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# Caveat Emptor Collecting and Processing Pottery in Western Rough Cilicia

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# Caveat Emptor Collecting and Processing Pottery in Western Rough Cilicia?

Nicholas Rauh      Richard Rothaus

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This paper<sup>1</sup> furnishes a preliminary assessment of the field and laboratory procedures used to obtain ceramic field data by the participants of Rough Cilicia Archaeological Survey Project in western Rough Cilicia (Gazipasha District, Antalya Province, south coastal Turkey). Between 1996 and 2004 the pedestrian team of the Rough Cilicia Survey conducted pottery collections and otherwise processed field pottery as its principal operation. Through nine consecutive field seasons the pedestrian team identified and processed an aggregate of 7313 sherds, revealing the following preliminary breakdown of ceramic data as shown in Table One in Appendix.

What concerns us here is not so much the historical significance of this data as the means by which it was acquired. Since the data results from an evolving array of procedures employed by dozens of participants working through multi-

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<sup>1</sup>A more detailed presentation of the data is furnished in Table Two at the end of this article. The presentation of this data requires some explanation. Datable sherds were recorded according to known typologies: these consisted almost exclusively of imported fine ware and amphora remains for which chronological information was available from published archaeological contexts at sites throughout the Mediterranean world. In some instances, chronologies of a few locally produced forms such as the Pinched-handle, Koan style, and Pamphylian amphoras, were known from published finds of similar forms, again, identified elsewhere in the Mediterranean. In the accompanying tables, ceramics remains from recognized typologies have been arranged according to the following categories: “Pre Roman” (8th-1st centuries BC); “Early Roman” (1st-3rd centuries AD); “Late Roman” (4th-7th centuries AD); “Byzantine” (for this region, generally 9th-12th centuries AD). Numerous forms that could not be identified temporally (in part because the survey lacks stratigraphically authenticated chronologies for locally produced coarse wares and cooking wares) were simply compiled in the charts as “Coarse wares” and “Cooking wares.” The first category includes locally produced coarse ware and common ware forms such as bowls, basins, pitchers, mugs, pithoi, stamnoi, and loom weights. Invariably this appears in the tables as the largest of all categories. The second category includes all identified forms of cooking ware, including stewpots, casseroles, and frying pans. An additional category was compiled for unidentifiable fragments of transport amphoras. Finally, a category of “Uncertain” exists for all sherds that were flagged by the pedestrian team but were too badly damaged to permit any suitable identification. As the Ceramics Tables demonstrate, a low percentage (46%) of the processed sherds actually yielded temporal information. Moreover, the data of Coarse Ware and Cooking Ware categories could obviously be subdivided more effectively into equally significant components such as pithoi, basins, etc.

ple seasons, the procedures themselves warrant scrutiny, if not accountability, before any attempt should be made at interpretation. Rauh and Rothaus are grateful for the opportunity provided by the editors of this volume to engage in an effort of procedural “full disclosure” — hence, the title “caveat emptor”. The question to be posed in this paper is not so much what the data reflects per se, as it is the degree to which the procedures used to obtain this data, both in the field and in the “laboratory,” have biased the results. To understand this, we need to explain both the “laboratory procedures” created by Richard Rothaus for ceramic analysis and methods utilized by Nicholas Rauh and his field directors to collect ceramic data in the field.

## The Rough Cilicia Ceramics Chronotype Database and Study Collection

The ceramic totals listed above represent a preliminary count based on analyses undertaken by a number of specialists. Pottery collected in 1996-1997, for example, was processed at the project’s “ceramics laboratory” by Richard Rothaus, who created the project’s Chronotype database system.<sup>2</sup> The heart of the Chronotype system is a flexible hierarchy and a system of classification designed to address the realities of field survey by focusing on readily identifiable characteristics of ceramics. Essentially, the ceramicist identifies a piece going as far down the hierarchy as possible. Each unique “stopping point” on the hierarchy is a Chronotype. When a piece is not recognized in the hierarchy a new Chronotype is created.<sup>3</sup> While compiling the project’s Chronotype database in 1997, Rothaus simultaneously used the system to create a survey pottery Study Collection that the team has relied on to identify field pottery in later years. This collection attempts to maintain at least one example of every ceramic Chronotype the pedestrian team is likely to encounter in the field. While not perfect, the Study Collection now consists of 330+ identifiable specimens representing a broad array of the ceramics that survive in the region.<sup>4</sup>

Use of the Chronotype system requires that “sherd readers” have a good grasp of shapes and fabrics, but does not require specific expertise. When a visiting specialist, John Lund, informed us, for example, that the West Cilicia Painted Basin is really a variation of CRS Form 11, our results were not invalidated. We

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<sup>2</sup>The Chronotype system used was designed and used first by the Sydney Cyprus Survey Project: GIVEN et al. 1999, 24–25; MEYER 2003; MEYER - GREGORY 2003. It has since been used by the Rough Cilicia Survey, The Sydney Cyprus Survey Project (SCSP), The Australian Paliochora-Kythera Archaeological Survey (APKAS), The Eastern Korinthia Archaeological Survey (EKAS), the Troodos Archaeological and Environmental Survey Project (TAESP), and the PylaKoutsopetria Archaeological Project (PKAP).

<sup>3</sup>A typical identification example would proceed: this is Coarseware, this is the West Cilicia Fabric, this is a West Cilicia Fabric Stewpot, this is a West Cilicia Fabric Everted Rim Stewpot. The system does not require the origin, date or function of a vessel to be known; the system only requires similar pieces to be called by the same name.

<sup>4</sup>The preliminary presentation of the Study Collection was originally available at the project website: <http://pasture.ecn.purdue.edu/~rauhn/>. The site is not defunct.

simply corrected our identification, which was uniformly wrong, and moved on. For the purpose of formulating typologies, therefore, the Chronotype system falls somewhere between “lumping” and “splitting.” Had Rothaus decided to lump all coarse ware closed shapes together, for example, he would essentially have accomplished nothing. At the same time a decision to split every minute variation of a given ceramic form into a new Chronotype would potentially have crippled the system and again yielded nothing. The developer of the system has to decide, therefore, at what point the range of visible variation in ceramic morphology is no longer meaningful. For example, in the Rough Cilicia Chronotype hierarchy, a West Cilicia Fabric Everted rim is an everted rim (unless it is hooked), whether thin or wide. This was a conscious choice; after looking at hundreds of pieces and seeing hundreds of variants of rim size Rothaus decided that this was not an important variable. Although he may be wrong, the decision to limit the number of Chronotypes in this manner is still correct. Had Rothaus created 50 or more West Cilicia Fabric Everted Rim Chronotypes to accommodate every conceivable variation, he would have rendered the task of processing the field pottery infeasible, and the Rough Cilicia survey would have joined the ranks of archaeological projects that never finished processing their finds. Better to employ a system that yields some good results, than to pursue an unattainable objective destined to yield none.

