The Distributional Analysis of Cultural Materials Excavated from Trenches 1 and 2, Gales Property, Huluga Open Site, Cagayan de Oro City

Michelle S. Eusebio

Introduction

The excavation of the Gales Property, Huluga Open Site (X-1991-Q_2) conducted last October to November 2004 had the objective of establishing evidence of ancient settlement of the early Kagay-anons in this area. The expected evidence for this settlement would be features like postholes, hearths and middens but none were found during the course of the excavation. Despite the absence of such proof, the area was still established as a habitation area since cultural materials like earthenware sherds, obsidian flakes and chert flakes were abundantly found at the surface and during the excavation. The area has much turbation and most artifacts are not in their primary deposition position. To make sense of the excavations of the two trenches the distributional analysis of collected artifacts by weight was done to give a

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quantitative gauge for the distribution of artifacts throughout the two trenches. In effect, we were looking for a way to put some meaning to artifact distribution.

Methodology

Both Trenches 1 and 2 had dimensions of 2 m x 7 m and ran down the slope from the southeast to the northwest. These were divided into seven sections, which were two meters long and one meter wide and labelled A to G starting from southeast to northwest. Also, these trenches had two main layers, the first one being the plow zone area with loose, moderately sorted reddish brown clay and the second one with compact to loose, moderately sorted yellowish brown silty clay. Artifacts were collected through scraping of the soil during excavation and sieving of soil sections. They were cleaned, accessioned and weighed according to their layer and section.

Data and Results

The accumulated weights for each type of artifacts are used as data since it is supposed to give unbiased estimates of the composition of target populations and also comparisons between them. Although artifacts like pottery break during deposition, breakage does not affect the composition and overall weight of the assemblage. Thus, weights gathered during sampling represent the overall weight of the original assemblage since the relative proportions should remain unchanged. From the preceding explanations, it can be concluded that weights are superior to numbers as a measure of quantity (Orton 2000). During the course of the excavation, it was assumed that the accumulated weight of the artifacts increases as the trench slopes downward, which contributes to erosional effects. The following data may support or disagree this assumption. Tables 1 to 4 show the distribution of artifacts from the two trenches by weight in grams. The number of pieces cannot be accounted especially for earthenware sherds since they were broken into tiny pieces and weathered, indicating that they have undergone numerous

post-depositional activities from bioturbation and weathering. Bar diagrams were provided along with the tables to graphically illustrate the artifact distribution and aid in the analysis of data.

Layer and Section	Earthenware Sherds	Obsidian	Chert	Others	Total
1A	66.0	2.6	4.4	0.0	73.0
1B	96.7	2.1	0.2	0.0	99.0
1C	47.0	1.4	3.1	0.0	51.5
1D	41.0	1.8	15.2	0.0	58.0
1E	58.9	3.7	2.8	4.7 (tradeware)	70.1
1F	92.7	4.2	4.0	0.0	100.9
1G	208.5	0.2	9.1	0	217.8

