whiteware, 1 porcelain and 1 ironstone.

Prehistoric artifacts recovered from the extended Phase I investigations at the Rock Manor Site include 3 chert flakes, 7 jasper flakes, 1 jasper biface fragment, 10 quartz flakes, 2 quartz shatter fragments, 1 feldspar chunk and 1 quartzite flake.

Historic artifacts recovered from the Rock Manor site include 11 ceramic fragment, 35 glass container fragments and 13 fragments of window glass. All of the identifiable glass was machine made. The ceramics include 5 coarse red earthenware sherds and 1 pearlware sherd.

Summary and Recommendations, Area 2

Two prehistoric sites were revealed during the extended and preliminary Phase I surveys of the Matson Run Resource Area. These sites are interpreted as small lithic scatters which represent short term use of the area. In addition to the prehistoric cultural resources, a light scatter of historic artifacts was recovered. The historic artifacts are interpreted as field scatter and are not considered significant.

No additional work is recommended at these sites. The results of the extended Phase I investigations essentially duplicated the results of the preliminary investigations and no significant new information was recovered. It is our opinion that the research potential of these sites has been exhausted during the Phase I investigations and that additional archeological investigations will only duplicate these results.

INTERSITE ANALYSIS

In addition to the analysis described previously, an investigation of the relative economic status was conducted of some of the sites examined during this project. These sites were the Row House, Dwelling H, Walkers Bank area and the Weldin Plantation. The other sites could not be used because the ceramic samples obtained from them precluded determinations of vessel form. The results obtained were then compared to other sites in an effort to provide a wider picture. The method used was based on work by Miller (1980) and consisted of a calculation of economic indices by examining vessel form and decorative method by ware type. Miller researched the cost to the consumer of certain types of ceramics during the 19th century. He examined price lists, bills of lading, etc. in order to formulate a numerical index which could then be calculated on an individual site basis to provide the relative economic status of each site investigated. This method uses common creamware or undecorated refined white earthenware (whiteware and pearlware) as a base and assigns a value to the other decorative types based on their cost in relation to common creamware (CC ware). Common creamware, or CC ware, in this case means undecorated refined white earthenware and includes undecorated whiteware and pearlware as well as true creamware. A

value of 1.00 is always assigned to CC ware. For example, if, for a particular vessel form, transfer printed wares are three times more costly as CC ware, the transfer printed vessel would be assigned a value of 3.00. Miller formulated indices for plates, cups and saucers and bowls. Other vessel types could not be used as the information was not consistently available in the historical record. Miller calculated the values for a number of different years, of which only 1814, 1855 and 1857 are used here. The underlying hypothesis in Miller's research is that a determination of the relative cost of the ceramics represented at a particular site will reflect the purchasing power, i.e. expenditure patterns of the occupants of the site. The expectation is that the items purchased by the consumer will be limited by their income and therefore reflect their economic status. Details on this hypothesis as well as details about the way in which the indices are derived are contained in Miller (1980).

In order to conduct this kind of analysis, it is first necessary to determine the Minimum Number of Individuals (MNI) by decorative type and vessel form for each site. The method used in this study was one reported by Hurry and Kavanagh (1983). The criteria for determining the MNI are described below. Vessel count was made using all single unique sherds where vessel form could be reliably estimated and mended fragmentary vessels with known form. In instances where two or more sherds were obviously part of the same vessel, based on ware type and decorative method, but did not mend, they were counted as one non-mending vessel. Coarse earthenwares and refined white earthenware vessels not consisting of cups and saucers, bowls or plates, were examined to determine cross provenience mends but were not considered in the MNI count as they are not applicable to the Miller index analysis. The MNI criteria are: when vessel form can be determined, "1) each unique rim sherd is considered a vessel; 2) each unique basal sherd not assignable to a rim or a base is considered a vessel; and 3) each unique body sherd not assigned to either a rim or a base is considered a vessel" (Hurry and Kavanagh 1983:76). In addition, following Hurry and Kavanagh's example, if plate diameter could not be determined, the indices for all size plates represented were averaged. The same holds true for cups when it could not be determined if they were handled or unhandled. Decorative ironstone vessels were not used in calculating the index as information concerning their cost relative to CC ware was not available (Miller 1980:29). The same is true for vessels which combine two decorative methods such as transfer printing and hand painting (Miller 1980:28). In some cases, Miller's costs scales give different values for willow pattern on transfer printed plates and other patterns on transfer printed plates (Miller 1980). In some instances, it was difficult to determine if the transfer pattern was willow or not therefore, in this analysis the values were calculated in two ways. The first was to combine all of the willow and the other pattern values and average them. The second was to use an average of the willow values only, thus erring on the side of caution and not attributing a higher status. Porcelain was not used in the calculations for this research, although Hurry and