The Chronotype system allows projects not only to process field finds quickly and efficiently, but it also allows for enhancements of identifications to cascade back through the previous years of work without having to re-read past collections of pottery.<sup>5</sup> The advantage of the Chronotype system is that nothing remains unidentified for long. As soon as the ceramicist begins to observe a recurring form in accumulating field collections, he can add it to the system. In more traditional ceramic reading techniques, a ceramic remains simple “coarse ware” or “fine ware” until it is eventually matched with an excavated, published example.<sup>6</sup> By using a flexible hierarchy that labels unique forms (even when not yet identifiable), Rothaus was able not only to recognize and develop a typology based on form and local fabric, but he was also able to update previous ceramic analysis to reflect the new typology.

Rothaus’ Chronotype system has thus guided the ceramic work of the pedestrian team since 1997. This foundation was refined by Kathleen Slane during her visit to the survey later that season. Slane made some modifications to Rothaus’ chronotypes but otherwise declared them to be consistent and correct. Attending the survey in 2000, E. Lyding Will identified several amphora fragments and greatly enhanced our understanding of locally produced forms and fabrics. John

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<sup>5</sup>Something that is impossible in non-collection surveys in any event.

<sup>6</sup>To illustrate: in 1996 Rothaus quickly observed a series of frequently recurring coarseware stewpots in the collections. He initially labeled these as Stewpot A, Stewpot B, and so on. In truth, at least half the 1996 Study Collection was assigned temporary names in this manner. By 2005, Rothaus successfully refined these identifications to include specific items such as the “West Cilicia Fabric Small Stewpot” and “West Cilicia Fabric Everted Rim Stewpot.” The Chronotype system thus enabled Rothaus to progress from his initial observations in 1996 to an eventual identification of more than 130 distinct forms of local coarse ware.

Lund visited the project that same season and brought to our attention some misidentified CRS forms as well as the presence of Sagalassos fine wares in our Study Collection. In 2001 Tamar Hodos analyzed our Geometric Era imitation Cypriot painted wares. The visits of these experts collectively strengthened the value of the Chronotype system. Rather than having to read through endless context bags, these experts were able to examine the Study Collection and in rapid order substantially increase our knowledge. Rothaus meanwhile rejoined the survey in 2000 and 2005 and together with Rauh has continued to refine and to expand the ceramics database and the Study Collection, taking new insights into account and distilling our ceramic data for eventual publication. Rothaus has also delineated typologies and fabric categories of locally produced coarse wares and common wares that have been preliminarily associated with kiln sites investigated during the survey. The resulting Rough Cilicia Ceramic Chronotype Database is arguably the most discrete coarse ware typology developed entirely from a surface survey collection.

All of these contributions have improved our understanding of the ceramic materials that exist in the survey area. At the same time it is evident that the project's ceramic research remains unfinished: several fine ware forms remain unidentified in the stored pottery collections, and the use chronology of most locally produced forms remains highly uncertain. Apart from Rothaus' refinement of the Study Collection and his organization of locally produced materials, the one consistent influence in this research has been Rauh's oversight of the collection process itself. Since 1996 Rauh has borne responsibility for the collection and processing of field pottery at nearly every site and/or survey transect investigated by the pedestrian team. Since specialists who attend the survey can identify only what Rauh and his field colleagues decide to "bag and tag" and to bring to the laboratory, for better or worse, the totals exhibited in Table One are the product of field analyses and selection processes formulated by the pedestrian team itself.

The process of determining what ceramics should be brought to the laboratory has undergone tremendous modification during the course of the field survey. In 1996 and 1997 the collection procedure was devised by the project's first field director, Richard Blanton. Since 1998 it has been heavily influenced by the evolving objectives and methodologies of the project's latest field director, LuAnn Wandsnider. Collection areas have yielded to transect units; grab collections to systematic sherd flagging; "bag and tag" to the insitu abandonment of processed pottery in the field. Given the evolution of field procedures extending over nearly a decade, how much reliance can one place in the data presented in Table One? In an effort to answer this question, a description of the evolving ceramic field processing procedures from the project's inception in 1996 until the latest pedestrian field survey in 2004 seems mandatory. This discussion is followed by a "post-processual" discussion of the array of biases the resulting ceramic data is likely to contain.

## Ceramic Collection Procedures

### **Phase One (1996-1997). Triaged grab collections in urban collection areas.**

Under the field direction of Richard Blanton the pedestrian team in 1996-1997 assumed the daunting task of obtaining ceramic collections at six large urban coastal sites, Laertes, Iotape, Selinus, Kestros, Nephelion, and Antiochia ad Cragum.<sup>7</sup> The process entailed the collection and triaging of large quantities of ceramic fragments by relatively uninformed survey participants under the direction of Rauh. Once site limits were determined, pottery collection at all urban and large rural sites occurred within designated “collection areas” of approximately 100 m square, paced off and recorded by Blanton on 1:5000 topographical maps.<sup>8</sup> Generally one or two participants collected sherds in each collection area. Large urban sites such as Selinus and Antioch required as many as 16 collection areas to complete. In 1996 participants attempted to collect all significant sherds located within a defined area, including anything painted, decorated, profiled, molded, or textured, as well as anything with a preserved fragment rim, handle, or base, and/or anything that seemed at all interesting or unique. All collected pottery was ‘bagged and tagged” according to site and collection area for processing on the grounds of the Alanya Museum. Purdue graduate, Angela Bowen, cleaned, coded, and organized all collected bags of pottery for later analysis by specialists.

Originally, Blanton and Rauh envisioned storage of these collections at the Alanya Museum. However, due to heightened restrictions on the storage of survey pottery at museum depots, they were informed at the outset of the 1997 season that the Alanya Museum could no longer store the field pottery. The team was encouraged to complete its ceramic work during the season and to return the sherds to their respective “locations” in the field. Although this difficulty was eventually resolved to everyone’s satisfaction, it did affect the team’s collection strategy during the 1997 season.<sup>9</sup> To accommodate the urgency of the situa-

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<sup>7</sup>For site and area totals, see Table Two at end of article. Rauh essentially inspected every collection area of every urban site except those conducted by Mette Korsholm at Iotape and Laertes in 1996.

<sup>8</sup>Blanton also took a GPS reading of each Collection Area. The actual collecting was done by Rauh and participants.

