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CONTEMPORARY PATTERNS OF MATERIAL CULTURE OR HANSEL AND GRETEL IN THE MODERN WORLD: FOLLOWING THE TRAIL OF PULL TABS TO "THE PAUSE THAT REFRESHES"*

Stanley South

Introduction

In the well known story of Hansel and Gretel crumbs were dropped to mark a trail to guide the children out of the woods on their return trip home. They had not counted on the birds re-cycling the crumbs as food, however, and their best laid plan went awry. Their theory was valid, however, in that small items dropped along the way leave a trail that can be followed, provided, of course, the dropped items survive to be seen at a later time. If Hansel and Gretel had used a non-perishable item to mark the trail they may have found their way out of the woods sooner.

Modern Hansels and Gretels on excursions into the woods are dropping papers, plastics, bottles, cans and caps and pull tabs and other things as a record of their route and their behavior. Major by-products also to be seen on city streets today relate to the consumption of bottled and canned drinks, a major activity seen to be taking place as people walk along the sidewalks of the city. Pull tabs, for instance, are not carried around and deposited in the nearest trash container as are cans, but are dropped near the source of the canned refreshment, leaving a cluster to mark the behavior which the Coca-Cola Company calls "The Pause that Refreshes." By studying such modern material culture remains from behavior that can be observed as a control against the patterning of such remains archeologists may well begin to find their way out of the woods in their study of cultural systems and how they work.

During the past decade increasing interest has been generated in the study of modern material culture patterns. Bert Salwen has studied soup cans on grocery shelves with a view toward the ethnic group most using the store (Salwen 1973). William Rathje's Tucson garbage study is widely known to have produced data of value in understanding the relationship

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between behavioral attitudes and the by-products of contemporary behavior, as well as providing insight into problems of archeological method and theory (Rathje 1974; 1977; 1978; Rathje and McCarthy 1977). Marke Leone has examined Mormon fences and temples from a broad perspective providing insight relevant to interpretation of archeologically derived data bases (Leone 1972: 1977). Rathje has recently outlined the development of modern material culture studies in a topical synthesis in which he points out that such studies function toward making "the past relevant to the present and the present relevant to the past" (Rathje 1978).

One of the primary reasons such studies are being undertaken on an ever-increasing scope is the fact that there is a changing perspective within archeology as to what constitutes the proper data base of the field. Bert Salwen and Robert Schuyler, among others have recently pointed this out (Schuyler 1978:27; Salwen 1973), urging the study of material cultural through all time and place, perhaps taking their clue from Deetz, who in 1970 pointed to the importance of studying the material aspects of culture "in their behavioral context, regardless of provenience" (1970:123).

Among the foundations pointed out by Rathje's study as a basis for this changing perspective is the goal of some archeologists "to derive and test general regularities devoid of temporal and spatial parameters in the relation between people and things" (Rathje 1978). In the process of seeking this goal archeological methods and theory are also being tested using modern material culture items such as bottles, soup cans, and pull tabs from beverage cans.

The Research Problem

During the preparation of my book Method and Theory in Historical Archeology in 1975, I emphasized the potential of the study of pattern in modern material culture (South 1977: 34, 132). By 1976 I saw historical archeology as a "great proving ground" for archeological, anthropological and culturological theory and method (South 1977), yet I had not conducted my own study of patterned by-products of modern behavior. By September 1976, therefore, I had become aware of the clustering phenomenon seen in the dispersion of pull tabs from canned beverages seen in front of various buildings in which were to be found the machines dispensing soft drinks. It was then that I conducted my pull tab study.
I was familiar with McKellar's (1973) study of litter on the University of Arizona campus in which she demonstrated that objects below three inches in size tended to be dropped whereas those over that size were placed in trash cans. The pull tabs seem to reflect a similar pattern to that observed by McKellar in that they each represent a whole can, yet no whole cans were to be seen in the areas where I had observed clusters of tabs on the sidewalk as I walked to lunch each day. Casual observation had supported McKellar's hypothesis that size was an important variable to be considered, since I seldom saw on sidewalks objects larger than the three inch threshold she had noticed.

