)

Sociological theory- unequal distribution of power or prestige, existence of structural and anomic tensions. Perceives migration as a mechanism for resolving tensions or as a control mechanism, whereby migration is deemed a viable option or response. 4) Others- dependency theory, Wallerstein's world system, and Marxist concepts provide frameworks or systems of global dependency, inducing migration and reproducing the conditions for the continuance of migration [summarized from (Burmeister 2000)].

Many archaeological migration models tend to incorporate multiple factors that include both positive and negative push and pull factors (Anthony 1990; Burmeister 2000). Perceptions of these factors are based upon the flow of information between a home region and possible destinations, with access to information and the accuracy of perceptions determined by the nature, scope, and intensity of existing social networks, previous experience, and possibly influenced by the presence and role of previous migrants. Information flow is structured by the nature of preexisting social networks, which are often based on kinship and familial ties, but also consist of exchange networks and trade relationships.

Decisions to migrate are based on perceptions of push and pull factors mediated by concerns with transportation costs. Costs generally vary directly with distance (impedance or friction of distance), thus there is a general inverse correlation between distance and migration rates or frequencies. However, various other factors can affect this general tendency, especially transportation technologies, which can greatly reduce travel logistics and transportation costs. The feasibility of various routes may be determined by both the presence of and access to transportation technologies. The introduction or development of certain transportation technologies may be essential for certain types of migration to take place, for example insular voyaging or intercontinental transportation. Furthermore, certain transportation technologies may open new routes and initiate migrations by reducing costs and/or restructuring social relationships and networks. Transportation technology mediates relationships between social and spatial distances in different ways for different people in that access to transportation technologies may be highly variable. Lastly, like any other technological innovation, temporal change in transportation need not be progressive or unilineal.

Many models of migration have focused primarily on density dependence as a cause of migration [e.g., (Ammerman and Cavalli-Sforza 1973)]. Anthony has poignantly demonstrated the limitations of population pressure or density dependence models, by pointing out that density-dependence is culturally defined and mediated (Anthony 1997). The population density that can be supported by any territory varies depending on multiple factors, including; 1) basic subsistence strategies, 2) technological capacities, 3) resource management practices, 4) the social organization of labor, 5) food preferences and choices, 6) attitudes toward conflict and cooperation, 7) comfort thresholds for crowding. Furthermore, previously popular density dependent approaches fail to consider pull factors, information flow, transportation costs, and other types of push factors. Therefore, density dependence models are best considered as only a subset of possible push factors [summarized from (Anthony 1997); see also Curet 2005].

Push factors include not only demographic, economic, and ecological factors but also social, political, ideological ones or even various combinations of these factors (Curet 2005; Hofman and Hoogland 2009; Hofman et al. 2011; Hofman and Hoogland 2011; Keegan 2010). Examples of these may include; social- primogeniture or other social regulations that unequally distribute power or prestige, such as that implicated in the conquistador phenomenon (Sauer 1966); political- lineage or village fissioning resulting from political competition or expediency, in various contexts such as the Yanomami (Chagnon 1977) and classic Maya (Demarest 1988); ideological- climates permitting religious expression or escapes from persecution, for example early colonial America (Bunker 2010).

2.3.5 Destinations (Where do people migrate?)

In general people do not migrate to places for which they have no previous knowledge (Duff 1998). This conclusion, based on modern patterns of migratory behavior, has led some prehistorians to rethink previous notions of the history of human dispersal, settlement, and colonization. For example, Irwin has contested previously held notions that the Pacific was colonized directly by one-way exploratory colonizers (Irwin 1990;

Irwin 1992). After reanalyzing the available data in the context of known modern and historical processes, Irwin concluded that the idea that prehistoric peoples migrated into completely unknown regions was quite unlikely (Irwin 1992). Owing to the risks and high transportation costs of prehistoric open-ocean voyaging (with available transportation technologies), early Pacific colonists would have suffered from quite high rates of loss if they had attempted to colonize into the complete unknown. More convincing explanations are derived through considerations of multiple factors including the direction of winds, currents, and travel, the order of settlement, distance, island size, and other factors, including patterns of migration, and especially the possibility of return migration.