Kavanagh did use it in some of their calculations at the Howard-McHenry site (1983:80-81). Their calculations which include porcelain are not used here. In addition, although values were calculated that include ironstone, they are not used in the comparative discussion, as neither Hurry and Kavanagh nor Miller calculated their values using ironstone.

The index scale used for a particular site depended on several factors: the dates the site was occupied based on the archival evidence and the length of the occupation. Because of the long period of occupation at the Howard-McHenry site, Hurry and Kavanagh divided the ceramics into pearlware and whiteware and used different indices from different time periods for each ware type. The cost values for pearlware vessels are based upon the 1814 scale (Table 17). The cost values for the whiteware vessels are based upon the 1855 and 1857 scales (Table 18). These scales were chosen as they fell near the median for the two samples (Hurry and Kavanagh 1983:76). At the Row Houses site, archival evidence indicated that the remains of the structures uncovered during these investigations were probably not occupied until the 1870's; however, there is an indication that earlier structures existed in the same location. The ceramics were separated in an attempt to separate the two occupations and to see if differences between them are present, and the 1814 and the 1855/57 scales were used on the ceramics. The two ware types were also separated at the Weldin Plantation Dwelling H and Walkers Banks; they were separated, as in the case of the Howard-McHenry site, because of the long span of occupation at the site. The Weldin site was occupied from the late 18th century to the 20th century and Walkers Bank appears to have been occupied from 1816 to at least the turn of the century. Miller used the 1824 and 1846 scales on his sites. The index scales used in this analysis are shown on Tables 17 and 18.

The following is a discussion of the values obtained by the methods described above. These are shown on Table 19. It is important to realize that, in the following discussion, the values obtained are relative ones. They can only be expressed as higher than or lower than; however, if the archival evidence is sufficient, one can hypothesize what the economic status of a particular site would be. The sites used for this comparison are the Howard McHenry site, a 19th century mill/tenancy (Hurry and Kavanagh 1983), and the sites used by Miller (1980) in his original comparisons. Miller's sites include: a tenant farmer's house in St. Mary's County, Maryland which was occupied from the 1780's to 1861 (Miller 1980:35); the Jonathan Hale Log Cabin in Summit County, Ohio, which was built in 1810 and occupied until 1830 (Miller 1980:35); a worker's house for a glass factory and artifacts from the glass factory area itself, in Portage County, Ohio, occupied from 1824-1832 (Miller 1980:36); and the Walker Tavern near Detroit, Michigan, dating from the 1830's to about 1850 (Miller 1980:36). The Howard McHenry site was occupied from 1798 to the 1860's or 1870's (Hurry and Kavanagh 1983:1). It is expected that the values calculated for the Row Houses, Dwelling H and Walkers Bank would be most like the values for the glass

TABLE 17
1814 INDEX SCALE
(From Hurry and Kavanagh 1983:79 and Miller 1980:26,30,33)

Plates

Decoration	Index
undecorated	1.00
edge decorated	1.34 (ave.)
hand painted	1.67 (est.)
transfer printed	3.19 (ave.)
transfer printed (willow)	2.92 (ave.)
underglazed lined	1.69 (ave.)
sponged	1.32*
flow	3.19 (ave.)

