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Experimental Team Final Report, 2001

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Objectives:

The Experimental (X) team had several objectives during the 2001 season. The foremost was to construct and perform tests of EKAS' unique field methodology. Secondary to this was a desire to organize and come to a greater understanding of the X team data acquired in 1999 by R. Schon.

EKAS uses several unique field techniques that are largely untested and rest confidently in their sound theoretical application. Some of these techniques were developed over years of planning and observing on other survey projects, some of them were created out of necessity by the EKAS staff due to issues of permits or working conditions.

1.) The Chronotype collection method: The Chronotype collection method was developed chiefly by T. Gregory and N. Meyer and is based on their experience in several surveys and observation of several others. Chronotyping, simply phrased, means that field walkers pick up only the first object of each type that they observe in their survey area. The X team needed to test whether the Chronotype method effectively represented, in a sample, what kind of artifact data was present in the surveyed area.
2.) Field Processing: EKAS' field processing methods grew largely out of a difficult permit situation in 1999. In that year, EKAS was not allowed to remove artifacts from the field, and so our processing teams were forced to do all of our artifact analysis in the field, and not at a secondary collection point, such as the Dig house in Isthmia. The X team needed to test whether the Processing team could accurately analyze artifacts that had just came out of the field and were not cleaned and prepared for processing like they would have been in the dig house itself.
3.) Single-Expert processing: Another EKAS technique born out of necessity has been artifact processing by a single analyst with broad expertise. With EKAS processing artifacts in the field, the logistics of bringing period experts to every surveyed area to analyze the artifacts are staggering. The EKAS response has been to send one expert with a broad knowledge base to study the finds. The X team's wanted to see if there would be a significant and important difference observed when different experts analyzed the same artifacts.
4.) Geomorphic Determination in surveyed units: EKAS gives its Geomorph Interns a large role in determining the exact areas we survey. Their ability to observe and report Geomorphic boundaries is hoped to give us a finer ability to survey discrete anthropomorphic areas within the landscape. The X team endeavored to show how their survey units would differ from Geomorphic insensitive units, and how this would effect survey data.

5.) Total Swath Coverage: The last element of EKAS survey that we planned to test during the 2001 season was the notion of intensive, regular survey sampling. EKAS samples their units in two-meter swaths separated by ten-meter unsurveyed tracts. The X team would try to find out how much coverage the two-meter swaths gave us in the context of the whole unit.

Experiment #1

We conceived of one of many possible ways to construct three experiments such that would cover all of the above testable elements of our survey.

The first of the three experiments would ambitiously test three of the elements at once. The Chronotype Collection method, the field processing method, and single expert processing would all be tested at once.

We decided that this experiment could be performed in the space of five newly surveyed discovery units. The area chosen was near a toponym that we had extensively surveyed, but that promised a wide variety of artifact and terrain types.

Five fields were chosen for survey based on a few factors. High visibility and an ability to field several walkers was consistent, but background disturbance, sherd crusting, and land cover varied from field to field.

As noted in the introduction, in normal survey EKAS' field walkers collect the first item of every type that they see within their swath. Any duplicate item types observed within the swath are recorded on their tally counters but not collected for processing. We call this "Chronotype" collecting with each collected item representing a Chronotype.

To test the Chronotype collection method in the DUs, we chose a very simple approach. We gave each walker a pair of collection bags and instructed them to collect in their normal Chronotype style into one of the bags, and to collect all other artifacts observed into their other bag. We labeled these bags Chronotype Swath and Total Swath collection bags.

By processing the items that would normally be left in the field during a Chronotype collection, and comparing the data to the Chronotype collection of the same swath, we hoped to be able to observe whether we were losing a significant amount of data by Chronotyping our DUs. If any items were in the total collections, and not in their corresponding Chronotype collection, we would be experiencing a loss of data in normal field walking.

The second testable item was the vulnerability of our field processing teams to sherd crusting, and the resulting loss of data due to the EKAS policy of processing in the filed instead of at a processing lab. Since we had chosen fields with a variable amount of sherd crusting, this was a good test for us to perform.

One question that has been raised about our processing method is whether the processing team can accurately classify artifacts that have not been fully cleaned. Our processing teams bring some tools with them to the field to assist them in either cleaning the artifact (with a wetted toothbrush) or presenting a new, clean break with a clipper. The EKAS processing team leaders contended that the clippings could tell them all that they needed to know about the artifacts.