Table 1
Distribution of Artifacts from Layer 1 of Trench 1 by Weight in Grams

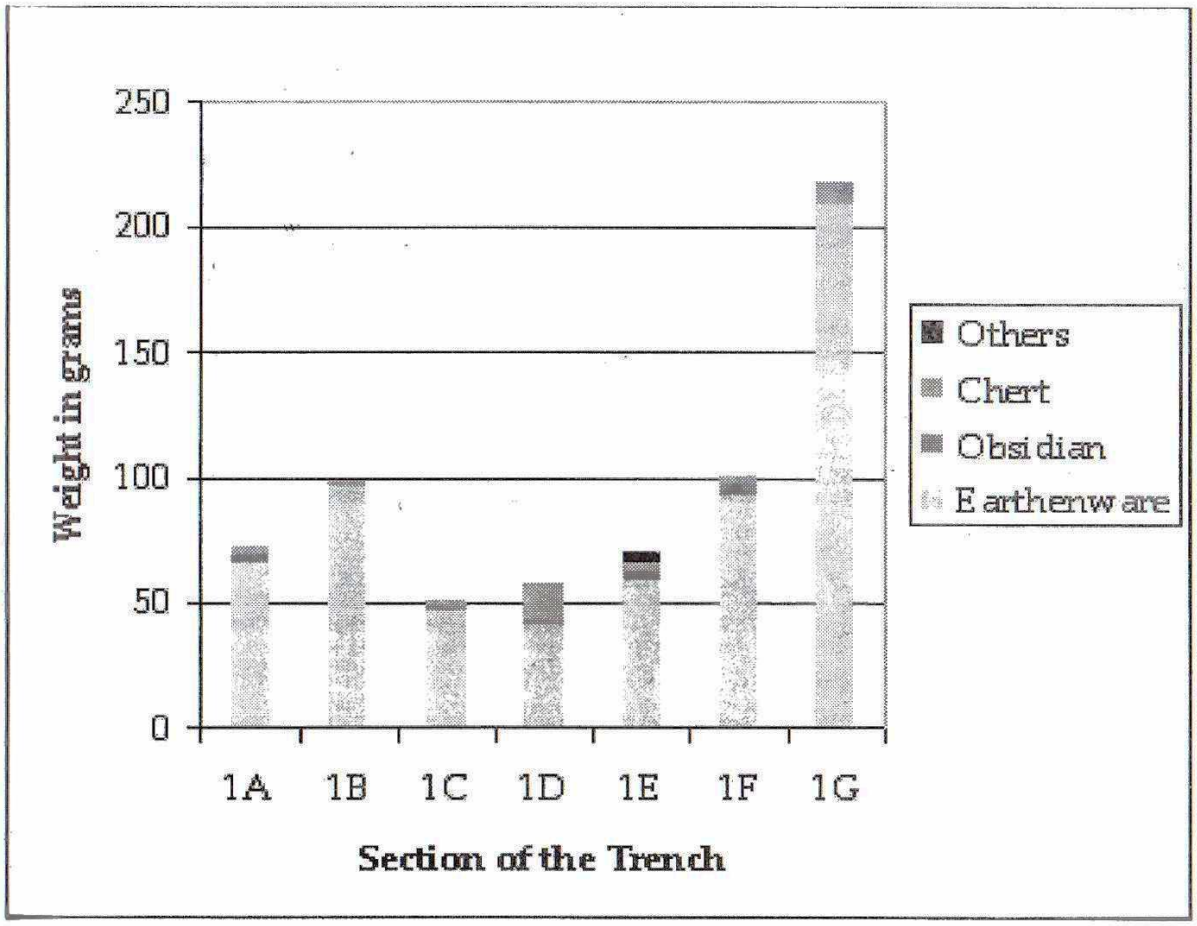

Figure 1
Distribution of artifacts in Layer 1 of Trench 1

2A	0.3	0.0	0.0	0.0	0.3
2B	0.0	0.0	0.0	0.0	0.0
2C	0.3	0.0	1.0	3.2 (iron piece)	4.5
2D	5.6	0.7	0.0	0.0	6.3
2E	20.1	0.0	0.0	1.7 (andesite flake)	21.8
2F	2.0	0.0	0.0	0.0	2.0
2G	0.0	5.0	0.8	0.0	5.8

