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Eastern Korinthia Archaeological Survey Final Field Report, 1999
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Overview

Our field season was scheduled to begin on Monday, June 28, but because of delays in our permit, our first regular field day took place on Wednesday, July 7. The permit contained specific restrictions that necessitated substantial changes in our methods and our study area. The permit restricted the survey to the Isthmia and Kenchreai basins. The most regrettable loss occasioned by this limitation was the area around Gonia, which was the focus of a proposed study of prehistoric habitation funded by INSTAP.

With respect to field methodology, the fundamental issue of artifact collection and treatment was profoundly affected by the permit. We were prohibited from removing artifacts from the field (with the exception of certain "exceptional" artifacts that could be retained and turned over to the Ephoreia), and in addition artifacts were to be left essentially at the exact spot where they were found. We were thus unable to put into practice the ChronoType system that we had designed for selection and collection of artifacts in the field, and for classifying them in the laboratory.

As the precise meaning of our restrictions became clear, we engaged in a rapid restructuring of our field methods. We sought not to dwell on the negative aspects of our situation, but rather to accept the challenge of designing new methods by which one could gather valid data within the available parameters. One positive consideration is that our survey has had a very minor impact on the surface archaeological record. The benefits of low-impact survey in terms of repeatability and preservation will likely draw increasing attention in discussions of survey theory and practice in the future. The experimental component of EKAS has been, and will continue to be, a crucial tool to compare and contrast the fidelity with which our methods measure the surface record, vs. more common collection techniques. There are precedents for this sort of non-collection survey, including the Melos survey of the 1970s.

It is safe to say that most components of EKAS were affected by the changes, some more than others, and that we experienced a host of growing pains this season. The assessments of the senior staff, contained in this report and others, point clearly to areas in which improvement is necessary. We faced a double predicament, on the one hand a first season in which our theoretical and methodological designs met the hard reality of the field, and on the other hand the sometimes tortuous process of redesigning procedures and work flow throughout the system. In spite of these problems, the revamped system worked well I have no doubt that the data obtained by all components of EKAS will prove to be valid and robust.

1999 Transects and Discoveries

In 1999, the two survey teams walked approximately 270 discovery units (one of these was walked by the experimental team), covering 1.05 sq km. The main transect extended from the lower slopes

of Mt. Oneion SE of the village of Xylokeriza for a distance of approximately 2 km to the northern slopes of Rachi Boska at the location Perdikaria. The transect was approximately 0.5 km wide. Additional extensions to this transect were walked on the final two days, both originating at Perdikaria, one moving in a northerly direction toward the eastern edge of the Kromna ridge, and the other moving NE toward the western edge of the Ayios Dimitrios ridge. The purpose of the main transect was to capture a broad range of topographic, environmental, and geomorphological zones as a way of comprehending variation in the landscape, as well as the range of artifact types, their date, and their distribution. The second set of units, which was really only begun in 1999, sought to take a section across an area where important ancient routes of passage intersected, overlooked by several settlements and other sites.

Seven LOCAs were declared by the two teams, although it should be pointed out that the criteria for declaring LOCAs, particularly in view of the substantial methodological changes, were not worked out during the 1999 season. As a result, the LOCAs that were declared, as well as certain areas that were not, should be reviewed and revisited as we refine our definition of LOCAs and develop practices for dealing with them in the field. The following is a list of the LOCAs and their location in terms of DUs, along with the main chronological periods represented. If a certain chronological range was dominant, this appears in boldface.

LOCA #1: Rachi Boska/Perdikaria; DUs 619, 620, 622; 625–628

Main periods: MN, LN, EH, MH, LH, **A–H**, R, LR

LOCA #2: Xylokeriza/Marista: DU 502

Main periods: C, R, **LR**

LOCA #3: Xylokeriza: DUs 527, 530

Main periods: C, R, LR

LOCA #4: Marougka/Rachi Boska: DU 86

Main periods: **A–H**, R, LR, **lithics of uncertain date**

LOCA #5: Marougka/Rachi Boska: DUs 576, 590, 597

Main periods: A, C, **R**, **LR**

LOCA #6: Rachi Boska/Perdikaria: DU 612

Main periods: **lithics of uncertain date**, A–H, R, LR

LOCA #7: Perdikaria: DU 123

Main periods: A, C, R, LR

Apart from these localized cultural anomalies, broader patterns of artifact distribution and chronology were noted, though only careful analysis in the coming months will permit us to move beyond generalizations about them. Details about patterning in the cultural material may be gleaned from the reports of the Team Leaders, as well as from the Survey Unit Item Registry (SUIR). Observations made by the Team Leaders will not be repeated here, but general, tentative remarks may be made.

