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Redundant Causeways: an Argument for Metafunctional Analysis

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by

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ABSTRACT OF THE THESIS

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During the 2009 field season of the Chichén Itzá project, two causeways running parallel to each other connecting a large architectural group to two architectural groups within relative close proximity of each other, but not connected, were discovered. The causeways and architectural groups involved were mapped and a surface collection was performed, in order to determine the purpose of the sacbes. In this thesis I argue that the sacbes had a semiotic purpose that transcended the physical actions they allowed, by addressing semiotic implications of communicatory infrastructure contrasted with the data collected.

Introduction:

In order to understand the role constructed space plays in reproducing and being reproduced by its culture, establishing the purpose of a specific constructed space and the motivations leading to its construction is necessary. Drawing from theories and archaeological examples about communication and transportation, as well as literature and data about Maya cultures, specifically with regard to the construction of roadways or *sabes*, I posit that there is an embedded communicative purpose in two parallel *sabes* mapped during the summer of 2009 at the Pajaros group in Chichén Itzá. This embedded purpose is symbolic in nature, with physical communication occurring in the daily use and upkeep that inevitably takes place on constructed roadways. From their construction to their upkeeps and daily uses, the *sabes* presented in this paper facilitated the transmission of information in the forms of physical movement (goods and people) and addressed the symbolic relationship between the groups they connected.

It is possible to take a functionalist approach to the study of roads, which states that construction is usually motivated by an economic situation (Hassig 1991:17). This however, does not take into account the ideology that led to the road construction. First there has to be a cultural concept of roads in order for roads to be constructed, there has to be an established construction technique, and there has to be a social infrastructure capable of gathering the labor force necessary for road construction. I call my interpretation of the two *sabes* addressed in this paper a meta-functional interpretation, because it tries to explain the purpose of the construction and use of the

sacbes in terms that transcend daily use or synchronic events, the likes of which are seen in political, economic and ritual interpretations of the functionalist ilk.

The functional approach is useful where there is little to no historical evidence, but neglects the embedded meanings inherent in culturally constructed edifices (Hassig 1991:17). It is important to understand the embedded meaning within a structure, because it allows researchers to look at meanings within the structure, which can be missed or misinterpreted amidst the analysis of specific activities, i.e. political, ritual, and economic. The study of embedded meaning allows the researcher to discover how and why the specific activities of culturally constructed structures developed and progressed, without being distracted by minutiae of ever-present societal change and the resulting re-patterning of cultural behavior (Mukherjee 1968:31-32).

An example of the synchronic fallacies that befall a functionalist approach can be seen in functionalist analyses of economic phenomena. While evaluating the economic occurrences in culture, the economic mindset of the culture is ignored, i.e. what defines economic efficiency and need, and thus only the physical needs are accounted for instead of the underlying cultural and cognitive values that lead to valuation of specific products (Hassig 1991:18; Lambeck 2008:133, 142). Such values are necessary in order to properly assess both the system in which the values are produced, in this example it is seen as an economic system, and the culture, or structure that produced the system (Marx 1978:314-316).

Using a strictly functional approach to study roads states that roads are primarily economic and political in nature, with ceremony and social ties having little to no role to play in their development and being of secondary importance to their existence (Hassig 1991:18; Hirth 1991:211). This assumes that economic or political needs are the impetuses for cultural development. Addressing the embedded nature of meaning and value with regards to cultural constructions generally, and roads specifically, yields an ideological impetus for construction and creation of both mental and physical societal structure, and for the purposes of this paper accounts for the needs and meanings in establishment of transportation technology.

The linear progression of information along roadways makes them a symbol of cognitive flows of information, with urban centers as the core or nodes of informational relay (Audirac 2002:219). The construction of roads is necessitated by the impetus to organize the movement of information (Audirac 2002:220-221). This information takes the forms of people, goods, ceremonies, etc, and the roads themselves form linkages between culturally valued resources (i.e. people, agriculture, space, etc.), while reflecting the cultural values and transport technology that motivated and enacted their construction (Hassig 1991:18). Furthermore, roads allow for increased integration of space as well as increase hegemonic control over the populace and political factions (Earle 1991:15). The increase in control over a populace is a reinforcement of dominant forms of communication. In order to operate within a system, a fluency in the communication of that system is necessary (Durkheim 2008:19).

In Mesoamerica the people who commissioned the civic built environment used space along with rituals to establish and then reinforce their authority over the populace that identified with the town (Ashmore 2005:40). Space was used in order to enforce a hegemonic control, shaping the ways that a populace would think in order to build a societal structure that could allow for infrastructural development. The habitual use of space by a populace continually reinforced the actions that occur there. The use of space is demarcated by its boundedness: there is a difference between continuous space, which enables human movement in any direction as unbounded movement, and discrete space, which constrains movement to certain links or connections (Gorenflo and Bell 1991:80). Roadways, while open air constructions, are bounded spaces directing the flow of movement along linear progressions.

Roads in the ancient Maya world were constructed of rock-filled beds with ground sand/soil, usually covered by a layer of lime plaster (Earle 1991:13; Folan 1991:222) and are termed *sacbe*, or white way. The difference between formal and informal routes, for example a *sacbe* versus a footpath in the jungle, is that formal routes are signaled by construction, engineering, and planning, as well as the structures that are required to enact these things like labor organization, skill progression etc. Contrasted to this, informal routes have minimal or no planning and/or maintenance (Trombold 1991:3). The structures studied in this paper, *sacbeob* (plural of *sacbe*), fall under the formal category of roads, which in the Maya area implies both structural and symbolic communications.

Fieldwork conducted from April to June of 2009 involved the mapping of primarily residential areas to the Southwest of the downtown area in the Late Terminal Classic (A.D. 850-1100) Maya site of Chichén Itzá. Approximately two square kilometers was mapped during the field season, consisting of primarily residential mounds, but including a couple of ceremonial/residential compounds evidenced by the presence of pyramidal superstructures, patio galleries, ballcourts, and sculpture, atop large platforms (large denotes the platforms measured at least 100 meters by 100 meters). At one such ceremonial group, named Pajaros by the Carnegie Mapping project, there are two *sacbe* (ancient Maya causeways) 30 meters apart running parallel to each other to two different destinations (fig. 1 carnegie map plus Pajaros and recently mapped areas). It is my contention that communicatory activity was the primary motivation in constructing these two structures that would be deemed redundant from a functionalist perspective, and that their functional aspects were of secondary importance.

Analysis of physical structures in archaeology usually adopts a functionalist methodology (Hassig 1991:18). This practice undermines the intentions and processes that went into the construction and organization of the space as well as neglects the suite of symbolic meanings associated with culturally mediated space, that cannot be seen by the purely necessary physical properties (Durkheim 2008:228). I will argue that a functionalist analysis of the two roads in question fails to account for their construction. A strictly functional constructive explanation would call for one road and perhaps a branch leading to individual structures, instead of the two parallel roads

separated by 30m running to separate structures. The presence of these two parallel roads in such close proximity is redundant when analyzed using functionalist methodology. Thus a different methodology is needed in order to fully address the issue presented by the evidence retrieved during survey.

Establishing the context of the environment surrounding these two sacbes, i.e. the physical and cultural surroundings, is necessary in order to address issues of meaning and purpose in their construction, upkeep (Whitley and Hicks 2003:89), and the relationship they established between the groups they link and the entirety of the site of Chichén Itzá. To this end I will include a description of the Pajaros group and the two sacbes in question, along with the methodology and data gathered on the Pajaros group during the summer 2009 field season. This will be followed by communication and city planning theory with an emphasis on the analysis of roads and transportation infrastructure as methods of semiotic communication, and their application to the project. Finally the topic of roads in the Maya area will be topics.

Chapter 1: Road Theory

The interlocking nature of Maya roads allowed for the movement of goods and people across hard to navigate terrain creating a good communication network (Folan 1991:224). Communication, as it is used here is meant to mean the transmission of information across space and time, is composed by a variety of numerous human acts or behaviors (Littlejohn 1978:21). Transportation is a form of communication in that it involves the movement of people and goods, and the ideas that correspond to each. Therefore transportation technology like road construction can be construed as a communications technology, making transportation infrastructure a form of communications media (Meyrowitz 1985:116). Operating under the assumption that socio-economic and sociopolitical structures, and spatial organizations can be understood by the coordination of routes and boundaries (Willey and Shimkin 1987:52) I posit that sacbes help aid in communication and are a form of communication. Furthermore I hope to expound on the properties of communication and state how human beings, through which information vital to survival in both a social and purely physical sense is transmitted.

Through interaction, humans communicate and form social networks enabling them to mediate the physical world in which they exist. Communication serves to link, advance, and regulate thinking processes individuals (Dance 1979: 238). Thus a physical manifestation of communication would serve to reinforce exiting structures of thinking and reproduce communicatory methods as a whole. In terms of

transportation technology, in this case roads, the method of transportation is a communicatory act and therefore was reinforced by the use of the roads.