Given McKellar's observation that much of modern urban refuse above the size of three inches is discarded in waste receptacles and eventually makes its way to the city dump, it follows that any study of modern behavior using archeologically surviving by-products will depend to a large extent on the excavation of city dumps or on those objects smaller than three inches in size. By observing behavior and the resulting by-products in modern cultural systems archeologists can gain insight into archeological formation processes, and methods being used to explore the linkage between the behavior and the archeological record. In so doing archeological methods can be refined since they are being explored under conditions where the behavior producing the record is known.

My 1976 pull tab and related small objects survey was undertaken with the goal of exploring the relationship between such small material by-products and the behavior which produced them.

I chose as my data base those small objects dropped, not intentionally as Hansel and Gretel dropped crumbs, but casually dropped rather than being tossed in trash receptacle The area of my survey was to be the sidewalks of the city of Columbia, South Carolina. I planned to take samples from a wide area of the city sidewalks, but after only two surveys were taken I did not find time to complete the broader scope of the study, and the data have been awaiting further surveys. However, limited as it is the information from the surveys of September 1976 is presented here.
The Research Questions

The sidewalk survey was designed to address itself to several questions using observed behavior and sidewalk survey data:

1. Since city sidewalks are designed to allow people to walk from one area to another they function primarily as a means of comfortable transportation by foot. Observation revealed that major activity on the sidewalks consisted of walking, talking, eating and drinking. Eating candy bars, crackers and other such food produced no metallic or archeologically lasting by-products, so these were not tabulated in the study. Walking, on the other hand, had been observed on many occasions to be represented by iron heel- and toe-taps accidentally being lost on the sidewalks of the city. It was hypothesized, therefore, that articles of clothing such as buttons might be occasionally seen, but that tabs from drink cans, and heel taps would be the primary data representing walking and drinking behavior. The question of concern here, therefore, is whether the sidewalk record would reveal by-products reflecting the major activities of drinking and walking.

2. Since we know that tabs are often pulled from can tops at or near the source of the canned drink, and given McKellar's statement that objects the size of the tabs will be dropped rather than specifically discarded in trash cans, we can expect that a cluster of tabs would reflect the location of a drink machine in the near vicinity. It should be noted that we are basing this prediction of tab-cluster = drink machine on a known relationship between pull tabs and the cans themselves. If we do not know of this one-to-one relationship we might, in our ignorance, suggest a functional relationship between the tabs and architecture, or with the function of the structures in front of which such clusters occur, or, as Marcie recently did in a Peanuts comic strip, we might suggest a relationship between a pull tab and a suit of armor of an Inca Warrior (Schulz 1978).

3. Since drinks bottled in glass bottles would likely be opened by an opener fastened to the side of the drink dispensing machine, caps from such drinks were expected to be present in minor numbers if present at all. This expectation is also based on a direct knowledge of the relationship between a glass bottle and a metal cap, an important piece of given information not always known when prehistoric data are involved. The relationship between projectile points, lithic
cores, and flake debitage, for instance, is one only now being worked out following decades of concern with only the projectile point aspect of this data set.

4. Given the smooth surface of the sidewalk from which data were to be collected when compared with the grassy border between the sidewalk and the street, it was expected that objects dropped on the sidewalk would rather quickly make their way to the grassy border. This would result from the action of foot traffic, and from heavy rains which would tend to flow in sheets across the smooth sidewalk surface, pushing objects lying there to the edge of the walk where they might become entrapped in the rough pile of grass and soil. Therefore, a temporal contrast between objects lying on the sidewalk (representing recent dropping behavior) and those on the grassy border (representing an accumulation through time of dropped objects) would be expected. It was hoped that some of the data might reveal temporal differences, but since no means for temporally fixing tabs of varying time periods is available at present little hope was held for testing this hypothesis by taxonomic means.

However, it was expected that a slight cluster on the sidewalk, representing recently deposited tabs, might well be accompanied by a larger cluster on the border, representing the accumulation of tabs through time. A large cluster on the sidewalk would be seen to reflect more intensive use of the drink machine in recent time. We would not be able to determine whether such use resulted from more people or repeated use by the same number of people. What we would be measuring would be the use events in relation to the machine.

Given a site where a drink machine once dispensed cans but where no machine is present today a cluster of tabs on the grassy border is expected, with no tabs on the sidewalk since a short time-span is represented by material by-products lying on the sidewalk and a longer period of time is reflected by tabs on the grass border. Given these propositions temporal clustering can well be explored even in the absence of taxonomic separation of the data resulting from changing form through time.

