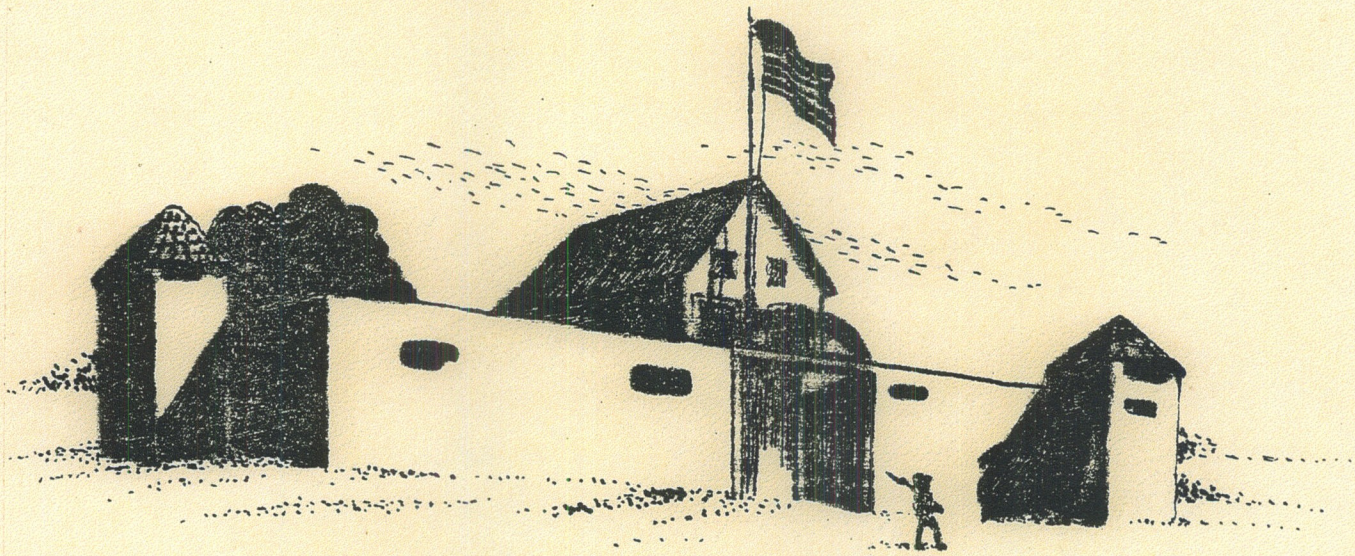
Archeological Investigations

at

SUTTER'S FORT

State Historical Monument



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State Indian Museum

State of California
Department of Natural Resources
Division of Beaches and Parks
Interpretive Services

May, 1961

State of California
Department of Parks and Recreation
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ARCHEOLOGICAL INVESTIGATIONS AT SUTTER'S FORT STATE HISTORICAL MONUMENT, 1959

A REPORT ON ARCHEOLOGICAL INVESTIGATION AT SUTTER'S FORT STATE HISTORICAL MONUMENT MADE DURING JULY AND AUGUST, 1959, AND CONDUCTED BY THE CENTRAL CALIFORNIA ARCHEOLOGICAL FOUNDATION UNDER STANDARD SERVICE AGREEMENT NO. 4-601-019, WITH THE CALIFORNIA STATE DEPARTMENT OF NATURAL RESOURCES, DIVISION OF BEACHES AND PARKS.

by

William H. Olsen, Curator
State Indian Museum

ARCHEOLOGICAL REPORT

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Foreword:

The following report is submitted to describe results of excavations carried out at Sutter's Fort State Historical Monument from July 3, 1959, to August 5, 1959, under the provisions of a contract between the Central California Archeological Foundation and the California Division of Beaches and Parks.

The project was initiated by Dr. Aubrey Neasham, Historian for the State Divison of Beaches and Parks, and the completion of this year's excavation marks the third effort to provide corroborating data with which to supplement the intensive historical research which has been performed by personnel of the Division of Beaches and Parks.

We wish to thank Mr. Carroll Hall, Supervisor of Sutter's Fort Historical Monument, and the members of his staff for their co-operation during the excavation. In the light of the sometimes disturbing nature of the work performed, their patience was extremely gratifying. To Mr. Hero Rensch, then a Curator at the fort, goes our especial thanks for his help in providing the results of his extensive research on Sutter's Fort.

A special note of appreciation must go to the crew who carried out the laborious and painstaking field work without which this report could not have been written, Arthur Payen, David Boloyan, Phillip Coleman, and David Neasham. While historical archeology was new to all of the crew, we feel that they can be proud of a job well done.

Aid in the preparation of the maps, figures and photographs was furnished by Arthur Payen and Phillip Coleman and their assistance is hereby gratefully acknowledged.

Introduction

Historic Site Archeology, (cf., Harrington, 1952), is not a new field for the archeologist, but historically speaking the field has shown the greatest advancement in the last twenty years.

A number of historic sites have been excavated under the auspices of the National Park Service (e.g., Fort Raleigh, North Carolina; Jamestown, Virginia; and the Macon Trading Post, Georgia) while certain others have been excavated under contract with various State Park Systems (e.g., Fort Ridgley, Minnesota) (cf., Harrington, 1952).

In California, the period since World War II has seen the excavation of the Monterey Flagpole (cf., Beardsley, 1946), Sonoma Mission (cf., Bennyhoff and Ellsasser, 1954), and the Russian site of Fort Ross on the California Coast (cf., Treganza, 1954), to name but a few.

The problems involved in Historic Site Archeology are somewhat different than those involved in the recovery and interpretation of pre-historic cultures in North America. Normally in the latter little is known until the excavations are in progress or are completed, while in the former the archeologist is dealing with a situation where his job is to corroborate the historical information with concrete evidence. This means that much historical research must be completed before the site itself can be excavated, the primary aim of the excavation being to fill out the known historical record of the site (cf., Harrington, 1952).

Sutter's Fort has proven to be an ideal case where the historian and the archeologist can work together to recover the remnants of the original fort. Historical background material has been compiled for a number of years by the staff of Sutter's Fort (Hall, n.d.; Rensch, n.d.) and since 1955 three attempts have been made to verify the results of this research by excavation (Gebhardt, n.d.1; n.d.2).

This report is concerned with the results of the last of these attempts to recover the outline of Sutter's original Fort outline. This work was materially aided by the finding of a map made of Sutter's Fort in 1347 by Heinrich Künzell which was located in Bancroft Library, University of California, in 1958 (Gebhardt, n.d.2).

The report deals primarily with the structural re-

mains uncovered during the 1959 excavation, but some attention has been paid to the numerous smaller artifacts recovered. A study of the ceramic fragments recovered has been appended to this report which adds greatly to the fund of knowledge pertaining to the later period of the fort's history. Unfortunately the glassware, brick fragments and other small finds were not studied due to the lack of time. It had been hoped that the many animal bones recovered could be studied to shed some light on the diet of the fort residents, but here again, this has had to be left undone. It is felt that further study of these objects would aid materially in the understanding of the overall picture of life at Sutter's Fort in the late 1840's and 1850's and might, as well, be a dating device of some value as the ceramics proved to be.

It soon became apparent that only by a study of the available historical records could the archeological findings be understood. The historical background included in this report is not extensive, and thus the results gained are not all that they could be with further work along this line. It is hoped that someone with a fuller knowledge of this aspect will have an opportunity to study the results with this view in mind.

That the site of the fort had been occupied by Indian groups was well known, but the exact periods preresented were unknown. The data here included on this aspect of the occupation of the site must be considered a by-product of the search for the fort remains, but adds greatly to the mass of information on the archeology of central California.

HISTORICAL BACKGROUND

WRITTEN ACCOUNTS

A number of historical accounts have been published which include descriptions of Sutter's Fort, although for the most part these are vague or contradictory. A complete review of the historical data will not be included in this report, since for the most part this has been done in previous works, (Hall, n.d., Rensch, n.d., Gebhardt, n.d.2, Themis, 1889-1892).

The Slough

Sutter's choice of location for the fort in 1839 is of interest since it sheds some light on the aboriginal occupation of the area. Numerous accounts have been published describing the knoll upon which Sutter located his Fort as being unoccupied, although there were Indian villages in the same area (Bancroft, Vol. 4, 1890; Themis, 1889). As the area was obviously suitable for aboriginal occupation, and in fact had been an Indian habitation site, the lack of habitation at the time of Sutter's arrival is somewhat puzzling. The reasons for this are not clear but will be dealt with in a later section.

The precise location of the knoll next to a slough is of some importance in understanding the history of the fort. All of the historic accounts mention that in periods of high water the slough had the appearance of a small river, since it connected the American and Sacramento Rivers (New Helvetia Diary, p. 29, 1939). The importance of this waterway cannot be stressed too highly as it provided easy access to the fort. It also seems to have contributed to the final decay of the fort walls in that during the peak flood stage it must have washed away portions of the original north wall of the fort and cut back the bluff lying to the north of the fort. Evidence for this supposition comes from the statement by Grunskey that the north wall could not be traced just prior to the restoration of the fort in the 1890's (Grunskey, n.d.).

The Fort Walls

Numerous accounts have been published giving the dimensions of the fort; these in general showed an amazing lack of uniformity. As noted by Gebhardt (n.d.2) the dimensions given vary considerably with those given by Bancroft (1890, Vol. 4) stating that the fort was 500 feet long and 150 feet wide and Hastings stating that the fort was 428 feet long, 278 feet wide at the widest point and 178 to 129 feet wide past the offset (Hall, n.d.).

Judging from the plat published by Künzel the fort appears to measure some 330 feet long, 183 feet wide west of the offset and 120 feet wide east of the offset. The measurements given by Themis (1889-1892) agree somewhat with this estimated length and width. As will be shown in a later section, the map made by Künzel seems to be the most accurate, a conclusion also reached by several other investigators (Gebhardt, n.d.2; Rensch, n.d.).

The walls of the fort were made of adobe bricks, as were the structures inside the walls. Adobe was the most common building material in California during the Mission period and, indeed, up to and including the earlier portion of the Gold Rush. A number of adobe buildings were noted along the Mother Lode by Heizer and Fenenga (1948) the majority of these dating in the 1850's.

The fact that Sutter built the fort of this material shows his willingness to use the prevailing material of the day. Of interest are the dimensions given for the bricks used by the Spanish and Mexicans in California, they being about 22 by 11 inches and weighing about 20 to 40 pounds (Bowman, 1951). The bricks recovered during the excavations appear to be about this size.

The outer walls of the fort are variously stated to have been two and one-half to three feet thick, these being probably based on observation and not measurement (Gebhardt, n.d.2). The inner walls of the fort were not this thick, and in general show some variation in width (C.D. Hall, pers. comm.).

The decay of the outer walls must have begun in the early 1850's judging from a contemporary drawing (Sutter's Fort State Historical Monument Booklet, p.10) which shows the north wall in a poor state of repair. Several contemporary newspaper accounts from the Sacramento Bee, and other newspapers, mention that the walls of the fort were in an extremely poor state in the 1850's and they were finally destroyed in the winter of 1861-62 when the adobe bricks from the walls were used to fill in a slough (Record-Union, March 24, 1893, notes on file at Sutter's Fort State Historical Monument). A woodcut made in 1858 shows only a mound which must represent the north wall offset and indicates that the walls were gone by that date (Sutter's Fort State Historical Monument Booklet, p. 37).

While the walls were torn down, traces of them were still evident in the late 1880's and 1890's prior to the reconstruction of the fort. Grunsky, (n.d.) noted that the walls could still be traced at that time by the low mounds of adobe melt from the walls. During the restora-

tion these outlines were used as guides for the rebuilding of the walls (Ibid.) although it has since become obvious that in some areas the old wall lines were not followed.

Central Building

For the purposes of this report the Central building is of interest only because of its relationship to a group of three smaller buildings which tied onto its northwest corner. The existence of the room, hereafter to be called the Shoemaker's Shop, was not known until the map made by Künzel in 1847 was located. This map showed the existence of three small adjoining rooms, the southwest corner of which joined the Central building (Gebhardt, n.d.2). While numerous accounts mention the establishment by Sutter of such a shop, no one of them gave an adequate description of its location.

None of the old woodcuts or lithographs show these three small adjoining buildings and it must be assumed that they were gone by the 1850's. They were definitely gone by 1858 and do not show in the woodcut made in that year. Since various additions were made to the interior structures in the 1850's, plus the destruction of some buildings, it is assumed that these three rooms were gone sometime before 1850. Unfortunately, the historical data are very poor in this respect, and this conclusion could be changed by later research.

The only room of the three excavated, number 24 on Künzel's map, was first noted by Gebhardt (n.d.2) in 1958. At this time the floor area was located but the walls were not noted since time would not permit the exploratory excavation. Additional evidence for the destruction of these three rooms before 1851 is indicated by Gebhardt, and the 1959 work would seem to bear out his contention.

The West Corral Wall

The problems previously noted in the discussion of the fort walls in general pertain to this area also. In the excavation only a small portion of this wall was uncovered, thus indicating that it extended to the north of the present North Wall of the reconstructed fort. Since both Rensch and Hall (n.d.) have noted that the present dimensions of the fort width are in error, little more will be mentioned in this section on this section of wall.

The Interior Corral Wall

As with the Shoemaker's Shop, little was known

about the existence of the interior Corral wall prior to the discovery of the map made by Künzel in 1847. Rensch, (n.d.) notes the mention of an interior Corral wall in a deed dating from 1849. Its exact location was not clear but its general location to the northeast of the Central Building was clear. Only with the finding of Künzel's map has this wall been exactly located. All of the deeds which mention this wall date in the years of 1849 and 1850 and it may be assumed that the Corral Wall was gone by the mid 1850's as it does not show in the woodcut of the fort made in 1858 (Sutter's Fort State Historical Monument Booklet, p. 37). A somewhat earlier (?) woodcut made in the 1850's does not show the Corral Wall, but the view of the fort shown in this picture is poor and probably is not especially accurate. It does show several wooden fences which seem to extend from the north of the Central Building which may have replaced the missing portions of the original Corral Wall (Sutter's Fort State Historical Monument Booklet, p. 10).

Well Number Two

The occurrence of a second well just to the east of the Central Building was somewhat surprising, although since the time of its discovery several references have been found which bear out the supposition that this second well was in existence in the early 1850's.

Themis, (1889-1892) notes that, "The water used at Sutter's Fort for drinking purposes was obtained from a well dug east of the building we have thus described, (i.e. Central Building), drawn by buckets, and a chain passing over a drum." While the date is not specified it must refer to a period in the late 1840's or early 1850's, since a well located to the east of the Central Building is lacking on the map made by Künzel in 1847. A second mention of more than one well was recently noted as having "two good wells of water", and must have been referring to the well east of the Central Building as well as to the earlier one to the west of the Central Building, (C.D. Hall, pers. comm.).

It is evident that the second well was dug between the years of 1847 and the early 1850's, significantly, during the period when the fort was used by the many groups of miners who were then crowding into the Sacramento Valley. It is probable that the first well could not supply all the water needs of the fort during this period, thus necessitating the digging of the second well.

PHOTOGRAPHS OF THE FORT

A number of illustrations of Sutter's Fort have been studied, as they shed some light on the construction

of the fort and its final decay.

For the most part the illustrations are rather inaccurate in that the artist either drew the sketch from memory or from secondhand information. Fifteen illustrations have been studied, most of them dating from the 1850's. The discrepancies which are apparent in most of the prints are apparently due to modifications made by persons who simply used older prints after slightly modifying them.

Prints dated prior to 1850

Five prints have been utilized which are dated prior to 1850. Included in this group are two prints dated 1846, one from 1847 and two dated in 1849.

Prints dated in 1846

Both of the prints which purport to represent the fort's appearance in 1846 were made after 1851. The first, (on file at Sutter's Fort Historical Monument) labeled "Raising the American Flag - 1846", was published in the Sacramento Illustrated in 1855 and closely resembles a print published in 1852 by the Pictorial Union (on file at Sutter's Fort State Historical Monument). This print then, while supposedly dating from prior to the Gold Rush, must represent a mid 1850 copy of an older print. It has little historical value and is obviously not drawn to scale.

The second print (Sutter's Fort State Historical Monument Booklet, p. 36) was published in 1851 by Gleason's Drawing Room Companion and again is a copy of an older print. It resembles to some extent the drawing of the fort made in 1849 by Hutton (Ibid, p.4) now on file at the Huntington Library. This print is of interest in that it shows the slough on the north side of the fort as a wide, deep stream, crossed by a substantial bridge. The fort walls appear to be out of scale and much larger than in other prints made about the same time. The south bank of the slough does not appear as an abrupt bluff as it does in the few photographs of the area made in the late 1880's. It is possible that the bluff at this time was not as abrupt as it became in later years due to flood damage.

Print dated in 1847

Only one print is dated from 1847, this being the drawing made by J. W. Revere, USN. (Ibid, p. 5). The 1847 print views the fort from the south and shows the Main Gate as well as the large corral on the south side of the fort. The scale is somewhat distorted, but allow-

ing for this the print seems to agree with the map made by Kunzel in 1847. Of interest is the fact that the fort was on a very pronounced rise as is also shown in later firsthand drawings of the structure.

Prints dated in 1849

Two prints date from 1849, both made by men who saw Sutter's Fort in that year. The first was made by W. R. Hutton in April of 1849, and shows the fort from the northeast corner looking across the slough. The scale of this print appears to be more accurate than the majority of the prints. The slough appears as a shallow, pond-life affair with the banks sloping gently to its edges, which are tree lined. There is little doubt that this is one of the more accurate of the early prints.

The second print was made by Lt. Allen B. Sherman in June of 1849 (on file at Sutter's Fort State Historical Monument). It shows the fort from the southwest side as a low, wide flung structure on a decided knoll. The print is poor for several reasons, primarily because the corral to the south of the fort is not shown, while it seems to show to the left of the Southeast Bastian in the print made by Hutton. This print is of little value and adds little to our knowledge of the fort structure.