<sup>9</sup>Ultimately, museum authorities agreed to conserve the project’s ceramic Study Collection (which has remained at the museum ever since) and to permit storage of the context pottery at a location approved by the project’s service representative. This agreement was achieved after Blanton left the survey project; hence, the misinformation he furnishes in his survey publication (BLANTON 2000, 1, 78). It should be added that Blanton’s publication of the Rough Cilicia material was made without consultation of survey team members. With regard to the ceramic data it relies entirely on a draft furnished by Rothaus marked, “Preliminary Data. Please do not Publish.” The alternate storage solution, meanwhile, has borne its own difficulties, most notably, that the context bags stored at an undisclosed, unsecured location have been repeatedly vandalized by local inhabitants. The most flagrant instance occurred during the winter of 2004-2005 when several contexts bags were irretrievably lost. Rauh and Paige Rothaus were nonetheless able to reassemble most of the context collections, and the

tion, Rauh modified sherd collecting procedures by having all sherds collected within a given site collection area assembled in one place. He then “triaged” the collections to reduce them to smaller, “representative samples” through the elimination of redundant and/or nondiagnostic sherds.<sup>10</sup> Once triaged, the pottery was then “bagged and tagged” and taken to the “laboratory” in Gazipasha, where every sherd was cleaned and coded.<sup>11</sup> This approach, with a research objective initially focusing on presence/absence of specific forms across diachronic periods, combined with the emerging Chronotype system and Study Collection, proved remarkably effective. Rothaus attended the survey in August and Slane in September. Rothaus performed the preliminary work of processing the sherd collections and entering the coded sherds one by one into the database. He also designated sherds as either ‘contextual’ and therefore worthy of conservation or ‘unreadable’ and therefore ready to be discarded. During her visit Slane reviewed Rothaus’ work and made adjustments to many of his identifications. She also added several ceramic forms to Rothaus’ Study Collection. Between the two of them, Rothaus and Slane processed and identified some 3500 sherds. A significant percentage of the pottery, perhaps 40%, was deemed unreadable and returned to the original sites by Rauh at the end of the season. The vast majority of sherds remain bagged according to site and collection area and stored as “context pottery.” As noted above, the work of these scholars proved formative to the ceramic research of the survey project. The resulting database and Study Collection have formed the backbone of the project’s survey data ever since. Although reduced from a quantifiable perspective, the ceramic data of the 1996-1997 seasons presented a highly accurate chronological analysis of the pottery recovered in specifically delineated areas at six urban sites. The identity of the sherds was verified by two ceramic specialists; as such the ceramic data for the 1996-1997 seasons remains the most reliable of the survey’s aggregate totals, and the field collection technique proved highly effective.

One further observation requires mention regarding the rural field collections of 1996-1997. During the 1996 season Blanton conducted a coarse interval survey of the coastal and immediate hinterland areas between Selinus and Iotape, identifying 14 non-urban “sites.” Collections at these sites were conducted in a “grab” format similar to those employed at the large urban sites. During the

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Alanya Museum officials agreed to store the context pottery at the museum until such time as Rauh can devise a suitable alternative. It needs to be emphasized that the sherds contained in the Study Collection have been stored at the museum throughout the history of the survey, along with all recognizably significant ceramics and small finds.

<sup>10</sup>Diagnostic sherds were classified as those possessing recognizable forms, such as rims, handles, feet, bases, and/or recognizable surface treatment (slip, paint, incision, molding, relief, rope impressions, etc.). Diagnostic sherds also included all those exhibiting non-local fabrics. Rothaus eventually encouraged Rauh to collect samples of locally produced body sherds exhibiting minimal surface treatment, such as “smooth walled” or “wheel ridged,” to insure their potential use with chronological contexts. In addition to triaging, Rauh made an effort to review the collection work of team participants by walking every collection area personally to ensure the collection of all significant sherds.

<sup>11</sup>In addition, discarded sherds were generally photographed as a group to preserve some form of record.

second half of the 1997 field season, the impetus to complete the pottery work forced Blanton and Rauh to reduce the size of the pedestrian team. Generally working with a skeleton team of 3-4 people, Blanton investigated rural areas of terrain between Selinus and Antiochia ad Cragum by walking the crests of the intervening coastal ridge. During the course of this pedestrian survey Blanton identified 20 additional rural sites. Given the short-handedness of staff, the time limitations, and the vast extent of investigated terrain, these ceramic collections tended to reflect preliminary samples intended merely to confirm the existence of rural sites. During subsequent seasons the survey team has managed to revisit all but one of these rural sites to conduct more exhaustive “recollections.”

**Phase Two (1998). Systematic close interval survey with transect-level georeferencing and high storage tendency.**

The replacement of Blanton by LuAnn Wandsnider as project field director in 1998 brought dramatic changes to ceramic processing procedures at the pedestrian survey. During the 1998 season Wandsnider directed an intensive systematic survey along 20 km of transects in the central portion of the Rough Cilicia study area (the Coastal Ridge), surveying 21 transects, representing 395 land parcels or survey units. Each survey unit was characterized and inventoried with respect to ceramic sherd density and type. In addition, ten small sites were located as were several features, including large areas with terracing. Like Blanton before her, Wandsnider employed 1:5000 topographical maps and GPS tracking devices to record her transects; otherwise, Wandsnider brought rigorous systematic procedures to the pedestrian survey.<sup>12</sup> Wandsnider designed survey units to sample areas differentially located with respect to previously identified sites as well as potentially different landscape elements (i.e., valley areas, hilltops, coastal slopes, inland slopes, potentially defensible hilltops). Establishing east-west trending survey transects, she employed a team of four to five walkers to inspect survey units (ca. 100 m in area) with potentially high surface visibility (such as fields), using a transect interval that ranged from 10-15m.<sup>13</sup> Surveyors were responsible for walking a linear traverse and inspecting an area approximately 1.5m wide. For each transect unit Wandsnider recorded on survey forms ceramic sherd totals and the total length of the area traversed. Survey members collected all temporally diagnostic sherds and bagged and processed these as the unit’s “grab sample.”<sup>14</sup> The precision of these field walking

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<sup>12</sup>With respect to ceramic materials Wandsnider’s objectives included the following: to collecting information on ceramic densities from landscape elements that were differentially located with respect to sites that vary by age, structural complexity, and/or location; to collect information on ceramic sherd attributes sensitive to deposition history; and to collect information about the differential distribution of ceramics of differing function.

<sup>13</sup>Within each unit subunits with different surface visibilities were identified, characterized, and separately surveyed. Attributes of the subunits such as information about landform, soil or sediments, surface visibility, vegetation, current use, as well as geographic location were recorded.

<sup>14</sup>In addition, Yi-Shing Chung collected all ceramics along his traverse, referred to as the “Systematic Sample.”



procedures enabled Wandsnider to obtain greater insight into land use patterns for coastal terrain beyond the large urban sites. At architectural sites where dense brush prohibited systematic walking Wandsnider assigned Rauh and one other walker to conduct grab collections of temporally diagnostic sherds. Otherwise, the utilization of systematic field procedures dramatically enhanced results obtained from previous seasons.<sup>15</sup>

Wandsnider's systematic procedures revealed the existence of tremendous variation in sherd densities across the Rough Cilicia landscape. In addition, Wandsnider demonstrated that the identification of ceramic sherds on surfaces with different textures and color schemes depended greatly on the contrast between those sherds and the surface on which they resided, something she refers to as the sherd's "obtrusiveness." Red-hued Roman era ceramics, for example, tended to be highly obtrusive (especially in a 'raking' sunlight); whereas, Hellenistic era ceramics were less obtrusive by virtue of their dull coloration, size, roundedness, and degree of surface lichenation or mineralization. She concluded that Pre-Roman era sherds were most probably under-represented in the survey results. In addition, areas with thick scrub were avoided during the survey because diminished surface visibility yielded decidedly inferior results. Since 1998 Rough Cilicia field procedures have typically taken advantage of the high surface visibility afforded by agricultural activities. This means that terrain obscured by dense maquis scrub has mostly gone uninvestigated, despite the likelihood that it was heavily used in the past.<sup>16</sup> Some 890 sherds were collected, processed, and stored during the 1998 season and entered into the project's Chronotype database.