5. Since each tab is equivalent to a whole can quite a different phenomenon is involved with quantification of tabs as opposed to quantification of bottle fragments. A clustering of bottle glass might well represent only a single bottle or a number of broken bottles. Quantitative comparison of
tabs with broken bottle glass, therefore, on a one-to-one basis, would not be a wise procedure since different phenomenon are involved. Comparison of one tab = one can may better be made with one bottle cap = one bottle. A cluster of tabs, therefore, representing the consumption of a large number of drinks, is reflecting a different, more generalized, behavior pattern whereas a single broken bottle, containing a large number of fragments, may well represent idiosyncratic behavior of one individual.

6. In order to collect data on sidewalks reflecting different social and economic strata, a long sidewalk transect was taken from an upper class neighborhood across a middle class neighborhood to a lower class black neighborhood in dissolution. The black neighborhood had grown up adjacent to the upper class white neighborhood in the nineteenth and twentieth centuries so that the servants of the white neighborhood would be close at hand. The black neighborhood involved in the survey area was in the process of being wiped out by the expansion of the University of South Carolina at the time the study was made in 1976.

Since the transect involved was taken across these contrasting socio-economic lines, the architecture in the transect varies dramatically from the upper class brick, stone and wooden houses with large floor space and firm masonry foundations contrasting dramatically with the "institutional," apartment type housing owned by the University of South Carolina for graduate student families, to the black community in dissolution where the architecture emphasizes footings of brick on which small houses of wood are placed. A study of behavioral by-products along the sidewalks in these three areas was expected to reveal contrasting data sets involving pull tabs and glass fragments as well as other objects, with more being present in the black neighborhood based on prior observation of such neighborhoods.

The data revealed that there was indeed a direct parallel between the contrasting architecture in the three areas and the number of behavioral by-products in the black community. This proved to have nothing whatsoever to do, necessarily, with the socio-economic status. The lesson to be learned here is that correlations between data sets do not necessarily reveal similar causal variables are involved.

7. Prior to the survey of sidewalk data in the neighborhoods involved observation of behavior patterns relating to the
presence of people using the sidewalks was carried out. In the upper and middle class neighborhoods there was no gathering of groups of people on the porches of the homes for social interaction. In the black neighborhood there was considerable gathering of people early in the morning and in the late afternoon at a residence next door to a community store. Drinking of beer from cans, as well as soft drinks was an observed pattern on numerous occasions. Gathering of people was also noticed on the sidewalk between the community store and the house which served as a social center. It was hypothesized that a cluster of tabs would be found on the sidewalk in front of both the community store and the house next door as a result of the interaction going on between people at these two structures. No walking and drinking behavior was noted on the sidewalks in the middle and upper class neighborhoods, and no tabs were expected to be found there as a result.

8. As a result of the observed behavior at the black community store and adjacent house it was hypothesized that drink dispensing machines located in such public places where the general public tends to congregate socially would have heavier clusters of pull tab than those areas where machines did not serve the broader spectrum of the general public.

The Survey Method

The daily sweeping of sidewalks by merchants on the main street of Columbia's downtown area was recognized as a variable that would likely cause the data collected from such areas to reflect a very short accumulation time. This observed behavior caused me to hypothesize that fewer objects would be found on the downtown main street than in an area where merchants did not daily address themselves to the litter on the sidewalks in front of their stores. However, a survey of this area of Columbia has not yet been carried out.

The sweeping of sidewalks along Pendleton Street between Marion and Sumter Streets had never been observed, thus separating this block from those on Columbia's main street in front of the Capitol in this respect. It was, however, still very much downtown, being adjacent to the University of South Carolina and a number of state office buildings. The block itself, from east to west contained a parking lot, a vacant lot, a house, a university office building, a bank, and a Gulf Service Station. It therefore contained a variety of functional structures from a lone surviving house from the earlier role
of the block as a residential area, to an office building used only by university personnel, to a bank and service station used by a broad spectrum of citizens, with a likely emphasis on university and state employees and public servants associated with the university and state office building area. It was on this block that data were collected from both the sidewalk and the grass border adjacent to it.