Table 2
Distribution of Artifacts from Layer 2 of Trench 1 by Weight in Grams

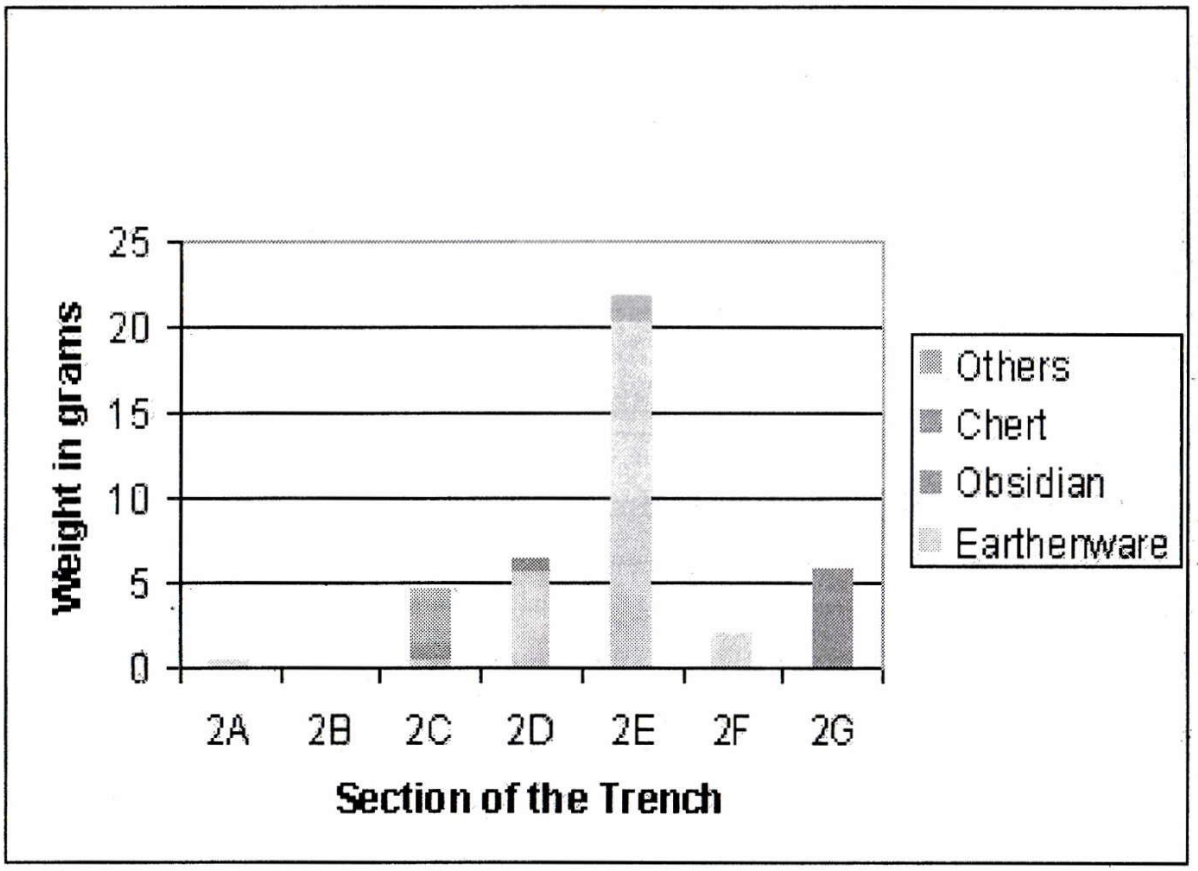

Figure 2
Distribution of artifacts in Layer 2 of Trench 1

Layer and Section	Earthenware Sherds	Obsidian	Chert	Others	Total
1A	93.9	0.5	13.6	1.1 (flake)	109.1
1B	71.2	0.7	0	0	71.9
1C	103.9	0.6	6.7	0	111.2
1D	128.6	1.5	7.6	4.4 (iron piece)	142.1
1E	802.8	6.1	9.5	0.0	818.4
1F	130.8	8.1	7.9	1.6 (tradeware)	148.4
1G	264.7	0.5	12.3	2.3 (andesite flake) + 1.8 (stoneware)	281.6