The interactive nature of all communication necessitates the placement of physical apparatuses to aid in the transmission of information. There is a dialectical relationship between symbolic communication and the physical apparatuses that make them possible. This is the primary purpose of the two parallel sacbes running South from the group of Pajaros in Southwestern Chichén Itzá, and can be seen in all aspects of their “life,” or rather their construction, use, and final neglect. Not only was the construction of the sacbes implemented through communicatory apparatuses, but it was in itself was a communicatory act. The communicatory apparatuses embedded in the sacbe can be seen through the physical relay of information via individuals traversing their paths, and through the symbolic meaning implied in the linking of the termini of the sacbes. Communication is necessary for the development of complex structures, and even further human communication precedes complex human organization, or structuring (Dance 1979: 236).

Communication is a process composed by a variety of numerous human acts or behaviors (Littlejohn 1978:21). Transportation, arguably one of the earliest forms of communications technology-transportation infrastructure (Meyrowitz 1985:116), and construction are two of such human processes of communication. Transportation networks function as symbols of prestige, linking two areas to each other (Hirth 1991:211). The prestige embedded in transportation networks extends beyond their

mere presence, to factors such as the mobilization of labor, to create prestige via the ability to govern.

Furthermore, communication occurs in relation to its environment.

Transportation structures are physical interplays between environment and the individuals, people and social institutions that commit communicatory acts. The subjective meaning proposed by communication, i.e. the meaning conveyed from the mode of information transmission to its interpreter is created and changed through participation in experiences of others at the level of community or society (Hardt 1975:90). Furthermore, communication and Identity are constructed in a reflexive relationship with one another (McCall 1976:182). The interaction with the individual and the environment gives a definite shape to identity of the individual, which can be taken to mean social group. The embedded nature of communication within human activity is undeniable. Human organizations will always contain the functions of individual communication (Dance 1979:241), due to the fact that individuals enacting communicatory activities create these organizations.

Every act of communication has two important messages, report and command (Dance 1979:241). The report is the relaying of observable facts on the part of the communicator's state of mind (subjective view), and the command is the actual conveyance of those facts. In terms of communicatory (ergo transport) infrastructures this takes place during conception, inaction, and practice upon them. For sacbes, the plan to build, the actual construction, and the use or disuse portrays these principles.

Audiences tend to be large and heterogeneous, messages are public and open;

messages are generally one way—audiences are impersonal and anonymous; most messages originate from large organizations instead of individuals (Littlejohn 1978:324). Constructing sacbes are a form of mass communication, however, there is the chance for two-way communication through the defacement or disuse of the structures. Habitual use reinforces and reifies the messages that were delivered through their initial construction. The organization of space and place is a categorization of belonging, of determining otherness and group identity (Grossberg 1996:175).

All social groups are formed of individuals and properties of communication are projected onto the social group/organization via the actions of individuals (Dance 1979: 239-240). Communication technology is a form of cultural infrastructure that requires invention, construction and maintenance by cultural forces (Neuman and Smith 2010:21). Cultural infrastructures function in a way that reproduce and build social and cultural patternings (Ashmore 2002:1172). The type of development and construction required for the creation of communications technology such as roads relies on pre-existing modes of communication that enable the complex mobilization and direction of labor (Rykwert and Atkin 2005: 1).

The organization of labor used to construct the sacbes was accomplished, by an individual entity, which is to say a group of people with a definite agenda, or an individual person with a definite agenda. The construction of the sacbes was intended to proliferate or effectively communicate that agenda, and therefore spread whatever message needed to be spread (Dance 1979: 240). A city is a monumental form of

communicatory organization and interaction, and serves to present a paradigm for the smaller scale forms of communication and interaction (Dance 1979: 240). It is within the city of Chichén Itzá that the context of the Pajaros and its sacbe are present and whose core structure they imitate (Cobos 2003: 159). Understanding the nature of both Maya sacbes and the city of Chichén Itzá is essential to understanding the nature of the embedded meaning surrounding the Pajaros group, and thus the nature of the Pajaros group sacbes.

Chapter 2: Causeways and Construction in Mesoamerica

Status can be determined through the physical manifestations of behavior that combine personal or minority group gain in the organization and investment of resources for a product, i.e. material culture. This can be seen in constructed spaces such as buildings or roads (Tourtellot, et. al 1992:81) where the designation of space plays a hegemonic role in determining the actions of individuals. The presence of ceremonial constructions at Pajaros suggests an elite presence extended far from the site core of Chichén.

At Sayil, a Late Classic Maya site in Puuc hills, major architectural complexes are connected to each other via sacbe, in the fashion of “beads on a string,” while commoner residences lack the formalized constructive connection (Tourtellot, et. al 1992:94). This displays not only a differentiation between construction projects, wealth and overall status, but also establishes a patterning relatable to the evidence presented from the organization of the Pajaros group and the surrounding buildings. These more highly specialized and planned out areas were necessary for the communication and cognitive conceptions of elite status and the implementation of elite activity, administrative, ritual, or otherwise (Ashmore and Sabloff 2000:17).

Ancient Maya emphasis on the correlation between constructed space and prestige can be seen in epigraphic analyses of place names involving references to sacred geography, and or mythical entities confirming that the Maya built environments that mimic their surrounding physical and metaphysical landscapes (Christenson 2001:1; Martin 2004:6; Stuart 2004:2-3; Tourtellot, et. al 1992:94;

Wagner 2000:163). The emphasis on the naming of spaces plays on the role of space in connection with identity in relaying some sort of message to the populace (Stuart 2004:5). These named spaces are necessary for specific types of symbolic communication integral to the societal functioning to occur. Hence, the constructions of Maya cultural spaces had a meta-functional intent that goes beyond the reproduction and production of societal beliefs such as mythology and cosmology (Ashmore and Sabloff 2000:21; Bolles and Folan 2001:300-304) and is both a production and reproduction of Maya culture. Specific acts are linked to landscapes, and re-creation of these landscapes correlates with the re-creation of these acts, thereby indexing (Hanks 2000:124) the events and messages of the original acts and landscapes. Landscapes effectively create a juncture in space and time to the event being recalled (Orr 2001: 59; Reese-Taylor and Koontz 2001:12).

Jeffrey Stomper (2001:205) asserts that although causeways were probably used for transportation, the underlying purpose of Maya causeways was to unite two discreet areas. The linking of two places with another connects the meaningful ideologies associated with both and communicates importance between the discrete spatial entities. This idea is exemplified at Tikal, where causeways running through swampy land physically connect key locations of the site core and in turn symbolically connecting the important spaces and defining the core of the site through physically manifestation connections (Stomper 2001:206). Similarly, at Copán elite residences are linked to the site core by two main causeways running east and west from the site core (Stomper 2001:213), while at Sayil the important structures are linked by one

continuous sacbe (Ashmore and Sabloff 2000:27; Tourtellot, et. al 1992:94). The physical connection of space that the sacbes provide is the basis for functional analysis of sacbes. It is easy to discern that if there is an easily traversed path between two places it was physically used for transportation between the connected places.

Similarly, the symbolic linkage is the essence of the meta-functional analysis of the sacbes, which allows investigation into the deeper cognitive framework in which sacbeob operate.

The concept of grand labor investment can be seen in the monumental sacbes that connect Ucí to Cahnsacab, Izamal to Aké, and Yaxuná to Cobá (Kurjack and Andrews V 1976:323; Villas Rojas 1934). These sacbes show a huge investment of labor by the people of the connected communities, as well as a physical manifestation and linkage between the two townships. An alliance between these two separate communities is communicated via the construction of their respective roads (Kurjack and Andrews V 1976:323).

Furthermore, sacbes acted on and communicated ideas to the inhabitants of their respective communities. Folan mentions the use of ramps as control checkpoints, as ways of delimiting the people who enter an area of elevation, and thus creating a dichotomy between those who are allowed to enter and those who are not (1991:223). Expanding on this idea, it might not be that just a privileged class of people are allowed to enter a specific space, but rather that entrance to a space was a privilege granted to common people in a controlled fashion, so that it was seen as a momentary reward or a positive reinforcement of some kind.

A Mesoamerican analogue to the Maya use of ramps is seen at Xochicalco, Morelos. The presence of causeways at Xochicalco signals the use of constructed roads to limit access to certain spaces. Due to the military fortification of the site this was probably defensive in nature, giving an explicit meaning to the constriction of space, stay out (Molina and Kowalski 1999:146)! The causeway at the southern entrance of Xochicalco is wide and paved and ascends the hill that makes up the site core in a northerly direction. It formed the main axis of urban design and determined the orientation of all the main buildings there (Molina and Dowalski 1999:146-147). This orientation of the site along the lines of the causeway presents an example of site planning mimicking the methods of physical communication.

