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Measuring Maya Politics: Demographic Research on Ancient Community Relations

Jacob A. Welch

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Faculty Mentor: Dr. Scott Hutson

INTRODUCTION:

The *Proyecto Arqueológico Sacbe de Ucí-Cansahcab* / Ucí-Cansahcab Regional Integration Project trekked to the Yucatan with a game plan: to determine how integration affected Kancab's demography, to assess changes in Kancab's domestic economy after integrations with Ucí, and to determine how public ritual at Kancab was affected by integration with Ucí. In order to answer these goals, the project would perform multiple types of research from test pitting and excavation to surface survey. To assist the project and its overall goals, I would perform the systematic survey of areas north, south, and east of Kancab, a site on the *sacbé* (causeway) that runs between Ucí and Cansahcab. Survey, in a nutshell, involves the search for archaeological features in a designated area of land, tediously noting the attributes of each feature to be recorded in a database. In order to assure that the entirety of the designated region is covered, an accurate record of all areas walked through and data found needs to be recorded using a GPS and a notebook. This documentation of objects will enable the determination of settlement density, site boundaries, and similarities in style between structures (orientation, shape, *et cetera*). The data from this survey will also help me answer which of two proposed hypotheses testing regional integration between Ucí and Kancab, has the most support.

The first of these two hypotheses suggests that Ucí practiced control over Kancab. This first hypothesis stems from the idea that sites with larger mounds have control over a larger pool of laborers, some of whom might be drawn from outlying communities. Since there are larger mounds at Ucí's site center than there are at Kancab's, it can be predicted that Ucí possessed much more power than Kancab. Preliminary chronological data suggest that many of Kancab's mounds were occupied after the decline of Ucí. However, the second hypothesis allows another possibility to arise. It is possible that Kancab and Ucí were once equals, with Ucí later outgrowing Kancab.

The survey data will allow the location of the Kancab site periphery to be revealed, therefore enabling the size to be found. Through GPS computer programming, a fairly accurate site boundary can be established, but through a GIS (Geographical Information System) interface, the true site boundary will be shown. The GIS maps therefore permit a more precise estimate of the site edges. The chronology of both sites may be found through other methods such as test pitting, allowing them to be compared side-by-side. The chronology partnered with the survey will reveal which hypothesis is the strongest.

METHODOLOGY:

One may not simply wander around the forest, aimlessly meandering and hoping to find a mound. You must create a strategy that will allow for the systematic survey of land, creating a designated area to survey and assuring that you have covered 100% of this allotted space. Thus,

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the first step is to create this space and to produce a plan for the most efficient way of getting through this area. For the north and south transects, I marked the borders 250 meters east (234150) and west (239650) of the site center for a totaled 500 meter wide transect directly north of the site. However, we started one hundred meters north of the site center for the north transect, since part of the area had already been surveyed and because a road set a good beginning landmark. From the site center, we surveyed around 1.5 kilometers north, and for the south transect, we started at one pathway and went one kilometer south to stop at a paved road. The next step was to create two *bretchas* for each transect in order to ease the rigor of survey. A *bretcha* is a pathway that is cut through a wooded area. For the north transect, I placed the *bretchas* at the east and west boundaries; that way, whenever we hit a *bretcha*, we would stop, realign ourselves, and continue in the opposite direct. Another option, which was later preferred, is to place one *bretcha* on the east or west boundary and then put the other either in the middle of the transect or approximately 350 meters away from the other *bretcha*; this way, depending on time, we could chose to do a short or a long cross-section. The latter method happened to be the way we did the south transect, partly because it was easier and partly because there was already a *bretcha* made in the middle of the transect.

The next necessary step was to figure out how to use the equipment: a GPS, compass, and 20 meter measuring tape. For a GPS, we needed to learn which of the two numbers in the display refers to the northing (top number) and easting (bottom number) coordinates, how to take record of a waypoint, and what to name the waypoint. When taking a waypoint, it was important for us to make sure the distance accuracy of the GPS was less that 4 meters (and ignore the height reading) in order to assure your reading is satisfactory. I labeled each waypoint according to the transect with the following format: for north, KN#; for south, KS#. Each number could designate a *metate*, foundation brace, mound, or platform. If the number has a letter after it, it means that there is a superstructure on the platform. For the compass, we needed to know how to read directions from it and how to measure the orientation of a structure by looking through the eyepiece.