Prints dated in the 1850's

A number of prints made from drawings of the fort in the 1850's have been reviewed for purposes of determining what modifications took place in this period of the fort's history. The majority of these are copies of older prints or show little of interest inasmuch as this report is concerned. Four prints have been utilized which date from the 1850's, although this is but a small number of the prints reportedly dating from this period.

The first print herein noted dates from 1852, when it appeared in the Pictorial Union. (On file at Sutter' s Fort State Historical Monument). This print is the only view of the fort from the northwest corner utilized in this study. Though rather poorly reproduced, it clearly shows the north wall offset and also the slough to the north of the fort. Although the scale of the print probably cannot be relied upon, it would appear that the north wall originally stood very close to the slough, a fact which would account for its later disappearance.

Two other prints both date from the 1850's but their exact date is not specified. The first of these on file at Sutter's Fort State Historical Monument) shows the southwest corner of, and also shows a small stream some distance to the south of, the front wall of the

fort. Its primary feature of interest is that the main Corral Wall is in poor condition and the Main Gate of the fort is entirely missing. While the print was probably made to depict the fort in pre-Gold Rush times, the evident decay shown would date the print in the post 1850 period.

The second print with no definite date is taken from a drawing now in the Society of California Pioneers, San Francisco, (Booklet, p. 10) and shows the northeast corner of the fort. Here again the main feature of interest is the fact that the fort shows signs of decay. The north wall is partially gone and the breaches appear to have been filled in with wooden fences. The area just to the west of the north wall offset has certainly been repaired with fences, and it is possible that the fenced pit excavated in this area is shown.

The last print dates from 1858, after the outer walls of the fort had entirely disappeared (Booklet, p.37). The Central Building is shown along with several other buildings, along with a fence connecting the Central Building and the building to its left. This fence again is of interest in that it was placed in the area of the interior Corral wall and may explain the postholes found which crossed the line of this wall.

The outline of what may be the offset in the North Wall also shows as a low mound of earth extending to the north of the Central Building. This print bears out the reports of wall remains noted by Grunsky, (Grunsky, n.d.).

Prints made in later years

Five prints have been utilized which date from the 1860's to the late 1890's or around 1900. They show, for the most part, only the Central Building as the remainder of the fort had disappeared by the 60's.

The first print (ea. 1865-1875?) shows the Central Building, Well number 1 and several small wooden buildings to the east of the Central Building (Booklet, p.38). The main feature of interest in this print is the wooden fence extending from the Central Building east to the smaller buildings. It is possible that the remains of posts from this fence could be recovered if the courtyard to the east of the Central Building were tested.

In three of the remaining four prints only the Central Building is shown. Two of the views are from the northeast and the remaining view is from the northwest. The first, and oldest print of these three (Booklet, p.39), shows a fenced off area which may have been the location

of the second well, but this is not certain. If so, the post holes from this fence were not found during the excavation of the second well.

The second print, a photograph, shows only the Central Building (Booklet, p. 27). Of interest is the area of the wall near the corner of the building on the east side. It was at this corner that the interior Corral Wall joined the Central Building and evidence of the wall may be indicated by the broken appearance of the adobe bricks at this corner. Unfortunately, no subsurface remains can now be recovered in this area due to later disturbance.

The third print, also a photograph (on file at Sutter's Fort State Historical Monument), shows evidence of an adjacent structure on the northwest corner of the Central Building and may have been caused by the removal of the Shoemakers Shop Building. Here again the subsurface evidence has been obliterated by later excavation, both during the restoration and in later periods.

The remaining print is a photograph taken during the restoration of the fort (on file at Sutter's Fort State Historical Monument) and shows the walls of the restored fort before they were completed. Several temporary buildings are located just to the east of the Central Building which appear to be nothing more than lean-to affairs made of posts covered with a metal roof. Here again the post holes should still be evident and may account for those found during our excavation in this area.

Summary of Sources

Both the historical and visual evidence pertaining to Sutter's Fort over a period of years has been presented in brief. It becomes apparent that for the most part little information of value can be gained from them, although certain of the features recovered in the 1959 excavation may be shown to date from the post Sutter Period. This is especially true of the post holes found in the area east of the Central Building, which certainly date from the period after the removal of the Interior Corral Wall.

It is also apparent that the only source which has more than a very limited value to the problem is the map made by Künzel in 1847. A further discussion of the value of this map will be presented in a later section when the results of the excavation have been presented.

ARCHEOLOGICAL FINDINGS AT SUTTER'S FORT

The original contract between the Division of Beaches and Parks and the Central California Archeological Foundation called for test excavation in five areas, four inside and one outside the present fort walls. The areas to be tested included (1) the area from the northeast corner of the Central Building to the west wall of the Trade Store to locate the remains of the interior Corral Wall, (2) test pit the area of the Corral to more fully explore the known Indian occupation area, (3) test pit the interior of the present Work Room to find evidence of the original rear wall of the Central Building, (4) excavate to the west of the Central Building and in front of the Monument office to locate foundations of the Butcher Shop, Shoe Shop and Kitchen as indicated on Künzel's 1847 map, and lastly (5) to test pit outside the present North Wall to locate the original North Wall and Corral Wall as indicated on Künzel's map.

Due to the restoration work on the Central Building it was not possible to excavate in the Work Room since this area was in use by the Restoration Crew over the whole period of excavation. The four remaining areas were excavated and it is the information gained from their excavation which makes up the bulk of this report. The four areas excavated (fig. 1) have been assigned letter designations as follows: Area A, the area between the Central Building and the Trade Store (Fig. 2); Area B, the area to the west of the Central Building and south of the Monument Office (Fig. 5); Area C, the area north of the Central Building, outside the present North Wall (Fig. 7); and Area D, the area immediately east of the North Wall offset (Fig. 8).

Area D

This area was tested by excavating a three by five foot pit east of the corner of the North Wall offset and a three by five foot pit paralleling the wall five feet south of the first unit (Fig. 8). It was hoped that some evidence could be recovered of the original North Wall offset.

The units were carried down to sterile, yellowish hardpan with the profile showing that this is overlaid by a dark midden-like soil. The uppermost level, now a flower bed, is composed of a rather dark, sandy loam, probably resulting from the filling and cultivation of the area. As in the majority of the units excavated, a level composed of mixed debris, burnt brick, glass and porcelain fragments, etc., occurred at a depth of about 12 inches. Below this there was no evidence of an occupation level that could be attributed to the Sutter period.

Below the reconstruction debris level, roughly twelve to fourteen or sixteen inches in this area, was a twelve-inch deposit of rather dark, ashey appearing soil. While there were little if any indications of the origin of this level, it is almost identical to the midden from the Middle Horizon burial area and can probably be attributed to the aboriginal occupation of the site.

Further information on the location of the original Fort Walls has been provided by an overlay map of the present fort outline over the map made by Künzel in 1847. According to the map prepared by Gebhardt, (n.d.2), the original North Wall offset paralleled the present offset and was located only a few feet to the east of the present wall. Study of the new overlay shows that this is not so, as with the known points excavated in 1959 used as guides, the original offset is located some distance west of the present offset (map on file at Sutter's Fort State Historical Monument). Since our excavation shows that no structural remains are present in the area east of the present North Wall offset, it is felt that further excavation with the purpose in mind of locating the original North Wall offset should center five to fifteen feet west of the present North Wall offset.

Area C

Area C consisted of a series of test units located just outside the present North Wall in line with original west wall of the Corral. This wall also formed the rear of the Shoemaker Shop, Butcher Shop and Kitchen as shown on Künzel's Map (Fig. 7). The original North Wall, according to the map made by Künzel in 1847, was located some distance to the north of the present reconstructed North Wall. Due to the contouring which was carried out during the reconstruction in the 1890's to the north of the present fort much of the original structure must have been removed. In addition it is possible that portions of the original North Wall were washed away in periods of flooding, as certain of the prints previously referred to tend to indicate that the north bluff has been cut back over the years. (Compare the drawing by Hutton with the later prints).

During the flood of 1861-62, according to the Record-Union of March 24, 1893, the adobe walls of the fort were used for the purpose of filling in the slough and building approaches for a bridge. The removal of material from this area plus the flooding action of the slough must have obliterated many of the traces of the original wall.

Feature 19

Based on Künzel's map the original west wall of the

Interior Corral should have continued to the east of the present north wall. Excavation in this area provided evidence of this wall which consisted of a parallel row of adobe bricks, Feature 19, which lay end to end and extend eleven feet from the North Wall toward the present pond (Fig. 7). These bricks now lay ten to eleven inches beneath the present ground surface. The surface upon which they lay is level and shows little slope to the east as is shown in the older prints of the fort. It is probable that this section of the wall lay to the south of the slope as seen in the prints.

Measurements taken from the corner of the present North Wall offset indicate that the section of wall uncovered is located 91 feet west of the offset corner and in line with the west wall of the present Central Building. This would indicate that the Central Building, as it now stands, was modified in its north-south direction but is essentially in the same east-west position as when built by Sutter.

The individual bricks used in the construction of this wall measure twelve by eighteen inches in size, with the thickness not determinable due to their having been cut down on the upper surface. The wall measures thirty-six inches wide, a figure commonly noted in the estimates given for the walls in the early reports on Sutter's Fort, (Gebhardt, n.d.2). This wall appears to have been destroyed during the reconstruction of the fort as it now ends where grading operations have steepened the contour on the north side of the fort. There is little doubt that it originally continued on to the north (Fig. 7).

Little can be determined on the details of the construction of the wall. No clearly discernible trench outline was noted in which the bricks had been placed; thus it appears that the surface was merely leveled off and the bricks then placed directly on the ground. No signs of mortar could be observed, and even the outline of the individual bricks could be made out only with careful study. If mortar other than mud was used it had disappeared. It is probable that mud was used, but has since dissolved and mixed with the melt from the bricks themselves.

Feature 20

This feature, noted during the excavation of Feature 19, consists of a rectangular pit measuring three by six feet in size, located six inches west of the wall footing described above, and four feet four inches north of the present North Wall (Fig. 7). Its position originally was in a small courtyard north of the Butcher Shop and west of the west wall of the Interior Corral.

The pit was dug two feet into the sterile red hardpan and at its deepest point is now three feet below the present surface. Judging from the material excavated from this pit, burnt brick fragments, glass, porcelain and tile fragments, and from the soil consistency which was extremely loose and dark in color, this pit must have been used as a garbage dump. On each corner of the west side of the pit were recovered the poorly preserved remains of a wooden post which, judging from the post hole must have measured four by four inches. No post holes were noted near the east side of the pit, presumably because the wall formed a barricade at this end of the pit.

A number of the tile and porcelain fragments were submitted from this Feature to Miss Sylvia Broadbent, University of California, for analysis, (Appendix 1), and all of the dateable fragments may be placed in the early to mid 1850's. While historical documentation is unavailable, it is probable that this garbage pit may be attributed to the period when the fort was used as a hotel or hospitable.

The profiles from this area, Area C, while not extensive, show that the Indian occupation area apparently did not extend over all of the knoll (Fig. 7). No midden was noted and the sterile hardpan was only twelve inches beneath the sod. This would indicate that the original contours of the knoll were irregular, although it is barely possible that the midden was scraped off when the fort was reconstructed and that the area was later filled in with the present top soil.

Area A, Interior Corral South Wall

The existence of the Interior Corral was known before Künzel's Map of Sutter's Fort was located in 1958, but its exact location was subject to question, (Rensch, n.d.). With the newly acquired map available for reference, Gebhardt, in the early fall of 1958, excavated a five by ten foot test unit which was later incorporated into the 1959 Trench A and B, Unit 1, (Fig. 1 and 2).

The result of this exploratory unit was the uncovering of adobe bricks at a depth of ten inches below the modern surface. It was assumed that these bricks marked the remains of the South Wall of the Interior Corral, as the location corresponded to that shown by Künzel, a supposition later borne out by the tracing of this wall for a considerable distance to the west from the point where it originally was discovered.

Area Excavated

The main trench in Area A was begun eight feet

three inches west of the present Trade Store and consisted of a ten-foot wide trench forty-six feet ten inches long. The remaining area, three feet three inches, was unexcavated as it included the modern pipe line ditch between the west end of the trench and the east wall of the Central Building. (Fig. 2).

The main trench, Units A and B, 1 to 10, was excavated in five by five foot units numbered from the east to the west, and letter designations which progress from south to north. Thus the first two units at the east end of the trench were designated as Units A and B1. Later one additional unit, C1, was excavated to the north of Units A and B1 to better define a feature (Feature 7) in that area and the east end of the trench was extended to more fully uncover the Corral Wall. A northerly extension of Units A and B 8 and 9 was excavated to trace out the Indian occupation area, it consisting of Units 8 and 9 C, D, E and F, with Units E and F 10 and E and F 7 being partly excavated to recover Indian burials which extended into the side walls of the original units (Fig. 7).

All of these units were excavated to subsoil unless features were noted which prevented such excavation. Such features were designated by number and their location was plotted and where possible other details were noted. A more detailed description of the various features will follow.

Stratigraphic Details, Area A

Since the stratigraphic profiles differ over the area, the main trench Units A and B 1 to 10 (Fig. 2) will be discussed separately from the northerly extension from this trench, Units C, D, E and F 7 to 10 (Fig. 3). The latter units are primarily concerned with the Indian burial area and contained no historic features, although historic material was recovered from their upper levels.

The upper six to eight inches of the main trench consisted of a dark loam or humus and probably in part is attributable to fill placed over the entire courtyard to facilitate the growth of lawns and shrubbery. This level contained little or no human introduced material. Below this, from six or eight to twelve inches, was a level consisting of broken brick fragments, porcelain and tile shreds and metal fragments. This material appears to have been redeposited, as the level can be traced over the entire excavated area in the courtyard, at about the same depth and thickness. All of the material found in this level was saved and a sample of the ceramics was submitted for analysis. As with the material from Feature 20, it is dateable in the mid 1850's, although certain items, such as some of the brick fragments, appear to date from the reconstruction period.

Time did not allow a detailed study of this mass of historic material other than the porcelain, but due to its disturbed nature it is felt that little information could be gained. The probable explanation for the wide dispersal of this level is that the leveling which took place in the 1890's spread the Gold Rush period debris over the whole area, (Appendix 1).

The next level, primarily from twelve to eighteen inches, consisted of dark, unconsolidated soil. From all appearances this level can be attributed to the Indian occupation of the site, as it contained fragments of broken angular rock such as those commonly found in Indian midden deposits. Additional evidence for the origin of this level was the recovery of a bone awl and cut off deer antler tine in its lower levels.

The base of the area excavated consists of a very compacted, yellowish hardpan, which occurred at depths of twenty-four to thirty inches over the entire trench. Since it was obvious that the level was the original surface of the knoll it was not tested extensively, but in the one unit excavated into this level, hardpan continued some six to twelve inches, at which point excavation was halted.

The soil profiles differ to some extent in the units excavated to the north of the main trench (Fig. 3). The profiles made of the east wall of Units C, D, E and F 8, show a more complex structure than that of the main trench. The upper four inches of this area is composed of disintegrated granite placed in the area over the last several years to serve as a walkway, while below this is a three-inch layer of mixed sand and gravel, also of recent origin. Below the layer of sand and gravel is a three inch belt of pure light brown sand which appears to have been used as walkway fill. As can be seen in the profile of the burial area, this recent fill occupies only the northern portion of the excavated area, Units E and F 8, and the fill must have been placed in this area to build up the present walkway. As can be seen in the profile the original surface slopes to the north in this area. Below the upper recent levels described above is a layer of gray soil containing broken brick fragments, glass and porcelain which to the south in the Main Trench was the second layer. This layer is equated with the reconstruction period of the fort and is overlaid by either the turf or the recently laid down disintegrated granite.

The development of this debris layer is difficult to understand, but it must have been produced by the mixing of the historic debris with the underlying Indian occupation midden. The historic objects occur most commonly near the contact zone between this gray debris layer and the overlying brownish sand with the lower

levels of the gray layer showing a paucity of historic objects and a few Indian made items. A gun flint is the only historic period object found in the midden proper. It is probably attributable to the Sutter Period. (Plate 4 c).

The Indian occupation midden, hereafter referred to only as midden, occurs at depths of fourteen to twenty-four inches. In the south end of area, Units C and D 8, the midden occurs at the shallower depth, while near the north end of the area, units E and F 8, the midden begins some ten inches deeper. This is probably as a result of the sloping contour of the original surface which necessitated the modern fill in this area for the walkway.

The reddish yellow sterile soil also shows a slope to the north, occurring at two and one half feet in the south portion of the area and at three feet in the north portion of the area. In many instances it was difficult to determine the original level of this base soil, as it had been extensively dug into by the aboriginal inhabitants for grave pits, etc.

Several items are of interest in this area which are attributable to modern occupation. In the north end of this area, Units F 8 and 9, two post holes were noted. Both of these originate in the modern decomposed granite layer and extend to the sterile hardpan base. While the post holes clearly originate in the modern upper level, no one at the fort could remember their use or when they were excavated (Fig. 3).

The west wall profile of Units E and F 10 is also of interest. In this area was noted several ash lenses which lay upon the midden. They must be later than the Indian occupation level, and since they occur below the reconstruction debris level it is entirely possible that they date from the Sutter period or from the earlier portion of the Gold Rush occupation. It should be noted also that this area had been badly disturbed by the recent placement of a pipeline, however.

A rubbish filled pit was noted in Unit D 9, the fill consisting of burnt brick fragments, sawn animal bones and other rubbish. The pit was difficult to outline but was some four feet long and was excavated to the hardpan base. It undoubtedly dates from the reconstruction period, judging from the numbers of brick fragments.