*used average of edged plates based on Miller 1980:28.

Cups and Saucers

Decoration	Index
undecorated	1.00
dipped	1.66 (est.)
hand painted	1.83 (ave.)
transfer printed	3.33 (ave.)
sponged	1.66*

*used dipped index as both represent minimal decoration

Bowls

Decoration	Index
undecorated	1.00
dipped	1.2
sponged	1.1 (est.)
hand painted	1.6
transfer printed	2.8

TABLE 18
1855/1857 INDEX SCALE
(From Hurry and Kavanagh 1983:79 and Miller 1980:26,30,33)

Plates

Decoration	Index
undecorated	1.00
edge decorated	1.23 (ave.)
hand painted	1.23 (est.)
transfer printed	1.53 (ave.)

Cups and Saucers

Decoration	Index
undecorated	1.0
sponged	1.17 (est.)
dipped	1.14 (est.)
hand painted	1.60 (est.)
transfer printed	3.50 (est.)
sponged and hand painted	1.20*

*used average of hand painted and sponged

Bowls

Decoration	Index
undecorated	1.0
dipped	1.15 (est.)
sponged	1.10
hand painted	1.30
transfer printed	2.0
hand painted and sponged	1.2*

*averaged hand painted and sponged

TABLE 19
ECONOMIC INDEX VALUES
OBTAINED FOR SITES

1814/1824 Total (avg. all types)

avg plates			avg cups/saucers			avg bowls		
JH	1.23		DW.H	1.00		DW.H	1.16	
HMH	1.30		Tf	1.44		WALB	1.2	
Tf	1.46		JH	1.45		ROW	1.21	
FGF	1.47	1.75-Mean	HMH	1.72	1.81-Mean	Tf	1.29	1.31-Mean
FGH	1.86	1.86-Median	ROW	2.05	1.89-Median	HMH	1.32	1.3-Median
DW.H	1.96		FGF	2.11		JH	1.36	
ROW	2.07		FGH	2.15		FGF	1.37	
WPLA	2.18		WALB	2.58		FGH	1.54	
WALB	2.27		WPLA	none		WPLA	none	

1814/1824 Total (avg. willow only)

avg plates			avg cups/saucers			avg bowls		
Dwelling H								
JH	1.23		DW.H	1.00		DW.H	1.16	
Pigeon & Long Run								
HMH	1.30		Tf	1.44		WALB	1.2	
Walkers Mill Bank								
Tf	1.46		JH	1.45		ROW	1.21	
FGF	1.47	1.71-Mean	HMH	1.71	1.81-Mean	Tf	1.29	1.31-Mean
FGH	1.86	1.86-Median	ROW	2.05	1.89-Median	HMH	1.32	1.30-Median
DW.H	1.87		FGF	2.11		JH	1.36	
ROW	1.97		FGH	2.15		FGF	1.37	
WPLA	2.04		WALB	2.58		FGH	1.54	
WALB	2.17		WPLA	none		WPLA	none	

1855/57/58 Cumulative Scale (No porcelain)* 1846 Miller w/ironstone

site	plates		site	cups/saucer		site	bowls	
HMH	1.14		TF	1.5		ROW	1.15	
WPLA	1.32		HMH	1.59		TF	1.2	
ROW	1.37	1.4-Median	ROW	2.29		HMH	1.3	
TF	1.43		WT	2.31	2.3-Median	DW.H	1.4	1.4-Median
WALB	1.56	1.54-Mean	WPLA	2.51	2.39-Mean	WPLA	1.61	1.57-Mean
WT	2.44		WALB	4.16		WALB	2	
DW.H	none		WALB	none		WT	2.32	

1855/57/58 Cumulative Scale (No porcelain)* 1846 Miller w/out ironstone

site	plates		site	cups/saucer		site	bowls	
HMH	1.15		WPLA	1.17		WPLA	1.1	
DW.H	1.15		DW.H	1.4		DW.H	1.1	
WPLA	1.18		TF	1.5		ROW	1.15	1.17-Median
ROW	1.2	1.2-Median	ROW	1.52	1.52-Median	TF	1.2	
WALB	1.29		HMH	1.59		HMH	1.3	1.36-Mean
TF	1.43	1.40-Mean	WT	2.31	1.85-Mean	WT	2.32	
WT	2.44		WALB	3.5		WALB	none	