### **Phase Three (1999). Coarse interval survey with transect-level georeferencing and infield processing and photography, eliminating collection and storage.**

In 1999 Wandsnider and Rauh investigated an area of mountainous hinterland extending from the coastal ridge behind Iotape to the valley of the Delice Çay (the Kahyalar District). They also revisited a region of the Coastal Ridge extending from Nephelia to Antiochia ad Cragum that was superficially investigated

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<sup>15</sup>The most notable example being site RC 9717 (28-C-8-b-1), Alaca Dağı, where Blanton concluded (BLANTON 2000: 45), "the comparative paucity of pottery suggests a short occupation or possibly a non-residential function".s Systematic walking in 1998 revealed a significant concentration of imitation Cypriot painted fine ware (c. 500 BC) and other Pre Roman forms. See the 1998 project report, <http://pasture.ecn.purdue.edu/~rauhn/reports/AHR98/>; RAUH 2001, and LAFLI 2001.

<sup>16</sup>The background horizon of sherd density in areas obscured by maquis scrub was confirmed during the 2000 season by the pedestrian team's investigation of "fire breaks" cut vertically down the slopes of the Adanda Canyon. Six of eight fire breaks walked as transects (typically 30m across and 2km in length) yielded ceramic finds, four of them with counts greater than ten. When projected across the scrub covered flanks of the canyon, these concentrations suggest fairly active land use during the Roman era.

by Blanton in 1997.<sup>17</sup> Wandsnider deployed a team of 5-7 survey walkers spaced approximately 25 m. apart to conduct a coarse interval survey of these regions.<sup>18</sup> In this manner the team was able to extend the width of the survey transects some 100 to 150m across. Individual field walkers, however distant, remained in close contact with the director and with each other using handheld radios. When the team observed evidence of past human activity or disturbances, especially architectural remains or ceramics clusters of more than 1 sherd per square meter, Wandsnider designated the area as a 'site', if only for purposes of recording. After locating, describing, and recording a site located in 1999, Wandsnider employed a less obtrusive means of ceramic analysis by having the team process all pottery in the field. This method enabled the team to leave the ceramic material relatively undisturbed in close proximity to their original locations. It also allowed the team to cover more terrain by eliminating the need to convey bags of collected pottery long distances through high, remote, and oftentimes difficult terrain.<sup>19</sup> Instead, at every 'site' the team stopped to conduct 'grab collections' of the general area of material remains. Each sherd thus selected was processed, photographed, and discarded on site.

Processing the pottery in the field required Rauh to identify and to record the pottery without benefit of cleaned sherds or of comparing them with the 330+ Chronotype examples maintained in the Project Study Collection. While theoretically it should have been possible to apply the Chronotype identification system in the field, in reality Rauh found it impossible to recall each and every designated type from memory. Nonetheless, the hierarchical nature of the Chronotype system enabled better identifications than might otherwise have been possible. For example, while Rauh may not have been able to identify a sherd fully as a West Cilicia Fabric Everted Rim Stewpot, in most instances he at least came close, identifying the same sherd as a West Cilicia Fabric Stewpot. The inability to collect precluded later examination by specialist such as Rothaus or Slane. Rauh essentially assumed responsibility for identifying sherds in their existing state based on his acquired knowledge of regional ceramics and his previous field experience. As a result many ceramic identifications of the 1999 season remained tentative and susceptible to error.<sup>20</sup> Nevertheless, on re-viewing the data of the 1999 season Rauh and Rothaus believe that the in-field procedures yielded remarkably good results.

Some 760 sherds were recorded and photographed. The pragmatic nature of the results must again be emphasized. Not only is this less than perfect data

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<sup>17</sup>Where Blanton identified 8 sites in 1997, Wandsnider and Rauh located 12, and could have investigated more had time allowed. With so many small loci in the vicinity (generally tombs and sherd scatters), it became difficult to determine the ones previously investigated by Blanton.

<sup>18</sup>Typically the field director walked the crest of the ridge while the line of team members extended down slope on each side.

<sup>19</sup>Transects units were becoming increasingly removed from accessible roadways.

<sup>20</sup>To some degree mitigated by the chronotype record and photography undertaken for each individual sherd. Rauh continued to collect reduced samples of diagnostic ceramics, nonetheless, particularly Pre Roman sherds.

preferable to some illusory record of perfection, but the area in question is undergoing rapid development and looting. The 1999 fieldwork may represent the last best chance to recover any data whatsoever.

**Phase Four (2000). Coarse interval survey with enhanced georeferencing, modified in-field processing, and photography.**

During the 2000 season the pedestrian team surveyed approximately 5 square kilometers along the ridges surrounding the Adanda (Hasdere) River valley in interior Rough Cilicia (in the vicinity of Lamos and Asar Tepe). The walking team identified forty sites, now referred to as “cultural complexes”, including three previously unknown urban sites — Tomak Asarı, Govan Asarı, and Goçuk Asarı. Half of the area was surveyed using coarse interval pedestrian survey methods, with surveyors spaced 10-35 m apart. In surveying 30 units in this fashion, the team recorded ceramic densities, collecting all ceramic rim sherds and chipped stone. The remainder of the area was surveyed using modified topographic survey methods, with all ridges, hilltops and outcrops inspected for cultural remains. At the urban sites the team conducted sherd processing in a modified procedure resembling grab collections but with more precise georeferencing of sherd locations. Working amid dense sherd scatters Rauh and team members took GPS locations to inspect sherds within a 10 m radius. With each movement beyond that radius another GPS location was taken. Rauh conducted minimal sherd collections for context purposes and brought these back to the laboratory. Otherwise, sherds were left in situ, relying on GPS references, data descriptions, and photography to record the finds. Using these survey methods, the pedestrian team processed some 318 ceramic sherds during the 2000 Season.

**Phase Five (2001-2002). Close interval transect/unit walking, with intensive, georeferenced flag survey.**

During the 2001 field survey the pedestrian team returned to the Adanda Canyon to sample survey units at closer resolution. In addition to continued inspection of rural terrain for evidence of land use evidence, the pedestrian team revisited the urban sites identified in 2000 to conduct GPS sensitive close interval survey. With the help of GIS coordinator, Larry Theller, Rauh and Wandsnider incorporated highly sophisticated mapping techniques into the pedestrian survey. During the winter of 2000, Theller, Rauh, and Wandsnider brought together satellite images, terrain maps, and surveyed location data to construct a geographic information system (GIS) for the entire survey region. A grant of software, the Farmworks Site Mate Scouting program, from Farmworks Inc., and the purchase of four hand-held PC computers (PDAs) enabled team members to assign spatial locations and descriptive attributes to artifactual and featural remains as these were encountered in the field. This enabled the team to export

collected data as shapefiles that were quickly mapped in the GIS stored in the project PC at team headquarters.