Features, Area A

Sixteen features were recorded in this area, thirteen in the main east-west portion of the trench and the remaining three in the offset in the Indian burial area

(Fig. 2). Of these sixteen features, three - Features 4, 14 and 16 - may be attributed to the aboriginal occupation of the site. Features 4 and 14, located in Units B 1 and C 8 respectively, consisted of a number of thermal fractured stones at a depth of thirteen inches, (Feature 4) and a pit fifty-four inches wide and six to eight inches deep into the sterile hardpan (Feature 14).

Feature 16 consisted of two purposely broken Indian pestles buried in the area of the Indian cemetery but not in association with one particular burial. (See section on Pre-Sutter Occupation of the Area.)

Feature 7

This feature, located in the northeast corner of Unit B 1, was first noted during the excavation of Feature 1, the South Corral Wall (Plate 1b, Fig. 2). It consists of a rather formless area of light colored clay twenty-four inches long by sixteen inches wide and twelve inches deep at a depth from the surface of twelve inches. The color and consistency, rather compact, are very similar to the bricks used in the making of the Corral Wall. In addition, the depth of this feature would tend to link it with the Corral Wall as attributable to the Sutter Period occupation. Its location, north of the Corral Wall, would agree with the location of the tower shown on Kunzel's map. If this is what is represented, an additional check point for the accuracy of the map has been established. No individual bricks could be recognized in this feature, and further excavation to the north, Unit C 1, did not uncover additional traces of adobe, however future excavation in this area would still undoubtedly prove profitable.

Features 2, 3, 6 and 9

These features consist of four post holes, all nine inches in diameter, located in Units A and B 1 and 2, (Plate 1a, Fig. 2). All were filled with loose, dark soil which contrasted with the light colored hardpan into which they penetrated for some depth. No traces of wood remained in any of the four holes.

All of the four post holes originated at least six inches below the surface, with three originating at least twelve inches below the surface. Since the fill was earth, and not rubble, it would appear that they must date prior to the 1890's. In addition, no post hole penetrated the Corral Wall footing, which may indicate that the wall was in existence when the posts were put in. This supposition is weakened by the fact that three of the post holes line up, with the fourth located at almost right angles to the other three.

It is most probable that these features date from some time after the wall had been destroyed, but prior to the reconstruction period, as the fill would contain debris from the level attributable to this period if they had been dug after 1890.

Features 5 and 8

Both of these features are post holes three inches in diameter, located in Units B 1 and A 2 (Fig. 2). Here again, the fill was dark soil from the upper levels of the area. Because of their small diameter they may be test holes excavated with an auger by Gebhardt, as this was the method used by him to test for subsurface remains. If this is so, it is difficult to explain the lack of upper level debris in the fill. Their small diameter, however, would suggest such an explanation.

Features 10 and 15

Feature 10 may also be a post hole, but if so it differs to some degree from the features previously described. Located in Unit A 4, this feature consists of a "ring" of light gray sand, at a depth of sixteen inches below surface, below which extends a pit into the sterile hardpan (Fig. 2). The gray sand area is thirty inches in diameter but the diameter of the pit was not determined. This feature must date from post 1890, since several square cut iron nails were recovered from the gray sand "ring".

Feature 15 is another post hole, but of uncertain origin. Its location in Unit F 10, near the present wagon display area, tends to suggest that it is of recent origin, while the recovery of fragments of rotted wood also tends to bear out suggested recency of this post hole (Fig. 2). In size it is somewhat larger than the other post molds noted, being eight by nine inches square. The depth of thirty-six inches also makes it the deepest post hole found. This post hole probably represents a no longer needed upright for supporting an extension of the wagon shed roof.

Feature 11

Feature 11 consisted of a badly rusted metal bucket containing sawn animal bone sections, brick fragments and porcelain fragments. It lay directly on the Corral Wall in Unit A and B 4 (Fig. 2). As the wall footing showed shovel marks in this area, the bucket may have been thrown into a garbage or refuse pit. It is of interest to note that the bucket forms part of the 1890 debris level in this area, but the undisturbed nature of this feature would tend to suggest a date before 1890, possibly in the

late 1860's to 70's, while the fort was occupied by various private individuals.

Feature 12

Located in Units A and B 7 was an area of reddish clay at a depth of six inches (Fig. 2). On the south edge of this feature was a charcoal deposit which may account for the "burned" appearance of the feature. While the depth of the feature, six inches, is relatively shallow, it was noted that the "burned" area was beneath the debris level, thus it probably dates from some time prior to this level. What the feature represents is not known, and historical references omit any mention of a possible source for the "burnt" area.

Feature 1, The South Corral Wall

The first and most important feature recovered in Area A was the remains of an adobe wall (Plate 2a, b &c, Fig. 1 and 2). This wall, first discovered by Gebhardt in 1958, occupies the area between the present Trade Store and the Central Building. According to the map made by Künzel in 1847, and published in 1848, this wall formed the south side of a large courtyard, possibly used as a corral. Just when this wall was destroyed or collapsed is not known precisely, but the latest deeds which mention it are from the early 1850's and it must be assumed that it was gone by the mid 1850's as it does not show in the 1858 print of the fort area. While Grunsky mentions the existence of low mounds of adobe in certain areas of the original fort walls, he makes little mention of interior details outlined in this manner, (Grunsky, n.d.).

As shown in Künzel's map made in 1847, the wall was in two sections, the first built east from the northeast corner of the Central Building and the second continuing in line with the first after a break for the gateway. The easterly portion of the wall formed a corner with the south end of the North Wall offset. Immediately to the north, in the corner, was a gun tower, while to the south was a bake oven (Gebhardt, n.d. 2, Fig. 1).

The Wall, or more properly Wall footing, was uncovered in Units A and B 1 through 4 at which point the wall was cut through by a modern pipeline, (Fig. 2). It ranged from ten to eight inches in depth, gradually decreasing in depth from east to west. Beyond Unit A and B 4 no traces of the wall could be detected, due in part to the pipeline mentioned above and to later disturbance of the entire area from this unit to the northeast corner of the Central Building. In the area of Units A and B 7 was an area of reddish soil, previously discussed, which may have been melt from the wall, but as this area did not fall in line with the wall footing

it is felt that it has no relationship to the wall.

In the area of Units A and B 9 was discovered a second well, hereafter referred to as Well Number 2 (Fig. 2 and 4). It does not seem likely that the well was dug during the period in which the wall was still standing, as this well dates from the early 1850's and its excavation probably contributed to the destruction of the west half of the South Corral Wall.

The course of the wall footing in relation to the Trade Store and the Central Building when aligned with the position of the wall on Künzel's map shows that at present the west portion of the wall, if in line with the east portion, would not line up with the northeast corner of the Central Building but would be located some two feet three inches south of the corner of the building (Plate 2b). It is of course possible that this may be explained by the lengthening of the building, but it is also likely that the west portion of the wall did not exactly line up with the north end of the Central Building.

The portion of the wall exposed in the excavation now measures twenty-three feet eleven inches long and thirty inches wide. It was traced from a point four feet nine inches west and twenty-eight inches north of the southwest corner of the Trade Store barely into Unit 5 A and B, at which point it was cut through by a modern pipe line.

The wall is composed of adobe bricks which measure twelve by eighteen inches in size, with the thickness not determinable due to their top surface having been "shaved" off, probably by leveling activities. None of the bricks were removed from their original position, thus their thickness is not known. It is doubtful that a deeper course of bricks lies under the course exposed, as the profiles taken of the edge of the wall show little evidence of a deeper course of bricks (Fig. 2).

The bricks were laid in a crosshatched pattern with one row of bricks lying lengthwise and the second row lying edgewise (Fig. 2) both on their flat side, thus making a wall thirty inches wide. The mortar seems to have been the mud from which the bricks were made, since, in color, the material filling the spaces between the bricks is the same as that of the bricks themselves. No evidence of a trench was noted in the area immediately adjacent to the wall. It seems likely also that little if any preparation was made prior to the placing of the first course of bricks. Undoubtedly leveling of the ground surface constituted the only preparation of the area prior to the placing of the bricks.

While the west end of the wall was not located with

certainty, there is little doubt that it is in the area of Units A and B 4 and 5. According to Künzel's map, the east portion of the Corral Wall was about twenty-eight feet long measured from the original Stores Room. On the two corners of the Wall were other structures, bake oven and gun tower, which were immediately adjacent to the Wall. The fact that no definite remains were located in the area of these structures is difficult to understand, although the hard packed area, (Feature 7),may be the remains of the original gun tower or even the southern end of the North Wall offset (Plate 1 b, (Fig. 2). Only further work in this area can answer this question.

Feature 13, Well Number 2

As has been commented on in a previous section, little information has been gleaned from historical sources pertaining to the second well discovered during the 1959 excavations. In the only two sources noted, the location of the well is rather vague, but both locate the well to the east of the existing Central Building. There can be little doubt, then, that the feature discovered is the well noted in these sources.

The well was discovered in the southeast portion of Units B 8 and 9, when a hollow spot was noted in the floor of the trench. This hollow spot, when investigated more fully, proved to be rather extensive, and when the uppermost level of the overlying deposit was removed, marked the outline of an extensive excavation. The hollow spot must have been created when the material with which the excavation had been filled decomposed thus settling away from the harder, more packed surface soil layers of the present walkway.

The location of Well No. 2 is of interest in that it is located just north of a line parallel with the north side of the Corral Wall and is about nine feet east of the North Wall of the Central Building (Fig. 2).

The well itself measures about three by five feet in size, with its long axis trending north and south or parallel with the Central Building. It was first noted at a depth of eighteen inches when the hollow spot developed, with the material above this level being composed of disintegrated granite and reconstruction period debris. When the sterile hardpan base was reached the outline of the well was clearly defined and it is at this point that the well outline could be measured.

The fill in the well consisted of mixed soil and occupation debris (Fig. 4). In the upper levels, 30 to 78 inches, of the portion of the well excavated, the fill consisted of yellowish soil mixed with sawn sections of animal bone,

porcelain fragments, glass fragments and badly rusted metal fragments. From the seventy-eight inch level to the bottom of the excavated portion of the well the fill changed to a darkish soil, still with a high percentage of occupation debris. The well was excavated to a depth of one hundred and twenty inches, however borings taken to a depth of one hundred forty-four inches indicate that the fill continued to an unknown depth past the twelve-foot level.

As can be seen in the profile of the well (Fig. 4), it was dug through a dark soil layer which rests on the sterile yellowish hardpan. In the immediate area around the mouth of the well the soil was mixed yellow and dark gray, this area probably representing the original soil removed from the well itself.

Since the material through which the well passes is extremely indurated, the sidewalls of the well have remained in the same condition as when the well was originally dug. They still show pick marks and a series of foot rests dug into the sidewalls of the well, probably used by the excavators of the well.

The porcelain fragments removed from the well were studied in some detail and the material for the most part seem to date from the 1850's. This may indicate that the well was used only for a short time during this period. It is just as possible, however, that the material used to fill the well was from a refuse deposit dating from the 1850's and that the well was used well past this period. Since the wells contain the only undisturbed deposits of refuse, it would shed much light on both the Sutter period and on the post Sutter period if they could be completely excavated. A controlled sample of the ceramics from both wells would add materially to the sequence of porcelain types in use during the 1840's and 50's in the Sacramento Valley and the Mother Lode.

Area B, the Shoemaker Shop

As with the South Corral Wall described in the previous section, this area west of the Central Building and south of the present office, was partially excavated by Charles Gebhardt in 1958. Gebhardt excavated three units which extend seven and one-half feet west of the Central Building, (Gebhardt, n.d. 2, Fig. 3), uncovering "a compact surface overlaid by debris" at a depth of fifteen inches. This area terminated in line with the north end of the Central Building, thus suggesting that it was the floor of the Shoemaker Shop located on the Künzel map in this immediate area.

In the 1959 excavation four additional units, numbered one through four, were excavated to the west and north of those previously located in this area (Plate 3 a, b&c, Fig. 5). Unit one, measuring five by six feet, was a westerly extension of Gebhardt's Unit 1-D; Unit 2 was north of Unit 1 and west of Unit 3 - 2 being five by six and 3 measuring five by five feet. The last Unit, 4, was a northerly extension of Unit 2 and was just wide enough to uncover the wall footing which continued to the north until disturbed by a pipe line.

Feature 17, Shoemaker Shop Floor Area

As indicated by Gebhardt, (n.d. 2), the hard-packed surface extends to the north for an unknown distance and the 1959 excavation still did not fully define the area which appears to be a floor. Unit 3, to the north of Gebhardt's Units 1-D and 1-C, exhibited a hard-packed surface at a depth of sixteen inches covering the entire area, five by five feet (Plate 3 c). Lying on the surface of this packed level were a number of objects including several decomposed board fragments (Fig. 5). As noted by Gebhardt the hard-packed level slopes to the south very gradually (Fig. 6). There seems to be little doubt that this level is the floor area of the Shoemaker Shop, as it is unlikely that a hard surface could build up unless it had been packed by use as a floor.

The floor area as excavated in 1959 occupies an area five by six feet square (Plate 3 c) which begins four feet north of, and two and one-half feet west of, the northwest corner of the Central Building as it presently stands. It originally extended to the south of this area for some distance, however, (Gebhardt, n.d. 2).

The western edge of the floor area slopes up abruptly to a slight ridge (Plate 3 c) beyond which the hard-packed area does not extend. The explanation of this curious feature of the floor is not apparent, as Feature 18, the presumed west wall of the Shoemaker Shop, is some distance to the west of the ridge (Plate 3 a).

In addition to the historic period occupation debris on the floor level there were recovered several articles of aboriginal manufacture consisting of a small obsidian arrow point and several small glass beads representative of types used by the early Caucasian settlers in the Sacramento Valley. These articles will be discussed more fully in a later section, but the importance of their location should not go unnoted.

Further work should be done in the area to the north

of the 1959 excavation units, as there is little doubt that the floor area continues in this direction and further work should provide a better definition of the total extent of the floor.

Feature 18, West Wall of the Shoemaker Shop

Originally the purpose of the excavation in the area to the west of the Central Building, and in front of the present office, was to define the extent of the floor area discovered by Gebhardt. Study of the map made by Künzel, showing the location of the original buildings in this area, pointed out the possibility that the walls of the room or rooms might be recoverable. Since the floor area was well defined and showed little disturbance, it was felt that the wall or walls were probably still in place. To test this supposition test units were excavated to the west of the units put down by Gebhardt (Fig. 5).

Evidence of an adobe wall was first uncovered in Unit 1 and was traced to the north in Units 2 and 4. The wall consisted of twelve by eighteen-inch rectangular adobe bricks lying on their flat or broad side with their long axis parallel to one another (Plate 3 b). The wall was first noted at a depth of twelve inches, the same depth as the top of the ridge in the floor area to the east. The wall parallels the west edge of the floor area, but between the ridge and the wall is a space of three to three and one-half feet which shows no evidence of having seen use as a floor. The profiles show this as a gap between the wall and the floor area (Fig. 6). The wall is located eleven feet eleven inches west of the Central Building and the portion of the wall uncovered is eleven feet long, ending one foot north of a line extending west from the north wall of the Central Building. According to Künzel's map the wall should be located ten feet to the west of the Central Building, but later modification of the Central Building may account for this apparent discrepancy.

No evidence for the dividing walls or of the south wall of this unit of buildings was uncovered. It is almost certain that the south wall of the Shoemaker Shop has long since been destroyed, since it was not located by Gebhardt or by the 1959 excavations in its supposed location. The north wall of the Shoemaker Shop was not located, but this is probably due to insufficient excavation in this direction and further work immediately to the north of Unit 3 should provide evidence of this dividing wall.

The doorway to the Shoemaker Shop is not shown on Künzel's map and nothing suggestive of such a feature was noted during the excavation of the wall. There is some possibility that the second and third bricks from the south end of the wall are in the position of the original doorway,

as suggested by the fact that they have been split in half and appear to be slightly depressed. This may have been caused by their having been used as stepping stones. The lack of wear on the upper surface of these bricks would tend to discount such a suggested use, however.

The north end of the wall was cut through by a pipe line and other disturbances have obliterated any trace of the wall in the area of the present walkway in front of the office. It is possible, however, that the area just in front of the office doorway would provide some additional information.

The east wall profile of Unit 3 indicates the possibility that the building was deserted for a period of time followed by the collapse of the adobe walls onto the floor area (Fig. 6). This is suggested by the layer of reddish, sterile soil overlying a thin layer of debris which lay on the floor itself. The thin layer of debris may have built up while the building was not in use to be followed by the collapse of the walls over the rubbish. Since no individual bricks or brick fragments were found in the reddish soil layer, it is doubtful that it represents a section of collapsed wall, but could be melt from the walls.

SUMMARY OF THE ARCHEOLOGICAL FINDINGS, 1959

The result of the 1959 excavations at Sutter's Fort were the most productive of any work thus far attempted to provide concrete proof of the validity of the map published in 1848 by Heinrich Künzel.

Guided by Künzel's map Gebhardt located the floor of the Shoemaker Shop and the South Corral Wall. Followup work in the same areas yielded evidence in the form of adobe wall remains which conform in location to features noted in Künzel's map. The most concrete result of the finding of these wall foundations is that the map made by Künzel is not only borne out insofar as accuracy is concerned, but that these known points may be used to orient the making of future overlay maps of the present fort on the 1848 map.

Three points of reference have been located for this purpose, they being the east portion of the South Interior Corral Wall, the west wall of the Shoemaker Shop, and lastly a section of the Corral Wall extending north from the northwest corner of the Central Building. The modification of the north-south proportions of the Central Building create some discrepancies in the exact location of certain of these walls, notably the South Corral Wall. In this instance the wall, as it is now located, does not, apparently, conform to Künzel's map. Allowing for the small scale of the map with the ensuing slight inaccuracy, the location

of the wall as uncovered is in the position indicated on Künzel's map. The west wall of the Shoemaker Shop shows some displacement also if compared with its position on Künzel's map. This amounts to a matter of less than two feet, however, and for practical purposes can be ignored. The last section of wall uncovered (West Corral Wall) not only conforms to Künzel's map but when measured from the present North Wall offset seems to be in line with the west wall of the Central Building, although a survey should be made to determine its exact position.