KEY

DW.H. = Dwelling H
ROW = Pigieon & Long Row Hs.
WALB = Walkers Mill Bank
JH = Jonathan Hale Log Cabin (Miller 1980)
HMH = Howard McHenry Mill Tenancy (Hurry & Kavanagh 1983)
Tf = Tenant Farmer (Miller 1980)
FGF = Franklin Glass Factory (Miller 1980)
FGF = Franklin Glass House (Miller 1980)
WT = Walkers Tavern (Miller 1980)

worker's house as they both represent 19th century industrial housing. It was also expected that the values obtained for the Weldin site would be most like those from either the Howard-McHenry or Miller's tenant farmer because of the long period of tenancy at the Weldin site, from the late 18th century up until the 1860's.

When examining the 1814/1824 values obtained for the plates from the sites, averaging all transfer printed wares regardless of pattern, the Jonathan Hale Log Cabin had the lowest value and Walkers Bank had the highest value. The median for this grouping was represented by the Franklin Glass worker's house and it was also closest to the mean. The Rt. 141 sites are high relative to the other sites reported by Hurry and Kavanagh and Miller; indeed they are the four highest values. When using the index for willow only, although the values are somewhat different, the positions of the sites relative to each other are the same. The Jonathan Hale Log Cabin is still the lowest and Walkers Bank is still the highest. Of the other sites, all of the 141 sites are closest to the worker's house from the Franklin Glass factory. This was to be expected since they all represent industrial worker's houses.

An examination of the 1814/1824 values obtained for the cups and saucers present a slightly different picture. The lowest value was obtained for Dwelling H and the highest value again for Walkers Bank. Cups and saucers were not represented at the Weldin site. The Row Houses were higher than the tenant farmer, the Jonathan Hale Log Cabin and the Howard-McHenry, and lower than the Franklin Glass factory sites and Walkers Bank. As expected, the values for the 141 sites, with the exception of Dwelling H, are again closest to the value obtained for the Franklin Glass factory sites. The value for Dwelling H is somewhat biased as only a single specimen was represented here. A mean of 1.81 and a median of 1.89 were obtained for this grouping.

An examination of the 1814/1824 values obtained for the bowls showed marked by different results when compared to the other scales. Dwelling H had the lowest value, followed by Walkers Bank and Row Houses. Weldin Plantation was not represented in this scale. In this case, the Rt. 141 sites are closest in value to the tenant farmer. The Franklin Glass worker's house obtained the highest value. The mean for this group was 1.31 and the median was 1.30.

When examining the 1855/57 scale for plates (without ironstone), the Howard-McHenry site and Dwelling H had the lowest value and the Walkers Tavern had the highest. In general, all of the Rt. 141 sites cluster in the center. The mean was 1.40 and the median for this group was 1.40 which is closest to the tenant farmer.

The 1855/57 scale for cups and saucers shows Weldin with the lowest value and Walkers Bank with the highest value. Row Houses represents the median for this grouping. The value for Walkers Bank is somewhat suspect as cups and saucers at this site were represented only by a single specimen. The mean was 1.85. Of the other sites, the Rt. 141 sites, with the exception of Walkers Bank are closest to the tenant farmer.