The second area dealt with in the survey was the sidewalk from Saluda Avenue down Heyward to Pickens Street, then along Whaley Street to Marion Street, extending from an upper class white neighborhood to a black community in dissolution, only two houses and a store remaining at the time of the survey.

The lines in the sidewalk divided the survey area into a convenient gridded transect. These were five feet apart on Pendleton Street and six feet on Whaley Street. Recording of objects was done by using grid paper, with a grid representing each of the five or six foot sidewalk squares. Tabulation was made for each type of artifact recovered, with glass and tabs comprising the major data observed. Only a small sample of objects was kept for illustration, the remainder being simply quantified and left lying in place. Table 1 illustrates the total data recorded in the two transect areas.

Table 1 DATA RECORDED ON THE SIDEWALK SURVEY

<table>
<thead>
<tr>
<th>Location</th>
<th>Tabs</th>
<th>Caps</th>
<th>Glass</th>
<th>Button</th>
<th>Hair Pin</th>
<th>Paper Clip</th>
<th>Thumb Tack</th>
<th>Screw</th>
<th>Ceramics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heyward between</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saluda &amp; Pickens</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whaley between</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pickens &amp; Bull</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whaley between</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Bull &amp; Marion</td>
<td>41*</td>
<td>8</td>
<td>117**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pendleton between</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marion &amp; Sumter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Sidewalk)</td>
<td>45</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Grass Border</td>
<td>152</td>
<td>4</td>
<td>33</td>
<td>(also 1 paint can 1 lid)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*plus one whole beer can
**plus one whole beer bottle
**includes one whole broken whiskey bottle
General Observations of the Survey Data

The tabs, caps and glass reflect observed drinking behavior. The button and hair pin are personal items reflecting accidental loss. The paper clip and thumb tack are office related items. The ceramic fragments are domestic food consumption items, and the screw is a miscellaneous hardware object. The only items larger than the three inch threshold were the paint can lid, the beer can, the beer bottle, and the hair pin. When we examine the survey items in view of the discard behavior involved we find that some may well have been lost (hairpin and button) unknown to the carriers, while others were dropped intentionally (tabs, caps), and yet others were tossed (beer can, whiskey bottle, beer bottle), in these instances not in trash cans but on the sidewalk.

In view of the quantity of items recovered relating to drinking (98.4%), the obvious interpretation of the total data set would be that such transect data reveals that considerable drinking activity is represented by this data, which is indeed the case. Surprisingly no heel or toe taps were recovered. The most frequently observed behavior along the sidewalks was seen to be walking, talking, drinking, and carrying packages or brief cases. Among these activities drinking is the only one leaving a by-product measurable by the survey. The architectural nature and relationship of the sidewalk itself allows an interpretation that walking is likely involved in this feature. Carrying of personal and other objects while using the sidewalks can also be inferred, and with the strong evidence for drinking behavior present we might also infer that considerable social interaction is involved when more than one individual is using the sidewalk. Thus through architectural and artifact data and through inference from such data we can arrive at an interpretation of the behavioral activity represented by material remains which we know from observation to indeed be the behavior involved.

Specific Results of the Survey

The question of the relationship between objects lying on the sidewalk and those on the grass border is illustrated by the graphic presentation in Figure 1. The small cluster of tabs in front of the university office building is dramatically reiterated by the cluster in the grass border. This contrast between the frequently trod-upon smooth surface of the sidewalk and the more infrequently used grass border in relation to the artifacts present has a number of parallels in prehistoric
A SURVEY OF PULL Tabs ON A DOWNTOWN SIDEWALK & GRASS BORDER*

Center City Business District

![Diagram showing survey results]

Sample Areas

Grass Border

Sidewalk

Marion St.  Parking Lot  Driveway  Vacant Lot  House  University Driveway  Bank Office  Bank Drive  Bank  Gulf Gas Station  Sumter St.

Scale: 0 Feet 60

Pendleton Street  Columbia, S.C.

- = One Tab

DESIGNED TO REVEAL ARTIFACT DISPERSION IN ADJACENT SAMPLES IN A DOWNTOWN BUSINESS DISTRICT.