The excavation of the sections of original walls of the fort has brought out several other discrepancies in Künzel's map, namely that the width of the walls is shown as a uniform thickness for all of the interior structures. Our excavation has shown that all three of the walls uncovered are of different thicknesses. The walls range from eighteen to thirty-six inches wide, a factor ignored in the Künzel map, and which may account for some of the apparent discrepancies in the map. Before the fort is restored to its original form it will be imperative to check as many points as possible to determine the various widths of the walls.

The small finds have been mentioned but slightly in the body of the report, primarily due to lack of time for a study of them. A report on the ceramics recovered is presented in Appendix 1, however.

Recommendations for Future Excavation

It has become apparent from the results of the 1958 and 1959 excavations of Sutter's Fort that the map made by Künzel is for the most part accurate. The small differences noted in the text of this report do not detract to any great extent from the over-all accuracy of the map but merely tend to show that the artist who drew the map for publication took some liberties in its preparation. In all instances where systematic excavation has been carried out in the areas as shown on the map where structural features should be present they have been uncovered. It must be admitted that these features could have been found without the aid of the map, but this would have entailed a much more extensive excavation than proved necessary.

Six areas will be presented for consideration in planning further excavation of Sutter's Fort. These are (1) the area to the north and west of the Shoemaker Shop; (2) the original North Wall offset, both outside the present North Wall and in the area adjacent to the present Trade Store inside the Fort; (3) the south wall of the buildings numbered 17 to 19 on Künzel's map, which must lie under the walkway in front of the present Trade Store; (4) the Northwest Bastion, which according to the latest overlay made

of the fort would lie north, east and west of the present Bastion; (5) the area along the western portion of the present North Wall but east of the present Bastion; and lastly (6) the complete excavation of the original well, partially excavated by Gebhardt in 1958.

It will be noted that the majority of the areas recommended for future excavation are located inside the present Fort Walls. It is felt that further work in certain areas outside the walls of the fort will be of little value since the reconstruction period leveling of the knoll has greatly changed the original contours of the fort grounds. Little grading would have had to had taken place to completely destroy the wall foundations of the eastern portion of the original fort. The walls uncovered in 1959 were only twelve inches under the surface on the average, even where little modification of the ground surface has taken place. This would suggest that little could be gained by excavations in areas known to have been altered during the 1890 reconstruction.

There is little doubt that further work inside the walls and in the area immediately adjacent to the outside of the walls will produce further evidence of the original outline of Sutter's Fort. The use of Künzel's map in conjunction with the excavations will greatly facilitate further excavations, as it provides fairly detailed information as to the location of the original fort walls.

The primary drawback at the present time is the lack of specific points of reference upon which to base an alignment of the original fort with the present fort. For the most part these points would be difficult if not impossible to locate due to the reasons stated above. For this reason, the recommended areas listed above consider primarily the probability of success based on the lack of known disturbance of the individual areas recommended.

PRE-SUTTER OCCUPATION OF THE AREA

According to a number of sources, (Bancroft, Vol. 4, 1890, New Helvetia Diary, 1939), Sutter, soon after his arrival, engaged local Indians for use as laborers. He also used Indian labor for the making of adobe bricks, which were used in the construction of the fort, and Indians also made up the majority of his small garrison, (New Helvetia Diary, 1939). In several instances, Sutter used Indians for other than menial tasks, since for a time at least an Indian was in charge of the fort bakery (Zollinger, 1939).

According to the accounts of Sutter's arrival in this area, and from his description of the knoll where he later

built his fort, there were no Indians occupying the site in 1839, (Zollinger, 1939, Bancroft, Vol. 4, 1890, New Helvetia Diary, 1939). That the area was one of the more desirable locations for occupation is evident from Sutter's decision to build his fort on the knoll, as it was noted that it rose above the surrounding area and thus was not endangered during the rainy portions of the year, (Themis, 1889-1892).

The data compiled during the 1959 archeological investigations tend to show that there was little occupation of the site during the Late Central California Horizon, a period beginning about 300 A.D., (Heizer, 1959). Cultural remains from the earlier portion of this period, Phase I of the Late Horizon, are lacking entirely or at least have not definitely been recovered at the present time. In the succeeding period, Phase II of the Late Horizon, protohistoric in time, the site was occupied, but a lack of intensive occupation is indicated on the basis of little cultural refuse and the small number of artifacts recovered from the midden attributable to this period. Historic occupation by Indian groups is also poorly attested and may be disregarded on the basis of Sutter's own statements.

LATE HORIZON OCCUPATION

Few burials assignable to the Late Horizon were recovered, probably due to modern disturbance and their rarity. Unlike the earliest period, a localized cemetery area for the Late period may not have been present. The knoll in late times seems to have been used intermittently, probably as a temporary camp site, by small groups of people. The reasons for this are not clear, as presumably the knoll was a favored location in earlier times and was also considered suitable by Sutter.

Possibly the occupation debris from Late Horizon period was removed in the 1890's during the reconstruction of the fort, but this does not entirely explain its rarity in the disturbed deposits still present.

LATE HORIZON ARTIFACTUAL MATERIAL

A single disturbed (no burial number assigned), burial located (square 4 A and B) where the modern pipeline cut through the Corral Wall footing is theonly definite Phase II Late Horizon burial (Fig. 2). Since the pipeline had cut through the burial it had been badly disturbed, but the specific location is of interest. Since the burial seems to have been intact prior to the pipeline, it may be assumed that it was undisturbed before the placing of the pipe. The burial lay in line with the Corral Wall, and if the wall had continued past Unit 4 A and B it would have

resulted in destruction of the burial. This would tend to indicate that the Corral Wall entrance way must have been located in the area of Unit 5 A and B, a conclusion borne out by the location of the entrance way on Künzel's map.

Cultural material included with this burial comprised of four clam shell disc beads, Saxidomus sp. (Plate 5a) and a single circular, edge perforated, abalone shell ornament with incised decoration around its edge. This ornament, Lillard, Heizer and Fenenga's (1939) type C.1.a, is not considered diagnostic of any particular period as it occurs throughout the Central California sequence. The Saxidomus shell disc beads securely date the burial, however, in that they first occur in the Phase II portion of the Late Horizon, (Bennyhoff and Heizer, 1958), and the lack of historic goods with the burial is added evidence for this temporal placement. Other items probably attributable to this period occurred in the fill removed from Well #2 and include a single clam shell disc bead from the 24 to 30 inch level and a rectangular abalone ornament with a single perforation near one end (type B.1) from the 60 inch level. These artifacts almost certainly were included in the well fill by accident and are of little value.

A second burial, (Burial 5), recovered during ditching operations near the northeast corner of the Central Building, may be placed in the Late Horizon (Olsen, n.d.1). This burial, an infant or small child, was extremely fragmentary, but two small abalone ornaments recovered with it are representative of the Late Horizon. Both may be placed in the "banjo" class (Plate 5a), Gifford's (1947) types N1aII or N6a1, and are diagnostic of the Late Horizon Phase I or Late Phase II periods, (Lillard, Heizer and Fenenga, 1939; Bennyhoff and Heizer, 1958). The flat based variant as shown by Bennyhoff and Heizer, (1958, Fig. 1, 79), is Middle Phase I in time and thus may indicate such a date for this burial, but it must be noted that the same form carries over into the succeeding Phase II period in a very slightly modified form.

No chipped stone artifacts were recovered with the two Late burials, but a small number of stylistically late projectile points (three) were recovered during the 1959 excavation (Plate 4 c). All of these are made of obsidian and are characterized by having notched or serrated edges. Two have expanding stems and the last has a rounded base. All weigh in the 1 to 2 gram range and are typical Late Horizon arrow points, (Lillard, Heizer and Fenenga, 1939). Two of the points were recovered from the upper levels of the Middle Horizon burial area and the last occurred on the floor of the Shoemaker Shop. The last specimen is of interest in that it may possibly be attributable to the Indians employed by Sutter, (See below). It is more likely that it was included in the rubble which drifted into

these rooms after they had fallen into decay, however.

TRADE ITEMS

Only two items of Caucasian manufacture were recovered which indicate trade with the Indian groups of this area. From the floor of the Shoemaker's Shop two glass beads, of types commonly recovered from historic period Indian sites, were recovered. The first is a small blue glass bead measuring 2 mm. in diameter and 2 mm. in length. The second is a large hemispherical, corrugated bead with alternating bands of white and blue glass. Both of these beads are common in historic period Indian sites and must date from the 1840's or 50's, as the Shoemaker's Shop was leveled in the 1850's at the latest. It is possible that these beads may be attributed to Sutter, as it is known that he used such beads in trade with the Indian groups of this area, (H. E. Rensch, personal communication). It is also possible that they were used by Indians in the employ of Sutter, who dropped them in the Shoemaker Shop. This supposition also applies to the obsidian projectile point described above, but is unfortunately unverifiable.

MIDDLE HORIZON OCCUPATION

The earliest burials in the site, as demonstrated by their depth and the fact that they lay just above, or were in pits dug into (Fig. 3), the sterile reddish hardpan of the original knoll, may, on the basis of the cultural material which accompanied them, be temporally placed in the Central California Middle Horizon. According to the latest chronology this period lasted from about 1000 B.C. until the inception of the Late Horizon, about 300 A.D., (Heizer, 1959). The number of burials recovered, in a limited area, (Plate 4a, Fig. 2), which may be attributed to the Middle period suggests that a large village was located on the knoll. The evidence at hand suggests that the occupation did not last over a long period of time, as shown by the shallowness of midden development and the location of the majority of the graves on about the same level.

The sterile reddish hardpan which underlies the site appears to have been an old surface. In the area from which the Indian burials were removed it slopes gradually to the north (Fig. 3) toward the present ponds on the north side of the fort. The limited evidence available would indicate an undulating surface, since hardpan appears just outside the present north wall at a very shallow depth. It is of interest to note that midden was found in the units near the northeast offset corner of this wall, and was as deep or deeper than where the burials were removed. Indian occupation of the knoll then must account for at least some of its present contours.

Evidence for some continued occupation of the site occurred, however. The deepest burials recovered were in pits into the hard pan filled with mixed midden and sterile red clay from the original knoll, while others were covered with only the human deposited midden. A time lapse is also attested by the intrusion of later burials of the same period, Middle Horizon, through the earlier burials. Thus, enough time must have elapsed to erase from the memory of the group the exact location of the earlier burials.

Just how long this first period of occupation lasted is difficult to determine, but judging from the cultural material included with the burials, it was not too long a time as the cultural material makes up a single unit when viewed as a whole.

Burial Data

Of the twenty-five burials noted two, previously discussed are attributable to the Late Horizon. The remaining burials, or more properly burial numbers, include those attributable to the Middle Horizon. While twenty-three burials have been assigned to the Middle Horizon, at least twenty-six individuals are represented. This for the most part is due to intrusive burials cutting through older individuals whose remains were then thrown back into the later grave pit. Due to the inability to distinguish individual burials, due to this disturbance, more than one individual was sometimes assigned the same burial number. For purposes of analysis each burial number will here be considered as a single unit, however.

TABLE 1

Middle Horizon burial age and position

Position	Adult	Child	
Flexed side	10	1	
Flexed back	3		
Flexed face	1		
Undeterminable	3	5	
	17	6	23

As can be seen in Table 1, the predominant burial position was flexure, that is with the legs folded and drawn up to the body. Undoubtedly this position was facilitated by either wrapping the body in a skin and binding it with now disintegrated cordage, or by using merely the

cordage. That this was not always done is indicated by the various degrees of flexure shown. Some of the burials are extremely tight, while others are more open or not so tightly flexed (Fig. 2). In the main, the individual lay on his side, but a small number lay on their back or were face down. In all instances where determinable, however, the burials were flexed. The rigid adherence to the flexed burial position has been noted for the Middle Horizon as a whole and may be considered a minor time marker, (Lillard, Heizer and Fenenga, 1939).

Little favor was shown as to the direction the body faced in the grave. As can be seen from Table 2, there is a wide divergence in this respect for the Middle Horizon burials.

TABLE 2

Middle Horizon Burial Orientation

		(1) N		
	(2)NW		NE(2)	
(2)W				E(1)
	(1)SW		SE(2)	
		S (3)		

While not all the burials were complete enough to yield information in this respect, the available data tend to show the typical Middle Horizon pattern of a disregard for any favored burial orientation, (Lillard, Heizer and Fenenga, 1939). The pattern exhibited contrasts sharply with the Early Horizon rigid adherence to westerly orientation, and the Late Horizon tendancy to a westward orientation, (Heizer, 1949, Lillard, Heizer and Fenenga, 1939).

Grave Pits

In a number of instances the original grave pit in which the individual had been buried could be determined (Plate 4a). This was true only in the deeper burials, since the grave pit was cut into the underlying sterile reddish soil. The contrast between the red soil and the dark midden outlined the pits, thus establishing their size. Five grave pits were noted, ranging in size from 22 x 43 inches to a circular pit some 24 inches in diameter. The average pit seems to have been oval in form and measures about 24 x 30 inches. One smaller grave pit was noted, containing a small child or infant, it measuring 14 x 20

inches in size.

Little comparative data are available, since only under ideal circumstances can the grave pit outlines be noted. Generally, however, the grave pit was made just large enough to contain the body of the deceased. This is certainly the case in the instances noted above, since the grave pits, as measured, are barely large enough to contain the burial. It must be noted in this respect that what has been recorded is the base of the original excavation and the upper portion of the pit was probably larger in diameter.

Artifactual Material

Considering the limited sample recovered, the number of graves in which artifactual material occurred is rather high. Figures from previously excavated Middle Horizon sites in the Central Valley show that on the average only 41 percent of the burials have grave goods included with them, (Beardsley, 1954). While this figure probably varies slightly from site to site, the percentage of graves with artifacts at Sac-34 is high, with 68 percent so honored. At the present time the explanation for this difference is not known, but may be due to the small area from which all of the burials were removed. Further testing of the site would undoubtedly alter the percentage in that a larger number of the total graves would be available for study.

Shell Ornaments

Six graves produced 33 shell ornaments, all made of abalone, Haliotis sp., shell (Plate 5 a). In addition, two graves produced single disc beads made of the same material.

TABLE 3

MIDDLE HORIZON HALIOTIS SHELL ORNAMENTS

Type	Bur. Occ.	Red[1]	Green[2]	Undeterminable[3]	Total
B.l.b.	1	1			1
B.l.	2		1	4	5
M.E.1	5	17	1	7	25
M.E.1.b.	1		2		2
Type 3)	2	1			2
Bead				1	
Total	-	19(55%)	4(11%)	12(34%)	35

1. Red backed, Haliotis rufescens.
2. Green backed, Haliotis cracherodii.
3. Back ground off, species undeterminable.

As can be seen in table 3, only two basic types of shell ornaments occurred with the burials, type B, a rectangular shaped piece, and type M.E., essentially a teardrop shaped ornament, (typology after Lillard, Heizer and Fenenga, 1939) (Plate 5a). The principal variations which differentiate the various types of the same basic form noted in table 3 include size, and the occurrence of a serrated edge (types B.1.b and M.E.1.b), on some specimens. The single type B.1.b ornament measures 33 x 64 mm. in size and may be set apart on the basis of its larger size from the smaller type B.1. ornaments. It formed the center piece of a necklace recovered with Burial 3, which may account for this size difference. The type B.1. ornaments all occurred with Burial 4 and formed what may have been part of a necklace, as they were recovered with a number of type M.E.1. ornaments of about the same size, averaging 9 mm. wide by 40 mm. long. All were recovered from the neck area.

The type M.E.1 and Type M.E.1.b ornaments differ only in that the latter type has a serrated edge and at least one of these pieces seems to have originally been part of a large circular ornament. All of these specimens are of comparable size, although the total range is greater than for the rectangular ornaments, ranging in width from 11 to 20 mm. and in length from 27 to 44 mm. The average specimen measuring about 15 mm. wide by 33 mm. in length. This ornament type, judging from the limited sample, is by far the most common at the site, comprising 72 percent of the total. While ornaments of this type are common in both the Late and Middle Horizons, being rather amorphous in shape, they are noted as a common Middle Horizon form, (Beardsley, 1954), and are probably related to the non-diagnostic triangular, type E ornament. This is also true of the rectangular ornaments, although a related form of the large rectangular ornament is common only to the Middle Horizon, it having a central, instead of edge, perforation, (Beardsley, 1954).

The circular abalone bead, (Type 3), is a common Middle Horizon bead form, having been noted from a number of Middle Horizon sites in the Central Valley, (Lillard, Heizer and Fenenga, 1939). While beads of this type occur in both the Early and Late Horizons, they are to be expected in a Middle Horizon context and to that extent may be considered diagnositc (Bennyhoff and Heizer, 1958).