Irwin and others have focused on colonization processes, a distinct set of migration processes in which people migrate into regions that lack previous occupation (Graves and Addison 1995; Irwin 1990; Irwin 1992) [see also various readings in (Rockman and Steele 2003)]. Colonization processes can be divided into stages [summarized from (Graves and Addison 1995)] 1) discovery- through intentional exploration or through information obtained while involved in other activities; 2) colonization- the movement of people into an unoccupied region presumably with the intent to settle; 3) establishment- refers to when a colony has reached a stable size, whereby it is resilient to stochastic processes and can successfully reproduce itself, both socially and biologically. These distinctions point out an essential lesson of modern migration research, that migration is best understood as a complex and multi-dimensional process, and not a rare, random, or unpatterned event. From this perspective, it may be more parsimonious to conclude that in most cases people relocate to places for which they have previous knowledge (discovery) and that not all colonies are viable in the long-term (colonies), until they have reached a stable population density (establishment).

Moore (2001) has used computer simulation software to analyze various colonization models, including; 1) matrix, 2) beachhead, 3) string of pearls, 4) outpost, and 5) pulse. Input variables included initial population size, sex ratios at birth, polygamy, the likelihood of pregnancy, fertility and mortality rates, and marriage prohibitions. An important result of this analysis is that initial population size is an extremely important factor in determining long-term success. While nearly any size

population has some chance of viability, the smaller the initial population the more susceptible it is to stochastic processes especially early on in the colonization process. However, stochastic processes can be greatly mediated by several factors, including the maintenance of interactions (biological and social) with one or more other communities, and/or further pulses of migrants. He interprets these results as indicating that certain models of migration are so unlikely as to be inappropriate and can probably be abandoned (Moore 2001). However, the continuation or maintenance of interaction, further migration(s), and even random factors can contribute to the long-term viability of colonies, regardless of the model employed.

In cases of initial colonization into previously unoccupied, unsettled or vacant regions, population interactions may need to be maintained with the parent community until viability is achieved. In other cases there is more flexibility and the development of interactions with other neighboring populations may supplement or even supplant interactions with parent communities. In cases where the parent and migrant communities are separated by long distances or where high transportation costs exist, the development of interactions and relationships between migrant groups and destination groups may be advantageous or even necessary for the long-term reproduction and survival of colonies or migrant groups.

The history of interactions, attitudes, and potential hostilities between migrants and destination groups and other groups along migratory routes can all be included as other potential mediating factors (Anthony 1997). As previously mentioned, the flow of information from previous migrants back to donor or parent communities may contradict the basic premise of distance as a cost in that better information about distant, potential destinations may be more important than little or no information about closer potential destinations (Rockman and Steele 2003). Chain migration is another term to refer to this channeling of information and migrants to specific destinations, routes and social settings or enclaves and may help explain many instances of long-distance migration, especially to and from specific places or localities (Anthony 1997).

The implications of the preceding insights are potentially substantial for archaeological and prehistoric studies of migration. Concerning Irwin's conclusions regarding Pacific colonization, it may necessitate the incorporation of elements of several

theories of migration, including sociological, decision, and push/pull (Irwin 1992). The recognition of intentionality and decision-making in migration and colonization strategies by prehistoric peoples marks an improvement over previous models where people were conceived as uncritically reacting to external conditions over which they have little or no control. This recognition at least grants the possibility of awareness of extant conditions and that migration may be better characterized as an informed, if not calculated, social strategy (Anthony 1997; Curet 2005). This may partially account for “migrations without any discernible, objective reason or the absence of migration despite such reasons” (Burmeister 2000) and acknowledges that migration is merely one of many possible responses to various internal and external factors and forces.

The work of Moore points to a need for greater awareness between networks of interaction and exchange, migration as social behavior, and population density (Moore 2001). In contexts where people are living in small, dispersed groups (i.e., at low population densities,) there may be strong motivations for establishing and maintaining contacts and interactions with other groups for the purposes of reproduction and survival. In such contexts, one might expect there to be prevalent push and pull factors related to migration potentials and rates. These ideas have been more fully developed in Kirch’s (Kirch 1988, 2000) ‘lifeline’ model, whereby colonies or new communities maintain intimate social ties with parent communities. In the Pacific, this may have entailed long-distance interactions (as much as several hundred kilometers or more) over long periods of time (multiple generations) at least until colonies had become more stable and enduring (Kirch 1990, 2000). This tendency may partially account for widespread similarities in material culture in certain contexts meeting these conditions, for example such disparate cultures as the Aurignacian in Paleolithic Europe; Clovis in North America; or Lapita in the Pacific (Gamble 1986, 1994). Over time, these once dispersed ‘cultures’ seemed to have been ‘replaced’ by more localized cultural traditions. These phenomena may be interpreted as related to changes in both population density and the associated need to maintain widespread social interactions as the requirements for biological and social reproduction no longer necessitate the maintenance of widespread social networks and long-distance movement [but see (Clark 1994)]. Reproductive needs can be met by the greater availability of local contacts made possible through increased