Table 3
Distribution of Artifacts from Layer 1 of Trench 2 by Weight in Grams

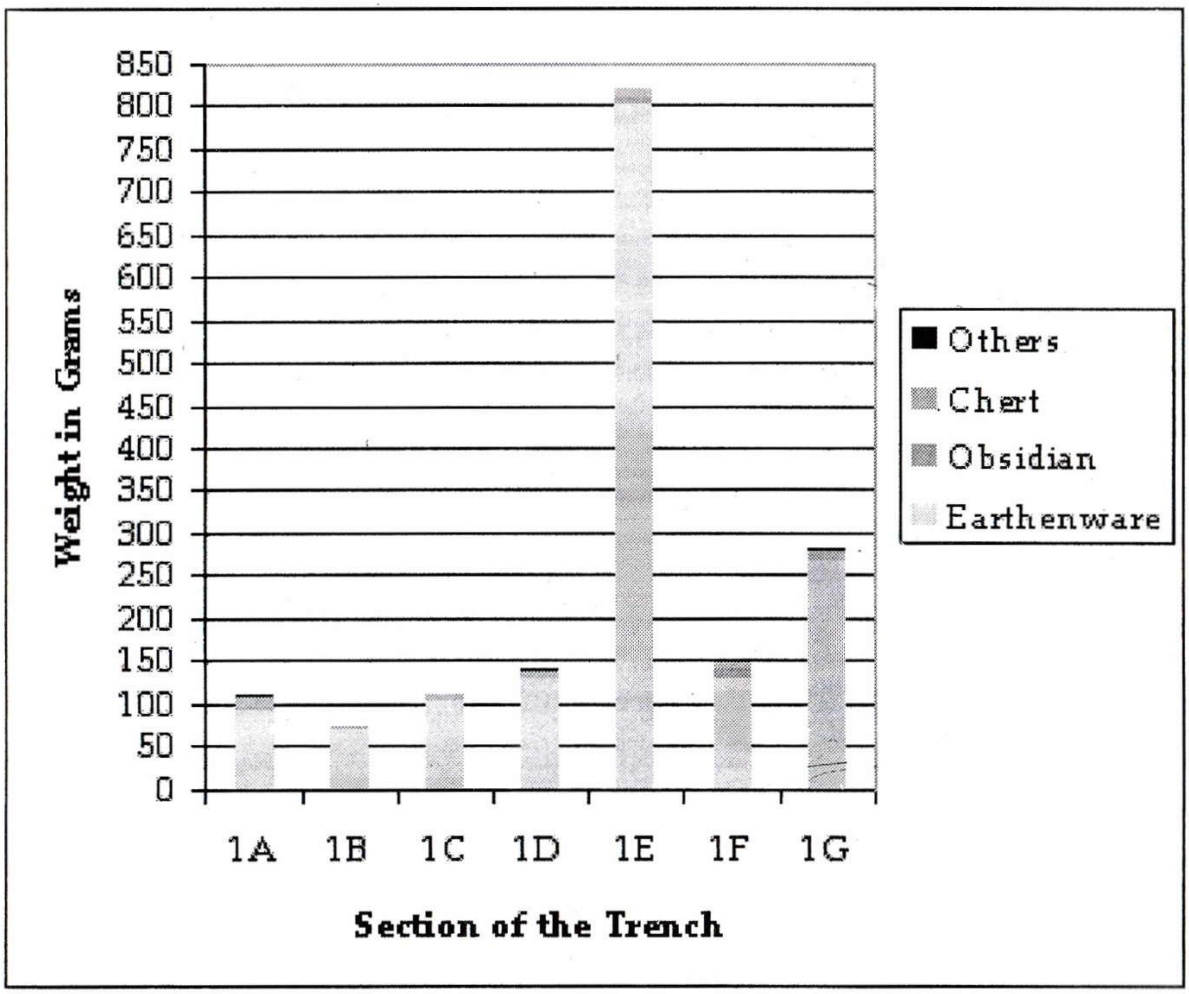

Figure 3
Distribution of Artifacts in Layer 1 of Trench 2

2A	0.0	0.0	0.0	0.0	0.0
2B	3.3	0.0	0.0	0.0	5.2
2C	0.0	0.0	0.0	0.0	0.0
2D	4.3	0.0	1.7	0.0	0.0
2E	9.7	0.0	0.0	0.0	9.7
2F	12.6	0.0	0.0	0.0	12.6
2G	0.0	0.0	0.0	0.0	0.0