While the ornaments recovered from the site have all been noted in previously excavated Middle Horizon sites, only a few of them may be considered definite time markers, these being the ornaments with serrated edges, (Lillard, Heizer and Fenenga, 1939). The more diagnostic shell ornaments from the Middle period occur in large rectangular

forms with one or more central perforations or in circular forms, again with central perforations, (Lillard, Heizer and Fenenga, 1939, Beardsley, 1954). Without a sample containing some of these ornaments it becomes difficult to place with any exactness the particular temporal period which the site represents. One additional trait may be listed which is of value in that it has some validity in the temporal placement of the site, this being the use of the green-backed abalone for the manufacture of shell ornaments. As noted by Lillard, Heizer and Fenenga, this species, Haliotis cracherodii, or green-backed abalone, is most commonly utilized for the making of ornaments during the Middle Horizon, and made up about half of the ornaments recovered from this period, (Lillard, Heizer and Fenenga, 1939). Later excavation has shown that this species of abalone was also used in the Early Horizon but in more limited numbers, (E.P. Lanning, personal communication). The percentage of ornaments made of this species from Sac 34 is 11 percent, a lower figure than reported for the previously excavated Middle Horizon sites where the percentage is close to 50 percent, (Beardsley, 1954). This difference may be attributed to the small sample in all probability, as the other artifact classes show a strong relationship with the Morse and Deterding sites, the type stations for the Middle Horizon, (Lillard, Heizer and Fenenga, 1939, Beardsley, 1954).

Olivella Shell Beads

Two types of shell beads were recovered with Middle period burials, both made of either whole or cut portions of Olivella sp. shell (Plate 5 a). The whole beads were made by grinding off the spire of the shell, while the cut beads were manufactured from sections of the side wall of the shell.

Only five whole shell beads were recovered, all with Burial 8. These beads measure from 9 to 12 mm. in diameter and thus may be placed in the large, type 1.b class, (Bennyhoff and Heizer, 1958). According to Bennyhoff and Heizer this type occurs most commonly in the Middle Horizon and later portion of the Late Horizon, (Phase II), but sporadic occurrences have been noted in all periods of the Central California sequence.

The most common artifact form recovered, including both grave occurrences and individual specimens, were the cut shell beads. They occurred in definite burial association in 13 instances, 59 percent of the total graves, and a number of midden specimens occurred in the burial area.

Two bead types seem to be represented, although for the most part the beads, when considered by grave lots, are intermediate between the two. The first bead type is a "saddle" shaped specimen, type 3.b, which exhibits a decided capping in cross section and has a single conically drilled perforation from the concave side, (Bennyhoff and Heizer, 1958). This type is in the minority and grades into the second type, a circular to oval form which has a flatter cross section. The latter type resembles the problematical oval Olivella bead type, but more likely is related to a more common Middle Horizon saucer shaped bead, type 3.c, (Bennyhoff and Heizer, 1958).

In any event the Olivella sp. beads closely resemble those recovered at both the Deterding and Morse components, although there was not time to make a detailed analysis of the beads from these two sites.

The temporal affinities of both of the bead types noted, types 3.b and 3.c, are clearly Middle Horizon and they normally occur together, (Davis, 1959). There is some evidence that type 3.c, the saucer shaped bead, is the older of the two as it occurred with burials in the Delta Region under circumstances indicating considerable antiquity, (Cook and Elsasser, 1956). If this proves to be true, the lack of type 3.b, numerically speaking, may have some temporal significance.

Artifacts of Bone and Antler

Considering the small number of burials recovered, the inventory of bone and antler artifacts is somewhat noteworthy (Plate 4 b). The Middle Horizon has been typified by the use of a wide variety of bone and antler implements, some of which have no presently known use, (Beardsley, 1954).

While only six burials are recorded as having bone or antler implements in association, two of these had them in large numbers and in a variety of forms, (see Table 4).

TABLE 4

BURIAL OCCURRENCE OF BONE AND ANTLER IMPLEMENTS

Bur. no.	Artifact type					
	Spatula Bone & antler Wide	Spatula Bone & antler narrow	Perf. Bone pin	Bird Bone Whistle	Mammal Bone pin	Notched end bone implement
1 & 2	1					
8	2		7	8		
9	1				1	
11						1
12	2	6	1	2		
Totals	6	6	8	10	1	1

Spatulate Implements

Two classes of implements comprising a total of twelve specimens make up this class. They may be divided on the basis of size into wide and narrow classes, presumably this size difference being based on a difference in function.

Six specimens may be placed in the wide category. All of the pieces are fragmentary and none are complete enough to yield information on their original length. The longest fragments are now 150 to 160 mm. long and taper from 55 mm. to 21 mm. wide and 80 mm. to 39 mm. wide. Both of these specimens must represent sections toward the wide end of the original specimen as in one instance the widest end appears to have had a concave outline. The narrow end of the original pieces is represented by a single fragment with a tapered blunt end. As reconstructed from the fragments present the original large spatulae must have been about 25 to 30 cm. long and tapered from 60 to 80 mm. in width to a blunt pointed end. The wide end was concave in form and was worked down to about .1 mm. in thickness, while the central portion of the piece was about .3 mm. in thickness. In cross section the pieces range from flat to slightly lenticular with the narrow end showing the most curved cross section.

Identical spatulate implements have been recovered from a number of Middle Horizon sites, and the form is considered typical for that period, although occurrences of this artifact type are also known in the Early period,

(Lillard, Heizer and Fenenga, 1939, Plate 10J, Beardsley, 1954).

The small, or narrow, form is represented by nine fragments attributable to six different specimens, all with Burial 12. Of the nine fragments, four are tip sections of the original specimen and have one blunt, rounded off end. Two pieces, while being the more complete, have both ends broken off. One fragment represents the basal end of the original specimen and shows evidence of a perforation. The two remaining sections are medial fragments. The broken off portions of these implements were not recovered, and probably were never included with the burial. This trait, the breaking or "killing" of grave goods, has been noted from all periods in Central California, but deserves special mention here inasmuch as 80 to 90 percent of the bone and stone specimens recovered from the site had been broken before being placed in the grave. In the case of the spatulate bone or antler implements, all were so treated.

In size the small spatulas average 10 mm. in width and the two longest are now 135 to 140 mm. in length. The remaining specimens are all less than half this size. The two longest pieces appear to be unfinished in that they appear to have been scraped with some sharp tool leaving a series of diagonal striations over the surface of the specimen. The more fragmentary pieces show the same striations but they have been obliterated to a great extent by polishing.

Small, thin, perforated, tabular bone pieces such as these have been recovered from other Middle Horizon sites, (referred to as bodkins), but somewhat identical pieces are also common in later periods (Lillard, Heizer and Fenenga, 1939, Plate 18 k to m). In the later periods they are more commonly made of split rib sections, while the pieces here described seem to be made of large mammal long bone sections.

Perforated Bone Pins

Two burials had this artifact class included as grave goods. Seven specimens occurred with Burial 8 and a single specimen with Burial 12. All of the specimens appear to have been made from sections of artiodactl long bones. In form they resemble a needle with an expanded, flattened head through which has been drilled a biconical perforation. The shaft cross section of the pins ranges from oval to circular, while the head is always rectangular in cross section. The most variable feature of the pins is length, with much less variation in shaft diameter. The two complete specimens measure 160 and 175 mm. in length respectively, but one

of the fragmentary specimens appears to have been, when complete, at least 200 mm. in length. The shaft diameter averages 55 mm. but most of the pieces have an oval or rectanguloid cross section and measure from 5 x 4 mm. to 6 x 5 mm. in thickness and width. The expanded, or head portion, of the pins measures, on the average, 8 to 10 mm. wide and 2 or 3 mm. thick. While the general form of the pins is the same, three patterns of decoration appear, they consisting of a group of four incised lines encircling the shaft below the perforation, three specimens, a variant of this pattern with two groups of four encircling lines, two specimens, or lastly one specimen having the top portion of the expanded end decorated with a series of notches producing a serrated end. The remaining two specimens had no decoration.

The use of these decorated bone pins, or pendants, has been attributed only to the Middle Horizon (Lillard, Heizer and Fenenga, 1939). They have not been recovered from the King Brown site, (Sac 29) which at the present time is regarded as the latest excavated site attributable to the Middle Horizon and thus they probably can be regarded as diagnostic of the earlier portion of the Middle Horizon, (Olsen, n.d. 3).

Bird Bone Whistles

Two burials with a total of ten specimens between them account for all the whistles from Sac 34. As has been noted for the other bone and antler artifacts, all but one of these was broken when recovered. The unborken whistle had the plug in place when excavated and produced a tune when blown. The plug in this instance seems to be made of wood ash mixed with some sort of a binder, as it has a grayish color. The use of this same material for whistle plugs has been noted from a Late Horizon Phase I site to the north of Sacramento (Riddell and Olsen, n.d.).

All of the specimens show little difference in size and method of manufacture. The complete whistles measure from 235 to 245 mm. in length and are probably made from large waterfowl ulnae. The ends of the bone show little modification other than having been broken off, although several specimens have one end cut off. The stop, or perforation, is located on the concave surface of the shaft approximately one-third of the way down from the larger end of the bone, and has been produced by cutting a circular to ovoid section out of the shaft. In all examples studied the edges of the hole are perpendicular to the shaft surface.

Whistles with stops near one end of the specimen have been noted from several Middle Horizon sites, (Lillard, Heizer and Fenenga, 1939), but also occur in at least one site attributable to the Late Horizon (Riddell and Olsen, n.d.). Thus while the time span covered by this whistle type is not completely known, it appears to have lost some of its quality as a temporal indicator in Central California (Hammall, 1956, Davis, 1959).

Notched End Bone Implements

Included with Burial 11 was a single bone implement made from what appears to be the radius of a large canid. The piece is now 170 mm. in length and has been little modified other than on the articulating ends. The proximal end has been squarely broken off and the distal end of the bone has been cut out producing a shallow notch. The shaft of the bone shows a series of longitudinal striations, probably as a result of polishing operations. The notched end shows polish over its entire surface other than where the calceneous structure of the bone has been exposed.

Little can be said as to possible uses of this piece. It seems most likely that it had some utilitarian function, but what this may have been is not known.

Miscellaneous Bone Artifacts

Three specimens have been placed in this class. The first of these is the basal fragment of a large mammal bone pin recovered with Burial 10. Judging from the fragment recovered, it must have been fairly long when complete, as it now measures 194 mm. long by 12 mm. wide and 9 mm. thick. Pins of this type are a common Middle Horizon occurrence, (Lillard, Heizer and Fenenga, 1939).

Two burned animal bones show evidence of grooving or cutting, one a small mammal bone which shows one cut off end and the other a large artiodactyl bone fragment which has been grooved, probably for splitting. A single bone awl was recovered in the area of Burial 24. Made of deer bone, it has been roughly split and shows some polish.

Artifacts of Stone

Stone artifacts were extremely rare, both with burials and in the midden. Only two graves had stone artifacts, a percentage of less than 10 percent.

Chipped Stone

A single fragmentary obsidian blade was included with Burial 11, it measuring 56 mm. in length, 30 mm. in width, and 10 mm. thick (Plate 4c). It is now roughly triangular in form and was probably leaf shaped when complete. Judging from the blunted edges the piece must have seen service as a knife.

Curiously enough, no projectile points were recovered from the Middle Horizon portion of the site. Their absence as grave goods is difficult to explain, but may indicate that the basic economy of the group was food gathering and not hunting. It may also reflect a burial custom prevalent during this period, however.

Charmstone

Here again only one specimen was recovered, it being included with Burial 8. The piece, phallic in form, is made from a flattened, oval shaped cobble of volcanically derived stone (Plate 4 c). The midsection of the specimen is encircled by three pecked or ground grooves and the small end has been ground down and polished. The base of the stone has not been modified but has visible traces of red pigment. The piece measures 67 mm. long, 45 mm. wide, and 32 mm. thick. The encircling grooves measure 4 mm. deep and 6 mm. wide.

A piece almost identical in form was recovered from Sjo-56, an Early period site, (Lillard, Heizer and Fenenga, 1939, Plate 14 i), this speciemen also being covered with red pigment. Phallic charmstones have been noted from all periods in California, but most of these are of a more slender, well worked, double-ended form. A specimen somewhat similar to the one recovered from Burial 8 was recovered from the King Brown site (Sac-29) during the leveling operations, but its provenience is unknown, (Olsen, n.d. 3). The occurrence of this charmstone type is of little diagnostic value, but its occurrence is not out of place in a Middle Horizon context.

Red Pigment

Red pigment was noted either on the bones of, or on the artifacts associated with, three burials. It is probable that others also had pigment in association but in such small amounts as to be unnoticeable. The trait is a common one, but is most prevalent in the Middle Horizon, (Beardsley, 1954).

Pestles

Food grinding implements are not a commonly occurring item in Central Valley sites due to the lack of suitable stone. One cache of stone pestles was recovered in the burial area consisting of one complete pestle and fragments of two others, (Feature 16). Both of the pieces had been broken in half, probably for ceremonial reasons. As noted previously, the trait of "killing" is frequent at Sac-34.

The complete pestle measures 32.6 cm. long, 10.5 cm. wide and 8 cm. thick. It has been fashioned from a granite stream cobble and shows pecking over its entire surface. The ends have both been used and have a conical shape which exhibits considerable polish. It is assumed that pestles of this type have been used in a wooden mortar, due to the peculiar wear pattern, consisting of striations and polish extending back from the tip end, (Lillard, Heizer and Fenenga, 1939). Pestles of this type have been noted in most, but not all, Middle Horizon sites with the inhabitants of one site on the American River having used the stone mortar, (Deterding, Sac-99), (Lillard, Heizer and Fenenga, 1939).

Asphaltum and Baked Clay

A small oval, flattened piece of asphaltum was recovered with Burial 16 (Plate 4 c). It may have been intended for use as mastic, as the use of asphaltum as glue has been noted from all periods in Central California, (Beardsley, 1954).

No objects made of baked clay in definable forms were recovered from the site. The inventory of baked clay objects includes a number of peasized balls of unknown use, (possibly of natural origin?), several small conical pieces and a small number of rough fragments with peeled pole impressions. The last are probably fragments of clay plastered on tule covered, pole houses.

Miscellaneous Stone

Several items may be placed in this class. The first of these is a stone flake scraper or knife made from a large oval stone chip. The perimeter of this specimen has some evidence of use, in that the edge is blunted and somewhat battered. Unfortunately this specimen was recovered in the upper 18 inches of the burial area and was associated with glass, brick and pottery fragments. There is little doubt that it is out of context and probably is from a scraped off portion of the knoll.

A large, battered stream cobble was found just beneath Burial 15 and over Burial 16. It was probably used as an anvil, judging from its battered appearance. It is also possible that its use may relate to the trait of placing stone cairns over burials noted at several other Middle Horizon sites, (Lillard, Heizer and Fenenga, 1939) .

Feature 14

Other than Feature 16, previously described, there were few features attributable to the aboriginal occupants of the site. Several pits excavated into the sterile reddish soil were recorded, as their fill, dark midden, contrasts sharply with the sterile red clay. The largest of these was probably circular, about 3½ feet across, and 6 to 9 inches deep. The use of these pits is not known, although they may represent cache or cooking pits. The lack of scorching or ash in the pits would suggest the former use, however.

SUMMARY OF THE INDIAN OCCUPATION

There is clear evidence that the knoll on which Sutter built his fort in 1839 was the location of an Indian village during the last 2,000 to 3,000 years. The earliest occupation of the knoll was by a group assignable, on the basis of the artifactual material, to the Central California Middle Horizon. While certain diagnostic elements are missing, such as shell ornaments and chipped stone implements, the bone and antler artifact inventory is clearly attributable to this period. The shell beads, Olivella sp., are also typical of the Middle Horizon.

The later periods are not well represented but the typical Late Horizon Phase II indicator, the clam shell disc bead, and several variant "banjo" shaped shell ornaments derive from this period. The lack of intensive occupation in the Late Horizon Phase I and II periods is notable, and the complete lack of definite Phase I period occupation may be indicated.

There is little or no evidence of historic Indian occupation of the site, but the trade beads recovered may have been dropped by Indians at the Fort. It is also possible that these beads may be attributed to Sutter, and if this is so would provide a dating device for several types of glass beads common in late Indian occupation sites in the Central Valley.

LIST OF PLATES AND FIGURES

Plate 1

a. Area A, Unit A-2, Feature 3.
b. Area A, Unit B-1, Feature 7.
c. Area B, Unit 3, Feature 17, showing debris on floor.

Plate 2

a. Area A, East end of Feature 1, South Corral Wall.
b. Area A, South Corral Wall, note where wall if extended would meet Central Building.
c. Area A, East end, Feature 1, South Corral Wall, note definite adobe brick outlines.

Plate 3

a. Area B, Units 1-4, Features 17 and 18.
b. Area B, Feature 18, West Wall of Shoemaker Shop.
c. Area B, Feature 17, Floor of Shoemaker Shop.

Plate 4

a. Area A, Indian Cemetary Area.
b. Middle Horizon bone awl antler. Artifacts, associated with burials.
c. Late and Middle Horizon stone artifacts.

Plate 5 absent

a. Late and Middle Horizon shell ornaments associated with burials.
b. Area C, Feature 20, Flower pot.
c. Area C, Feature 20, crockery bottle, Well #2 porcelain dish.
d. Area C, Feature 20, Terra Cotta bowl.

Figure 1

Map of Sutter's Fort showing areas excavated, 1959.

Figure 2

Area A, Ground plan, Trench 1. South Interior Corral Wall.

Figure 3

Area A, Profile of Indian Cemetary Area.

Figure 4

Area A, Feature 13, Profile of Well #2.

Figure 5

Area B, Ground plan, Shoemakers Shop.

Figure 6

Area B, Shoemakers Shop, Profile.

Figure 7

Area C, Ground plan and Profiles.

Figure 8

Area D, Ground plan and Profiles.

Figure 9

Maker marks noted on porcelain.

Figure 10

Makers marks, prints and miscellaneous pieces, porcelains.

BIBLIOGRAPHY

Bancroft, H. H.
1890 History of California, Vol. IV-1840-1845. San Francisco.

Beardsley, R. K.
1946 "The Monterey Custom House Flagpole; Archeological Findings", California Historical Society Quarterly, Vol. 25, pp. 204-218.

1954 Temporal and Areal Relationships in Central California Archeology. UCAS-R Nos. 24, 25.

Bennyhoff, J. A. and A. B. Elsasser
1954 Sonoma Mission: An Historical and Archeological Study of Primary Constructions, 1823-1913. UCAS-R No. 27.