population density. In other words, there may be a dialectical relationship between migration and wide-ranging social networks, in which cause and effect cannot be separated. However, the lack of cultural similarities does not necessarily imply the converse, as the presence of migrants or migration is not necessarily manifested in changes in material culture.

2.3.6 Impacts and Consequences of Migration

Many approaches to migration studies rely to some extent on patterns and structures derived from observations of modern and historical migration (Burmeister 2000; Duff 1998). In contrast, Zelinsky has observed a correlation between demographic or secular trends and mobility trends (Zelinsky 1971). He has hypothesized a historical mobility transition that corresponds with the global demographic transition, and argues that mobility (and migration) has increased throughout history as global populations have increased (Zelinsky 1971). More recent work concerning the study of historical migrations has focused on developing modes, definitions, and models that are cross-cultural applicable and permit the comparison of patterns of migration from a global perspective (Lucassen and Lucassen 2009; Lucassen et al. 2010; Lucassen and Lucassen 2011). Regardless of the validity of this argument, it is clear that substantial migration and mobility were present throughout human history (Gamble 1994). Some have used similar lines of reasoning to dispute the validity or utility of applying understandings of modern migration behavior into past social contexts (Clark 1994; Rouse 1986). Epistemological debates concerning sources of analogy notwithstanding, it is the recognition of a need to be cognizant of the complexities and dynamics of migration processes, structures, and patterns (not necessarily the contextually dependent details) that is the essential lesson to be learned from studying migrations in the present.

The consequences of migration are many and varied, and can impact all parties involved, including the parent group, the migrant group, and the destination group (Curet 2005). The size, structure, and demographic composition of each group and the scale and rate of migration can profoundly influence the outcomes of migrations. If sufficient in

size or scale, or heavily biased in composition, emigration can have drastic consequences for donor communities or groups. In certain circumstances, migration may result in radical changes in donor group social composition and precipitate restructuring of intra- and inter- societal relationships.

In the extreme, emigration has been observed to lead to abandonment of settlements and regions, both historically and archaeologically [for discussions of abandonment see (Nelson and Schachner 2002; Spielman 1998)]. In fact, abandonment and collapse are two of the more archaeologically visible manifestations of migration (Cameron 1995). Although it is feasible that long-term, disproportionate fertility and mortality rates may result in the extinction of a local group, some degree of emigration is often implicated in demographic collapse, and site and regional abandonment. One might predict that extremely low population levels might influence survivors to leave or disperse and that local population ‘extinctions’ or collapse are thus unlikely to occur without some degree of emigration or dispersal.

Similar factors concerning the size, scale, composition, and rates of migration can be influential for both migrant groups and the communities and regions to which they migrate. In the case of migration into unoccupied territories, or initial colonization, the arrival of migrants brings evidence of their presence through the existence of their material culture. This represents another type of migration with potentially high archaeological visibility, via the introduction or appearance of cultural material remains. Other evidence for the arrival of humans to a previously unoccupied or unsettled area include; the introduction of foreign or exotic flora and fauna, the introduction of disease pathogens, landscape or habitat alterations, and the extinction and extirpation of certain local species which can be particularly prevalent and severe in insular or island settings (Keegan and Diamond 1987).

In cases where regions are previously occupied or settled, the consequences of (im)migration are complicated by a variety of factors. First, extant groups may be a source of information flow; prior to, during, and subsequent to migration. The presence of resident populations and communities is potentially beneficial for migrant groups by providing better conditions for rapid landscape learning and may mediate difficulties associating with adapting to local environmental and ecological conditions. However, the

presence of other peoples also necessitates the movement through, and learning and negotiation of new physical and social landscapes by immigrants, and in some cases by local groups as well (Rockman and Steele 2003). Hence, the past histories of interactions between groups strongly influence future interactions and developments within and between them.