Ramps were employed to structure population movement within the site (Hirth 1991:214). More examples of the limitation of movement are evidenced by the variability of width in the causeways at Xochicalco. Thoroughfares at Xochicalco (inter-site causeways) vary between three and five m in width and are paved with a mosaic of rough cut stones about 25 to 50 cm in diameter (Hirth 1991:216). The construction methodology is akin to that of the Maya.

Several stretches of road were flanked by walls to help channel movement within the site (Hirth 1991:216), a constructive technique reminiscent of the steep drop-offs and correlating wall present in *sacbe 1* at Chichén Itzá. The roads at both Chichén Itzá and Xochicalco were constructed during the epiclassic (A.D. 650-900). The presence of ramps was not all defensive in nature, they also allowed and eased vertical movement within the site (Hirth 1991:216). These connecting roads

differentiated the high, defensible ground from the lower less defensible terrain, emphasizing the privilege given to those allowed to traverse and access the higher ground. Public and private use is defined by the ease of access to certain buildings. If anyone is able to access a building, it is public, while private buildings have restricted access, in the case of Xochicalco this is seen with the of ease of access to the central plaza, and the much more restricted access to the buildings surrounding it (Hirth 1991:217). The causeways symbolically represented not only differentiated defensibility within the site, but also delimited access and control of the architecture within the site using a physical differentiation between those allowed to access certain spaces and those kept out, and thus placed inhabitants of the site into two categories: those with access and those without.

The presence of sacbeob at Dzibichaltun signals growth within the site (Kurjack and Andrews V 1976:322). In order to construct roads, there needs to be a populace to both produce a need and means for their construction. To construct a road a certain social infrastructure must be present in order to organize the construction, along with a minimum population in order to construct, while not taking away from other activities such as farming, craftsmanship, etc.

Chapter 3: Chichén Itzá

Chichén Itzá means “mouth of the wells of the Itzá” in Yucatec Mayan (Morris et al. 1931:4), and is an ancient Maya city located in the northern part of the Yucatán peninsula, about 2 km East of the modern town of Pisté. Chichén Itzá sits on top of an elevated limestone shelf, with deposits of calcite with soil accumulation through rain-wash (Morris et al. 1931:1; Tozzer 1957:1; West 1964:70-73). Limestone was utilized to carve the blocks that made up the stone buildings of the city, as well as the beds of its *sacbeob*, or roads (Tozzer 1957:1). It is designated as a Maya city due to its geographic location in the middle of the Maya area, presence of Mayan glyphic inscription and the artistic and architectural homogeneity it shares with other Maya sites (Spinden 1975:14-16).

Early architecture at Chichén Itzá is Puuc in style (Tozzer 1957:14), possessing the “range structures” with corbel vaults, high facades with frets, latticework, and woven designs, monster masks, and split columns or colomnettes sometimes divided by bunches, as well as North South axial alignment of buildings, a corpus of traits associated with Uxmal and surrounding Puuc sites (Tozzer 1957:13-14; Pollock 1980:1, 561, 568; Kowalski and Dunning 1999:279). A dominant principle in Puuc architecture is the alignment of buildings East of North by a few degrees in their orientation, but sometimes up to 30 degrees, although this is rare (Pollock 1980:562). Tozzer asserts that monster masks from early constructions are characterized by a mosaic construction, while later masks are carved from a single stone, possess drooping rather than upright nose-plugs, elaborate ear ornamentation, upper and lower

jaws with lateral fang arrangement, and an emerging head (1957:124), but the presence of both mosaic monster masks and their single complimentary single stone counterparts on the façade of the Temple of the Warriors (Morris et al. 1931:25-35) disproves this claim.

Some stereotypically architectural features of Chichén Itzá are temples with columns, terraces, patio-galleries, talud and tablero buttresses, panels, daises, benches, serpent ballustrades, Atlantean Columns, round structures, benches, ballcourts, sweatbaths, sacbes, and pyramidal structures (Morris et al. 1931: 13; Tozzer 1957:68-92). Terraces in Chichén are usually faced with stone and plaster floored (Tozzer 1957:68). A reoccurring theme in ceremonial/civic cluster are platforms with pyramidal structures, altars, terraces and causeways (Cobos and Winemiller 2001:289).

Patio galleries are variable in layout, but usually possess an unroofed center surrounded by round columns which probably supported a wooden roof, with an entrance through a portico, or a colonnaded front (Tozzer 1957:79). Structures in this style include “the Mercado,” Structure 2D6, the Temple of One Thousand Columns (a large patio gallery with smaller patio galleries within it) (Tozzer 1957:79-80), as well as structures outside the central core of Chichén Itzá (Stone 1999:314) including structures within the *Pajaros* group, and the two groups connected to Pajaros via the sacbes mentioned in this paper. Benches are elongated seats running around the back and often sides of a room (Tozzer 1957:18). Atlantean figures are male figures used to support structures, and are present in later Chichén constructions, such as in the altar of the Temple of the Warriors, which in addition to possessing Atlantean figures,

also exhibits sculptural reuse in its construction (Morris et al. 1931:19, Tozzer 1957:89).

Pyramidal structures occur in various forms at Chichén, from the truncated version with superstructure seen in Temple of the Warriors (Morris et al. 1931:13), Mesas, Monjas, etc. to the more geometrically traditional pyramid such as the *Castillo*, and the Temple of the Grave of the High Priest, also know as El Osairo. The pyramidal constructions in the Pajaros group, and at the sites adjoined to it by the sacbes addressed in this paper adhere to the structural patterning of the geometrically traditional types .

The ballcourts at Chichén Itzá are mostly oriented along a North-South alignment, which signifies the interrelated directionality and embedded nature of constructive ideologies within the city's planning (Tozzer 1957:136). In other words similarity in construction is seen in the consensus of directional alignment of the ballcourts. This represents an established ideology that is reproduced with the intent of creating analogous environments that allow for specific types of communication (Goodwin and Goodwin 2001:3), be it martial, religious, political etc. (de Montmollin 1997:38; Aguilar 2002:4, 9) Following Tozzer's classificatory system, which was based on the one used by Acosta and Maldonado (1946), ballcourts can be separated into 3 types: type A has a low bench with a vertical or slightly sloping face with an inclination between 20 and 40 degrees on the walls, type B has no bench and the walls rise vertically then slope slightly up to another vertical wall at the top, and type C has a perpendicular wall rising directly at the back of a low bench with a vertical or

sloping face (Tozzer 1957:137-138). It is my position that the differentiation in ballcourt types shows that the overall structure is, i.e. that of a ballcourt, is the importance of the construction, and that variation is attributable to some subsidiary communicative aspect.

The importance of water sources can be seen in the nature and construction of the *sacbes* that lead to them. *Sacbe 1*, for instance, leading from the Gran Nivelacion to the sacred cenote, is roughly 5 m wide, oriented north-south, and built up with core-veneer walls two meters high in some places, in order to create an even flat slope leading from the Gran Nivelacion to the cenote. In a similar manner to the causeways at Xochicalco, *sacbe 1* delimits those who have access to the sacred cenote. This delimiting aspect of *sacbes* is part of the embedded communicatory symbols.

The easily erodible and porous nature of the limestone bedrock that makes up the Yucatan peninsula means that there are little to no natural bodies of water (with the exception of cenotes) (Morris et al. 1931:1; Jones 1995: 2). The city of Chichén Itzá lies within the arid sub-tropical zone, a fairly dry climatic area, with little to no rain fall from January to May (Morris, et al. 1931:1). Due to this, water sourcing and management were a priority for the Maya living in the area.

The Maya at Chichén Itzá utilized natural water sources known as cenotes, natural sinkholes filled with water formed by erosion and fed either by a natural water source such as a spring or by being deep enough to allow for access to the natural water table in the case of cenotes deep enough to reach it (Tozzer 1957:2). Water management at Chichén Itzá consisted primarily in the use of *chultuns*, subterranean

sisterns often lined with plaster for water-proofing and containing a vaulted ceiling so that it did not collapse in on itself (Tozzer 1957:2; Spinden 1975:2). The water table at Chichén Itzá is generally too low to be reached by digging a well, but there are some places, such as the *pozo de la vieja* where the sharp decrease in elevation makes it possible to dig wells that reach the water table (Tozzer 1957:3).

Buildings in the southern portion of the core of Chichén Itzá, or “Old” Chichén, consist of *Monjas*, *Akatzib*, *Caracol*, *Temple of the Three Lintels*, *Casa Colorada*, the *House of the Deer*, and The Temple of the Phalli (Tozzer 1957:18), which are constructed in a style conforming more towards Puuc in architectural features. The delineation between building phases at Chichén Itzá is demarcated by structures constructed in a more traditional Puuc style specifically linked to Uxmal, such as those mentioned above and structures constructed in the Late Terminal Classic Pan-Mesoamerican ideology. The latter type of constructions are found in the downtown area, or “New Chichén,” which sits atop the Gran Nivelacion, and is characterized by patio galleries with collonades, like the Group of 1000 Columns, the presence of Atlantean figures exemplified at Temple of the Warriors, Mesas, and large pyramidal structures such as the Castillo or the Temple of the High Priest’s Grave (Morris et al. 1931: 5; Tozzer 1957:19, 41, 42; Jones 1995:348; Cobos and Winemiller 2001: 289; Kristan-Graham 2001:324).