The main survey transect began on the slopes of Mt. Oneion SE of Xylokeriza village. In the slope transects, artifact densities were low, but there was nonetheless a substantial Late Roman signature on the middle and lower slopes (including LOCA 2). Also on the middle and lower reaches, a small but perceptible background of Archaic to Classical material was detected. On the upper slope (and only there), a few stone artifacts of obsidian and chert were discovered.

As the teams crossed over a farm road upon reaching level ground, artifact densities increased, especially on the eastern half of the transect, where LOCA 3 was discovered. LOCA 3 featured a very dense scatter of mainly Late Roman artifacts, although earlier Roman material was represented in moderate quantity. A small undercurrent of Archaic–Classical material was again present.

In the next set of transects, north of the road from Xylokeriza to the Saronic coast and south of the road that runs east to west beneath the southern slopes of Rachi Boska, several interesting units and features were investigated. One of the most striking was a linear feature, previously unnoticed, which was identified by the geomorphology team as a possible road or track. They isolated this feature by a combination of slope, changes in soil color, compactness, and composition, and by its appearance on aerial photographs. The feature is virtually invisible on the ground, as it crosses the modern road system at an oblique angle traveling NW to SE. It is notable that some field boundaries adjacent to the feature run parallel to the feature (NW–SE) instead of north to south. GUs were laid out to mark the feature, and DUs were then placed to respect the feature's boundaries. Artifact counts were moderate south of the feature, extremely low within the feature (visibility was poor in many but not all sections), and then became very high in units adjacent to the road to the north, where the slope gently increases toward the ridge of Rachi Boska. The data from the units in and around the feature will require much more analysis before anything of substance can be said about the extent and function of the putative road.

North of the feature, two LOCAs were designated, 4 and 5. It is possible that these concentrations represent two parts of a larger site, but their artifact signatures are different enough to cast doubt on that possibility. In LOCA 4, artifacts from the Greek period (Archaic–Hellenistic?), along with segments of prismatic obsidian blades, were clearly dominant, although Roman material was present. The blades are of uncertain date, but may belong to the Classical period, as such blades are reported by F. Hemans to come also from Classical levels at the Rachi settlement above the Isthmian sanctuary. By contrast, in LOCA 5 Early to Late Roman times were more strongly represented, with Archaic–Classical or Hellenistic a significant but lesser presence.

The slopes, and especially the top of the ridge, of Rachi Boska provided some of the most exciting discoveries of 1999. At the eastern promontory of this ancient marine terrace, the landowner has in the past 1–2 years plowed a large plot of land, including the highest point of the ridge and the slope extending south from it, in order to plant a vineyard. This deep plowing brought to the surface thousands of artifacts that testify to exploitation of this spot over at least six millennia. This site was designated LOCA 1, and our only LOCA collection of 1999 was performed upon it. The complexity of the site and its environs urges caution against making facile assumptions about its functions in a variety of periods, but some interesting issues can be mentioned.

Prehistoric settlement (EBA, MBA, LBA) has long been known at this location, which Blegen referred to as "Perdikaria." On modern maps, Perdikaria refers to the slopes beneath the ridge and the flat plain north to Ayios Dimitrios ridge, and we have adopted that general usage for the time being. A Cyclopaean wall buttresses a middle terrace of the north slope below the promontory. This wall was illustrated in a photograph in *Corinth* I.1, taken approximately 1908. We were able to draw and photograph this wall, and follow it for more than 100 meters in 1999. We also noted several huge stones that have been lost from the wall through bulldozing and other processes. The

function of this wall has not been conclusively resolved, although Perdikaria has traditionally been considered a fortified site, and even today Richard Hope Simpson has no doubt that this is a fortification wall. We are not so sure, and would prefer to study the matter in more detail.