The presence and degree of differences in size, demographic composition, technologies, subsistence practices, social organization, histories, and culturally determined and mediated conceptions of foreigners or migrants, as well as cultural conceptions of cooperation and conflict all potentially condition future relationships and outcomes (Curet 2005). Under certain conditions, various disparities between groups may lead to differential power relations between them. However, because of the potential influences of so many different factors, the results of any given contact situation are highly complex and often unpredictable (Cusick 1998; Spielman 1991). These processes may include; displacement and dispersal, conflict and cooperation, diffusion and exchange, acculturation and assimilation, enculturation and emulation, and transculturation and ethnogenesis. In addition, the long-term effects of migration often induce processes of identity formation, negotiation, maintenance, and restructuring (Burmeister 2000; Duff 1998).

Return migration further complicates the potential outcomes of migration and can precipitate changes for all groups involved (Gmelch 1980; Kearney 1986). It may further alter the size, composition, and nature of multiple communities. It also provides relevant information and knowledge to potential future migrants concerning routes, destinations, and social landscapes and may induce or reduce future migration. In addition, return migration is a potential source of change through the exchange and introduction of new ideas, technologies, materials, and people (Anthony 1990; Burmeister 2000).

In modern contexts, the phenomenon of remittances, in which migrants return with, or send, money or resources back to their parent communities, is widespread. This may have taken place prehistorically as well and could account for the presence of foreign or exotic luxury goods in certain contexts, and therefore may be archaeologically visible (Anthony 1990; Burmeister 2000). Return migration has been implicated as a causal factor for social change in parent communities through these mechanisms (Gmelch

1980; Kearney 1986). Another consideration is the possible effect of changes in prestige or status obtained by migrants owing to knowledge obtained through distant social networks, and/or access to foreign/exotic materials, goods, ideas, and technologies. Helms has noted the role of migration and long-distance or foreign travel as a mechanism for increasing prestige and social status (Helms 1988; Helms 1979), whereby migration itself is a potential pull factor.

2.4 Migration Research in Caribbean Archaeology

An interest in migration(s) appears in some of the earliest works on the archaeology of the Caribbean region (de Hostos 1923, 1924; Lovén 1935; Rainey 1940; Rouse 1952). Early migration studies in the Caribbean were an inherent component of the construction of cultural chronologies for the regions. Most generally accepted models for Caribbean prehistory recognize five main, large-scale migrations as developed primarily by Rouse over several decades: 1) the initial Lithic/Archaic colonizations of the islands; 2) the Early Ceramic Age (Saladoid/Huecoid) migrations; 3) the Late Ceramic Age (Ostionoid) expansion; 4) the colonization of the Bahamas; and 5) and the Island Carib migration(s) (Chanlatte Baik 1981; Chanlatte Baik and Narganes Storde 1983, 1986; Curet 2005; Keegan 1992, 1994, 2000; Rouse and Allaire 1978; Rouse 1989a, b, 1992; Siegel 1989a; Siegel 2005; Wilson 1997, 2007). It should be noted, however, that this list does not include a number of other possibly distinct large-scale migrations or colonizations, for example the colonization of the southern Caribbean islands, e.g., Aruba, Bonaire, Curaçao, Los Roques (Hofman et al. in press) from northern South America. Secondly, several other possible population movements or migrations of different cultural and ethnic groups and/or different origins of certain groups have been proposed over the years (Boomert 2000; Callaghan 1993, 1995; Rodríguez Ramos 2010; Veloz Maggiolo 1991, 1993; Zucchi and Tarble 1984).

Siegel (1991) has extensively reviewed both the descriptive models of cultural development and change that are pertinent to the dispersal of humans into the Antilles from the South American mainland during the ceramic age and more recent explanatory

models that have explicitly focused on questions of causation. Various materialist or economic perspectives, primarily variants of push-pull or adaptation models have been proposed to account both for the spread of ceramic bearing horticulturalist groups out of northeastern South America and into the Antilles (Goodwin 1979, 1980; Keegan 1985; Roe 1989; Rouse 1986, 1992; Siegel 1991) and the later expansion of ceramic bearing horticulturalists into the Greater Antilles and the Bahamas (Berman and Gnivecki 1993, 1995; Keegan 1985, 1992). However, as Curet (2005:29) suggests, with some notable exceptions (Keegan 1992, 1995; Siegel 1991), most of these studies can be clearly characterized as macro-scalar approaches that “have concentrated mainly on general aspects of migration without taking into consideration a number of important variables at lower levels such as migrant group size, migration type, and the structure of migrant population”.