It was decided that the test was still worthy of performance, if only to verify our own processors' claim about their field methods. Some of the already processed collections from the experimental units were taken back to the dig house in Isthmia to be cleaned and reprocessed after drying. The hope was that the second round of processing would give us essentially the

same data as the first and would verify the claim that field processing allows us to analyze data as well as lab processing.

The third test to be performed during the first experiment is that of single-expert processing. EKAS trusts its processing primarily to three artifact analysis experts who each lead a team of processing assistants into the field to analyze our artifacts. Questions have been raised about whether this is a less accurate analysis method than having several experts in different periods available to look over the survey collections.

At the present, EKAS has two pre-historians and a Byzantinist as processing team leaders. To test the differing analyses of these three experts, they were asked to process the same group of artifacts (the collections from all five DUs) without consultation between the teams. The hope was that the three of them would come to the same conclusions about the artifacts.

At the time of the writing of this report, the processing for this experiment is not completely done. No reasonable conclusions can be made about the results of the experiment.

Experiment #2

EKAS uses Geomorph Interns to help us lay out our survey units. Our team leaders work in conjunction with our Geomorphs to perform this fundamental task. The Geomorph informs the Team Leader of the geomorphic boundaries and the TL works within those parameters to set DU boundaries. The motivating logic behind this method is that effects of the Geomorphology of the landscape can cause changes in the artifact scatter, and that we need to acknowledge these changes to accurately interpret the data that we are recovering.

Experiment #2 attempted to test the difference that Geomorph's contribution makes on both our survey techniques and results. We allowed a Geomorph to map out an area as Geomorphic units without the presence of a Team Leader. A Team Leader was then asked to map out the same area without the help of a Geomorph in the manner that they found most appropriate.

After both the Team Leader and the Geomorph had completed their individual mapping, the Experimental Team Leader made a master map. The master map consisted of both the DU Team Leader's map and the GI map overlayed on each other. On the overlay, each border, whether DU or GU, marked the edge of a master DU. The resulting map turned 5 GUs and 14 DUs into 17 Master DUs (including 2 unsurveyed). The intention was to create subunits that could be later combined to create the original GU or DU units for data comparisons.

A regular field walking team with the assistance of the Experimental team leader then surveyed the Master DUs. The processing results from the experiment are not yet available, so definitive conclusions are impossible to make. It is interesting to note that there were distinct differences in the areas laid out by the two mappers. In the experiment we had an example of both a soil change and a slope change that were both used as boundaries by our GI. Our TL did not use either of these as a border to her units. In our normal mode of survey, both would have certainly been used as DU boundaries.

Experiment #3

The third experiment of the season was the "Hoover" experiment. We needed to establish a benchmark for the recovery percentage of swaths within the entire artifact record of a unit.

EKAS standard procedure is to survey a unit in 2-meter wide swaths (covered by a single walker), separated by a 10-meter gap. This gives us a theoretical viewable area of 20% of the total survey area. Unfortunately, the fact that we can see 20% of the field does not translate directly into a 20% artifact recovery rate.

Some theoretical work has been done on trying to find an algorithm that will compute for us the total number of artifacts in the field from the number of artifacts that we recover. Our experiment was constructed to give us an example of real-world collection to tweak the algorithm with.

We found an area with high visibility and a good artifact scatter that we had not yet surveyed and selected it to be our experimental unit. The first step we performed was walking it as a normal DU with a Chronotype collection method.

After the area was surveyed as a DU, we mapped it out and separated it into 16 10mX10m grid squares. A pair of field walkers who were instructed to cover every inch of the area intensively surveyed each 10x10 grid square. The walkers performed a total collection on their areas and all artifacts were numbered according to their geographic location within the grid and then transported to storage at the Isthmia dig house for future analysis.

No conclusions on the results of this experiment can possibly be made, except that as far as efficiency goes, the total collection method is absurd. What can take as few as ten to fifteen minutes to survey as swaths in the case of the experiment took over two hours to perform a total collection on. Unless the additional data brought in by the total collection is both staggering and completely different in composition from the Chronotype-Swath collection, the total collection seems almost completely unjustified. A possible exception might be made in the case of a survey that covered an extremely small geographic area. With a survey the scope of EKAS, total collection seems ludicrous.