During the 2001 pedestrian survey Wandsnider established land parcels the size of fields and smaller areas, approximately 50 x 50 m, as units for analysis. Within each unit, the team walked transects at 5m intervals and flagged artifacts along a 1 m wide traverse. When investigating a field unit, team members engaged in two phases of field procedure. An initial group of 5 to 7 walkers systematically inspected a given transect unit and, using small wire flags, “flagged” all temporally diagnostic sherds along their respective paths. Rauh then visited each flagged artifact to identify the sherd on written slips of paper. Working in pairs the team then utilized handheld electronic equipment to georeference and to encode in situ the materials thus flagged and identified.<sup>21</sup> All diagnostic sherds were “bagged and tagged,” and collected for further analysis in the laboratory.<sup>22</sup> In addition, Rauh conducted an unsystematic walk in each unit to locate any additional temporally sensitive sherds. Once GPS coordinates were verified and sherd descriptions completed, artifact flags were pulled and the team moved on to another transect unit.

Employing these methods, the team walked some 27 transects. These included multiple transects at all five urban sites in the area (Goçuk Asarı, Asar Tepe, Lamos, Tomak Asarı, and Govan Asarı) as well as numerous “off-site” areas of agricultural terrain in the canyon interior. At each urban site several hundred sherds were georeferenced and processed, furnishing a detailed record of sherd densities, locations, typologies, and chronology in the project GIS. The work of the 2001 survey is readily accessible through on-line, interactive GIS maps mounted at the project website.<sup>23</sup> It represents the most detailed data collection the project has ever undertaken. Use of ‘flag survey procedure’ yielded some unanticipated results, meanwhile. At first pedestrian team members with uninformed eyes tended to flag every sherd in their traverse, hence the high number of coarse ware sherds at Goçuk Asarı, the first site investigated during that season.<sup>24</sup> Eventually, the walkers were encouraged to be more selective and learned to delineate diagnostic sherds. Collections of ceramic materials remained minimal since each sherd received detailed treatment in the field. The team successfully processed significant quantities of sherds in areas of high visibility in the urban sites, furnishing a substantial record of the surface pottery

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<sup>21</sup>Team members entered Rauh’s written identifications along with measurements, descriptions, and georeferenced locations into the Chronotype database using handheld computers linked to GPS devices.

<sup>22</sup>Description included information regarding chronotype, form, size, temper, interior and exterior decoration, and rim and base radius estimates. Any sherds that Rauh designated as potentially significant were photographed; other sherds recognized as holding potential temporal value were returned to the field laboratory.

<sup>23</sup>Originally at <http://pasture.ecn.purdue.edu/~rauhn>. The site is now defunct. => GIS. Rauh constructed these maps using ESRI’s ArcView 3.2 with the HTML ImageMapper extension. Transects walked at the five urban sites are displayed by the 2001 GIS maps posted at the website. Recollections at several sites in 2002-03 have augmented these totals; see Table Two.

<sup>24</sup>See Table Two.

at these sites. In addition, sherd by sherd georeferencing enjoyed the advantage of rendering sherd densities self evident, particularly when displayed in interactive GIS maps posted at the website. “Flag survey” procedure has accordingly become the “standard” mode of operation employed under the best of circumstances by the pedestrian team. It appears to offer optimum results, whether with respect to the recording of sherd counts, sherd densities, sherd locations, or sherd photography. Wandsnider and Rauh employed similar “close interval flag survey” procedures at Kale Tepe in 2002 as well as during limited ceramic recollections conducted at Asar Tepe and Tomak Asarı that same season.<sup>25</sup>

In all, the pedestrian team processed some 1773 sherds during field operations at the five urban sites during the 2001 season. In addition, our careful attention to detail enabled Wandsnider to develop ceramic indices to speak to issues of use intensity, formational history, and function. Thus, ceramics were coded not only for chronologically sensitive attributes, but also for thickness and temper, size, abrasion, and roundness.<sup>26</sup> The difficulties posed by the logistics of “flag survey,” the elaborate coding requirements, and the tedium of electronic data entry were equally apparent, however. When things went well, this was the superior technique by far, but when things went wrong, untangling the problems back in the laboratory proved quite difficult.

### **Phase Six (2003-2004). “Flag Survey” and “Prospective Survey” Procedures**

Owing to the increasingly competitive interests of multiple survey operations at the project and the need to juggle both the schedule and the prioritizing of these interests, the work of the pedestrian team was forced into the background during the 2003-2004 survey seasons. During this phase the need to complete the work of the geoarchaeological and maritime surveys assumed precedence over that of the architectural and pedestrian surveys. These requirements seriously restricted the work of the pedestrian team, forcing Rauh to fall back on a variety of improvised procedures.<sup>27</sup> So long as the pedestrian team, the geoarchaeological team, and/or the architectural team were able to work in relatively close proximity, Rauh directed the pedestrian survey employing standard “close interval flag survey” methods. Successfully completed “flag surveys” include the ceramic investigations conducted at sites RC 0301-0307 in 2003 and RC 0401, 0407, 0408 in 2004. The pedestrian team also conducted “coarse interval flag survey” procedures in previously uninvestigated rural terrain along the Biçkici and Kaledran Rivers in 2004, particularly several transects walked near the geological trenches that were excavated in the lower Biçkici valley. Other sites, either located in remote areas difficult to access, or investigated at the end of

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<sup>25</sup>The pedestrian team devoted the 2002 season to revisiting coastal sites to record architectural elements commonly associated with ancient wine and olive oil presses.

<sup>26</sup>Features sensitive to post-depositional transport and time in the plow zone.

<sup>27</sup>Complicating matters, Wandsnider took a necessary leave of absence from the survey to attend to her newborn twins.

the season when time was limited, were subjected to what Rauh referred to as “prospective survey,” including RC 0308-0309 and RC 0402-0405, 0407, 0409-0410. Prospective survey resembled the tactics employed in 2000 to the extent that the pedestrian team attempted to GPS (within 10m radii) areas of sherd densities offering high visibility at any given site, while walking quickly across the site in one pass. The walking procedure included little that could be referred to as “systematic”, however, apart from the fact that every sherd selected for consideration was subjected to standard chronotype procedures, including description, measurement, georeferencing, and photography. Minimal “sample” collections were taken at each site. These surveys represent a superficial examination of the sites in question and were hardly intended to furnish a record in any way comparable with the pedestrian “flag surveys” conducted in 2001-2002. During prospective survey Rauh retreated to a strategy of attempting to identify the chronological “range” of pottery that was visible at first glance on the surface, emphasizing datable diagnostic sherds, particularly fine wares and imported amphoras, in an attempt to obtain some minimal sense of the temporal limits of site occupation at each site. Less than half the sites investigated in 2003-2004 were inspected in this manner; the vast majority was inspected using standard “flag survey” procedures. The pedestrian team processed some 530 sherds during the 2003 season and 545 in 2004.