Perhaps even more important to prehistoric settlement are the results of the DUs and the LOCA collection that were performed on the promontory and the terraces below. Pottery that certainly dates to Middle Neolithic, Late Neolithic, Early Bronze, Middle Bronze, Early Mycenaean (LHI–II), and later Mycenaean (LHIII) was recovered, primarily from the promontory, but also from DUs on the terraces below. The significance of this finding is that we now have another site in the Korinthia to parallel Korakou and Gonia: a prehistoric settlement with a long occupational history through the Neolithic and Bronze Age. The site at Boska/Perdikaria will figure prominently in discussions of later prehistoric settlement dynamics in the Korinthia.

The strongest archaeological presence on the promontory at Rachi Boska belongs to the Classical period. Massive amounts of pottery, tile, ground stone, and flaked stone were revealed by plowing, though it should be noted that in the grove adjacent to the plowed vineyard to the west, almost as much material was exposed on the surface. In the grove, Classical material was less overwhelming, with the result that objects of prehistoric and non-Classical historical date were more apparent. The Classical site was protected by wall of ashlar masonry. The farmer revealed a section of the wall at the eastern end of the promontory, and many of the copious cut blocks that litter the modern surface around the LOCA must belong to that wall. Much of the artifactual material comprised roof tiles, which must have been used for buildings and perhaps also surmounted the wall. The artifacts indicate production and storage on a large scale. Amphoras and pithoi are well represented, as well as abundant fragments of grinding stones. Finer wares, such as black glazed table vessels, were also present.

While only speculation, one possible function for this settlement was as a fortified garrison or other military installation. The presence of several fragments of ballista (?) suggests this function, and we may also consider the strong wall and the site's location. If one wished to control the route passing through the eastern Korinthia between Korinth and the coast at Isthmia and Kenchreai, fortified installations at the ridges of Rachi Boska on the south and Ayios Dimitrios on the north might serve this purpose well. The plain in Perdikaria is assumed to be a crossroads where the roads from Isthmia and Kenchreai met in ancient times.

There are many other aspects of human activity at Rachi Boska that we will be able to address in the future. After completing the ridge and the terraces below, the survey teams moved down into the plain of Perdikaria itself, one team heading toward the western edge of the Ayios Dimitrios ridge, and the other toward the eastern edge of the ridge on which the main body of ancient quarries existed. The bottom land of the plain, where ancient roads presumably passed, was found to have relatively few artifacts. There may be a geomorphological reason for this, such as burial of ancient material under meters of alluvium and colluvium. The geomorphologists detected another linear feature, running slightly NW–SE, which could only be investigated in cursory terms, on account of the lack of time. In some places, this linear feature seemed to rest on a terrace supported by the remains of a terrace wall built with substantial stones.

The modest artifact counts continued as the slope rose gently to the north to the next set of old marine terraces. In the western set of DUs, Team 1 came upon gradually increasing artifact presence, and in DU 123, a concentration of Classical–Late Roman material emerged, and was designated LOCA 7. Because the surrounding fields were not walked, it is not certain that LOCA 7 represents the full scatter, or perhaps part of a broader "carpet" of material. The finds included Archaic to Late Roman finewares, amphoras, cookware, pithoi, a lamp fragments, and a loomweight.

Discussion of Specific Methodological Issues

I do not wish to recite our field methods here, as these are explained in other documents (see ReportField1999Tartaron-1Mid-Season). Instead, I comment on specific methods adopted in light of our permit, and their successes and failings.

Flagging system

We were fortunate to have brought pin flags for the experimental team and other uses. We used them to mark locations of artifacts, DU boundaries to guide the Processing Team, and GU boundaries. We ran into two main problems: the lack of sufficient numbers of flags, and the need for different colored flags to mark different things. At times, the shortage of flags became acute as dense artifact scatters were encountered, with the result that sometimes items that might have been flagged under other conditions were not. This situation also occupied the field coordinator (TT) in ferrying flags from one team to the other, a clear waste of time that would have been better spent conferring with team leaders, crews, and geomorphologists. The problem was exacerbated by the shortage of personnel available for processing. The Processing Team could not hope to keep up with two survey teams, and bottlenecks developed when survey teams were planting flags faster than the Processing Team could recover flags from other units.

The lack of flags of various colors also caused delays. In the case of adjacent units, it was often not clear to the Processing Team which flagged objects belonged to which tract. Although this issue was to some extent resolved by a system of attaching tags to flags to mark out the boundaries of a unit and to indicate the number of flags in a particular unit, the shortage of flags made it difficult to implement this fix consistently, and in many cases the flag count was incorrect. In the early stages of the survey, flags marking geomorphological units were often confused with those marking DUs. Later, the geomorphologists switched to using flagging tape to mark GUs, and this change seemed to work well.