The changes in architecture, as well as prodigious building program in the ninth century (Cobos and Winemiller 2001:289) at Chichén Itzá signals an influx of new ideas, beliefs, and rituals (Tozzer 1957:32). This can be seen in the artistic differences

of between representations of nose-plugs, with the older more Maya tradition being represented through septum piercing nose plugs and the newer ideologically shifting representation of the button nose-plug seen in the sculpture of the final phase of the Temple of the Warriors (Morris et al. 1931:483).

There is an ongoing academic debate about the chronology and culturally identity of the city's occupancy. One posited idea is that the florescence of the city did not occur until a foreign military intrusion corresponding either to the long-count date 10.8.0.0.0 (A.D. 968-987) (Roys 1933:204; Morley 1946:87), 10.6.0.0.0 (Ad 948) (Thompson 1970), . The other side of the argument states Chichén Itzá was an autonomous polity that adopted a new world religion to gain legitimacy and spread its influence into the surrounding area through a combination of ideology and militarism in the Late to Terminal Classic (A.D. 800-1000) (Ringle 2004:169, 213).

The increase in Chichén Itzá's zone of influence is seen in through the adoption and shifting of architectural and artistic elements at both Chichén Itzá and other contemporaneous Maya sites such as Uxmal (Kowalski and Dunning 1999:288-290). Some view the new ideology as being a justification for the political shift from a single ruler to a joint-rulership, or *multepal*, form of government, which can be seen in changes in architecture, art and iconography (Stone 1999: 317). Schmidt and Wren argue that the changes in architectural and artistic styles that occur after a specific period of time at Chichén Itzá, show subordination indicative of a foreign military presence, deemed a "Toltec" invasion that affected the indigenous religious beliefs, ritual activities, as well as political and social patterns (1991:200).

Kristan-Graham urges that the labels “Maya” and “Toltec” be used in reference to the change in Chichén Itzá governance. An earlier architectural style (namely Puuc and Puuc variations) in the final incarnations of monumental buildings exists in the Southern part of the Core of Chichén Itzá and is thus considered to be “old” Chichén, while the Northern sector displays later artistic and architectural components and is thus dubbed “new” (Kristan-Graham 2001:324). These buildings strongly resemble the architectural corpus at Uxmal, with the best example being seen in the Temple of the Three Lintels (Kristan-Graham:324).

Surface collection of ceramics in the Pajaros area shows no evidence of the type of abrupt stylistic change that would occur in the presence of an invading force. Based on the data documenting the movement of soil and distribution of artifacts on the surface in this region of the Yucatán peninsula, it is safe to assume that surface collection gives a thorough sample size of ceramic presence. Regardless of why there is a presence of new architecture and art in the core of Chichén Itzá, it is undeniable that there are variations within the site, and both camps argue that the change in art and architecture is due to a shift in governance (Stone 1999:299, 313).

“New” Chichén style, sometimes referred to as “Toltec” style, is characterized by colonnades, a single or double chambered structure on top of a stepped pyramid base, pyramidal summits, decorated pillars supporting perishable roofs, and motifs (described as Mexican) of Atlantean figures and *chak mol* sculptures, as well as bas-reliefs with glyphs near the heads of figures (Kristan-Graham 2001:324). The presence of these architectural aspects signals that civic-ceremonial structures

mirroring the large centralized core of Chichén, combined with the interlocking nature of the many sacbes at Chichén linking the architectural groups to one another suggests that these groups functioned in a similar, albeit smaller fashion to the structures they mimicked at the core of the site (Cobos and Winemiller 2001:286, 289).

Chapter 4: The Pajaros Group

The Pajaros Group is located about 5 kilometers southwest from the downtown core area of Chichén Itzá (fig.1). During the 2009 field season roughly 5 square kilometers were mapped using a combination of total station line of site three-dimensional mapping along with geodata coordination using a handheld Garmin GPS data collector (fig. 1). The area mapped consisted primarily of residential mounds, but included some ceremonial structures.

The mapping was possible due to a systematic transect survey, where workers cut transects (paths) through the wooded area extending south and west of the Monjas complex (fig. 1). Major transects were cut in the North-South direction, with 100 meters separating them on the east west axis. These transects were labeled with letters. Minor transects extended off of these every 100 meters in alternatingly east and west directions. These transect were labeled with the letter of the most westerly North-South transect combined with a number of increasing value from North to South.

Identification of the mounds within this area occurred by walking the various transects, sighting a mound, going to investigate it and upon validation of the mound as a structure, marking it with tape for clearance. Mounds were then cleared by workers and mapped with a total station by the archaeologists. Archaeologists would also draw a sketch map of the structural features on the mounds, as well as coordinate a team of workers to gather ceramics on the surface of the mound, and record the presence of sculptures, or other significant features.

The purpose of total station mapping is to attain data that can be transferred to a digital file in order to create a three dimensional topographical representation of the area in question. Points were taken by having a worker walk around the mound with pole and systematically stopping to take a point with the total station. The mounds were mapped by identifying a corner of the mound and positioning a worker to walk a path oriented orthogonally to one edge and parallel to the other of the two intersecting edges on the corner of the mound. The worker would then walk along this line stopping to take a point every three meters unless there was a drastic change in the slope of the mound. In cases where architectural features were encountered the worker would begin by taking points at the corners of the base of the feature, and then take the points of the corresponding corners at the apex of the feature. If the feature was circular, points were taken along the base of the feature making sure that the arc length between each point was at most separated by the previous point by an arc length of one meter. This was repeated in intervals of one meter up the slope of the feature, or as determined by changes in the coefficient of the slope of the feature.

After the mound was mapped using a total station an archaeologist would then draw a sketch map of the mound and coordinate a systematic surface collection of artifacts on the mound. The sketch map was drawn by walking along the mound in order to pace out estimations the measurements of the mound, and determine where architectural features of the mound fit in with those measurements. The sketh map was then combined with the spatial data from the total station in order to create an

accurate topographical map to determine location of mounds and architectural features in relation to the rest of the site.

A digital conversion process translates the numerical x , y , and z data of each point recorded by the total station into a three-dimensional graphic representation using a combination of the programs GlobalMapper, Surfer and ArcView GIS. The purpose of this three-dimensional graphic is three-fold. The First, it allows us to identify structures that may have been missed by sketch mapping of structures. Second, it allows for a rigorous and exact template on which to overlay sketch maps, giving a much more accurate record of the location and placement of culturally constructed space within our maps. Finally, it gives us the elevation and volumetric proportions of structures adding, an extra element towards spatial analysis that is lacking in two-dimensional maps. In the maps made during the 2009 field season there is an accuracy of 100 centimeters in the topographical data. The topographical maps included in this paper have topographical lines drawn every meter.

The most interesting mound group that was mapped during the fieldwork was the Pajaros Group (fig. 4) situated directly east of a platform with a pyramid possessing kukulcan (feathered serpent) sculptures. The Pajaros group is comprised of two platforms, the larger Pajaros platform, and the smaller Templo de las Tortugas platform. The name Pajaros is derived from the presence of veneer masonry along the walls of the patio gallery that spans the northwestern corner of the Pajaros platform that possesses bas-relief representations of birds. The majority of the sculpted stone

has been removed to the onsite museum at Chichén Itzá, but there are two remaining blocks (fig. 5) showing the representations of the birds.

The Pajaros platform is a large, multi-tiered platform with a pyramidal structure in the centermost section of its top tier, a patio-gallery in the northwestern corner of the top tier, and numerous range structures scattered throughout all tiers of the platform. The top tier of the platform is between five to six meters from the ground on the western side, and one to two meters on from the ground on the eastern side. Due to the change in elevation I postulate that it was constructed on top of a limestone outcropping.

Also included in the Pajaros group is the Templo de las Tortugas platform, which is separated from the Pajaros mound by an alley that leads to the entrance of a sacbe (named sacbe alpha in this paper. The Templo de las Tortugas platform has a pyramidal mound in its center with evidence of a corbel vault, which is the Templo de las Tortugas (named for the turtle sculptures found at the summit). Also on the platform, five meters directly east of the Templo de las Tortugas is small altar-like platform with evidence of cephalic sculpture.

To the west of the Pajaros group is a large pyramidal structure and corresponding mound with kukulcan sculpture, possibly part of a balustrade, and a dense presence of residential mounds. Similarly, to the east of Pajaros residential density is high, with many house mounds situated atop a couple of large low-lying platforms. To the south of Pajaros there are few house mounds, and to the north there is one large house mound and two sacbes that extend from the Pajaros group.