## Post-Process – The Validity of the Aggregate Ceramic Data

In an effort at “full disclosure” we must now attempt to identify potential biases to procedures employed by the pedestrian survey to determine whether or not these biases have potentially skewed the aggregate ceramic totals presented above. The most obvious limitation of the survey data is the wide variety of procedures employed by the pedestrian team during the course of nine seasons, most particularly the reliance on “prospective” survey methodology at several sites investigated during the two most recent seasons. Each procedure, and each phase in the evolution of field procedures, exhibits strengths as well as weaknesses. For example, the grab procedure employed during 1996-1997 had the advantage not only of bringing large quantities of sherds back to the lab for cleaning and processing under optimum conditions, but they were also examined by two outside specialists. The obvious weakness of this procedure arises from the unsystematic character of the collection process itself, particularly when collections occurred in localized areas of looting, for example at Nephelion in 1997, where large concentrations of Late Roman fine ware fragments collected in looted areas in CA 3 and 3x have potentially skewed the diachronic record of that particular site.<sup>28</sup>

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<sup>28</sup>BLANTON 2000: 46, fails to acknowledge this fact. See Table Two for the aggregate count at Nephelion. The collections were made by Rauh, Paige Rothaus, and Helen Townsend in a freshly looted area of Late Roman context. Team members have devoted considerable discussion to the question of looting and its possible effect on sherd counts. To the degree that looting and exposure of interred remains disturbs the surface record, the ceramics data

The systematic procedures, particularly close interval and close interval “flag survey,” have the advantages of obtaining a more accurate record of ceramic remains in archaeological terrain exhibiting optimum visibility. The coarse interval methodology, while never intended to furnish a detailed record of sherd densities, has the advantage of locating areas of interest for future “flag survey” inspection in previously uninvestigated terrain. It is also capable of detecting past patterns of land use in rural terrain at a considerable distance from architectural settlements.<sup>29</sup> “Close Interval Flag Survey” prima facie seems the optimal procedure for acquiring ceramic data because it combines systematic field inspection by 5 to 7 walkers, in-field processing, photography, georeferencing, and a minimal collection of “contextual” sherd for each unit walked. In addition, georeferencing of individual sherd locations enables the team to display the data on line through interactive GIS maps posted at the project web site, thus making the data readily available to interested specialists worldwide. However, the conduct of this procedure is tremendously laborious and time consuming, and its results are only as accurate as the focused eyes of the pedestrian walkers themselves. The extremely high count of undiagnostic local coarse ware body sherds at Goçuk Asarı serves as a cautionary tale for the reliance on the “uninformed” eyes of inexperienced student walkers, for example.<sup>30</sup> This leads to the question of a second bias - results arising from “informed” vs. “uninformed” eyes of pedestrian walkers. During the 1998 season Wandsnider actually compiled data for the number of sherds observed by individual participants in her walking lines. Some participants, such as Yi Shing Chung recorded extremely high average sherd sightings, while others registered dramatically lower counts. It became apparent that the summer heat, the physical demands, and the monotony of field walking reduced the effectiveness of some line walkers to the point where their traverses essentially formed vacant holes in the line. During his experience with the Eastern Korinthia Archaeological Survey Rothaus observed the occurrence of a countervailing tendency, namely, the tendency of a few overconfident participants consistently to register sherd counts disproportionately higher than their colleagues. Does recorded ceramic data remain viable, therefore, when it arises from units where 1 or 2 of the participants were inattentive to the presence of surface materials that they passed, or where other participants regularly elevate questionable items to the level of identified sherds? Although survey specialists tend to treat our reliance on inexperienced undergraduate and beginning graduate student labor as a financial necessity, these experiences indicate that field methodologies need to be heavily tweaked to counterbalance the likely problems that ensue. During the Rough Cilicia survey the main counterbalance

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is distorted to some degree. However, this distortion is offset by the dramatically widespread character of the looting in this region. Hence, the effect of looting tends to cancel itself out over distance and space.

<sup>29</sup>See above, note 16.

<sup>30</sup>Not only were many of the student walkers who undertook the “flag survey” at Goçuk Asarı in 2001 inexperienced, but more than one student proceeded to flag every sherd indiscriminately in his or her path – including clusters of joining sherds that obviously originated from the same pot. Under these circumstances sherd counts of 3 sherds or even 8 sherds, where 1 sufficed, bore the potential to skew the resulting data.

has been Rauh's continuity as ceramic field processor.

In keeping with the spirit of post-process, therefore, the field biases of Rauh himself need to be addressed. Rauh made no pretense about the order of his priorities in the field. His first objective was always to locate and to identify Pre Roman ceramic remains. As noted above, these were invariably the most difficult artifacts to detect on the surface, owing partly to similar coloration, as well as to their extremely eroded condition and the generally small size of their surviving fragments. Since red-slipped Roman and Late Roman era ceramics tended to be more easily visible on the surface, Rauh relied on team mates walking in the same unit to locate these remains, concentrating instead on a search for the less detectable but extremely important remains of the Pre Roman era. After pursuing this priority Rauh attempted to account for the general diachronic range of ceramics that were visible in each unit, rather than the quantity of any individual form per se. This is to say that once he had identified one or more commonly found fragments of CS P-11 bowls, CS P-40 Kraters, Zemer 41 Pinched Handle Amphoras, or Rough Cilician Concave Rim Basins, he tended to ignore additional examples in order to focus on the detection of less abundant, less obvious forms and typologies. Third, in the presence of rich assemblages of imported wares he tended to deemphasize accumulating fragments of locally produced coarse wares, cooking wares, pithoi, and amphoras in the interest of locating remains of non local wares. From experience he has learned that the observations of student walkers with less informed eyes tend to gravitate toward ceramic remains of locally produced wares, since these tend to be larger and readily visible on the terrain.

In short, when field walking, Rauh attempted to focus his attention away from the obvious ceramic materials in an effort to compensate for the tendency of uninformed field walkers to focus precisely on the same. Obviously, this strategy bore the risk that Rauh's attention to rare imported wares distorted the ceramic data results in inverse proportion to the tendency of his team members to focus on typically abundant locally produced remains. When taken as a whole the tendency of some field walkers to "flag" any and all sherds indiscriminately, combined with the tendency of others essentially to "sleep walk" across a transect unit and with Rauh's conscious effort to focus on Pre-Roman, fine ware, and otherwise imported ceramic remains would seem to furnish an array of potential biases to the sherd counts. These combined with the "grab bag" character of much of the field sampling seriously undermine the legitimacy of the sherd ratios furnished in Tables One and Two, either with respect to the breakdown of the chronological data or that of imported vs. locally produced wares. On the other hand, Rauh's emphasis on pre-Roman materials ensured at a minimum that the outliers of any given sherd assemblage were vigorously searched for and identified. If Rauh's primary focus had been on the Roman era, much valuable information would likely have been left in the field. Accordingly, when field procedures cannot be truly diachronic, a good remedy is to make certain that the field reader is obsessed with a period other than those that dominate the artifact assemblage.