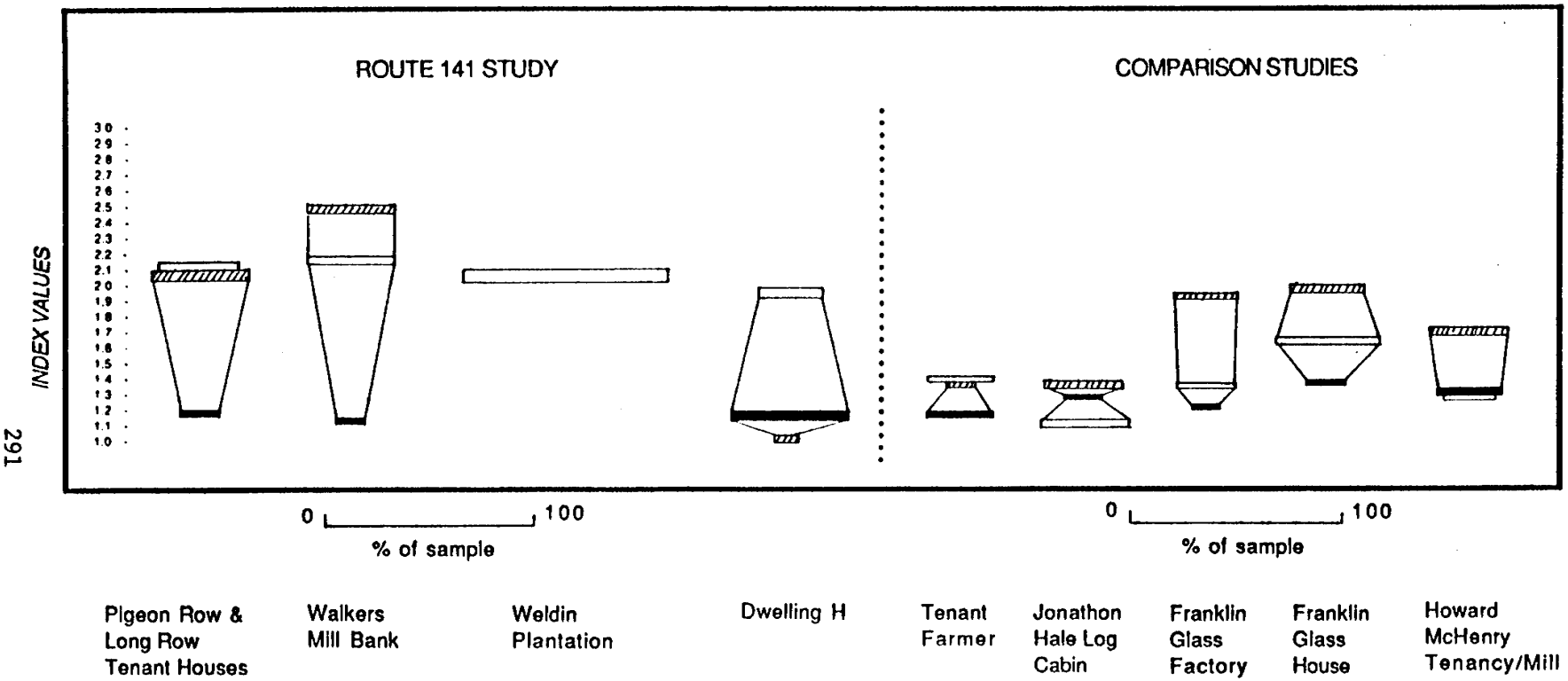
The 1855/57 scale for bowls shows Weldin and Dwelling H with the lowest value and the Walkers Tavern with the highest value. Walkers Bank is not represented in this scale. The Row Houses immediately follows the other two Rt. 141 sites represented in this scale. The Row Houses was also closest to the median which is 1.17. The mean was 1.36. Again the Rt. 141 sites represented in this scale are closest to the tenant farmer.

The results of the analysis described above are graphically presented on Figures 93 and 94. In general, when examining the values obtained for all of the sites on the earlier scale, the greatest variance is between the values obtained for the cups and saucers - 1.58. The values obtained for the bowls show the least variance - .38. In the later scale, the greatest variance is in the values obtained for the plates and the least amount of variance is in the values obtained for the cups and saucers, although in general there is less variance between the values in all three categories. When examining Miller's values (1980) through time for all three vessel categories, the following is noted: the difference between the highest value and the lowest value for plates decreases through the time from 1814-1855; the difference between the highest value and the lowest value for cups and saucers decreases from 1814 to 1824, increases in 1846 to a value identical to that from 1814 and decreases in 1855 to a value close to the value from 1846. In general, the amount of variance between the highest and lowest values at any point in time is smallest for the bowls.