These complications were indeed serious, but in view of the resources available to us, the flagging system worked remarkably well in a logistical sense. If our permit in 2000 is similar, we will need many more flags, in at least five colors.

Selection of artifacts for flagging

A more troublesome issue is *what* was flagged, and the consistency that was maintained within and among teams. Once the ChronoType system as designed for collection in a DU had to be jettisoned, there was no clear notion of what each walker should flag. We knew that we did not have enough flags for each walker to flag all "different" items, as called for by ChronoType. Our initial response

was to ask walkers to flag all "feature" sherds (handles, rims, bases, shoulder/neck), as well as those with painted or other decoration; other ceramic objects such as plaques and lamps; all lithics; and some selection of finished roof tile fragments. The criteria for selecting roof tile and brick fragments were never very clear, and this was reflected in a wide disparity in their treatment. This is certainly an area that must be addressed if our collection parameters are the same. Because some field walkers had no survey experience and all were learning new material, the opposing tendencies to overflag on the one hand and to miss classes of items altogether on the other were probably operating for a short time at the beginning of the season.

Over the course of the season, however, a slow evolution toward the ChronoType concept for flagging was in evidence, and ultimately field walkers were given guidelines that reflected ChronoType as much as possible (i.e., as permitted by the number of flags available). ChronoType provides a solid theoretical and methodological framework for collection and classification, and our inability to fully implement it reflects only a lack of resources to do so. All members of the survey have noted that inconsistency characterized the flagging, both within and between the two survey teams. It is a fair criticism that I should have communicated earlier a policy on exactly what to flag. In truth, given the situation, I wasn't sure what should be flagged. As an example, Fritz Hemans showed us that much could be gleaned from pieces of roof tile, but it is not a simple thing to convert that perception into a workable operational procedure, particularly in dealing with new crew members who may have trouble distinguishing modern tiles from ancient ones, or tiles from pottery sherds. Yet, our experience in 1999 suggests refinements that can be presented as policies and then monitored throughout the season.

It may be appropriate at this point to mention one of the deleterious effects that our lack of preparedness for the permit limitations had on the work that I as field coordinator had to do. Because much of my time was spent in carrying flags from one team to the other and in establishing communication between teams and individuals whose walkie-talkies did not function well, I lost much time that should have been spent in ensuring consistency in methods such as flagging. I considered these methodological matters to be a first priority, and emphasized them in the field, but priorities had to be juggled when lack of flags threatened to grind the entire survey to a halt. The point is that these are relatively simple fixes, but they are crucial to allowing me to fulfill my mission.

SWAG and its demise

I was very concerned, upon learning of the limitations on collection, that entire artifact types or chronological periods might escape our grasp, especially in the early going. I reasoned that without the opportunity for walkers to pick up items according to ChronoType and inspect them with the Team Leader at the end of the unit, we were in essence relying on field walkers as a filter on what Daniel and the Processing Team would see and record. Because of the lack of experience of many participants new to survey and to the Korinthia, I viewed that as a dangerous thing. I hit upon the idea of the SWAG (sweep and grab [without the literal "grab"]) as a possible solution. The idea was that Daniel or I would sweep behind each team, flagging items of interest—in essence a grab sample to complement the systematic collection from the 2-m swaths.

Serious methodological issues arose from this activity. The most serious is that because the SWAG person ranged well outside the two-meter swaths, the objects discovered by SWAG had to be kept

separate from those observed by the crew if the crew observations are to have any validity. The SWAG artifacts were discovered by non-systematic means, and have nothing to do with the data obtained systematically by the survey teams. The main obstacle to implementing SWAG, however, turned out to be that neither Daniel nor I could hope to stay up with the progress of the teams, with our other responsibilities. SWAG was used only for the first several DUs on the upper slope at Xylokeriza, where artifact densities were low. Even among the modest densities of the middle slopes, there was no hope of keeping up and SWAG was abandoned.

Perhaps SWAG served a useful purpose in easing the initial stages of the survey as field walkers quickly gained knowledge about the cultural material that was engaging them. I was able to use artifacts picked up in SWAGs to illustrate various classes of objects. The overall impact of SWAG upon the integrity of the data is small, in view of the quite moderate number of objects flagged.