In 2005, Rothaus re-read hundreds of artifacts that had previously been read only by Rauh to obtain some measure of the consistency and accuracy of Rauh's in-field readings. Rothaus found that on the whole, Rauh's readings matched his own. The differences noted were easily correctable, and generally not critical. The most serious divergence was Rauh's tendency to identify early uncertain forms as Hellenistic, whereas, Rothaus tended toward a more conservative identification of these same materials as Hellenistic / Early Roman. Because identifying the Hellenistic period was so critical to the research agenda, Rothaus and Rauh systematically restudied all sherds identified as Hellenistic to be sure the identifications were secure. Other consistent differences were noted. Following the recommendation of Kathleen Slane, for example, Rauh tended to identify sherds as Eastern Sigillata A Imitations, whereas, Rothaus viewed these sherds as actual Eastern Sigillata A. Rothaus was far more systematic and thorough about identifying local coarse ware fabrics and forms than Rauh (in fairness one must recognize that Rauh had to process in the field, whereas, Rothaus work with the advantages of the laboratory with a comparative collection at hand). Rothaus also identified a few Byzantine pieces that had escaped notice. When Rothaus re-read the collections, he was able to adjust the identification of several amphora sherds, but this was largely due the team's heightened awareness of amphora forms having been informed by visiting experts, rather than the result of a difference of opinion between Rauh and Rothaus. Perhaps most importantly, most of the sherds that Rauh found unidentifiable proved equally unidentifiable to Rothaus.

Other biases worth mentioning have undoubtedly escaped our attention. Despite the problems raised by these biases, the fact remains that year in year out the aggregate sherd counts exhibit with a consistent curve of diachronically sensitive sherds. A minimal count of Pre Roman ceramic identifications yields to a significant spike of Roman era ceramic remains. The count then declines to a smaller but still significant number of Late Roman ceramic remains before dropping off dramatically with Byzantine era ceramic sherds. This is the pattern of sherd counts observed in western Rough Cilicia. Were the pattern consistent at each and every site one might find reason for concern. However, a few sites clearly display anomalous diachronic sherd patterns. Despite the presence of Roman era architectural remains, at RC 9717 (Alaca Dağı) for example, the pedestrian team recorded significant quantities of Pre Roman ceramic remains, including the Geometric Era imitation Cypriot painted fine ware noted above.<sup>31</sup> Similarly at Karaçukur RC 0303 the walking team, employing "close interval flag survey" procedures, identified several fragments of hand-made "Neolithic" pottery, more than a dozen lithic elements, three fragments of "Classical era" kylix rims, a locally produced strainer pot resembling Hellenistic forms published elsewhere, and a dearth of Roman and later era remains.<sup>32</sup> At the other end of the spectrum, the grab collections conducted in 1997 in Collection Areas

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<sup>31</sup>Dated preliminary to c. 500 BC by Tamar Hodos.

<sup>32</sup>See the report of the 2003 Season at the website, and RAUH - WANDSNIDER 2005 (in Turkish).

at the lower castle at Antiochia ad Cragum yielded predominantly Late Roman and Early Byzantine fine wares, with virtually nothing capable of verifying the existence of a Late Hellenistic pirate settlement at this locale.<sup>33</sup> At Oz Mevkii (RC 0306/0407), a promontory sheltering a sea cove below Kestros, meanwhile, the exclusively Late Roman character of the fine wares recorded through “close interval flag survey” in 2003 and 2004 have convinced Rothaus and Rauh that the site represents a single-era, Late Roman settlement. The ceramic contexts recorded at this site, thus, enabled Rothaus and Rauh to infer that the use chronology of several locally produced wares, including the Rough Cilicia (Fabric) Whiteware Globular Stewpot with Triangular Rim (SC no. 48) and the Rough Cilicia Whiteware Fry Pan (SC no. 46), were equally Late Roman. In short, the field procedures employed by the Rough Cilicia pedestrian team have proven sufficiently sensitive to detect evidence of diachronically single-era sites and site units when presented in the terrain.

Other biases noted above had a way of canceling themselves out as well. If one or two field walkers were inattentive to artifacts lying in their traverses, the radius of sherd scatters in Cilicia tended to be such that similar remains were detected by participants walking to either side, particularly when walking in close intervals of 5 to 10m. Even when utilizing coarse interval procedures, the pedestrian team seems unlikely to have walked past any but the most localized sherd scatters, or those obscured by dense brush. Last, the bias generated by Rauh’s deliberate focus on imported and otherwise temporally sensitive wares is alleviated by the pedestrian team’s reliance on systematic walking teams. Ultimately, Rauh could only flag what he himself observed in his limited portion of the walking unit; he could not control what other participants observed and flagged in their traverses. By one means or another he managed to process everything they identified. In fact, ever since the 2001 season the demands imposed by “flag survey procedure,” particularly Rauh’s responsibility to range across the field unit inspecting and identifying each and every flagged artifact, has proven so time consuming and so draining, that Rauh has often relinquished his role as a “line walker” in order to concentrate his energy on the labeling process. As a result he has come to rely increasingly on the random observations of pedestrian team members. During the last four seasons, consequently, Rauh exercised diminishing influence over the sherd selecting process, particularly when the pedestrian team was staffed by students with multiple years of field experience, and/or with otherwise demonstrably better powers of observation than his own. In short, the systematic and essentially random character of the pedestrian team’s field procedures has helped to limit several potential biases. This seems adequately demonstrated by the fact that all of the pedestrian team’s most spectacular ceramic finds - the Cypriot painted ware at Alaca Dağı, the handmade pottery, lithic fragments, and kylix rims at Karaçukur, the Hellenistic kantharos feet at Iotape, the Hellenistic fishplate at Iotape, the “Bronze Age”

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<sup>33</sup>RAUH et al. 2000; RAUH 2003, 179; something now challenged by the underwater find of a Will Type 10 amphora neck in the harbor below the lower castle. See the report of the 2004 Season at the website and MARTEN 2005.

stewpot handle at Antioch - were found by participants other than Rauh, and more often than not by student participants.

Wandsnider's decision to impose systematic procedures on the pedestrian team has essentially neutralized the potential biases of the team leaders in favor of random observations by multiple field walkers, precisely the sort of objective means of observation that is desirable in a field survey. The survey directors have come to rely on their field procedures as a collective "tool kit" of investigative strategies to be utilized as time and circumstances warrant. To a large degree, what has helped to make the ceramic data of this survey reliable is the longevity of the survey itself (nine seasons), the distillation of survey procedures into a workable field set, and, perhaps most of all, the recruitment of a very large number (46) of pedestrian team participants through the years.<sup>34</sup> The likelihood seems great, accordingly, that the aggregate counts compiled by the Rough Cilicia survey through nine field seasons reflect some reasonable facsimile of the actual pattern of ceramic remains that survive on the landscape.

In retrospect, if we were to attempt another survey of an unstudied area with unknown local ceramics, we would wholeheartedly begin with a grab-bag methodology. We would then transition into coarse interval survey. Then, only when we had very specific research questions and methodologies defined, would we transition into a streamlined version of the Phase 5 close-interval flag survey. While the above may seem obvious, some disciplinary introspection would not be wasted. Regional survey projects (including ours) often manifest themselves first in publications of their methodology and theory, and in anticipation of significant questions to be answered. In the end, after all the data issues are dealt with, a presence/absence of diachronic periods across a landscape is a predominate result, with the sherd counts to which we devote so much time and energy seeming to yield little more. If a lesson is to be learned from the pedestrian team experience of the Rough Cilicia Survey, it is that greater care must be given to negotiating the boundaries between selling oneself short through overly simplistic field methodologies, and exhausting time and resources through unproductive, overly complex alternatives.