As Figure 93 shows, the early scales show the tenant farmer and Jonathan Hale with lowest economic status and Walkers Bank with the highest. Howard McHenry is higher than the tenant farmer and Jonathan Hale but lower than the remainder of the sites. Row Houses, Dwelling H, the Franklin Glass Factory worker's house and the Franklin Glass Factory are approximately the same, with Row Houses being slightly higher. With the exception of Walkers Bank, this is in keeping with prior expectations.

As Figure 94 shows, Weldin Plantation has the lowest status, followed by Dwelling H. The tenant farmer, Howard McHenry and Dwelling H have approximately the same status. Walkers Tavern is significantly higher than any of the other sites with the exception of Walkers Bank; however, the extremely high value obtained for cups and saucers at Walkers Bank, which pushes the high end of the graph up, is probably the result of small sample size.

FIGURE 93
1814 ECONOMIC INDEX VALUES



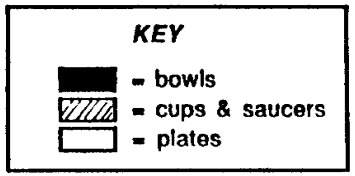
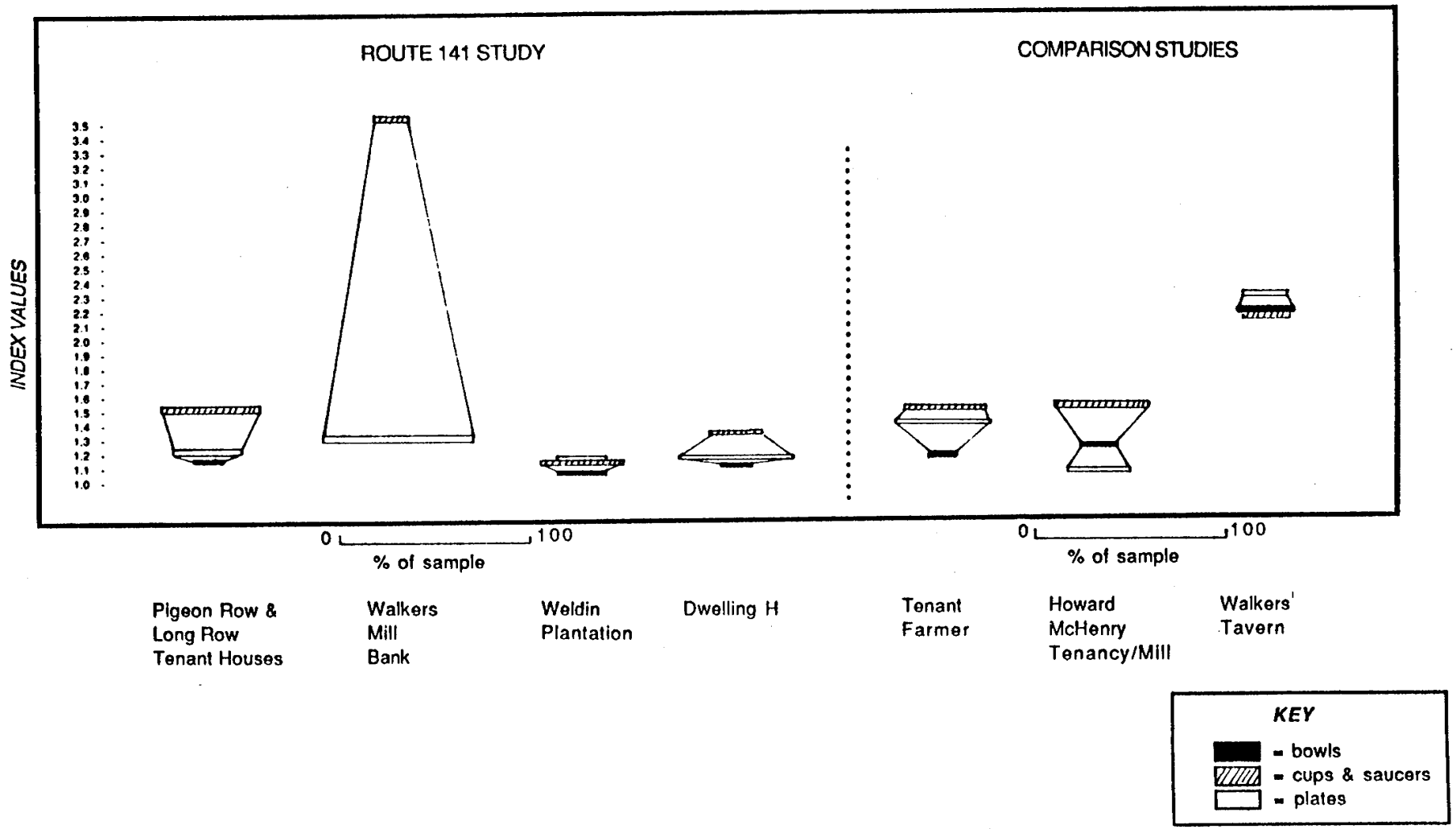