Recommendations

1. Supplies

- laser rangefinder for each team
- 1 or 2 additional digital cameras with additional memory cards for each
- calipers, diameter charts and so forth for processing team
- lots of pin flags in several different colors
- new walkie-talkies or mobile phones for: T.T., team leaders, geomorphs, processing team leaders
- a couple of additional computers

2. Personnel and staffing

- computers and at least 1 GIS expert at Isthmia from 2:00 to 6:00 to assist with entry of data into database and GIS
- processing teams: if permit is as in 1999, two field processing teams, each with team leader and three or four assistants. Expertise on the processing teams must include prehistoric, Greek, and Roman at a minimum, as well as drawing skills among assistants. We could recruit these positions in the same way as we recruit field walkers, on-line.
 - a topographic survey team to assist Fritz
 - consider hiring a Camp Manager to deal with transportation, supplies, trips to Korinth, lunches, and other logistical matters
 - bring back a database manager
 - all participants should live together if possible
 - with some minor issues, geomorphology intern system worked very well, and should be continued as in 1999, except an additional intern if three teams are in the field for all or part of the field season
 - we should make every effort to recruit this summer's better crew members for the 2000 season. Several persons have mentioned to me that they have had a very meaningful and enjoyable experience this summer, and nearly as many have expressed a desire to return next summer. We should target those whom we'd like to have back, because their experience will be invaluable.

3. Methods

- the Experimental Team should convert to a regular field team for at least a good part of the 2000 season. We need Rob's proposals for experimental work in 2000. Among the experiments for 2000 I would like to see extensive comparisons of the results of flagged vs. collected (according to ChronoType) fields, as well as further experiments on LOCA collection, including varying methods of dealing with LOCAs as well as comparison of DU and LOCA collections at the LOCAs.

- what will we request for collection privileges in A) Discovery Units; B) LOCAs?

- designation and definition of LOCAs needs to be clarified. The Boska LOCA treatment needs to be evaluated. How will LOCAs be defined and measured in the field?

- in-field communication, though not a major problem by any means, suffered from the poor performance of walkie-talkies. We found that such communication was essential to ensure continuously smooth operation in the field. In addition, key personnel such as geomorph interns did not have walkie-talkies. At times, the inability to communicate caused substantial delays. For example, Daniel's team needed to be apprised regularly during the day of the locations of DUs, but a faulty walkie-talkie often made it impossible to communicate with him. As a result, we often did not know where the processing team was, and Daniel was unaware of the locations of the next unit. We of course did not anticipate having the processing team in the field following the survey teams, but for 2000, we must find a better solution to in-field communication; perhaps new walkie-talkies or mobile phones.

- procedures for all components of the project must be written up in a procedures manual. Now that we have a season under our belt, and have a good idea of the conditions that we might encounter, we must have these ready to distribute in the spring.

Assessments

1. Did the Discovery Units as walked and documented provide an accurate picture of the range of materials and their chronology; i.e., how good was the agreement between the surface archaeological record and the archaeological document? How serious is the loss of collected materials for experts to see and touch?

2. Spatial coverage and documentation. We achieved approximately 1.0 sq km in spatial coverage in 3½ weeks with two field teams. Although our season was significantly reduced in duration, it is a matter for discussion whether the balance of documentation and coverage is acceptable. The average daily coverage was approximately 0.027 sq km/team/day. If in 2000 we have two field teams for five weeks and the experimental team involved in discovery phase for, say, three weeks, the same rate of coverage would yield $65 \text{ team days} \times 0.027 = 1.755 \text{ sq km}$. With three teams in the field, we would cover 0.081 sq km/day. As a comparison, PRAP claimed that it could cover up to 0.25 sq km per day. We certainly are dealing with artifact densities (particularly "off-site") that far exceed what PRAP encountered, but that "problem" will not go away next year. We must also bear in mind that we dealt with only one LOCA in 1999, and treatment of multiple LOCAs in 2000 will obviously reduce overall coverage. On the other hand, the experience gained in 1999 should allow us to streamline many activities and documentation procedures. Nevertheless, we should examine ways to decrease wasted time, and all of our documentation should be open to discussion.