Some of the criticisms leveled by Curet (2005) have begun to be addressed on a number of fronts with a renewed interest in studying various types and forms of human mobility and migration processes at multiple scales and inferring prehistoric migrations based on a broader range of approaches often integrating different lines of archaeological, biological (genetic and phonetic), and biochemical (isotope) evidence [e.g., (Curet and Hauser 2011b; Curet 2005; Fitzpatrick and Ross 2010; Hofman et al. 2008d; Hofman and Hoogland 2011). The timing, routes, origins, and direction of migration waves and population movements are foci of current debates within the archaeology of the region, especially as they pertain to the arrival of both early (Archaic) and later (Ceramic) Age groups to the Antilles. For example, owing to the island setting of the Caribbean, colonizations and inter-island migrations required some form of ocean-going transportation technology and knowledge of seafaring. There has been renewed debate and discussion in recent years concerning the role of the sea in prehistoric human interaction in the region, particularly in regard to whether the sea united or divided the peoples of the Caribbean (Boomert and Bright 2007; Bright 2011; Curet 2004; Fitzpatrick and Anderson 2008a, b; Hofman et al. 2007a; Hofman et al. 2008a; Hofman et al. 2010; Keegan 2010; Rodríguez Ramos 2010; Torres and Rodríguez Ramos 2008).

The basic chrono-cultural model for the Caribbean and more specifically the timing (and direction) of population movements and colonizations have been debated

based both on newly available radiocarbon dates and/or reassessments of published dates (Fitzpatrick 2006; Fitzpatrick et al. 2010; Pestle 2010; Rodríguez Ramos 2010; Rodríguez Ramos et al. 2010). In particular, the ‘stepping-stone’ model (Keegan 1995; Rouse 1989b, 1992b) for the colonization of the Lesser Antilles and Puerto Rico has been questioned in recent years. This model would seem to have some support from the principles of island biogeography (Keegan and Diamond 1987). Nonetheless, the available radiometric evidence and computer simulations of sea voyaging (Callaghan 2001, 2003) have called into question this model for the northward migrations from the South American mainland in the Ceramic Age (Fitzpatrick 2006; Fitzpatrick et al. 2010; Haviser 1997; Keegan 2000, 2010). The observation that most of the earliest dates for Saladoid deposits in the islands derive from the Leeward Islands or northern Lesser Antilles (Haviser 1997), has led some researchers (Fitzpatrick et al. 2010; Keegan 2010) to propose that these islands were settled first and that the Windward Islands of the southern Lesser Antilles may have been intentionally passed over by Ceramic Age migrants [for a similar argument for Archaic Age migrations, see (Callaghan 2010)]. This would of course contradict the “stepping-stone” hypothesis of island colonization and in fact Fitzpatrick and colleagues (2010) have used the late dates for the earliest settlement of the Grenadines to propose a “Southward Route Hypothesis” whereby the Windward Islands were initially settled from the north. Lastly, perhaps one of the most interesting models concerning Early Ceramic Age interactions and migrations is the previously discussed ‘lifeline model’ whereby distant new colonies attempt to maintain long-distance interactions and social relationships with parent communities as originally developed for Pacific contexts (Kirch 1988; Knight 1990). This model has also been applied to Caribbean contexts over the years (Hofman et al. 2011; Keegan 2004, 2010; Watters 1982), mainly in reference to connections between island and mainland communities although the possibility exists that connections with insular parent communities in the Antilles requires further investigation (Bright 2011).