South 9-1976

FIGURE 1: A survey of pull tabs on a downtown sidewalk and grass border.
societies. Paths, walkways, areas between structures, areas in the center of square-grounds and buildings, might all be expected to contain fewer artifacts, and of smaller size, than adjacent areas not so exposed to foot traffic. Such areas of extensive movement and use may well be found to be bordered by catchments such as the grass border, catchments where an accumulation through time of small dropped objects contrasts with the fewer number found in the primary activity and use area.

Figure 1 also reveals that the tabs located on the sidewalk are almost as prevalent as those found on the grass border. This contrasts with the tabs found on the sidewalk in front of the university office building, which only slightly mirror the cluster in the grass border. We know that the Gulf service station serves a far wider cross-section of the public than does the university office building, which is used primarily by the employees of the building. This being the case more tabs would be expected to cluster on the sidewalk at any one time in front of the Gulf station than in front of more limited use areas such as the university office building.

This contrast in data again has parallels in prehistoric archeology where careful analysis of lithic debitage or of pottery fragments in relation to whole vessel forms in relation to a hearth can be seen to represent a single event by a small group as opposed to other data revealing a number of events by a large number of individuals.

Given the two clusters of tabs, at the university office building and the Gulf station, it becomes apparent, if we have first demonstrated the connection between tabs and cans, and given the proposition that such small objects will be discarded close to their access source, that there should be a drink dispensing machine in the station and the office building, which is indeed the case. It should be noted that this fact has nothing to do with the function of the two structures architecturally, or socially, or functionally within the system. The primary variable simply has to do with the dispensing of drinks, for "The Pause That Refreshes" regardless of the location of the machine within buildings of varying function.

Again a parallel prehistoric example can be seen using tobacco pipe fragments as the data. If these are found to
cluster around a hearth in one instance, around a square structure in another, and around a round structure in a third instance, the conclusion cannot be made that there is a functional connection between the structures, only that at all three areas broken pipes were discarded, and that smoking and breaking of pipes may well have occurred at all three places. If the pipes around one area were whole and those around the other areas broken, this is a different matter, requiring a different interpretation, just as a cluster of cans around a structure requires a different interpretation than a cluster of tabs alone.

The sidewalk survey designed to reveal artifact dispersion in contrasting socio-economic residential areas is illustrated in Figure 2. Only pull tabs and bottle glass are illustrated in this figure. A cluster of tabs was revealed in the area of the community store and the house which served as a social center. It is interesting to note that there are more tabs between the store and the house than in front of them. Since we have observed considerable activity between the store and the gathering place on the porch of the house, the greater density of tabs on the sidewalk between the structures suggests a direction of movement between the store and the social center given two pieces of information, 1) that a drink machine is located inside the store, and 2) that tabs will be dropped shortly after obtaining a drink from the machine. Both these requirements are met as we know from observation, and therefore we can see that the tab cluster suggests a direction of movement from the store to the house after purchase of a drink. If we did not know the location of the drink machine, we would not be able to know which direction the tab cluster suggested that foot traffic was flowing after purchase of a drink. If we did not know the behavioral activity relationship between the house and the store we are left simply with the tab cluster, and given a traditional archeological interpretation that such a cluster = a behavior area involving tabs, we would conclude that behavior involving tabs took place at the site of the greatest artifact bulge. We happen to know in this case, however, that the behavior reflected by the greatest bulge of tabs is that of dropping the tab while walking between two use areas, a store and a social center. The human behavioral interaction took place at these loci, not at the site of the greatest artifact cluster.

These data suggest that artifact clusters should be carefully explored in relation to architectural data, features, and other variables before they are interpreted as the locus.
A SIDEWALK SURVEY OF PULL TABS AND BOTTLE GLASS*

White Middle to Upper Class Residential Neighborhood

No Tabs on Heyward St. from Pickens to Saluda Avenue

White Middle Class Apartments

No Tabs to Pickens Street

Black Lower Class Community In Dissolution

House

(social center)

House

House

House?

Vacant Lots (houses gone)

Pull Tabs

- One tab

Sidewalk Sample

- One fragment

Bottle Glass

DESIGNED TO REVEAL ARTIFACT DISPERSION IN CONTRASTING SOCIO-ECONOMIC RESIDENTIAL AREAS.

South 9-1976

SCALE

0 Feet

50

Whaley Street

Columbia, S. C.