Bennyhoff, J. A. and R. F. Heizer
1958 Cross-Dating Great Basin Sites by California Shell Beads. UCAS-R No. 42, pp. 60-92.

Bowman, J. N.
1951 Adobe Houses in the San Francisco Bay Region. California Division of Mines Bulletin 154, pp. 57-64. San Francisco.

Chaffers, W.
1912 Marks and monograms on European and Oriental pottery and porcelain...ed. by Frederick Litchfield. 13th edition. London: Reeves and Turner.

Cook, S. F. and A. B. Elsasser
1956 Burials in Sand Mounds in the Delta Region of the Sacramento-San Joaquin River System, UCAS-R No. 35, pp. 26-46.

Davis, J. T.
1959 The Archeology of the Fernandez Site, A San Francisco Bay Region Shellmound. UCAS-R No. 49, pp. 11-52.

Gebhardt, C. L.
n.d. 1 Preliminary Report of Archeological Investigations at Sutter's Fort by Sacramento State College-Spring of 1955. M.s. on file with the Div. of Beaches and Parks.

Gebhardt, C. L. (continued)
n.d. 2 Sutter's Fort: A Study in Historical Archeology with Emphasis on Stratigraphy. M.s. on file with the Division of Beaches and Parks.

Gifford, E. W.
1947 Californian Shell Artifacts. UCAR Vol. 9, pp. 1-132.

Grunsky, C. E.
n.d. The Restoration of Sutter's Fort. M.s. on file at Sutter's Fort State Historical Monument.

Hammel, E. A.
1956 An Unusual Burial from Contra Costa County. UCAS-R No. 35, pp. 47-54.

Harrington, J. C.
1952 Historic Site Archeology in the United States. In, Archeology of the Eastern United States, ed. by J. B. Griffin, pp. 335-344. University of Chicago Press.

Jewell, D. P. and J. S. Clemmer
n.d. The Archeological Findings at Fort Humbolt State Monument. M.s. on file with the Division of Beaches and Parks.

Heizer, R. F. and F. Fenenga
1948 Survey of Building Structures of the Sierran Gold Belt, 1848-1870. California Division of Mines Bulletin 141, pp. 91-164.

1949 The Archeology of Central California: I The Early Horizon. UCAR Vol. 12, No. 1, pp. 1-74.

1958 Radiocarbon Dates from California of Archeological Interest. UCAS-R No. 44, Part 1.

Lillard, J. B., R. F. Heizer and F. Fenenga
1939 An Introduction to the Archeology of Central California. Sacramento Junior College, Dept. of Anthropology Bulletin No. 2.

The Society of California Pioneers
1939 New Helvetia Diary: A Record of Events kept by John A. Sutter and his clerks at New Helvetia, California, from September 9, 1845 to May 25, 1848. The Grabhorn Press. San Francisco.

Olsen, W. H.
n.d. 1 First Preliminary Report on the 1959 Archeological Investigations at Sutter's Fort. M.s. on file with the Division of Beaches and Parks.

n.d.2 Second Preliminary Report on the 1959 Archeological Investigations at Sutter's Fort. M.s. on file with the Division of Beaches and Parks.

n.d.3 The Archeology of the King Brown Site (Sac-29). M.s. in authors possession.

Rensh, H. E.
n.d. Preliminary Report on the Location of Fort Walls. M.s. on file at Sutter's Fort State Historical Monument.

Riddell, F. A.
1955 Archeological excavations on the Farallon Islands, California. UCAS-R No. 32, pp. 1-18.

Riddell, F. A. and W. H. Olsen
n.d. Mustang Site field notes, (Vol. 13). On file at the State Indian Museum.

Savage, G.
1959 Pottery through the ages. Harmondsworth, Mddx. England: Penguin Books.

Sutter's Fort State Historical Monument
n.d. Division of Beaches and Parks, Dept. of Natural Resources. Distributed by: Printing Division, Documents Section. Sacramento.

Themis
1889-1892 Some Unwritten History. Sacramento in Embryo, How Government was established from chaos. Reproduced by the California State Library. On file at Sutter's Fort State Historical Monument.

Treganza, A. E.
1951 Old Lime Kilns near Olema. California Division of Mines Bulletin 154, pp. 65-72.

1954 Fort Ross: A Study in Historical Archeology. UCAS-R No. 23.

Wallace, W. J., R. J. Desautels and G. Kritzmans
The House of the Scotch Paisano; Archeological Investigations at the Hugo Reid Adobe, Arcadia, California. M.s. on file with the Division of Beaches and Parks.

Zollinger, J. P.
1939 Sutter the Man and His Empire. Oxford University Press, New York, London, Toronto.

APPENDIX 1

HISTORIC CERAMICS AT SUTTER'S FORT

Sylvia M. Broadbent

The occurrence and distribution of historic ceramic types at Sutter's Fort are shown in the accompanying tables. The figures given there are not a count of sherds but an estimate of the number of vessels represented in each level.[1] This estimate was arrived at by comparing sherds and determining the maximum and minimum number of vessels these sherds could represent. The final estimate was then placed halfway between the maximum and minimum figures, unless special considerations led me to believe that a group of sherds could only represent one vessel, which reduced the estimate. I have presented the figures in this way because it seems that it provides more meaningful figures for comparative purposes than a simple sherd-count does, since the significant units in terms of the living culture are vessels, not sherds. A large vessel may produce many more sherds than a small one, but to the people who used it it was still only one usable item; a count of the sherds may give a quite disproportionate picture of the actual frequency of vessels of a particular type. In preparing these figures, no account has been taken of the fact that fragments of the same vessel may have been deposited in different locations, as is indeed the case (one sherd with a potter's mark on it from Pit 9E, 0-18" depth, fits another found in Well #2, 108-114" depth; one half of a porcelain mustard spoon was found in Well #2, 96-102", the other half in Well #2, 108-114"; part of a bowl-handle was found in Well #2, 78-82", the remainder in Well #2, 96-102"). So long as the purpose is to compare frequencies of different types within each level, or to compare relative frequencies between levels, this factor is not significant. It means, however, that it is impossible to obtain a total of the number of vessels of a particular type ever used at the site by simply adding up the totals in the different levels.

The assemblage of types found at Sutter's Fort is quite typical for mid-nineteenth century California. It includes a range of soft-paste wares; these are predominantly plain white, but a number of underglaze prints occur (Fig. 10 c to Gg). It should be remembered, moreover, that some of the sherds which must be classified as plain white may have come from vessels which bore decoration. All the available evidence indicates that

...1 [The sample submitted for analysis was representative and did not include the total inventory from any one area]

the soft-paste wares were all manufactured in the British Isles; there is no indication of any other place of origin. Of the hard-paste wares, however, some and perhaps most were imported from China. This is true of the blue-painted ("Canton") ware, some (perhaps all) of the enamelled porcelains, and some of the stonewares (Fig. 10 h). It is difficult, without chemical analysis, to distinguish European and Chinese plain white porcelain, but one white porcelain sherd bears the bottom-mark of an English factory. The stoneware beer-bottles and probably other stonewares (such as a large panshaped bowl from Feature 20) are undoubtedly of European origin (Plate 5, c & d).

Bottom-marks of the following firms have been identified:

Boote, T. + R. + Co.; Burslem, Staffordshire (Fig. 9 h).

Impressed circular mark; T. + R. BOOTE + CO. around upper half, SYDENHAM SHAPE around lower half, registry mark (July 18, 1854) in the middle. Chaffers (1912, p. 634) says that the Waterloo Potteries were established at Burslem in 1842 by Messr. Thomas and Richard Boote, of Nantwich, Cheshire. This mark has been found on two specimens: Feature 20. Plain white soft-paste plate. Pit 8D, 0-6". Plain white porcelain plate. Registry mark too fragmentary to date.

Burgess + Goddard (Fig. 9 a and b).

Black printed mark, showing the British royal coat of arms, with lettering under it: ROYAL PATENT/IRONSTONE/BURGESS + GODDARD. This firm is not mentioned by Chaffers in 1912, despite their claim to a royal patent. It has been found on two specimens:
Pit 8F, 0-12". Plain white soft-paste plate.
Well #2, 24-30". Plain white soft-paste plate.

Davenport, Longport, Staffordshire.

(1) Impressed mark of figure-eight outline, with DAVENPORT around the upper part, IRONSTONE CHINA around the lower, and an anchor in the middle.

(2) Impressed mark, no outline, the word DAVENPORT above an anchor. The figure 11 is also impressed, just above the word Davenport. The first mark is not shown by Chaffers, but the

second is (1912, p. 693). Chaffers (p. 692) says that the factory was built in 1773 and acquired by John Davenport in 1793; from 1835 on, the style of the firm was William Davenport + Co.; it ceased manufacturing about 1876. The first mark has been found on the following specimens:

Feature 20. 5 specimens, one on plain white octagonal molded soft-paste plate, the others on plain white soft-paste plates. The one octagonal plate bears a registry mark, dated Oct. ? 22, 1852.

Feature 20, dark soil fill. 2 specimens, on white soft-paste plates.

The second Davenport mark has been found on one specimen:

Pit 8C, 0-12". On a scenic blue-print bowl.

Daweson?, Glasgow.

Impressed oval mark, difficult to read, with the name DAWESON (?) around the upper part, GLASGOW around the lower, the figure 1 in the middle. Chaffers makes no mention of this firm. He mentions only R. Cochran + Co. as makers of stoneware in Glasgow.

This mark has been found on one specimen: Well #2, 21". Stoneware beer bottle; mark is on the side, near the base.

Filley, S. A. + S. R., Missouri, Importers (Fig. 9 e).

Black printed mark, underglaze, a flying eagle trailing a ribbon from its beak, with, above: MANUFACTURED FOR/ + IMPORTED BY, and on the ribbon: S.A. + S. R. FILLEY, ST. LOUIS, MO.

This mark was found on one specimen:

Feature 20. Molded round white soft-paste plate, also bearing the mark of T? J. + J. Mayer (Fig. 9 f), and the registry mark for Sept. 2, 1851.

Hughes, Thomas, Burlsem, Staffordshire.

Impressed mark; the words THOMAS HUGHES, curved, above a small device consisting of two narrow isosceles triangles, base to base, with a dot between; The word BURSLEM below. Chaffers (1912)

does not mention this firm. He mentions a T. Hughes in connection with Worcester (p. 644); a Samuel Hughes in 1802 at Lane End (p. 644); and a W. Hughes in connection with Lowestoft and Worcester (pp. 849, 853). This mark has been found on the following specimens:

Well #2, 96-102", white soft-paste plate.
Well #2, 108-114", white soft-paste plate.
Feature 20. White soft-paste plaste.

Mayer, T? J. + J., Hanley? Stoke-on-Trent?, Staffordshire (Fig. 9 f)

Impressed mark, a circle, around the upper part the words REAL IRONSTONE, around the lower T? J. + J. MAYER, in the middle a registry mark (Sept. 2, 1851).

Chaffers (1912, pp. 642, 643, 698) mentions an Elijah Mayer who started work in Hanley about 1770. He died in 1813, and was succeeded by his son Joseph. The firm continued under the name E. Mayer + Co., but apparently later became Joseph Mayer +Co., Hanley. This firm went out of existence in 1830, the works being taken by W. Taylor, Son, + Co. Joseph Mayer died in 1860. It seems likely that Joseph Mayer is the J. Mayer of this mark, and that after selling the Hanley factory in 1830 he went into business with a relative with initials T. J. or J. J. Where this pottery was is a matter of conjecture. Chaffers (p. 726) also mentions a T. Mayer of Cliff Bank, Stoke-on-Trent, Staffordshire, who was active in 1829. Perhaps this is the T. J. Mayer of this mark. It has been found on one specimen:

Feature 20. Round molded plate, also bearing the mark of S. A. + S. R. Filley, Importers.

Meakin, Charles, Burslem, Staffordshire (Fig. 9 d).

Black printed mark: the British royal coat of arms; under it, IRONSTONE CHINA/CHARLES MEAK.... /BURSLEM. Very similar to the mark of J. + G. Meakin. This firm is not mentioned by Chaffers.

The mark has been found on one specimen:

Well #2, 96-102", plain white soft-paste saucer.

Meakin, J. + G. (Fig. 10 b).

(1) Impressed mark, J. & G. MEAKIN, with the figure 11 above.

(2) Black printed mark, the British royal coat of arms; under it,...ONE CHINA/...EAKIN. This mark is very similar to that of Charles Meakin. The firm is not mentioned by Chaffers. The two marks have been found on one specimen:

Well #2, Pits 8B and 9B, 82-90". Plain white soft-paste plate.

Meigh, C., & Son. Hanley, Staffordshire (Fig. 9 g). Impressed mark, oval, framed in scrollwork, containing the words: IMPROVED/FELSPAR/C. MEIGH & SON. Chaffers (1912, p. 699) says that the "Old Hall" works at Hanley were taken by Job Meigh in about 1780; he took his sons Job and Charles into partnership, and died in 1817. In 1829, the firm was J. Meigh & Sons; in 1843, it belonged to Charles Meigh. It later became the "Old Hall Earthenware Company, Ltd.", under the managership of Charles Meigh II. This mark has been found on one specimen: Feature 20. White octagonal molded soft-paste plate.

Murray? & Co., Glasgow.

Impressed mark, very difficult to read: an oval containing the words MURRAY (?) & Co. in the upper half, GLASGOW in the lower half, the number 18 in the middle. The firm is not mentioned by Chaffers. The mark has been found on one specimen:

Well #2, 114-120". Stoneware beer bottle; the mark is on the side near the bottom.

Powell & Bishop, Hanley, Staffordshire.

Black printed mark, a lozenge with a draped outline, with lettering in the drapery: ...ELL & BL... Chaffers (1912, p. 708). mentions Messrs. Powell and Bishop as manufacturers of decorated china and earthenware at the time of writing; what edition this refers to is unknown. The first edition of Chaffers was published in 1863. The mark has been found on the following specimens:

Well #2, 96-102", white soft-paste plate.
Sq. 3, 16", white soft-paste plate. It is by no means certain that this small fragment shows the same mark; the letters POW... appear on a ribbon.

Wedgwood, J., Burslem and Etruria, Staffordshire? (Fig. 9 c).

A black printed mark, consisting of a ribbon forming an oval, with trailing ends; around the oval, in the ribbon, the words IRONSTONE CHINA: in the middle of the oval, PEARL: on the trailing end, J. WEDGWOOD.

Neither Chaffers,(1912) nor Savage (1959) give this mark, although both claim that their lists of Wedgwood marks are complete. Chaffers (p. 677) says that in 1823 the firm became Josiah Wedgwood & Son, Ltd. Chaffers also notes (p. 679) that the Wedgwood mark was forged and imitated in the 18th and 19th centuries. One specimen of this mark has been found:

Pit 9E, 0-18"; Well #2, 108-114". 2 sherds which fit together, from a rather thick white soft-paste plate.

By far the best means of dating British ceramics is provided by registry marks, which are coded to give a date to the day. The system for reading the code is given by Savage (1959, pp. 228-229). This, of course, provides only a minimum, "not-earlier-than" date for the deposit in which the specimen is found. A number of registry marks were found; unfortunately, all the readable ones turned up in Feature 20. Although they provide useful dating for this feature, it would have been helpful if they had been more evenly distributed through the site. The dates are: Sept. 2, 1851 and July 18, 1854; in the dark soil fill, Oct.? 22, 1852; 1853; and Nov. 1856. This information would date Feature 20 and its contents quite securely in the middle to late 1850's.

In addition to vessels, other types of ceramic artifacts are represented. These include several fragments of clay pipes (locations listed under soft-paste wares). One fragment of a pipestem (Pit 8D, 0-6") has impressed on one side the name McDOUGA... (McDougal?), on the other GLASGOW. This is presumably the name and address of the manufacturer. A pipe bowl from Feature 20 has on the stem side the initials TD, in a circle of stars, molded into the clay. A portion of pipe stem from this feature bears a fragmentary inscription, evidently a latin motto: ...ci?/...rs/s... mer/...eposex/. In the same feature was found a complete pipe-bowl of a glazed ware similar to Rockingham; it has a dark-brown lead glaze, slightly mottled and streaked

with yellow (Fig. 10 i). The pipe bowl is ornamented with a pattern of raised dots. It is evidently intended to be attached to a stem of a different material. Also in this feature was found an artifact made of pipe-clay ware; it is the end of a tube-like object, with a slightly expanded mouth and flanged rim. The outside is decorated with molded leaves, and the inscription "N.° 620', in line with the axis of the tube. It does not appear to have been a tobacco pipe.

Other ceramic artifacts include part of a terra-cotta tube (Well #2, 102-114"), 8-1/4" long, 1-15/16" outside diameter, 3/8" thick. One end is broken; the other shows a squared lip. Its use is unknown. Feature 20 yielded one complete and one fragmentary terra cotta disc, each about 3" in diameter and 11/16" thick. Each has a biconical hole 1/2-3/4" in diameter in the middle, and a segment (about 1" wide and 1/4" deep in the middle) scooped out from the hole to the rim on one side. The hole and the scooped-out section were cut out with a sharp instrument when the clay was wet. The objects as a whole are quite roughly made. Their purpose is unknown.

Remarkably little glass is included in this collection: only three fragments, two probably from bottles and one flat piece which may be window-glass.[2]

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[2] [No glassware was submitted for analysis.]