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<sup>34</sup> Apart from the collaborators mentioned in the text, the pedestrian team has included the following participants (number of seasons in parenthesis): Cindy Bedell, Max Black (2), Molly Boekhe, Angie Bowen, Chase Brazel, Pinar Bursa (2), Yi-Shing Chung, Alicia Coles, Matt Dillon (6), Jason DeBlock (6), Canan Dökmeci, Matt Douglass (3), Anna Drozda (2), Ryan Duddleson, Matt Evans (2), Mat Haber, Mette Korsholm (5), Ben Koziol (3), Art Krispin (4), Melissa Kruse (2), Ergün Laffi, Kim Leaman (2), Damian Miller, Tony Millus, Elizabeth Rauh, Paige Rothaus, Betül S ahin (4), Gulnaz Savran, Frank Smith, Mark Stephan, Ilknur Subaşı, Zach Taylor, Berrin Taymaz, Beliz Tecirli, Helene Thibaud, Trevor Thomas, Jennifer Tobin, Rhys Townsend, Helen Townsend, Stephen Tracy, Nursel Uçkan, Levent Vardar (3), Erik Wade (2), Sara Wood (2), İlhami Yetkin, Megan Young.

## Bibliography

BLANTON 2000 R. E. BLANTON, Hellenistic, Roman and Byzantine Settlement Patterns of the Coast Lands of Western Rough Cilicia, BAR International Series 879, Oxford 2000.

GIVEN et al. 1999 M. GIVEN - A. B. KNAPP - N. MEYER - T. E. GREGORY - V. KASSIANIDOU - J. NOLLER - L. WELLS - N. URWIN - H. WRIGHT, The Sydney Cyprus Survey Project: An Interdisciplinary Investigation of Long-Term Change in the North Central Troodos, Cyprus, in *JFiedlA* 26, 20–39.

LAFI 2001 E. LAFI, Alacadag: Eine neue Fundstelle von späteisenzeitlicher Keramik im westlichen rauhen Kilikien, in E. JEAN - A. M. DINÇOL - S. DURUGÖNÜL (eds.), *La Cilicie: Espaces et pouvoirs locaux (2e millénaire av. J.-C. - 4e siècle ap. J.C.)*. Actes de la Table ronde internationale d'Istanbul, 2-5 novembre 1999, Paris 2001, 195-214.

MARTEN 2005 M. G. MARTEN, Spatial and Temporal Analyses of the Harbor at Antiochia ad Cragum. Unpublished MA Thesis. Dept. of Anthropology, Florida State University, Tallahassee Florida 2005.

MEYER 2003 N. MEYER, Pottery Strategy and Chronotypes, in M. GIVEN - A. B. KNAPP (eds.), *The Sydney Cyprus Survey Project: Social Approaches to Regional Archaeological Survey*. Monumenta Archaeologica 21, Los Angeles 2003, 14–16.

MEYER - GREGORY 2003 N. MEYER - T. E. GREGORY, Pottery Collection, Pottery Analysis, and GIS Mapping, in M. GIVEN - A. B. KNAPP (eds.), *The Sydney Cyprus Survey Project: Social Approaches to Regional Archaeological Survey*. Monumenta Archaeologica 21, Los Angeles 2003, 48–52.

RAUH et al. 2000 N. K. RAUH - R. F. TOWNSEND - M. HOFF - L. WANDSNIDER, Pirates in the Bay of Pamphylia: an Archaeological Inquiry, in G. J. OLIVER - R. BROCK - T. J. CORNELL - S. HODKINSON (eds.), *The Sea in Antiquity*, BAR International Series 899, Oxford 2000, 151-180.

RAUH 2001 N. K. RAUH, Dağlık Kilikya Yüzey Araştırma Projesi: 1998 ve 1999 Raporları, in *Araştırma Sonuçları Toplantısı 2. Cilt (22-26 Mayıs 2000, İzmir)*. T.C. Kültür Bakanlığı, Anıtlar ve Müzeler Genel Müdürlüğü, Ankara 2001, 259-272 (in Turkish).

RAUH 2003 N. K. RAUH, *Merchants, Sailors, and Pirates in the Roman World*, Stroud, Gloucestershire 2003.

RAUH - WANDSNIDER 2005 N. K. RAUH - L. WANDSNIDER, Dağlık Kilikya Yüzey Araştırma Projesi: 2002 ve 2003 Sezonlarının Raporu, in *Araştırma Sonuçları Toplantısı 1. Cilt (Konya, 2004)*, T.C. Kültür Bakanlığı, Anıtlar ve Müzeler Genel Müdürlüğü, Ankara 2005, 125-138 (in Turkish).

## Appendix: Tables One and Two

Table 1: Results of field analyses and selection processes formulated by the pedestrian team itself

Pre Roman	Early Roman	Late Roman	Byzantine	Coarse Ware	Cooking Ware	Amphora	Uncertain	Total
391	2038	920	75	2460	827	536	66	7313

Table 2: Sites and area totals for six large urban coastal sites, Laertes, Iotape, Selinus, Kestros, Nephelion, and Antiochia ad Cragum

Survey Area	Season(s)	Pre Roman	Early Roman	Late Roman	Coarse Ware	Cooking Ware	Amphora	Uncertain	Total	
Iotape	1996	11	45	27	3	3	25	14	0	128
Iotape Rural Area	1997, 1999	0	11	8	0	28	7	2	0	56
Syedra Kiln Site	1996	1	7	11	0	12	0	0	0	31
Laertes	1996	14	69	36	0	63	6	11	0	199
Biçkici Lowland	1996, 1998	6	44	31	5	225	31	22	7	371
Selinus Rural Area	1996, 1998	7	22	10	3	86	7	11	1	147
Selinus	1997-1998	67	192	159	8	150	11	30	1	618
Kestros	1997	0	104	46	0	2	25	0	0	177
Kestros Rural Area	1997	0	14	31	12	51	14	6	3	131
Coastal Ridge	1997-1998	52	150	57	0	146	41	17	6	469
Nephelion	1997	12	75	110	0	13	52	13	0	275
Nephelion Rural Area	1997, 1999	3	114	53	0	165	25	14	2	376
Antiochia ad Cragum	1997	6	111	93	10	6	32	20	4	282
Antioch Rural Area	1997, 1999	6	61	18	0	147	18	9	6	265
Kahyalar District	1999, 2002	37	178	22	3	200	46	18	1	505
Govan Asarı	2000-2001	30	89	12	1	146	82	23	0	383
Goçuk Asarı	2000-2001	9	127	46	4	266	86	150	0	688
Lamos	2001	15	121	31	1	112	69	34	2	385
Asar Tepe	2001-2002	24	159	9	0	128	71	26	0	417
Hasdere Rural Area	2000-2003	32	50	9	18	221	58	80	20	488
Biçkici Highland Sites	2003	37	129	47	3	136	48	6	10	416
Gurcam Karatepe Highland	2003	6	21	5	0	61	19	9	1	122
Charadros	2004	14	103	16	0	39	19	15	1	207
Kaledran Highland	2004	2	42	33	4	54	35	6	1	177