= whole can

= whole beer bottle

= one broken whiskey bottle

FIGURE 2: A sidewalk survey of pull tabs and bottle glass.
of interacting behavioral areas. Behavior is indeed represented by the heaviest cluster of tabs, but it is not the locus of the interactive behavior involved, it is, rather, simply measuring the dropping behavior pattern between two areas where interaction took place, just as the site of a midden does not reveal, except indirectly, the location of activity areas other than the area where refuse was discarded. In their eagerness to demonstrate activity areas archeologists may well identify clusters of behavioral by-products as identifying the locus of specific activity whereas the activity may have taken place adjacent to the maximum locus of artifacts. The cluster may well reflect walking and dropping behavior (as was the case with the tabs) or tossing behavior which would produce a different cluster (as is the case with whole cans, bottles and other refuse thrown from cars or thrown while walking), or dumping behavior (as is the case where refuse is thrown into middens). The varying patterns produced by such discard activities are a means whereby archeologists interpret past behavior from material remains. By observing behavior in modern cultures and then exploring the resulting material culture by-products as we have done here with tabs, we can gain insight into formation processes that may serve us well when we are faced with interpreting prehistoric artifact clusters (see Binford 1978).

Looking at the tab cluster from the perspective of the entire length of the survey transect and not with the view of identifying specific activity areas, we can see that the 100 feet in front of the store and house does indeed reflect discard of tabs (Fig. 2). We can say that, given the proposition that tabs will be dropped in the vicinity of acquisition of the drink (according to McKellar's hypothesis), it follows that a cluster of tabs = a drink machine somewhere in the cluster area, which in this case is some 100 feet across. This is valid information but not very helpful except to grossly locate the source of the tabs, which was also the case at the office building and Gulf station.

Earlier (Hypothesis 4) I suggested that an area of more machine use-events would produce more tabs on the sidewalk than an area of more infrequent use. Using this hypothesis we see that the clusters of tabs at the Gulf station (Fig. 1) and the cluster at the store and house (Fig. 2), are the only ones found on the sidewalk, thus revealing more machine use-events at these locations. There should be some functional parallel, therefore, between the store and the Gulf station that is not present at the university office building where only a few tabs were found on the sidewalk, but a cluster was
noted on the grassy border (Fig. 1). Fortunately we have control through observation, an advantage not present in most archeological studies, from which we know that there indeed is a similar function involved at the Gulf station and store, both serve the general public whereas the office building machine serves only those employees who use the building. The critical variable I suggest, is repeated machine use-events within a relatively short, recent time span for the clusters on the sidewalk. The grass border cluster at the university office building, however, is a result of fewer machine use-events over a longer period of time, and the fewer tabs on the sidewalk there reflect its limited access to larger numbers of people, resulting in fewer use-events.

From observation we have seen a gathering of people for social interaction at the house beside the store, so we know that the tabs there resulted from repeated use through time of the machine by the same group of people. At the Gulf station, however, no social gathering was ever observed other than coming and going, the station being simply a self-serve, no service type of "service" station, a recent cultural phenomenon in our system. From the tab data clusters we are dealing with, however, we have no way of determining which cluster of tabs results from which type of behavior. Or do we?

From a close look at the architecture from an archeological perspective we would certainly see that there is a dramatic difference between that of the Gulf station and the store and house, both of the latter being small structures sitting on footings of brick with the station revealing a specialized, massive structure. From the contrast between these areas we still would not know the behavioral explanation for the tab clusters which we know were created by different sets of machine use-events. By comparing artifact data from excavation of the three sites, the store, the house, and the station, however, we would be able to identify the domestic nature of the house as opposed to the store and station from the resulting material by-products. Given the tab clusters at both locations, and the non-domestic nature of the store and the station the archeologist would be able to suggest a relationship between non-domestic structures and tabs, and in this he would be correct in that most machines for dispensing drinks in cans are not located in domestic structures. When he then compared this conclusion with the data from excavating the university office building, he would indeed find that it
too was not a domestic structure, and therefore falls within
the generalization that tabs are located in clusters in front
of non-domestic structures. The fact that next door to the
office building there is a domestic house where no tabs were
found (Fig. 1) reinforces this conclusion.