TABLE 5

UNIT	PORCELAIN: PLAIN WHITE SOFT PASTE										
	PLATE					SAUCER		CUP			
	PLAIN	MOULDED ROUND	MOLDED OCTAG.	DISH SHAPED	OVAL	PLAIN	MOLDED	PLAIN	MOLDED	BOWL	PORRIDGE BOWL
Well #2											
24-30"	4					3	3	1			
48-60"	5					2		1			
60-66"	4							2			
78-82"	3									1	
82-90"	1										
96-102"	53	3	1			9	3	3		2	5
102-104"	2						1				
104-108"	9					1				1	
108-114"	8					2	1	1			
Feature 20	40	13	6	1		1	3	7	14	1	2
Feature 20 dark soil	52	5	4		3	1	2	18			1
Disturbed Area, 6-36"	3		1								
Sq. 3, 16"	12					5				1	1
8C, 0-12"	3		2			1					
8D, 0-6"	19		2					1		1	
8E, 0-12"	2									2	
8F, 0-12"	8									1	3
9D, 0-12"	4										1
9E, 0-18"	5						2				

TABLE 6

	PLAIN WHITE SOFT-PASTE					CREAM				
UNIT	STRAINER	BASE RING	HANDLES	UNKNOWN	VERY THIN	CUP-LIKE VESSEL	MOLDED JAR	HANDLE	UNKNOWN	TOTAL PLAIN WHITE (NOT CREAM)
Well #2										
24-30"										117
48-60"				1						9
60-66"				1						7
78-82"			1							5
82-90"										1
96-102"			2							81
102-104"										3
104-108"										11
108-114"				7	2					21
Feature 20			1	1	12	3	1	1	3	102
Feature 20 dark soil		4		6						96
Disturbed area, 6-36"	1				2					7
Sq. 3, 16"										19
8C, 0-12"										6
8D, 0-6"				1	1					25
8E, 0-12"										4
8F, 0-12"			1							13
9D, 0-12"										5
9E, 0-18"					1					8

TABLE 7

LIGHT BLUE PRINTS, SOFT-PASTE

UNIT	TRELLIS	MIMOSA	FOULARD	CHINOISERIE	SCENICS	FLORALS	WILLOW	EGG & DART & FLORAL	EGG & DART & FRINGE	MISC.
Well #2										
24-30"	1				1	1				
48-60"		1								
78-82"										
96-102"	1		1	1		1				
108-114"										
Feature 20	2		1			2	1			
Feature 20 Dark Soil			1							
Disturbed Area, 6-36"	4		3					1	1	2
Pits A & B										2
Sq. 3, 16"	1		1			1				
8C, 0-12"			2		2					
8D, 0-6"										4
8E, 0-12"		1	2		1			1		
9D, 0-12"	2		1		1	1				
9E, 0-18"	4	2	1		1					

TABLE 8

SOFT PASTE: OTHER PRINTS

UNIT	Dark Blue											
	MEDIUM BLUE	ACANTHUS	LOZENGE BORDER	MISC	BLUE FLOW	BLUE FLOW LINEAR DESIGN	GREY-BLUE FLOWING	BLUE EDGE	ALL BLUE	RED	GREEN	PURPLE BROWN
Well #2												
24-30"										1	1	
48-60"												
78-82"												
96-102"								1				
108-114"												
Feature 20					1				1			1
Feature 20 Dark Soil										1		
8C, 0-12"	2	3			1						1	
8D, 0-6"					1			1				
8E, 0-12"												
9D, 0-12"			1	1				1				
9E, 0-18"		1		1	1	1	1	1				
Disturbed Area, 6-36"				3			1	2				
Pits A & B												
Sq. 3, 16"					1							

TABLE 9

SOFT PASTE: MISCELLANEOUS

UNIT	"Mocha-like"										
	GAUDY DUTCH	BANDED	MELLOW BOWL	WHITE INSIDE BUFF OUTSIDE	"ROCKINGHAM"	RED PASTE BROWN GLAZE	RED PASTE REDGLAZE	FLOWER POT	TERRA COTTA ARTIFACTS	CLAY PIPE	PIPE CLAYWARE
Well #2											
78-82"					1						
96-102"			1							1	
102-104"									1		
104-108"			1								
Feature 20			4		1		1	4	3	1	1
Feature 20 Dark Soil											
Disturbed Area, 6-36"				1							
Pits A & B		1	1							1	
Sq. 3, 16"					2		1				
8C, 0-12"		1									
8D, 0-6"		1		1		1				1	
8E, 0-12"			1	1							
8F, 0-12"			1								
9E, 0-18"						1		1			

TABLE 10

HARD PASTE - PORCELAIN, PLAIN WHITE

UNIT	Saucer Cup											
	PLATE	PLAIN	MOLDED	THICK	PLAIN	MOLDED	BOWL	JAR	MUSTARD SPOON	HANDLES	UNKNOWN	TOTALS
Well #2												
24-30"		1										1
48-60"												0
60-66"	1				1						1	3
78-82"					1							1
96-102"	6	2	2		3				1		4	18
102-104"	2											2
104-108"	3				1							4
108-114"	2		1	1	2		1		1		1	9
Feature 20	2			1	1	2				1		7
Feature 20 Dark Soil	1	1		1	2	2		1				8
Disturbed Area, 6-36"												
Pits A & B												
Sq. 3, 16"	1						1					2
8C, 0-12"	2				1							3
8F, 0-12"	2				1						1	4
9D, 0-12"	2				1							3
9E, 0-18"							1				1	2

TABLE 11

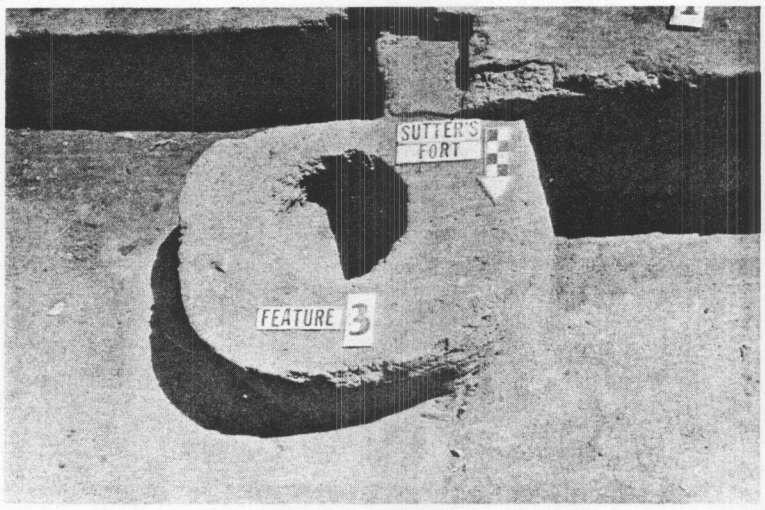
HARD PASTE - PORCELAIN, MISCELLANEOUS

UNIT	"CANTON"											
	DOLL	GREYISH WHITE	GOLD RIM	ENAMELED	BLUE ON WHITE	GREY ON GREENISH	PRINTED					GLASS
Well #2												
24-30"												
48-30"			1									
60-66"			1									
78-82"												
96-102"	1			1								1
102-104"												
104-108"				1			1					
108-114"												
Feature 20			2	2	2	1						
Feature 20 Dark soil												
Disturbed area, 6-36"					1							1
Pits A & B					2							
Sq. 3, 16"												1
8C, 0-12"	1				1							
8F, 0-12"												
9D, 0-12"				1								
9E, 0-18"					1							

TABLE 12

HARD PASTE: STONEWARES

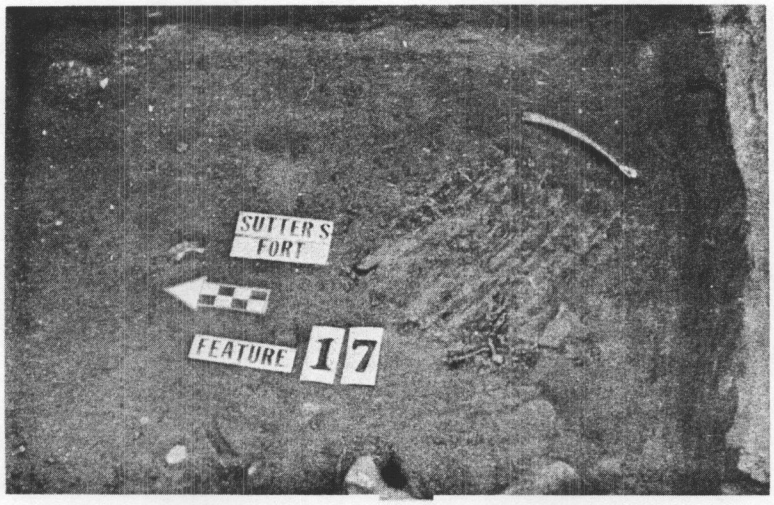
UNIT	Orange-skin glazes											
	BEER BOTTLE	MOTTLED BLACK & BROWN	UNGLAZED	ORANGE GLAZE	DARK BROWN & TAN, SMOOTH GLAZE	BROWN & RED GLAZE	GREENISH GLAZE	BROWN & TAN	RED-BROWN & TAN	BROWN	DARK BROWN	TAN
21"	1											
24-30"		1										
48-60"		1										
96-102"		3		2	1			4		1	1	
104-108"	1	1										
108-114"		1										
114-120"	1											
Feature 20	1	5	1					2	1		2	
Feature 20 Dark Soil	1											
Disturbed Area, 6-36"									1		1	
Sq. 3, 16"						1	1				3	3
8D, 0-6"		2										
8F, 0-12"	1											
9D, 0-12"	1	2	1	1						1		1