Another hotly debated topic in Caribbean archaeology concerns the so-called ‘Ostionoid expansion’ that occurred during the Late Ceramic Age. This term refers to the general spread of languages, cultures, and peoples out of Puerto Rico and into the Dominican Republic, Jamaica, Cuba, the Bahamian archipelago, and the northern Lesser

Antilles sometime after A.D. 600 (Rouse 1986, 1992). Various explanations have been proposed to account for this expansion, including migration, diffusion, and transculturation, and different combinations of these processes (Berman and Gnivecki 1993, 1995; Chanlatte Baik and Narganes Storde 1986; Crock and Peterson 2004; Crock 2000; Curet 2005; Hoogland and Hofman 1993a; Hoogland and Hofman 1999b; Keegan 1992; Keegan 1995, 2000, 2006a; Keegan 1985; Rodríguez Ramos 2011; Veloz Maggiolo 1991; Veloz Maggiolo 1993). Additionally, a multitude of hypotheses have been put forward in reference to the expansion of Greater Antillean or ‘Taíno’-related cultures, cultural traits, and even specific social groups from Puerto Rico into the Lesser Antilles during the later phases of the prehistoric period (Allaire 1990; Hofman et al. 2007a; Hofman et al. 2008a; Hoogland and Hofman 1999; Rodríguez Ramos 2011). For example, based in part on the presence of a ball court or *batey* at the Salt River site, St. Croix this island may have been integrated into a larger Taíno political sphere during the Late Ceramic Age (Morse 1997; Rouse 1992). Based on multiple lines of evidence, it has also been proposed that Taíno-related chiefdom societies existed on Anguilla during this period (Crock 2000; Crock and Peterson 2004). Perhaps, the most specific hypotheses concerning Late Ceramic Age migrations into the northern Lesser Antilles, have been proposed for the Kelbey’s Ridge site on Saba. This site has been interpreted as a possible Taíno outpost or colony formed by colonists or refugees originating on Hispaniola (Hoogland and Hofman 1993; Hoogland and Hofman 1999) [see also (Curet 2005; Siegel 2011) concerning territorial expansion during this period].

Research into different types and forms of micro-mobility in this region have also begun to appear, as represented for example by studies of seasonal mobility and occupation amongst Archaic groups on Saba, in the northern Lesser Antilles (Hofman and Hoogland 2003; Hofman et al. 2006a). A number of recent regional and micro-regional studies of settlement patterning in the Antilles have indicated complex and variable patterns of settlement mobility [e.g., (Bright 2011; de Ruiter 2012; de Waal 2006; Torres 2012)]. These studies have generally demonstrated a high degree of spatial and temporal variation in the density and patterning of settlements at multiple scales. Of particular interest in terms of human mobility behavior is the apparent rapidity that settlements were established and abandoned within certain regions and time periods (de Waal 2006; Torres

2012). The most systematic assessment of settlement patterning and paleodemography has been conducted by Curet (2005) who also discusses the implications of demographic patterns at multiple scales for current models of human migrations within the ancient Antilles [see also (van Meel 2012)]. This work (Curet 2005) makes a substantial and much needed contribution to our understandings of population culture histories in the region and is exceptional for its inclusion of a more anthropologically informed theoretical basis to the concept of migration. Although Curet makes explicit use of demographic data obtained from skeletal remains on Puerto Rico, he does not address other possible lines of evidence that can be obtained from human skeletal materials. This is somewhat curious as data derived from genetic (aDNA), epigenetic (morphological), or biogeochemical analyses are all potentially highly relevant for questions concerning paleomobility generally, and population histories and migrations more specifically.

Several biodistance studies have explicitly addressed human morphological variation amongst the prehistoric inhabitants of the Antilles and the implications of these for the number of migration ‘waves’ and their origins. Over several decades, Alfredo Coppa and colleagues (Coppa et al. 1995; Coppa et al. 2002; Coppa et al. 2008) have developed a very extensive database of morphological variation of human populations in the Antilles based on the analyses of non-metric dental traits and has used these data to infer distinct migratory waves in the pre-Columbian period. Research in a similar vein but focused primarily on cranial morphology has addressed the issue of human population variance in the Caribbean has come to similar conclusions (Ross et al. 2002; Ross 2004; Ross and Ubelaker 2010). Both ancient (Lalueza-Fox et al. 2001; Lalueza-Fox et al. 2003; Toro-Labrador et al. 2003) and modern DNA (Martínez-Cruzado et al. 2001; Martínez-Cruzado 2002; Martínez-Cruzado et al. 2005; Martínez-Cruzado 2010) research on Amerindian skeletal material has also begin to shed light on these topics. Although the aDNA data are somewhat limited, the available evidence is generally consistent with the results of osteological and dental studies, indicating some degree of inter-population variance and possibly distinct origins for different populations (Lalueza-Fox et al. 2001; Lalueza-Fox et al. 2003) [see also (Schurr 2010)].