We have been able to reveal a relationship between
clusters of pull tabs and non-domestic structures from our
survey, but we have not been able to demonstrate beyond the
simple behavior of dropping tabs near the source of the
beverage machine the behavioral difference between intense
social interaction by a few individuals and the many use-events
resulting from simple multiple procurement of drinks in cans.
The reason for this inability relates to our failure to
demonstrate specific linkages between drinking of beverages,
the resulting by-products, and social intercourse.

One of the transects was designed to reveal artifact
dispersion in contrasting socio-economic residential areas
(Fig. 2). Only seven glass fragments were found in the upper
and middle class white neighborhoods from Saluda Avenue to
Bull Street, whereas 117 fragments (Table 1) were found on the
sidewalk in the block between Bull and Marion Streets. No
tabs were found except in the black lower class community
in the process of dissolution. This dramatic contrast is
seen in Figure 2.

One might conclude that there is a direct relationship
here between material culture items on sidewalks and lower
socio-economic black neighborhoods. There was indeed more
glass here than on the street downtown, but as we have seen,
clustering of tabs is related to non-residential structures
where drinks are dispensed in cans, a phenomenon that would
have little to do with social status or standard of living.
The impressive cluster of glass in front of the house where
no social interaction was ever observed is subject to much
speculative interpretation as to why the cluster profile of
tabs is so different from the cluster of glass. Speculation
as to why so much broken glass was discarded here could run
the gamut of imagination from attitude of neighbors to the
occupant, to the suggestion that the owner dumped glass on the
sidewalk himself. Such speculative interpretations are often
seen to emerge from comparison of archeological cluster
diagrams and bar graphs or battleship curves. The truth is,
however, that we are attempting to compare unlike data sets,
tabs representing a can each, and glass fragments representing
a number of bottles or one. In this case the dramatic cluster results from a single whiskey bottle broken on the sidewalk, probably the night before I conducted my survey. Given this observation the comparison of clusters means that different interpretations are possible. If the single bottle cap had been quantified along with other bottle caps a more direct comparison between the glass bottle data and the pull tab data could be made, and what appears as an impressive cluster suddenly is reduced to a scale comparable with the tab data.

Similar errors of comparison can be seen in prehistoric clusters of data, for instance when complicated stamped jar sherds are included on the same chart with burnished plain sherds from bowls, with the incised part of the same bowls being tabulated separately. When consistently done such data comparisons are indeed capable of revealing patterned relationships. However, for other problems such as we are dealing with here where each tab represents a whole can and many fragments of glass can either represent a single bottle or several bottles, comparability of data sets is necessary for most meaningful comparison of data toward arriving at comparison of behavior represented by each and the processes they represent.

The cluster of tabs representing as many cans and purchase events is a far better reflector of patterned behavior than the many fragments of glass, most of which came from a single whiskey bottle, and a single breakage event. The whiskey bottle may be the result of tossing behavior or accidental dropping. The whole beer bottle and the whole beer can in the same area suggests that intentional tossing behavior is involved since whole objects are being disposed of here rather than simply tabs measuring less than three inches (McKellar 1973). In this respect the black neighborhood in dissolution contrasts with the other areas of the study. What is suggested by these data is, that whereas the presence of clusters of tabs is not seen to be a function of socio-economic class, the discard of whole bottles and cans on the sidewalks may well be. Here, however, there is not a cluster, but simply one broken in situ and two whole objects, an important variable that is often not quantitatively impressive, but which nevertheless, often carries significant interpretive weight, a point I have emphasized elsewhere (South 1977:297).
Summary

This simple pull tab study has revealed that small items dropped by modern Hansels and Gretels form patterns useful for monitoring behavior such as "The Pause That Refreshes," seen to be taking place all over America including the city sidewalks. We have seen that the tabs are not dropped in conformity with some social class variable but that glassware may well be. We have seen that tab clusters do indeed correlate with architectural structures reflecting public use and dispensing of the product used in "The Pause That Refreshes."

If such simple studies of modern material culture, where observation of behavior and other variables provides some degree of control, can produce interesting coherence of elements (tabs with public structures and soft drink dispensing machines or glass with lower socioeconomic class dwellings both over a short period of time), we might expect a similar approach to have some degree of success when archeological site structure is being delineated. Through such studies we may well gain insights for honing our methodological tools.
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