Throughout the Pajaros platform core veneer masonry is evident in the architecture, along with the remnants of Corbel Vaults, or vaulted structures. Also on the top tier there is a patio-gallery to the north of the pyramid, and an altar/shrine with Atlantean figures to the west of the platform. The lower tier also has evidence of range structures, as well as the only *chultun* (a lime lined water collecting pit dug into a ground level) lined with masonry that we found during the field season.

The chultun is noteworthy not just because it had limestone block walls leading up to the ceiling lined with lime, but also because there was a prominently carved channel, leading from the upper tier of Pajaros, down to the lower tier where the opening of the chultun sat. The presence of this well constructed water management technology points to residential functioning of the Pajaros group in addition to the ceremonial functioning evidenced by the presence of a pyramid, altar, and patio-gallery.

There are two sacbes, or causeways, parallel in orientation and separated by 18 meters on the east-west axis of the platform, that extend from the southwestern corner and southern edge of the Pajaros platform and Temple de Las Tortugas respectively, traveling south from the Pajaros group. These causeways have yet to be assigned numbers, in the tradition of causeway identification at Chichén Itzá (see Cobos and Winemiller 2001), and so here will be referred to as sacbe alpha and sacbe beta (fig. 4). It is safe to assume that the roads were constructed around the same time as the groups they connect. Routes must be contemporaneous with the points they connect

(Trombold 1991:5), otherwise there is the creation of a road to nowhere, a useless edifice leading to nothing.

Both sacbes were covered by soil and found by identifying a sacbe entrance, signaled by the presence of a ramp leading from a platform into the surrounding vegetation, and the direction of its orientation as it left the Pajaros group. To determine the extent of the sacbes they were test-pitted every 20 meters in a linear fashion along their orientation, to identify the further progression of the sacbe. If the test pit hit evidence of the sacbe, then a thin line (less than a meter in width, and spanning the width of the sacbe in length) perpendicular to the orientation of the sacbe was excavated along a linear path originating from the orientation of the corresponding ramps that lead up to Pajaros.

Sacbe Alpha is the westernmost of the two sacbes and runs southwest from Pajaros to a group with multiple platforms that house a pyramidal structure, patio gallery, ballcourt and multiple residential mounds, about 500 meters south of Pajaros, henceforth known as Group Alpha (fig. 7). This ceremonial residential group is smaller in area than the Pajaros group, but possesses a similar plan in structures to Pajaros, and transitively to the core of Chichén Itzá.

Similarly, Sacbe Beta, the eastern of the two sacbes, runs a southwesterly course from the Pajaros group, parallel to Sacbe Alpha, and ends at an L-shaped platform with ceremonial and residential structures, called Group Beta for the purposes of this discussion, with a pyramidal structure, patio gallery, ballcourt and multiple residential mounds, henceforth called Group Beta (fig. 8). Sacbe Beta is

slightly longer than Sacbe Alpha, measuring approximately 600 meters and almost abuts against the group alpha at one point in its course.

The most interesting thing about Sacbe Beta is how seemingly redundant it is when considered with Sacbe Alpha. Both sacbes run parallel to each other, and never more than 20 meters apart. Furthermore Sacbe Beta comes within 5 meters of one of the platforms in Group Alpha. If pure transportation were the function of these two sacbes, then it would have been more efficient to construct only one sacbe.

The similarity in structures suggests that there were certain communicatory acts that necessitated specific environments, mainly the pyramidal structure, ballcourt and patio gallery. These structures seem to form a unit of bureaucracy. Due to the repeating nature of this pattern of these structures throughout the site of Chichén Itzá, and the correlation between their proximity to house mounds, sacbes and other occurrences of this urban layout, this seems to be a unit of necessary and planned organization. In the two square kilometers that were mapped during the 2009 field season, all the housemounds were within a roughly 200 meter radius of such a center. Areas outside of these radii were bereft of housemounds.

At the time of survey there were a couple of sacbeob found branching off of sacbe alpha and sacbe beta, leading to residential mounds, but all of these mounds were within the previously iterated 200m radius. It seems as if the Pajaros group and the respective termini of Sacbe Alpha and Sacbe Beta were the main focus of road constructions in the area. With the exception of the *chultun* at Pajaros, no other sources of water, or water management were found during the field season.

Chapter 5: Discussion

A large number of ancient Mesoamerican cities lack constructed roads. According to Joyce Marcus (1983:208) the indigenous mindset draws identity from the ruler who offers civic-ceremonial leadership and to whom the populace therefore owes allegiance and tribute. Assuming this to be the case, the presence of causeways, or constructed roads, signals an emphasis on the value the ancient Maya placed on communication. The construction of edifices, and cities themselves fits within the cosmological order that a population uses to make sense of the universe (Ashmore 1991:199). Architecture is a combination of symbols, and the Classic Maya used the composition of symbols to invoke levels of simultaneous meaning (Tate 1986:247). That is to say, the use of symbols invoked past events, suggesting that the Maya attitude toward the past was the events were never completed but were periodically reenacted and reoccurring (Tate 1986:247).

The emphasis on transportation, which was arguably one of the earliest forms of communications technology (Meyrowitz 1985:116), along with the presence of hieroglyphic script (Tourtellot et, al. 1992:94) coalesce in conveying the value of communication in ancient Maya ideology. Reinforcement in acts of communication is seen in the structure and planning of royal Egyptian cities that, much like Maya cities, mimicked the the order of the cosmos. Cities such as Thebes and el-Amarna provided manifestations of the cosmic structure of the universe (O'Conner 2005: 57). East-West and North-South orientations in Thebes meant to represent the daily East-West journey of the sun god Amun Re, as well as his seasonal North South movement

(O’Conner 2005:58). The purpose of all this was to retain the normative relations and societal structure between the city’s inhabitants (O’Conner 2005:66). It is careful to keep in mind that the Egyptian cosmological view differed from that of the Maya, but the role that roads played in communicating this was similar. This points to the embedded cultural meaning present in the existence of roads.

Spatializing reality is a production in time, that is to say by constructing material realities for the abstract thoughts that exist in cognitive spaces is done over time. It creates a spatial materialism, which involves rethinking being as a construct of space, with temporality embedded into such being (Grossberg 1996:179). This qualifies the labor investment that goes into construction of spaces. Roadways such as sacbeob when viewed as spatializations of time carry two types of prestige. The first being prestige based on possession and control of a physical structure, and the second being the prestige of being able to command the mass of humanity required for the construction of this edifice, which may or may not be for their benefit. The evidence from Sacbe Alpha and Sacbe Beta show this. A purely egalitarian road network would seemingly be constructed for maximum efficiency and not allow the creation of redundancy as is the case with these two sacbes.

At this point it is necessary to discern the difference between paths and roads, so as to nullify the argument that there are models of efficiency where lower density methods of travel run parallel to greater density methods of travel without creating redundancy (Taylor, et al. 2009:175). Paths are routes formed by repetitive individual

movements across space. They are informal, and usually irregular in order to avoid obstacles in the landscape.

Conversely, roads are comparatively regular with regards to paths. They are formal routes that require organized labor and planning, and utilize infrastructural constructions such as curbs, pavements, sidewalls, retention walls, and other aspects that aid in the physical upkeep of the road (Earle 1991:10-11; Hyslop 1991:29). However, due to temporality paths can become roads (when travel between two points necessitates increased organization) and roads can become paths, when travel between two points is no longer as necessary (Earle 1991:11). Paths are still used in the presence of roads. In fact most household-to-household interaction occurs along paths. Roads tend to have more formal and structurally semiotic purposes, playing a role in state ceremony and legitimization (Earle 1991:13).

In terms of space roads explicitly connect two points in space and give value to these points via the willingness and ability of peoples in the society to connect them (Trombold 1991:8). They are multi-functional entities capable of conveying multiple messages. Not only do they have a discreet physical purpose, with processes occurring on them repeatedly, but they possess a symbolic importance linking space and place that operates on a metaphysical level dealing with economic, political and spiritual meaning (Earle 1991:10).

Many roads are important because of their prior use, so construction of a new road might not be as efficient (Hassig 1991:25). Large Inca roads may have symbolized power of the state-backed up by presence of wide roads far from

population centers (Hyslop 1991:30). By controlling the flow of communication and goods the Inca controlled the populace under their control, using specific points along their road network as nodes of control, to narrow or expand the flow of communication, i.e. goods and people (Jenkins 2001:661, 666). Inca road system helped Inca maintain and expand political relationship due to direct physical linkage with conquered territory (Jenkins 2001:557)

Furthermore, roads signify an amount of stability within the area of their construction. It takes time to construct them, and with the type of investment necessary for their creation they are not likely to be abandoned. Thus the presence of roads signals permanent settlement (Hassig 1991:19). The construction of roads between impermanent settlements would be a huge waste of time. Roads serve to strengthen the permanent identity of a settlement, because they are an investment in the identity of the community. The linking of Groups Alpha and Beta by sacbes to the Pajaros Group was an identity-establishing act. Further strengthening of identity can be seen in processional rituals, which occur on constructed roads and can be unifying agents to strengthen inter- and intra-site ties (Orr 2001:56). The roads acted as a dialectical agent in maintaining and constructing associations between and within sites.