Very few studies of human mobility at smaller scales, such as assessing patterns of residential mobility have been conducted in the Caribbean. One of the most

comprehensive assessments in this vein is represented by Keegan and colleagues' (1989; 1998) [see also (Keegan 2006)] reconstructions of Taíno political and kinship systems. Based primarily on ethno-historic documentation and ethnographic analogy combined with limited archaeological evidence, they have made a strong case for the development of avunculocal residence patterning amongst the late prehistoric Taíno chiefdoms. Curet (2002, 2006), however, has questioned whether these reconstructions are applicable to broader social, cultural, and geographic contexts in the region. In fact, although various aspects of Amerindian social organization have been addressed by Caribbeanists over the years, to date very little is known about prehistoric residence rules and behavior for the prehistoric Antilles and existing hypotheses have generally not been systematically tested against the archaeological or bioarchaeological record. One exception to this generalization is the recent study of human mobility at the site of Anse à la Gourde (Booden et al. 2008; Hoogland et al. 2010), which formed the precursor to the present study.

Residential mobility has also formed an explicit focus of recent debates about the composition and origin of individuals interred in Central Plaza burials at Early Ceramic Age (primarily Saladoid) sites in the Antilles (Keegan 2009; Siegel 2010). Siegel has developed a model of cultural continuity and change throughout the Ceramic Age sequence of the Antilles based on multiple lines of evidence. An implicit aspect of this model is that central plaza burials represent the interments of the deceased of the resident population. Keegan has recently proposed an alternative model that asserts the primacy of kinship over residence in placement and location of burials. According to his model, individuals (especially married females) would most likely be interred in the village of their clan and not necessarily the village that they were born in, or the village in which they had resided after marriage. Such a model necessitates the post-mortem mobility of the bodies (corpses) of the deceased, a possibility that Keegan asserts is supported by preliminary strontium isotope evidence from Guadeloupe, "Their study suggests that individuals who did not live at this site were buried in the cemetery" (2009:382); see also (Keegan 2010) [citing (Booden et al. 2008; Hoogland et al. 2010)]. This statement somewhat mischaracterizes the nature of the isotope evidence that only indicates a distinct natal origin for individuals identified as nonlocals and not the place of residence

at death. In other words, nonlocals in this context are interpreted as individuals that have migrated sometime after the formation of the sampled tooth (in childhood) but the timing or age at which the migration occurred is unknown and even obtaining biogenic isotope values from bone material would be equivocal in this regard. In fact, Hoogland and colleagues' (2010:162) reference to post-mortem mobility was one of several hypotheses concerning the possible origins and types of mobility amongst the *local* individuals at this site (not the nonlocals).

Lastly, research focusing on migrations at smaller units of analysis (such as individuals) has also been conducted on colonial era contexts as represented by two recent isotope studies of the forced migrations of African born slaves at sites on Barbados (Schroeder et al. 2009) and St. Martin (Schroeder et al. 2012). The topics of forced migrations or slavery in the prehistoric period of the Antilles have not been thoroughly researched within the context of migration studies. Nonetheless, widespread reports of the practice of bride capture within various ethnohistoric documents [e.g., references in (Boomert 2000; Oliver 2009; Rouse 1992; Whitehead 1995b, 2011), see also (Sued Badillo 1995) for an alternative interpretation of some of these reports] merit further attention. This topic remains understudied to date but is of obvious interest for investigations of paleomobility in the circum-Caribbean region. In summary, the development of migration studies in Caribbean archaeology has somewhat paralleled the general history of migration studies in archaeology. However, owing partly to Rouse's legacy, or perhaps more accurately the continued uncritical acceptance and misapplication of his cultural-chronological framework, the culture-historical paradigm had remained dominant within Caribbean archaeology somewhat longer than it did for other regions of the world. Nonetheless, studies of interaction more generally and migration in particular remain central themes of many ongoing discussions and debates within Caribbean archaeology and have received renewed research attention in recent years from a wide variety of perspectives, scales, and approaches [see e.g., (Curet and Hauser 2011b; Curet 2005; Fitzpatrick and Ross 2010; Hofman et al. 2010; Hofman and van Duijvenbode 2011) and various chapters therein].