FIGURE 94
1855/57 ECONOMIC INDEX VALUES



When examining the position of the Rt. 141 sites through time, during the early period of their occupations the Rt. 141 sites are most like the other industrial workers from the Franklin Glass works, and generally have a higher status than tenant farmers. The Howard-McHenry tenancy/mill is somewhat higher than the other tenant farmers. However, it is difficult to say to what degree other social factors affect the results. The industrial workers are paid wages and generally, although tenant farmers may raise cash crops, they are not paid wages. It is likely as well that the occupants of the Jonathan Hale Log Cabin did not receive wages. The occupants of the Howard-McHenry site may also have received some cash as a result of the mill operations. Therefore, it is difficult to say to what degree availability of cash (in the form of cash wages) affects the results, i.e. the purchasing power of the consumer. In addition, the geographical location of a particular site may affect the availability of consumer goods and therefore affect the types of ceramics that are present on a particular site. The Rt. 141 sites were located near Wilmington, Delaware, and should have had access to a wide variety of consumer goods. The Howard McHenry site is located relatively near Baltimore and, again, the occupants should have had relatively good access to consumer goods. The Jonathan Hale Log Cabin was located in Summit County, in the Connecticut Western Reserve of Ohio. It is unlikely that they had the same access to consumer goods as the previous sites. The tenant farmers house is located in St. Mary's County, Maryland. The Franklin Glass Works is also located in the Connecticut Western Reserve of Ohio, in Portage County.

During the later periods, the Row Houses and Dwelling H are most like the tenant farmer and slightly lower than Howard McHenry, also a tenancy. The Weldin Plantation, which would have been a tenancy at this point in time, is lower than the other sites. In all of the later categories the Walker Tavern consistently obtained the highest values, with the other sites falling significantly below. The tenant farmer, although slightly lower in the later scale, maintains a much more consistent economic status. In addition, the economic position of all of the Rt. 141 sites is lower than in the earlier scale. Hurry and Kavanagh (1983:84) found this trend at the Howard-McHenry site as well. They suggest that this may be the result of the introduction of the roller mills in the 1880's which caused stone type mills to be non-competitive, although they also mention that additional work is needed to prove or disprove this (Hurry and Kavanagh 1983:84). The results of the research discussed here, although extremely tentative, suggest that this may instead be the result of something more widespread, perhaps the recession following the Civil War, as the downward trend is noted for the industrial workers from the powder mills and textile mills in Delaware as well.

SUMMARY AND CONCLUSIONS

During 1985, preliminary Phase I archeological investigations were conducted on 11 linear segments and 2 areas in connection with the proposed dualization of Route 141 from Route 100 (Montchanin