With this, I could start survey. I marked the first northing coordinate where the first person would stand. I decided that from this, another person would stand 15 meters north, and the third person would stand 15 meters form the middleman, with each northing coordinate being recorded. Together, the three people would walk directly west (if starting on the east *bretcha*) or east (if starting on the west *bretcha*), making sure to stay in their lines. The two outside people would use compasses and the middleman would align himself by looking at the GPS and maintaining a constant north coordinate to make sure their lines were straight. Each person was responsible for 7.5 meters to his or her left and right. If one of us spotted a structure, then everyone would stop. If a *metate*, the middle man goes over and take a GPS point; if a chich mound or foundation brace, a GPS is taken from the center and measurements are taken with the measuring tape; if a platform, everyone goes over, cleans the mound, and takes the orientation with a compass, the widths and lengths with measuring tape, a GPS at the best corner, and the height with vision (eye-line is measured with measuring tape before survey).

I served as the middleman, and was responsible for drawing each mound and structure (excluding *metates*). It is important to draw one line at a time, first walking around the entire

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structure to see what you are looking at, and from there, measure each side. For each side, one person would hold a measuring tape loop and I would carry the rest to the other part of the platform. I would record the length in my book then take the orientation with the compass. From there, I would draw the first line. Orientation is somewhat difficult to find, since some walls have a lot of tumble. If you look on the sides, sometimes you find stones that form a really nice alignment that you can measure. If not, find what you believe to be the corner and measure from there. After the first side is measured, measure the other sides. If it is a quadrilateral, you can record measurements for three sides and draw in the other side using a computer program. Make sure to take notes while drawing. It is important to label which structures are in henequen, which mounds have disturbed walls, and the amount of high bedrock in the area. These types of notes greatly help in deciding where to put test units and may help during various other archaeology endeavors.

After each workday, I would enter all the data recorded in my notebook on an excel spreadsheet, including GPS points. This was to preserve any data that might be lost if the notebook is misplaced or damaged. GPS points data combined with a formula generator determined the distance from the site center. This data was distributed to the team members to help facilitate their selection of individual projects. The GPS units were also placed on a GPS program. Each point was later sorted into categories, separating platforms from chich mounds and *metates* from the rest.

RESULTS:

I have gathered an impressive amount of data over the nine weeks of this field season. Having surveyed 1.5 square kilometers of land – land full of platforms, *albarradas* (stone fences), a new *sacbe* (ancient causeway), and *metates* (corn grinders) – the amount of data and the variation of this data are quite great. Each platform is unique, varying in size, orientation, height, or the appearance of archaeological features – *albarradas*, *metates*, superstructures (a smaller structure on top of a platform), *et cetera*. In sum, I have mapped around 300 platforms, some with one or more of these features and forming neighborhoods with other structures, others having no additional features and existing solitarily. Many structures are aligned at cardinal directions; many structures had *metates*; many buildings take advantage of natural rises in the landscape in order to gain additional elevation. It is fascinating to see the variation in Maya architecture, and it has produced equally interesting data.

As stated earlier, the first hypothesis, that Ucí controlled Kancab, is proposed due to Ucí's larger mounds, which implies that Ucí had control over a larger pool of laborers. This hypothesis is strengthened when comparing the sizes of each site. Ucí's size has been set between 7 and 11 square kilometers; whereas, the western, northern and southern boundaries of Kancab have been drawn at approximately 650, 650 and 600 meters respectively, meaning that the presumed area of Kancab is 1.26 square kilometers.

However, the larger mounds at Ucí could have been smaller than Kancab's if Kancab hit its pinnacle when Ucí was just a small town; therefore, sizes of mounds alone cannot prove which

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hypothesis is better. This gives rise to the proposal of the second hypothesis, that Kancab could have been larger or equal to Ucí, with Ucí later outgrowing it. The chronology of the sites is essential in answering both hypotheses, and after data analysis, it was determined that Ucí reached its zenith during the Early Classic period long before Kancab's peak in the Terminal Classic. With this, the first hypothesis, the Ucí practicing control over Kancab, is most correct.

CONCLUSIONS:

In sum, I have stuck to my initial methodology; I have combed through 1.5 square kilometers of land; I have finished the north and south transects, while surveying a large portion of the east; I have gathered a tremendous amount of data that I have analyzed via GIS. It is apparent that Ucí did practice some control over Kancab at the time of *sacbé* construction, as it possesses larger mounds, reached its peak long before Kancab, and occupies a much larger area than Kancab.

A single change was made to the initial grant proposal: I was not able to finish surveying the east transect of Kancab. This change stems from the sheer density of the forest where I surveyed – heavily rooted with thorny vegetation and thick shrubbery. Luckily, this change does not hinder my ability to answer my hypotheses or to reach my overall goals, because Kancab's area can still be found with the borders that have been mapped. Even though I did not finish, I have surveyed quite a large portion of this transect, leaving me eager to finish it during the next field season.

Apart from my research, I also had the great opportunity to experience the modern culture of the Yucatan Peninsula. I am incredibly grateful to have had the opportunity to spend time with the modern Maya people, learning so much about their culture and expanding my worldview. I eagerly wait next for the next field season, where I can return for both my archaeology research and to be able to interact with my Mexican family once more.