Examples of this can be seen in the treatment of the archaeological ruins of the ancient Chacoan culture. Chaco Canyon is located in the San Juan Basin in northwestern New Mexico (Sever and Wagner 1991:43). Chacoan culture is characterized by the presence of multi-story buildings with symmetrically organized

floor plans, possessing the presence of kivas (ceremonial chambers) and core-veneer masonry, as well as an extensive road network constructed around A.D. 1000-1150 (Mathien 1991:101; Sever and Wagner 1991:43).

Unlike the sacbe of the Maya the roads were constructed using masonry curbing, cuts in the earth, or carving into the cliff-sides, however akin to Maya causeways they used stone beds to level the terrain (Powers 1984:53; Mathien 1991:101). The roads are wide, 8-12 meters across, maybe for ceremonial foot processions. The width is somewhat puzzling in that there were no beasts of burden in the San Juan Basin during the time of the road's constructions, and foot traffic based on economic activities would never reach a level that would warrant the use of roads that wide (Powers 1984:53; Mathien 1991:101; Sever and Wagner 1991:42).

The purpose of the roads were unknown, but excavatory evidence suggests trade, ceremony, and political functioning (Judge 1984:10; Powers 1984:57; Sever and Wagner 1991:42). The most common postulate holds that the roads were part of a pilgrimage system (Judge 1984:9). What is clear is that the roads created a network of interaction and defined the Chacoan cultural sphere. They were obviously part of the Chacoan network, which worked to integrate communities over wide expanses (Judge 1984:10; Sever and Wagner 1991:42). Similarly

The evidence suggesting the networking of Chacoan roads can be seen in the spatial patterning of them. All roads converge on the two largest settlements in Chaco canyon, which suggests political importance in Chacoan civilization. Much like the sacbeob at Chichén, Chacoan roads radiate out from the center (Powers 1984:49; Earle

1991:13). The majority of smaller Chacoan settlements seemed to exist only because of the roads. Each of these settlements, ill-suited in proximity to water sources and agricultural land possess an edifice that corresponds to the road, which is usually the largest building in the entire settlement suggesting it is the most important structure (Powers 1984:51). This is similar to the control nodes present in the Inca road system (Jenkins 2001:661).

As many as 30 outliers can be linked to Chaco canyon via 6 major road system-Chaco canyon is hub (Powers 1984:52), suggesting a communicatory system that radiated out from the core and in from the outliers. The site of Pueblo Alto, connected to the Chaco Canyon core in the south via one of the major road, is a large settlement that lacks a great kiva, a key ceremonial structure, a feature that most other Chacoan sites of its size possess. This points to ceremonial purposes of the canyon core, as opposed to administrative functions the sizable Pueblo Alto had in controlling flow and volume of traffic along roads (Mathien 1991:102).

Chapter 6: Conclusion

Reality is a constitution of orientations, not histories, it deals with how one moves about and observes the movements of others through intersecting frameworks of conception (Grossberg 1996:180). Like the Durkheimian social fact (2008:247), the complete meaning of a communicatory act, like the presence or traversing of a road, is only viewable from the social framework used to construct it. To the participants in the social framework this meaning is undeniable and natural to the extent that it might not even be consciously acknowledged. While excavation of the sacbes, Pajaros Group, Group Alpha and Group Beta is needed to get at the more complete meaning represented by the spatial patterning inherent in their relationship, the message conveying vehicle can be seen through survey.

Discrete space is important in how it influences patterns of human movement-hegemonic reproduction of physical activities (Gorenflo and Bell 1991:81). Roads by nature guide and limit movement in the sense that they make it easier to traverse an area, and therefore lessen the chances, and in some cases make it taboo, to traverse an area in which a road is present without using the road itself. The presence of roads encourages movement, of physical symbols, which ultimately are communicatory entities.

Urban construction is undeniably a practice of delimiting of discrete space. Similarities and differences in among towns expresses shared world views shaped by local history (Ashmore 2005:35). The parallel structures that exist between the core of Chichén Itzá and its outlying platform groups such as Pajaros show a hegemony of

world views, which I propose comes from the elite of Chichén Itzá. Indeed, the meaning inherent within space comes from the beliefs and aesthetic values of the people who constructed the space and is reified through the instances of performatory acts that takes place therein (Reese-Taylor and Koontz 2001:10). There were communicatory acts linked to hierarchy and ideology at work in the construction and implementation of the sacbes.

Performance consists of individual usage of space to convey a message, using the interaction with space as a medium of communication (Reese-Taylor and Koontz 2001:10). In the case of Maya sacbes, the act of using the road makes an individual an actor, and displays the communicatory effect of the road. This is not to say that walking on the Pajaros sacbe makes an individual a full actor in a Maya communicatory framework, but there are remnants of this framework that even an outsider to the culture, in both chronological and cultural dimensions, can participate in. By repeating a performance, performing in a certain space there is the inevitable connection between previous actions performed in the space being referenced. Such activities can be used to, among other things legitimize the state and governing elite (Earle 1991:13; Inomata 2006:805).

Cynthia Kristan-Graham asserts that central Chichén was a place “intended for public spectacle,” based on the scale, decoration, and location of the buildings (2001:332). Expanding Stone’s idea that patio-gallery groups outside the central core of Chichén Itzá replicate the role and function of the major constructions within the central core (1999:314), it is feasible to see structures outside the central core of

Chichén that mimic the style of structures within the core of Chichén serving as symbolic referents to the structures they mimic (Cobos and Winemiller 2001:286). Such is the case of Pajaros, with the main group Pajaros possessing a patio-gallery and large pyramidal structure, being linked to at least two ceremonial-residential groups possessing the same structures on a smaller scale (fig. 3).

There is a cultural significance to be gleaned from the methodology of road construction. How roads were made determined the amount of work that goes into them, and thus the power of the organizer over the labor core that built them. Furthermore, added prestige or grandeur is added to a road that is made of foreign, or hard to procure materials (Trombold 1991:4). While materials and methods of building roads gives clues to the cultural significance of the roads the more important factor in assessing the cultural significance of a road is how the road fit in with the larger network it was a part of (Trombold 1991:4). The previous examination of Chichén Itzá shows that by displaying the parallels between the core area monumental architecture at the site and the smaller scale architecture at the Pajaros Group, Group Alpha, and Group Beta. These groups are microcosms of the larger core structures and architectural plans at the site, and transitively act as symbolic microcosms to ideologies present in the culture that identifies with the constructions.

Routes are significant only in the time they are used, therefore the architectural corpus is significant to the determining of the functioning of roads only if it is contemporaneous with them (Orr 2001:59). The complexity of roads, i.e. construction, planning, etc. points to the social organization required to maintain them

(Hassig 1991:25). Such organization extends beyond the actual building of roads and is present in their maintenance. This not only necessitates the organization of labor to build roads, but also the establishment of an infrastructure to ensure its upkeep. Therefore the relationship between the two termini of a road is to some degree determined by their upkeep. Since the Pajaros Group is the terminus of both Sacbe Alpha and Sacbe Beta, it's inhabitants were seemingly motivators in the construction of the two roads. Furthermore the proximity of the two sacbes, despite their lack of connection, except through the Pajaros group suggests that the factions present in the two groups were not directly linked, but instead functioned together through an intermediary. These two roads were parallel and functionally redundant, therefore their construction is linked to their semiotic values.

The development of a road requires increases in infrastructure, but with the increase of infrastructure, a decrease in specificity and purpose ensues. When there are many termini, the purpose of the road or network of roads may be obscured (Trombold 1991:6)

The purpose of roads may be further obscured by the varied processes that lead to their development, i.e. there is more than one reason to construct a road. However there usually is a paramount purpose to road construction and the evolution of the use of roads over time, via their maintenance and upkeep, or dynamism of the landscape (Trombold 1991:6). In addressing the relationships between the Pajaros Group, Group Alpha and Group Beta, there is a dynamic aspect that was greatly governed by the creation of their respective roads.

Furthermore since all human interaction is communicatory in nature, both the presence and construction of the sacbes creates a medium for communication. Roads can reproduce existing concepts or beliefs. They can be symbolic representations of myths or world views (Trombold 1991:7). Sacbe Alpha and Sacbe Beta may have strengthened the relationship of their respective groups to the Pajaros group, and further isolated Group Alpha and Group Beta from each other.