Table 4
Distribution of Artifacts from Layer 2 of Trench 2 by Weight in Grams

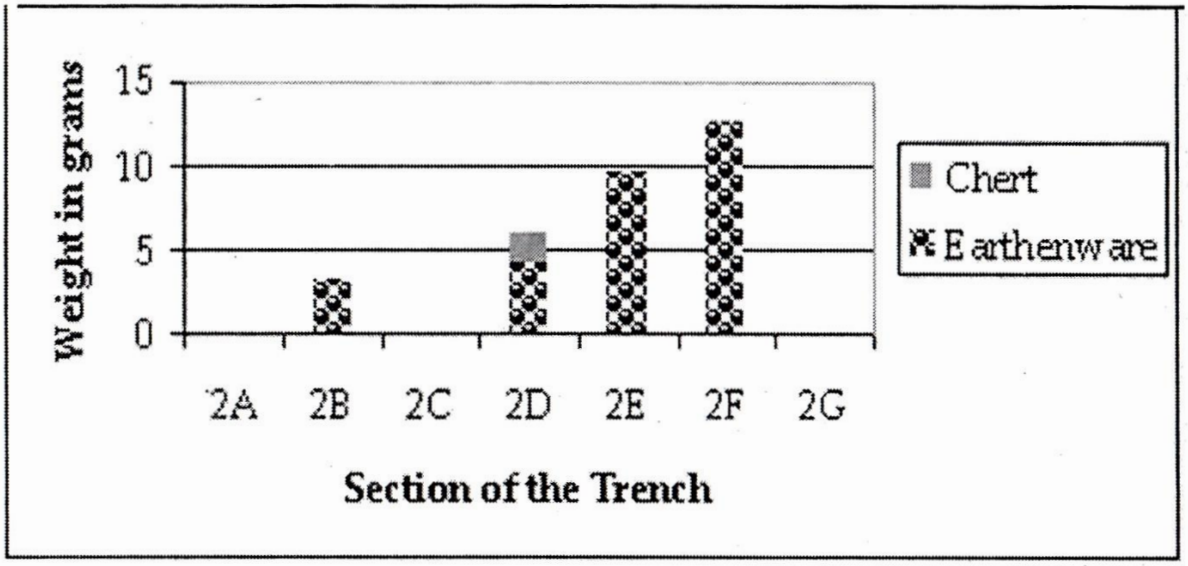

Figure 4
Distribution of artifacts in Layer 2 of Trench 2

Discussion

The objects used when discarded can be broken by natural and cultural factors. They could also be transported from one place to another (Shott 2001). The artifacts are possibly not in their original depositional locations when found during an excavation. These may have been rearranged due to their dynamic surroundings caused by bioturbation, movement of sediments downslope and the soil matrix's expansion or contraction. These may move the remains upward, downward or laterally in the matrix. Recognizing these possibilities may avoid serious errors of archaeological interpretation that can occur (Waters 1992). Ploughing is one of the factors that have contributed to the dynamic surrounding that caused the artifact rearrangement of the materials excavated from the Gales Property of the Huluga Open Site. As the artifacts entered the archaeological record, they are abandoned and later are reduced by ploughing. The affected remains are not adequate anymore for interpretation since some of them may have been lost already during this process. Ploughing may also destroy shallow features (eg. postholes) but leave deep features such as wells and storage pits. The collected materials may not be representative anymore of the original archaeological distribution (Orton 2000).

This paper illustrates the sampling reality where archaeological remains (features and artifacts) are rarely the totality of what really remained. They are only samples from the original unknown population. Not all that was used will be included in the archaeological context, preserved, survived, exposed to/by archaeologists and properly identified (Orton 2000).