In the opinion of some, the level of documentation was too detailed, so we should be prepared to justify the data we collect by demonstrating how it might/will be used. For example, we recorded elevation from 1:5,000 topo sheets as a check on the GIS. The accuracy of the GIS elevation

figures should now be checked, and if they are acceptable, we should drop that procedure. In addition, there appears to be a fair amount of overlap among the sections of the DU form (features, modern sweep, visibility, etc.), and it was often not clear to field teams in which of these sections a particular phenomenon was to be recorded. These things should be spelled out clearly in the explanation sheets, which should not simply be an amalgamation of directions authored by different people, but an integrated document that ensures that overlap doesn't happen.

3. Potential sources of wasted time. Flagging probably slowed the process by adding a step after picking up an artifact and examining it. The shortage of flags exacerbated the problem. It might be a good idea to examine the flow of paperwork at the conclusion of the unit. I noticed that despite the efforts of the Team Leaders, there was a fair amount of standing or sitting around at the end of most units; the Team Leaders may have comments on this. We may be able to redesign the forms or the work flow in some way to streamline the process. In any case, I feel that it is absolutely essential that the laying out of GUs and DUs proceed ahead of the field walking. When this was done this summer, the system worked well. In the few instances when the process fell behind, considerable field time was wasted and crew morale suffered.

4. Inconsistencies. I noted certain areas of inconsistency of observation, but most existed at the intra-team level as much as between the teams. Ground visibility continued to cause confusion, because the subjective element remains strong, but also because even in fields of uniform land use and similar ground cover, swaths can vary substantially among walkers as well as along their lengths. I believe a catalogue of visibility images will help, but the problem of lack of uniformity of overall visibility (taking into account all its aspects) within a unit will not go away. The Team Leaders' method of describing and estimating visibility based on the Field Walkers' evaluation of their swaths differed, but I don't know the overall effect. I look forward to hearing Rob's assessment of the results. To some extent the issue may resolve to a margin of error with which we can feel comfortable. Other inconsistencies I noted involved the speed with which swaths were walked; at times one walker had finished while another walking a swath of similar distance and other attributes was far behind. Certainly, some walkers tend to linger while others do not, but problems may arise. In one case that I know of, a particular walker almost always finished well before everyone else, while another on the team finished well after. The former consistently obtained lower counts and apparently missed too much, while the latter had consistently higher counts than everyone, and may have slowed the process unduly.

5. Survey area for 2000 season. We must think carefully about our selection for survey area in the 2000 season. On the basis of what we accomplished in 1999, and on the various priorities of the Ephoreia and the staff, several locations present themselves.

- the remaining elements of the transects we wished to walk in 1999. Specifically, (A) the ridge extending W of the Rachi settlement; and (B) the north side of the main Kyras Vrysi–Ancient Korinth road from the western edge of Kyras Vrysi village, encompassing the known ancient road passing by the West Foundation

- the ridge of Kromna (?) and surrounding areas, including the ancient quarries
- the Gonia area as described in the INSTAP proposal for 1999
- pieces of the Saronic zone: Kenchreai, Kato Almyri, Korphos, and the site discovered above Lychnari

We could fill an entire season with the lowland areas alone. But we ought also to think about other possibilities. Specifically, we should address the issue of building an extensive survey component into our methodology, to give us the flexibility to explore areas for which intensive survey is not feasible. The Saronic coast zone provides a good example of how and where this might work. At Kenchreai, the fencing in of properties makes access difficult and intensive treatment therefore impractical. Farther south and east on the Saronic coast, we have made important discoveries and gathered geomorphological data that ought to be complemented by archaeological information (some of which we already have). But the difficult slope and terrain make intensive survey impractical. We can, however, design a way of dealing with these areas extensively that is more systematic than the one-person survey mode. For example, an informal extensive team that is able to band and disband as needed. The locations that are investigated should flow specifically from the settlement locational model that Richard et al. are developing, as well as from the available information that we have from earlier explorations.

Conclusion

For an initial field season, and particularly in view of the unexpected restrictions, I think we did a good job of rethinking our methods and putting in procedures that best conformed to our aims and to available resources. I think the comments provided by the leaders of the various components of the project point to a range of areas that require attention. In the grand scheme of things, I believe that we obtained high-quality data in 1999. In the coming winter, our attention should focus on refining our research models and designs, and on streamlining our operation in view of the likely field conditions of next year.