The control of information and goods was the primary purpose in the construction and maintenance of the sacbes in the Pajaros area. The parallel nature of the sacbes combined with the closeness in spatial proximity exemplifies the primary nature of communication and makes a functionalist interpretation of the sacbes impossible. If the primary motivation to construct the roads were economic, then it would have been much more efficient to only construct one road (Hassig 1991:25) that linked both groups to the Pajaros Group. The comparative evidence presented by other archaeological sites enforces the idea that roads were not mere functionalist apparatuses. They were not paths of least resistance cut through the landscape, but instead communicatory devices that did not obey laws of physical efficiency.

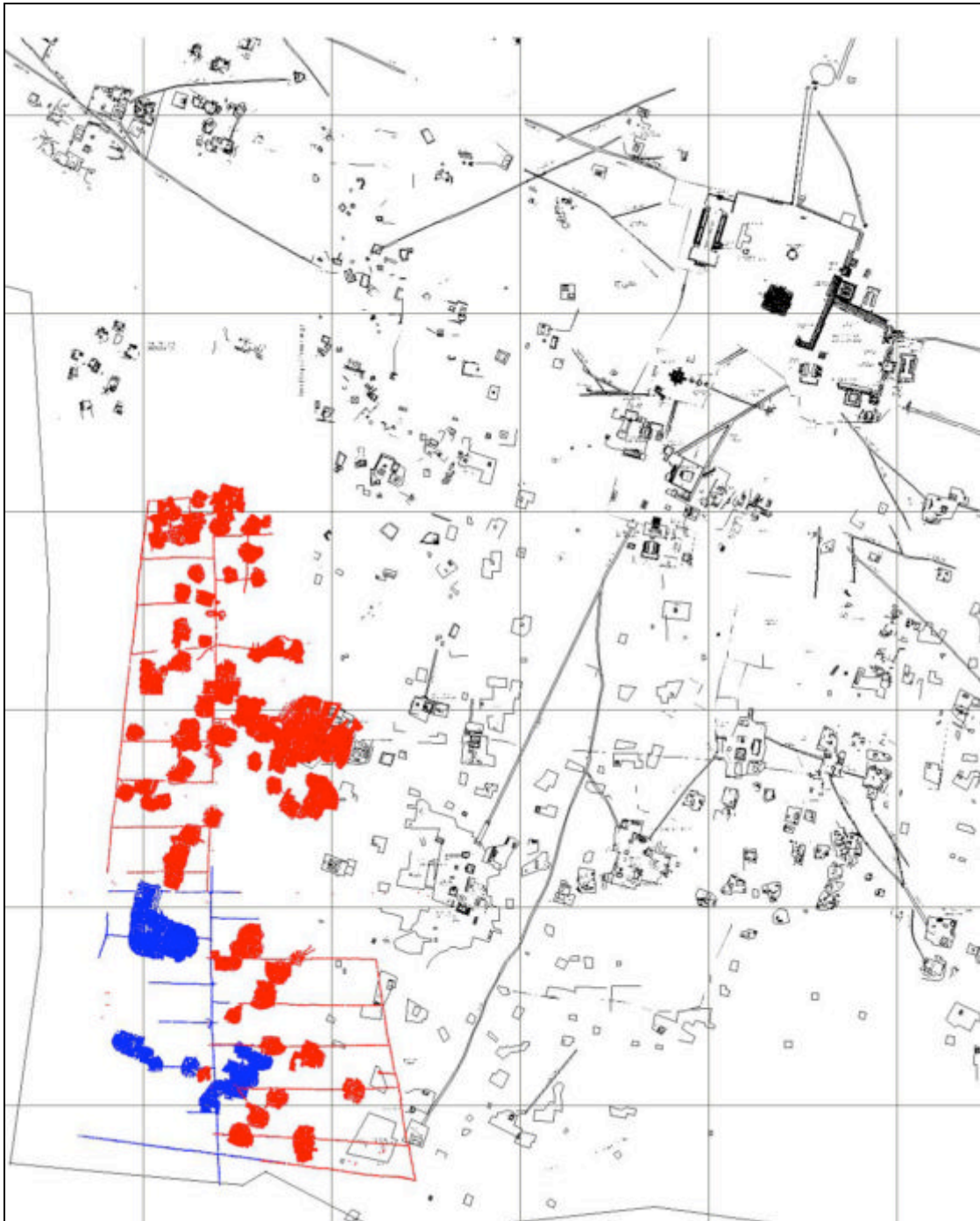


Figure 1: Map of Chichén Itzá (Ruppert 1952, figure 151) with topographical points from the 2008, 2009 field seasons added in. The transect lines (red and blue) are the straight lines running North-South and East-West. Mapped and compiled by Beniamino Volta, Misha E. Miller-Sisson, Rodolfo Canto, and Mauricio Germon Roche.

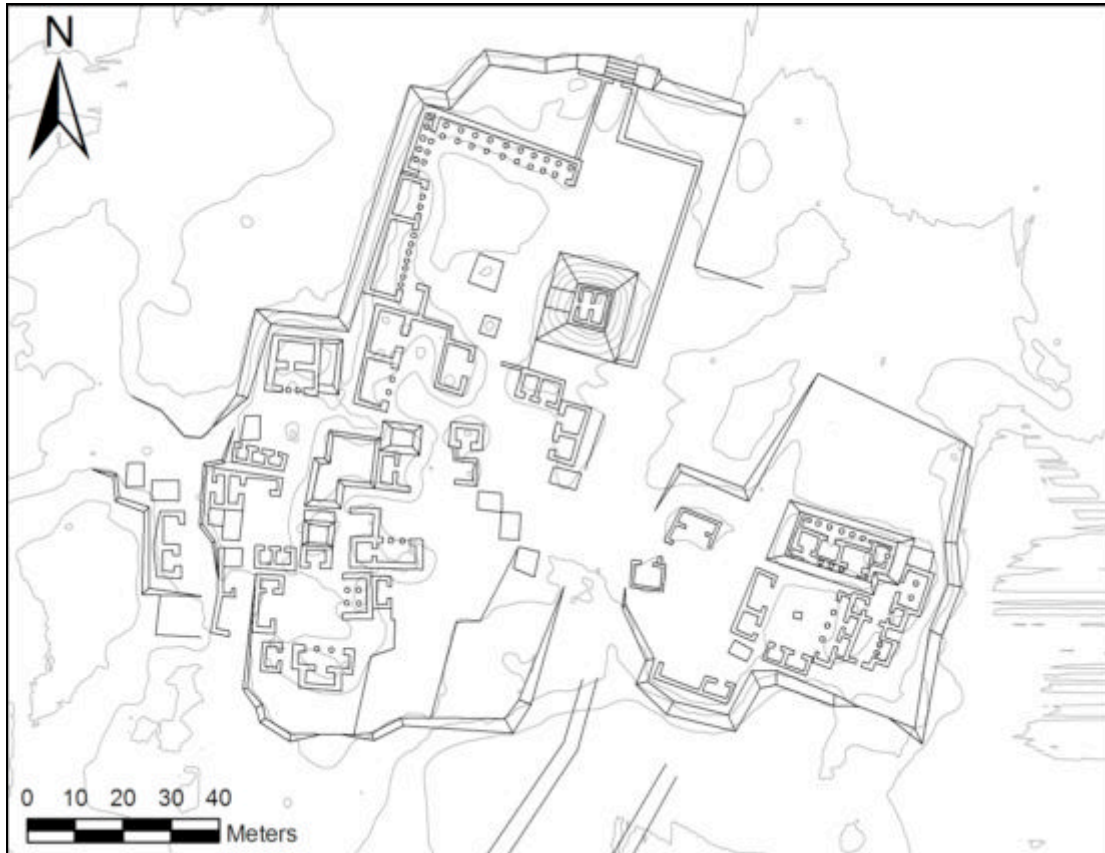


Figure 2-Pajaros Group connected to Group Alpha and Group Beta by Sacbe Alpha and Sacbe Beta respectively (topographical lines show 1 meter changes in elevation). Made by Beniamino Volta, Misha E. Miller-Sisson, Rodolfo Canto Carillo, and Mauricio Germon Roche.