The expected results for this analysis were that material concentration increases from the first meter (section A) to the seventh meter (section G) due to the slope (please refer to the east and west wall profiles (Figures 5 and 6) of the two trenches on following the discussion of results). Based on the results, Layer 1 has much more abundant artifacts compared to Layer 2. The result generated from the Layer 1 of Trench 1 agrees with the expected result except for sections A and B. The total weight of artifacts increases from 1A to 1B, then suddenly drops in Section 1C and increases again to section 1G. The depression

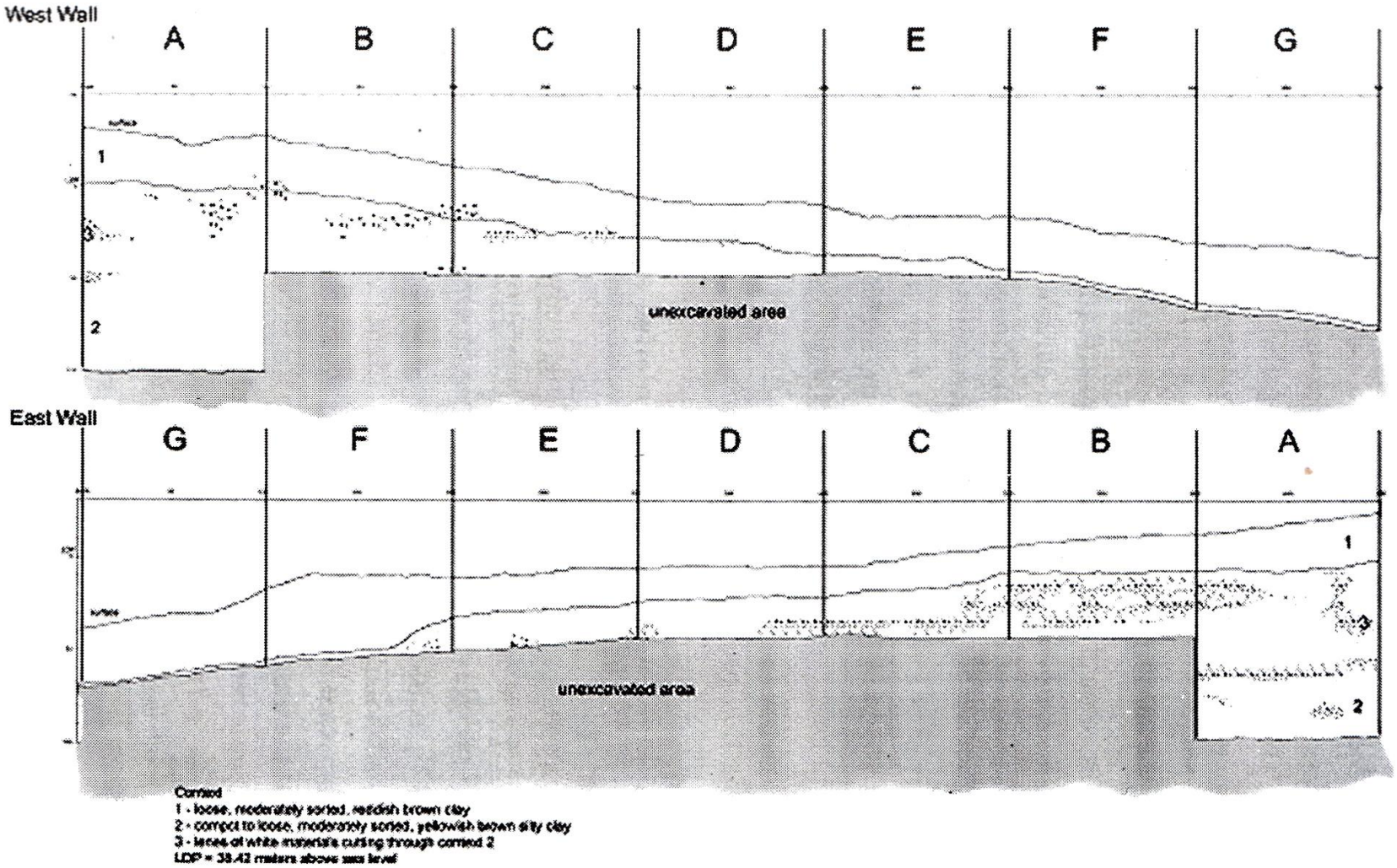

Figure 5
Trench 1 stratigraphic profile

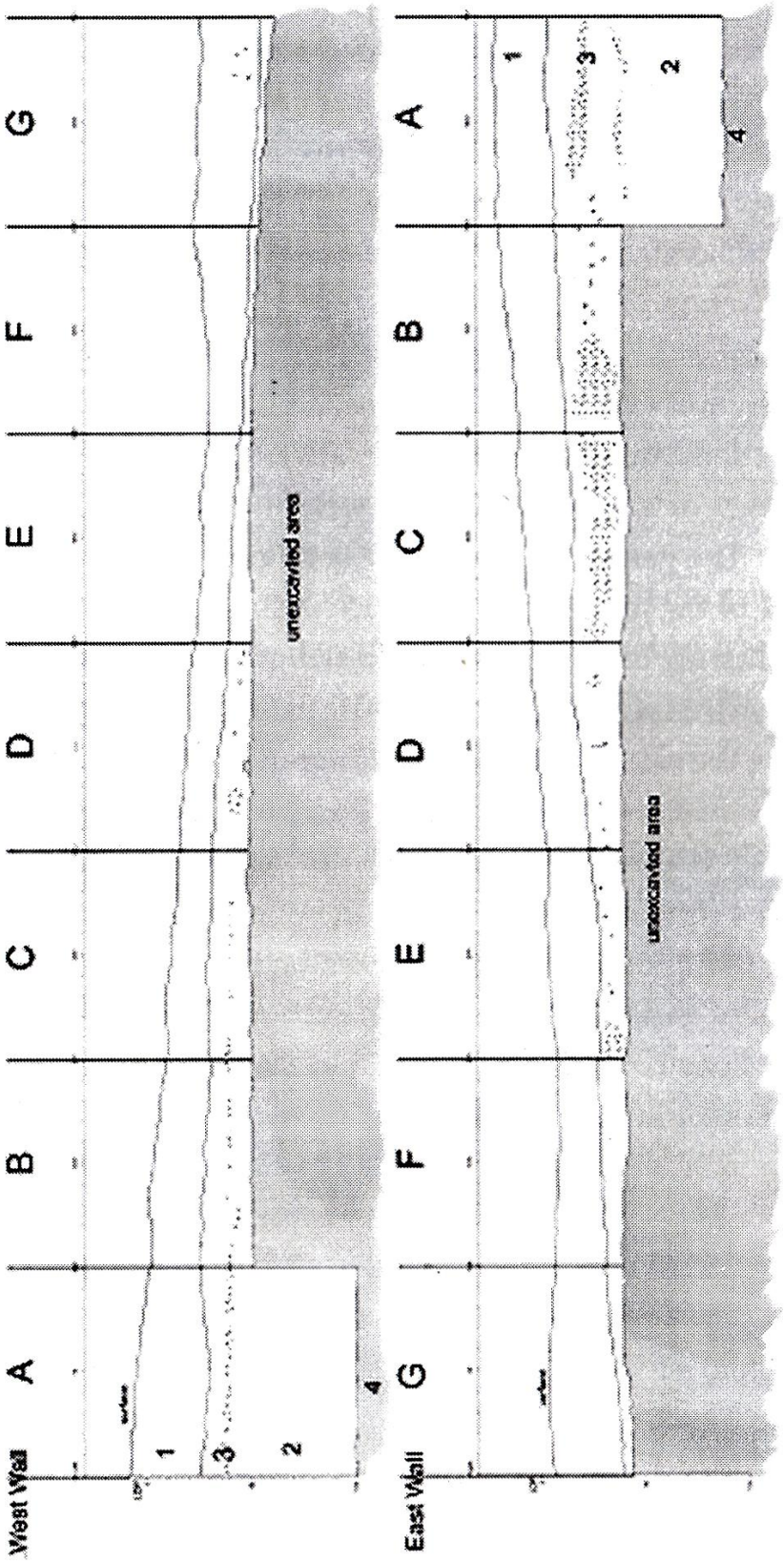

Figure 6
Trench 2 stratigraphic profile

in Section 1A as seen from the west wall profile of Trench 1 may had contributed to why it has greater material concentration than sections 1C, 1D, and 1E. Section 1B also has greater material than sections 1C, 1D and 1E. The original amount of artifacts deposited in this section could be larger than that of three sections mentioned. For Layer 2 of the same trench, the total weight of artifacts increases from section 2A to 2E and has much fewer artifacts than Layer 1. The absence of artifacts in section 2B may be due to the lens of calcitic materials that filled that section as seen in the east wall profile that prevented the inclusion of materials from the upper layer. Sections 2F and 2G have lower material concentration than sections 2C, 2D and 2E since excavated portions of the former sections are thinner than the latter.