Figure 3: The two remaining bird sculptures on Pajaros platform. Photographs by Misha E. Miller-Sisson

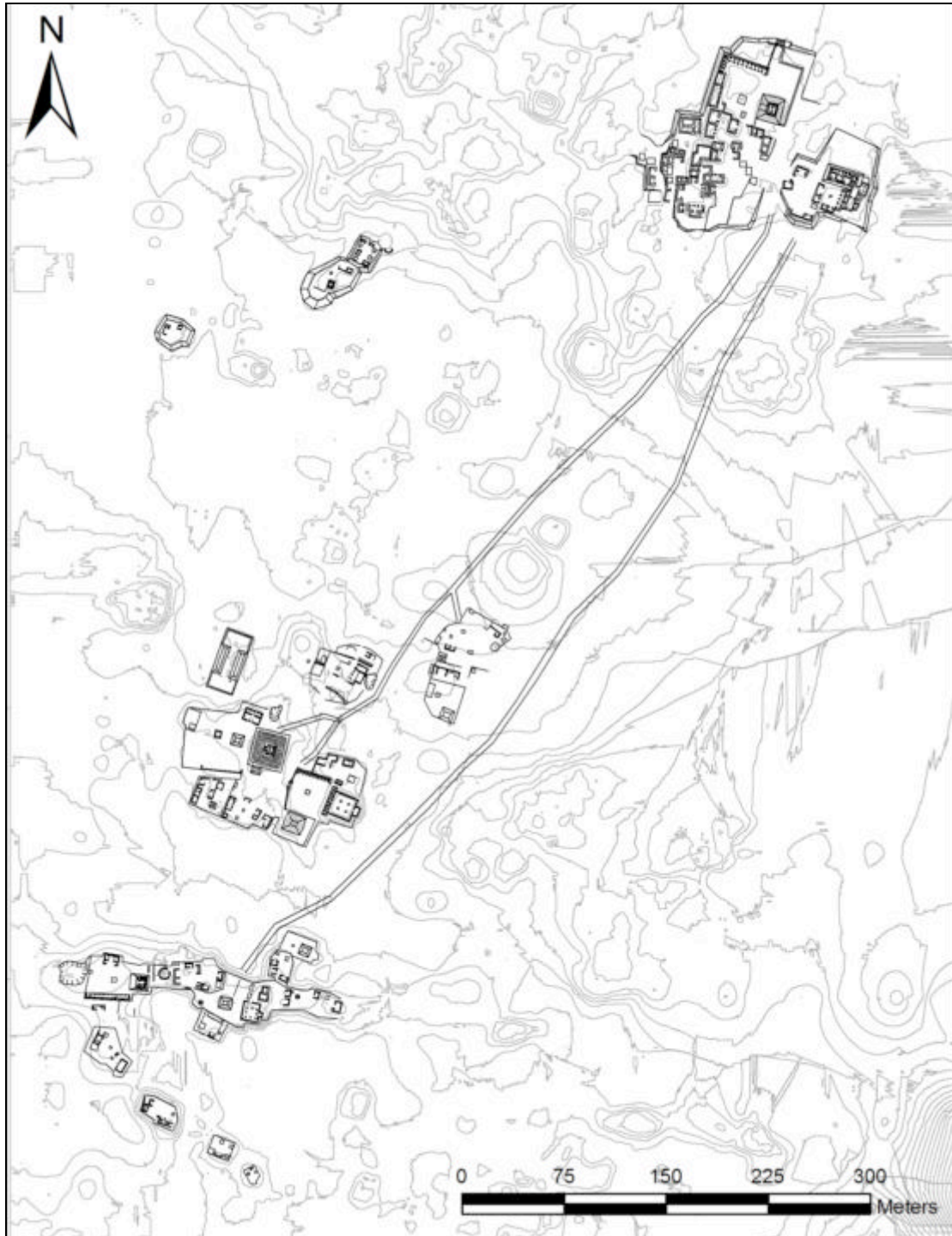


Figure 4: Pajaros Group, Group Alpha, Sabe Alpha, Group Beta, Sabe Beta (topographical lines show 1 meter changes in elevation). Made by Beniamino Volta, Misha E. Miller-Sisson, Rodolfo Canto Carillo, and Mauricio Germon Roche.

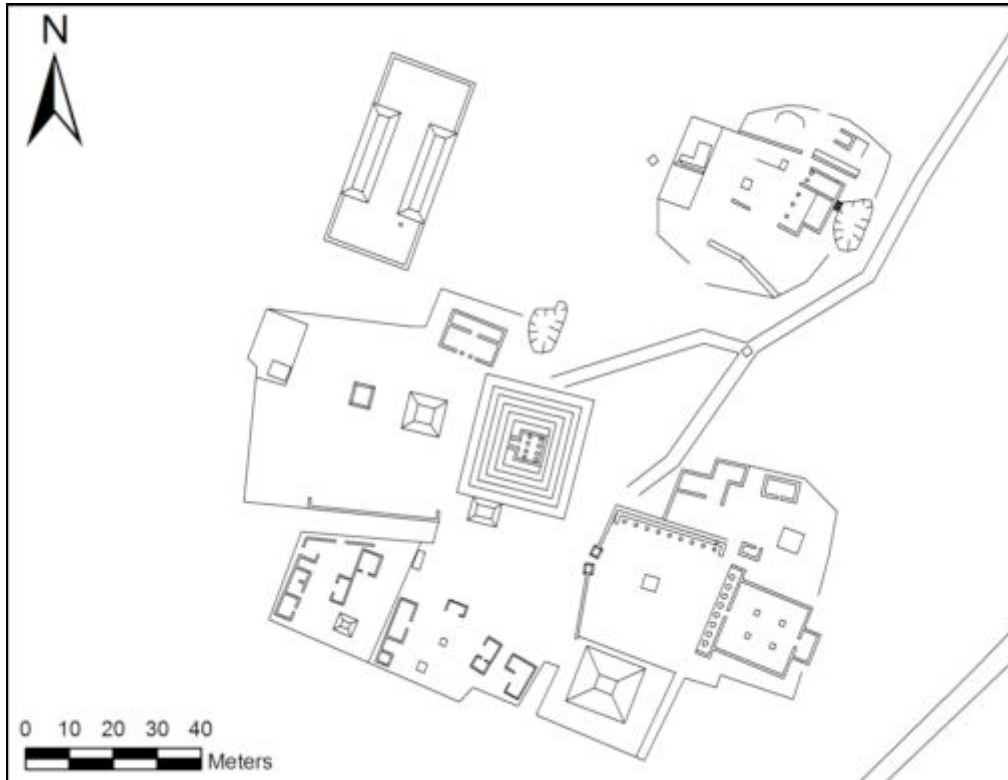


Figure 5: Group Alpha. Made by Rodolfo Canto Carillo, Dylan J. Clark, Mauricio Germon Roche, Beniamino Volta and Misha E. Miller-Sisson.

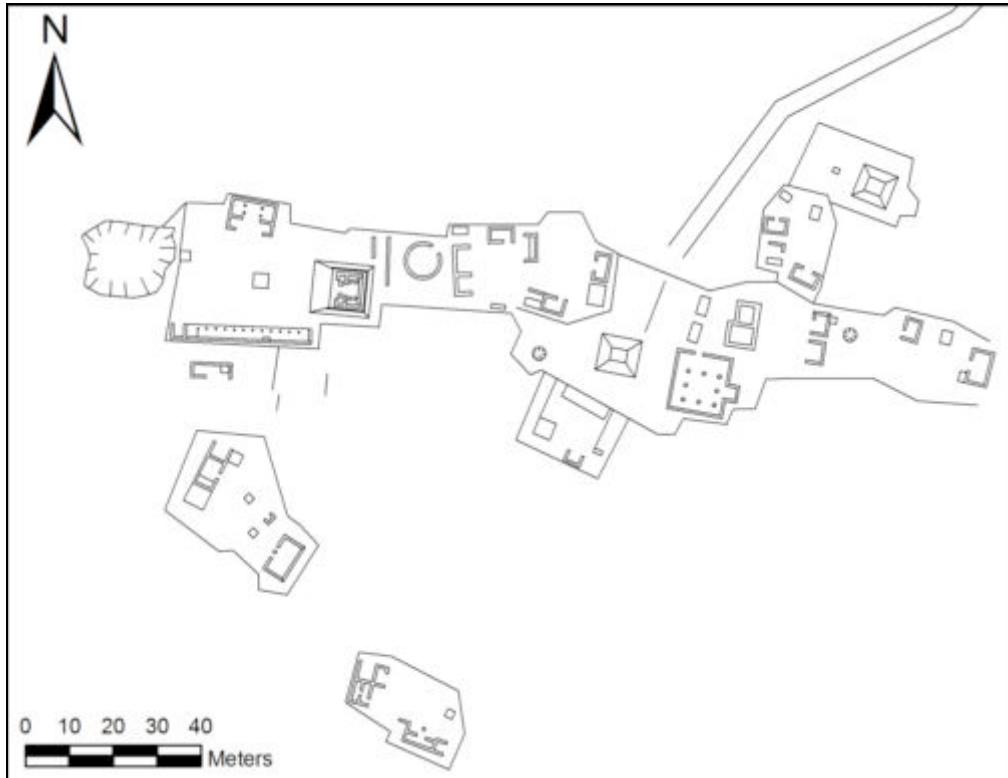


Figure 6: Group Beta. Made by Rodolfo Carillo Canto, Dylan J. Clark, Mauricio Germon Roche, Beniamino Volta, and Misha E. Miller-Sisson

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