For Layer 1 of Trench 2, the total weight of artifacts increases from section 1B to 1E. The generated result did not agree with what is expected. Notice that most of the materials were concentrated in the section 1E, not in 1G as expected. During the weighing of the artifacts from section 1E, most of the earthenware sherds were bigger than those from other sections of Trenches 1 and 2. Checking the east and west wall stratigraphic profiles of Trench 2, the surface of this trench does not actually run down the slope from the southeast and northwest like in Trench 1. It only runs down the slope from sections 1A to 1E, then slopes upward to section 1F and 1G. The slight depression in sections 1E and 1F contributed to the accumulation of greater weight of artifacts with bigger sizes of earthenware sherds in section 1E. Section 1A has more material than sections 1B and 1C. The original amount of artifacts deposited in this section could be larger than that of the three sections mentioned. Layer 2 of the same trench has fewer artifacts than Layer 1 as in Trench 1. No artifacts were collected from sections 2A and 2C of the same trench. This may also be due to the lens of calcitic materials that filled that section as seen in the east wall profile that prevented the inclusion of materials from the upper layer. The horizontal surface of Layer 2 at section G was exposed only during the excavation at Trench 2 so no sediment from this layer was sieved. For the remaining sections of Layer 2, the total weight of artifacts increases from section 2D to 2F.

Implications of the Study

The increase and decrease of artifact densities in a stratigraphic unit do not mean the increase and decrease in the intensity of occupation. They may reflect the increase and decrease of sedimentation rates. Rapid sedimentation will separate archaeological assemblages clearly from each other while the opposite happens for slow sedimentation (Waters 1992). This may explain why artifacts in Layer 2 are very few compared to Layer 1 from both Trench 1 and Trench 2.

It was also observed that the excavation area runs down the slope from the area of Trench 1 to Trench 2. Aside from this, it runs down the slope from southeast to northwest. This may explain why Trench 2 has higher material concentration compared to Trench 1 when the bulk of artifacts in two trenches are being compared.

It is very obvious that most of the artifacts gathered are the earthenware sherds. This implies that the area could be really a habitation site where people have settled temporarily and used these earthenware pots for cooking, storage or transporting food.

Generally, results show that the trend of material concentration in different sections of a trench is affected by erosional effects, contributed to by the general contour of the surface. However, the method of quantifying artifacts by weight is not reliable as a source of complete archaeological interpretation due to several limitations. These are: the difference in the properties of materials (eg. earthenware is different from obsidian); the original amount of deposited material in each section varies; and the reality that not all artifacts in soil sections have been collected during the processes of scraping and sieving of the soil. As Orton (2000) says, what seems to be a problem is that the target population is the whole object but samples are only available as broken objects. Also, the original provenances of collected artifacts have already been lost due to cultural and natural activities that occurred in the area.

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Abstract

The distributional analysis by weight of collected artifacts from the 2004 excavation of the Gales Property, Huluga Open Site (X-1991-Q_2) was done to give a quantitative gauge for the distribution of artifacts throughout the two trenches. These trenches have dimensions of 2 m x 7 m, were divided into seven sections and have two main layers. The artifacts were weighed according to their type, trench, layer and section. The accumulated weights for each type of artifact were used as data, which represent the overall weight of the original assemblage. This paper illustrates the sampling reality where archaeological remains only consist of a sample portion from the original unknown population. Results show that the trend of material concentration in different sections of a trench is affected by erosional effects and influenced by the general contour of the surface.

Michelle S. Eusebio is a graduate student of the Archaeological Studies Program, University of the Philippines