SUTTER'S
FORT
FEATURE 3

a

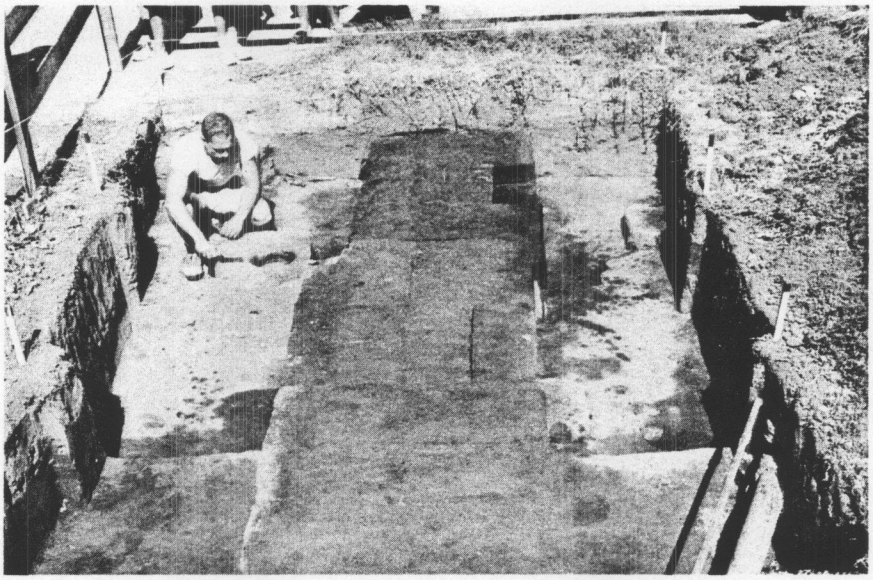
SUTTER'S
FORT
FEATURE 7

b

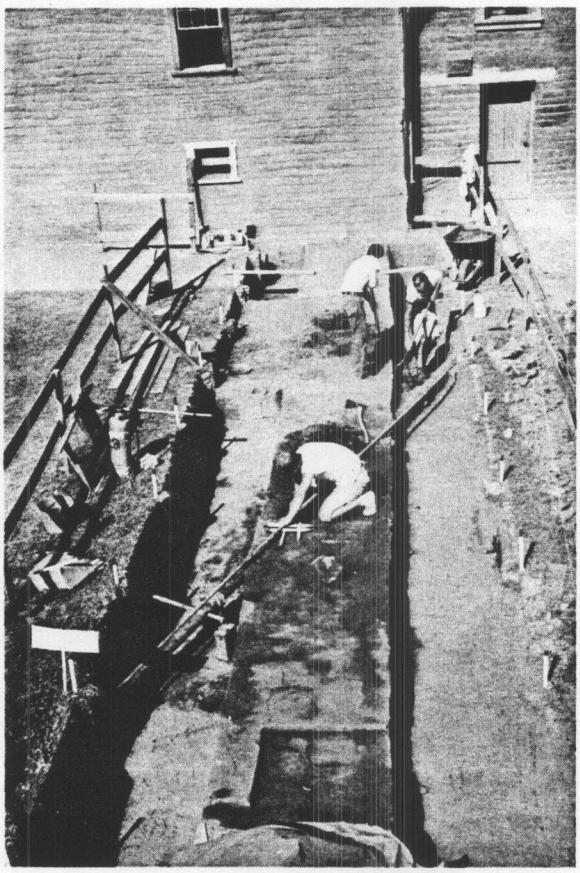

SUTTER'S
FORT
FEATURE 17

c

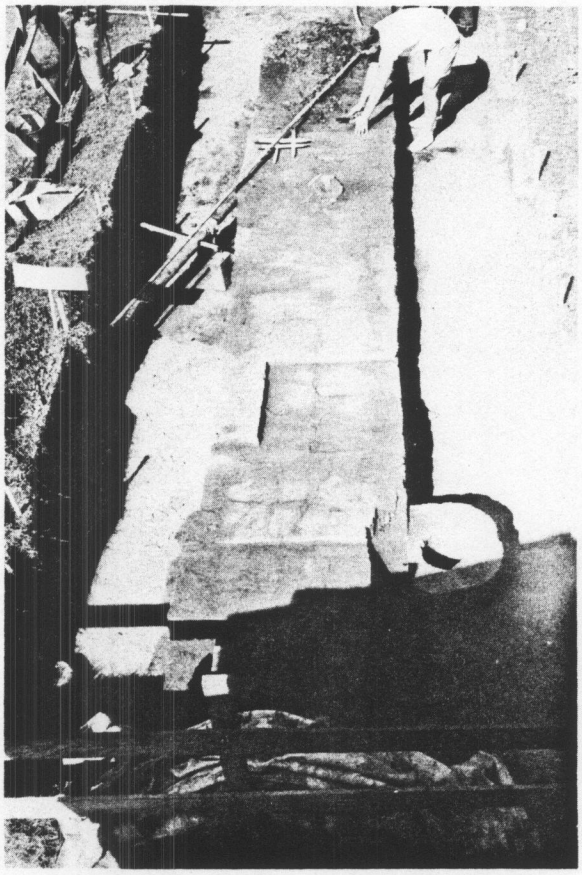
PLATE 1



a

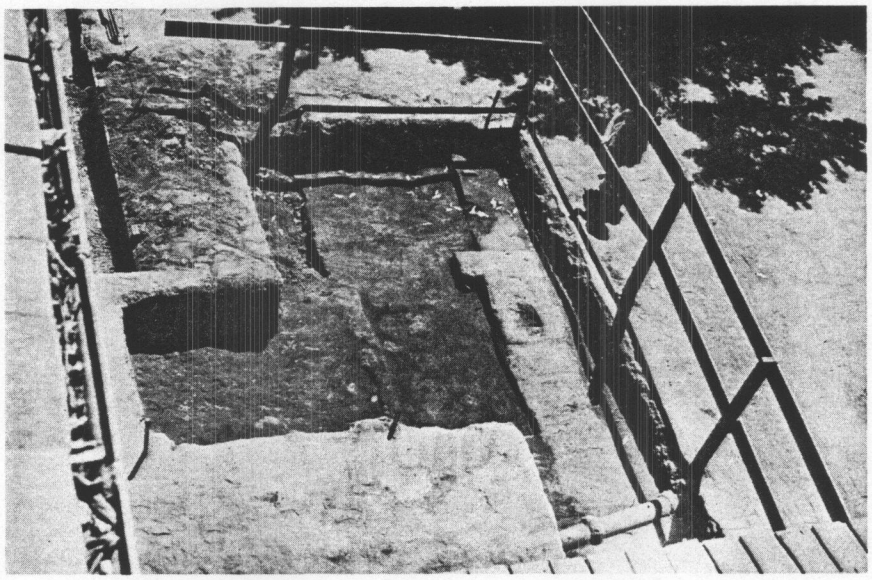


b

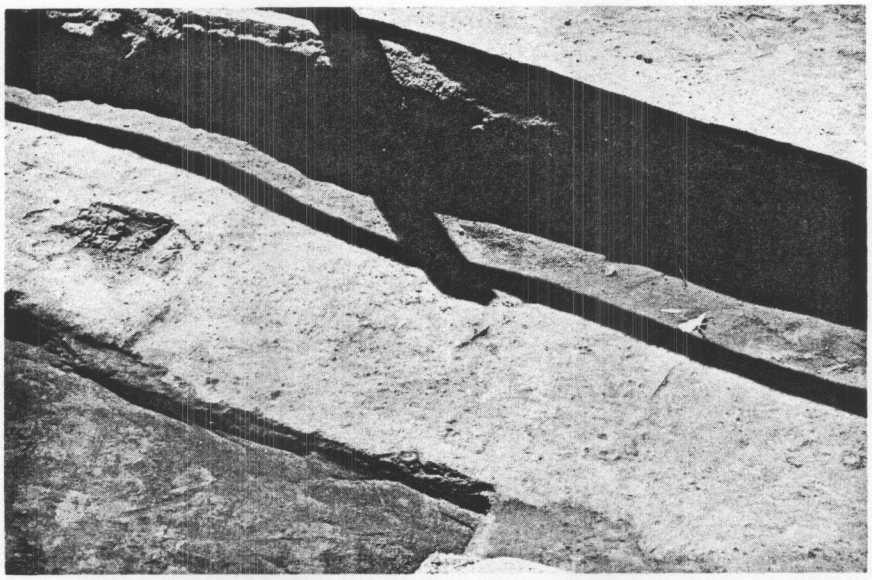


c

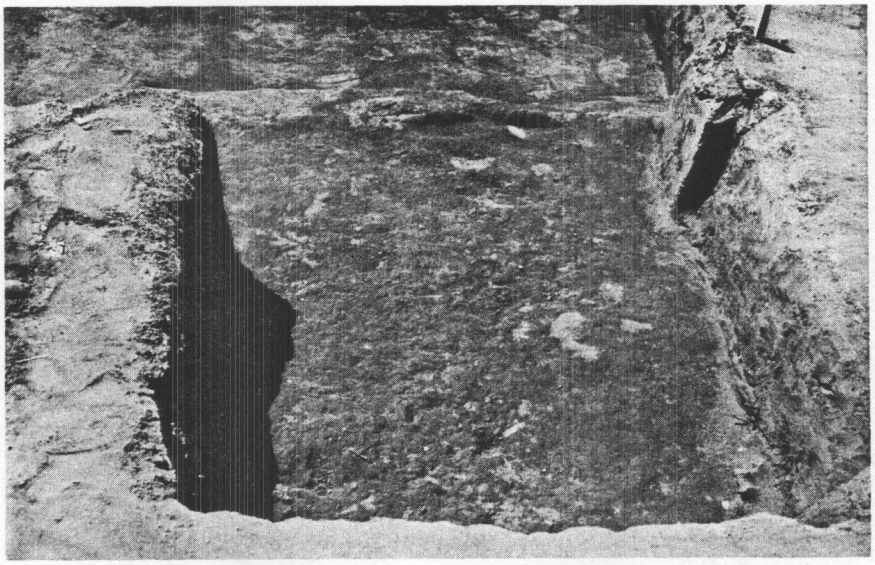
PLATE 2



a

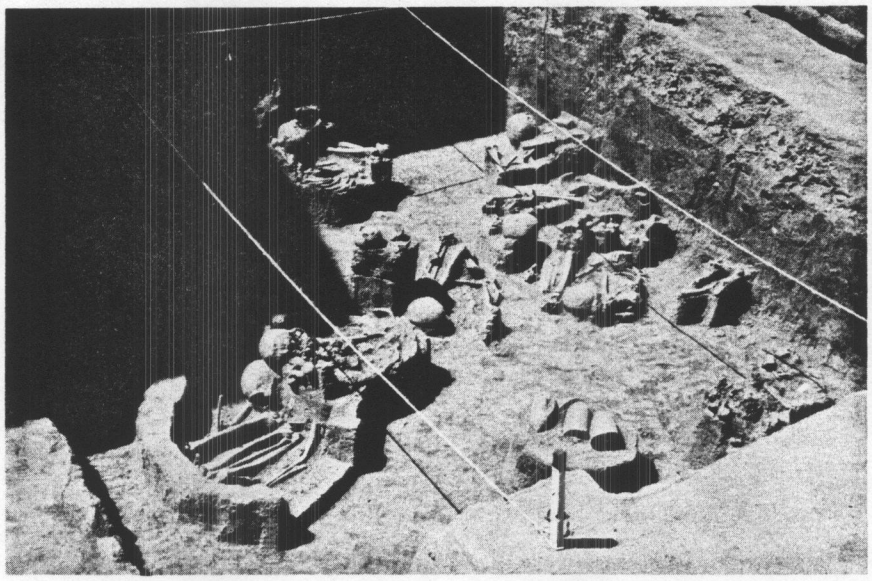


b



c

PLATE 3



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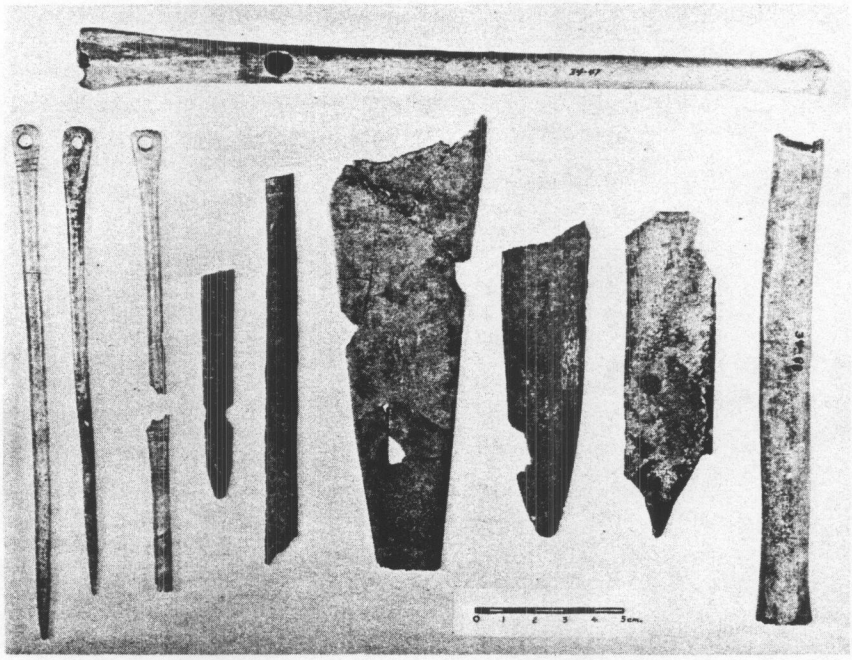

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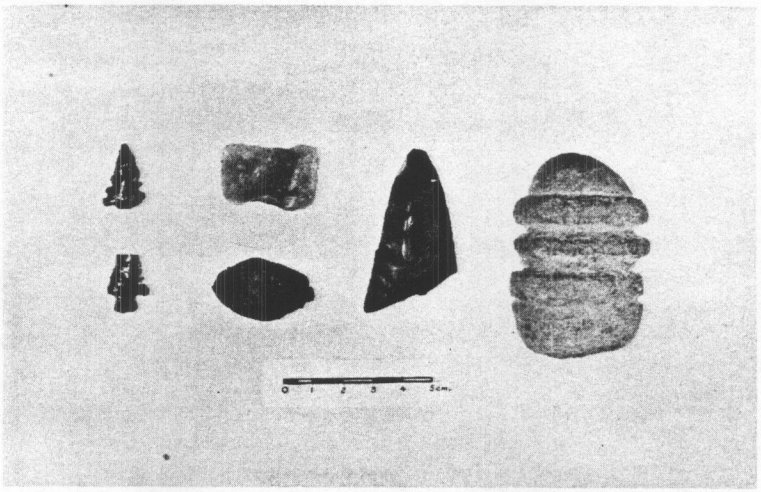
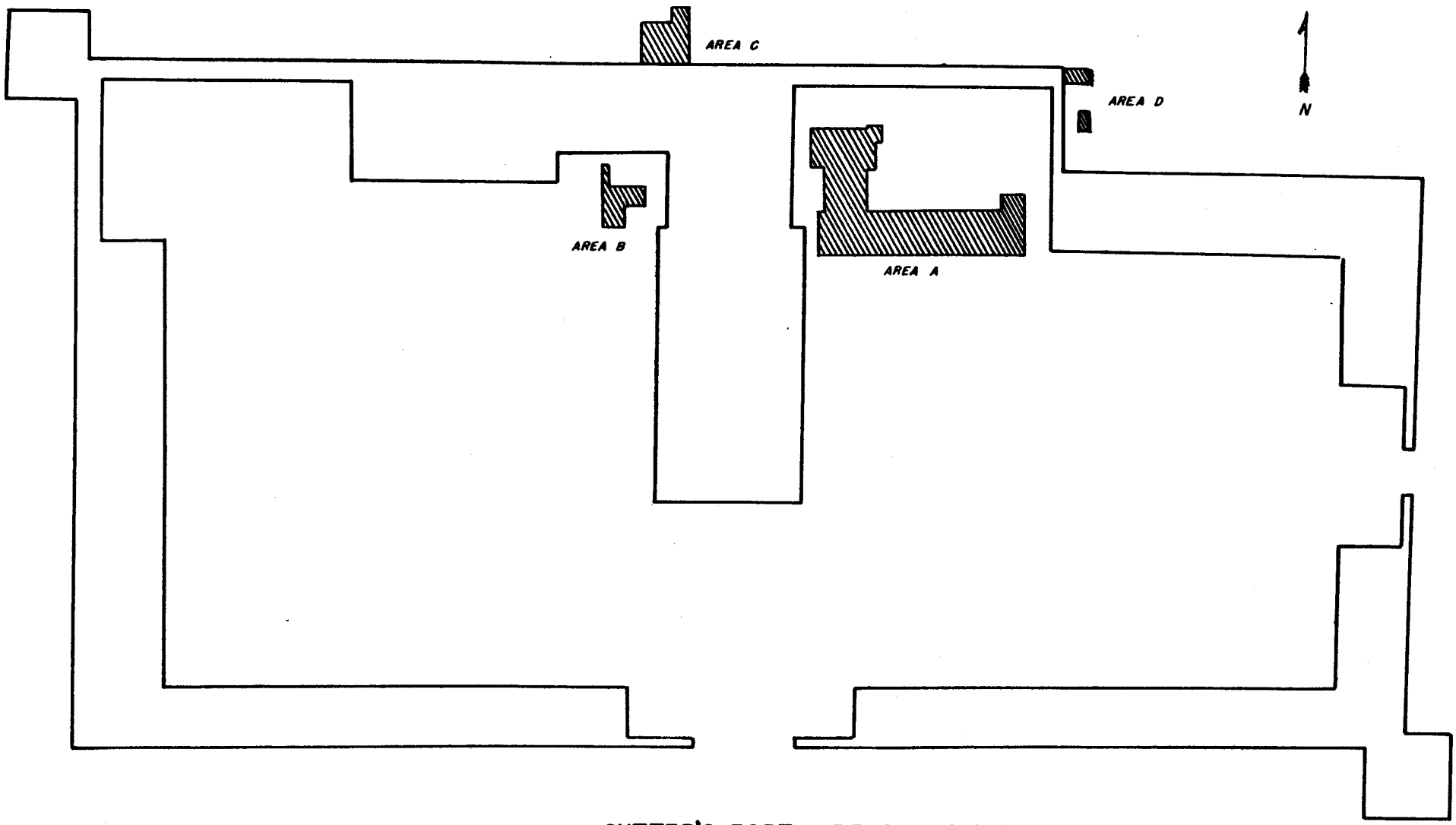


c

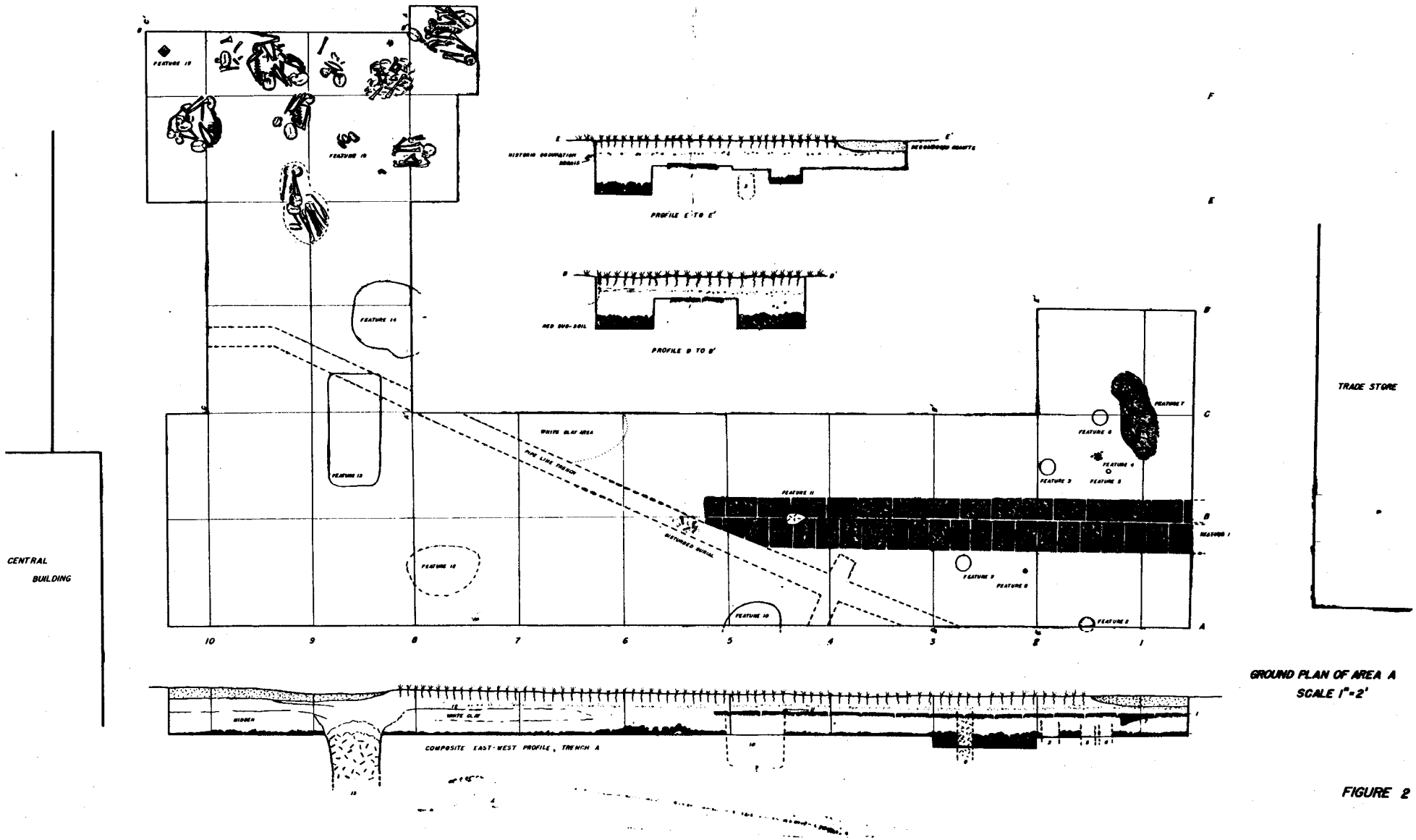
PLATE 4



SUTTER'S FORT, AREAS EXCAVATED 1959

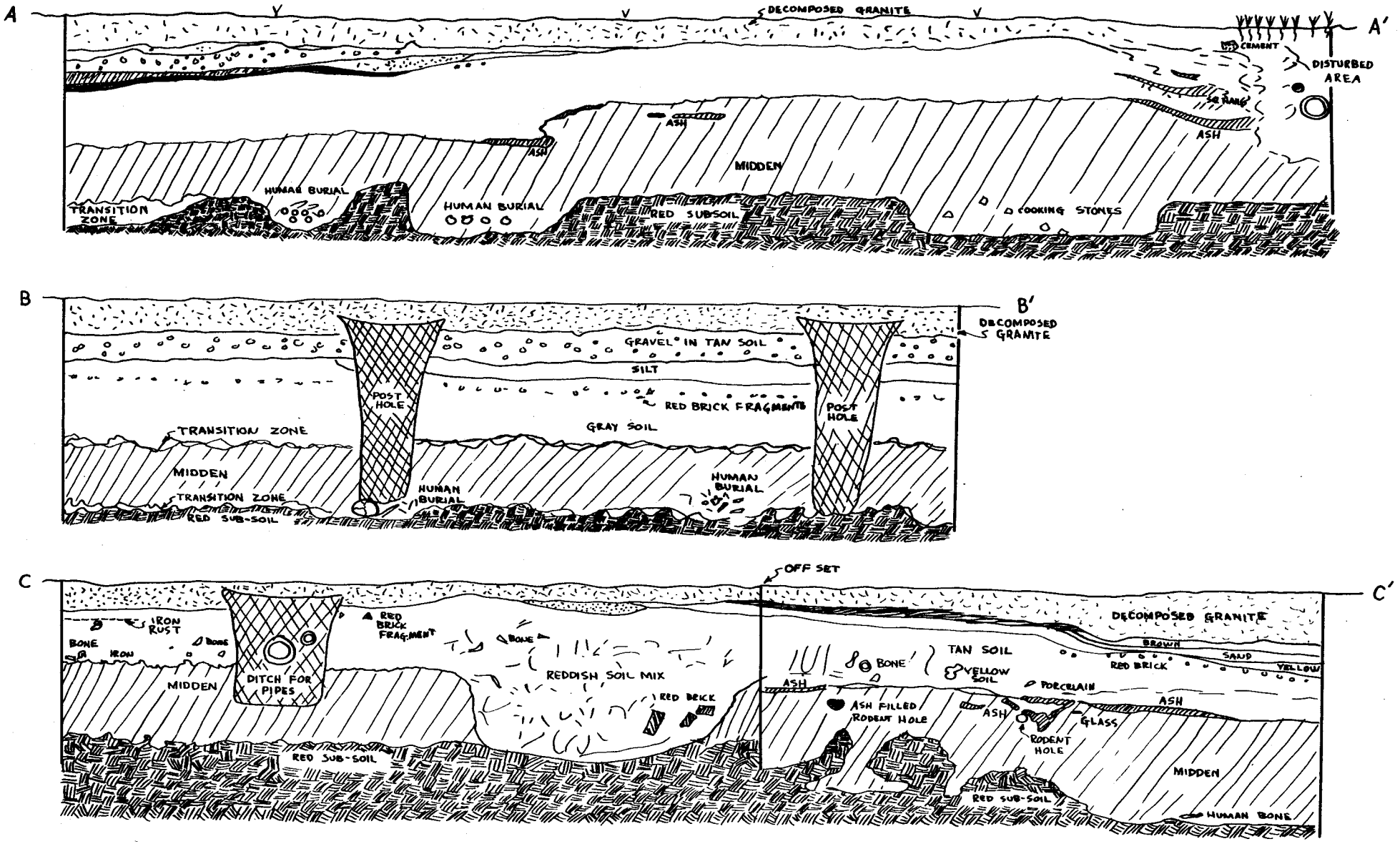
SCALE 1"=20'

FIGURE 1



GROUND PLAN OF AREA A
SCALE 1"=2'

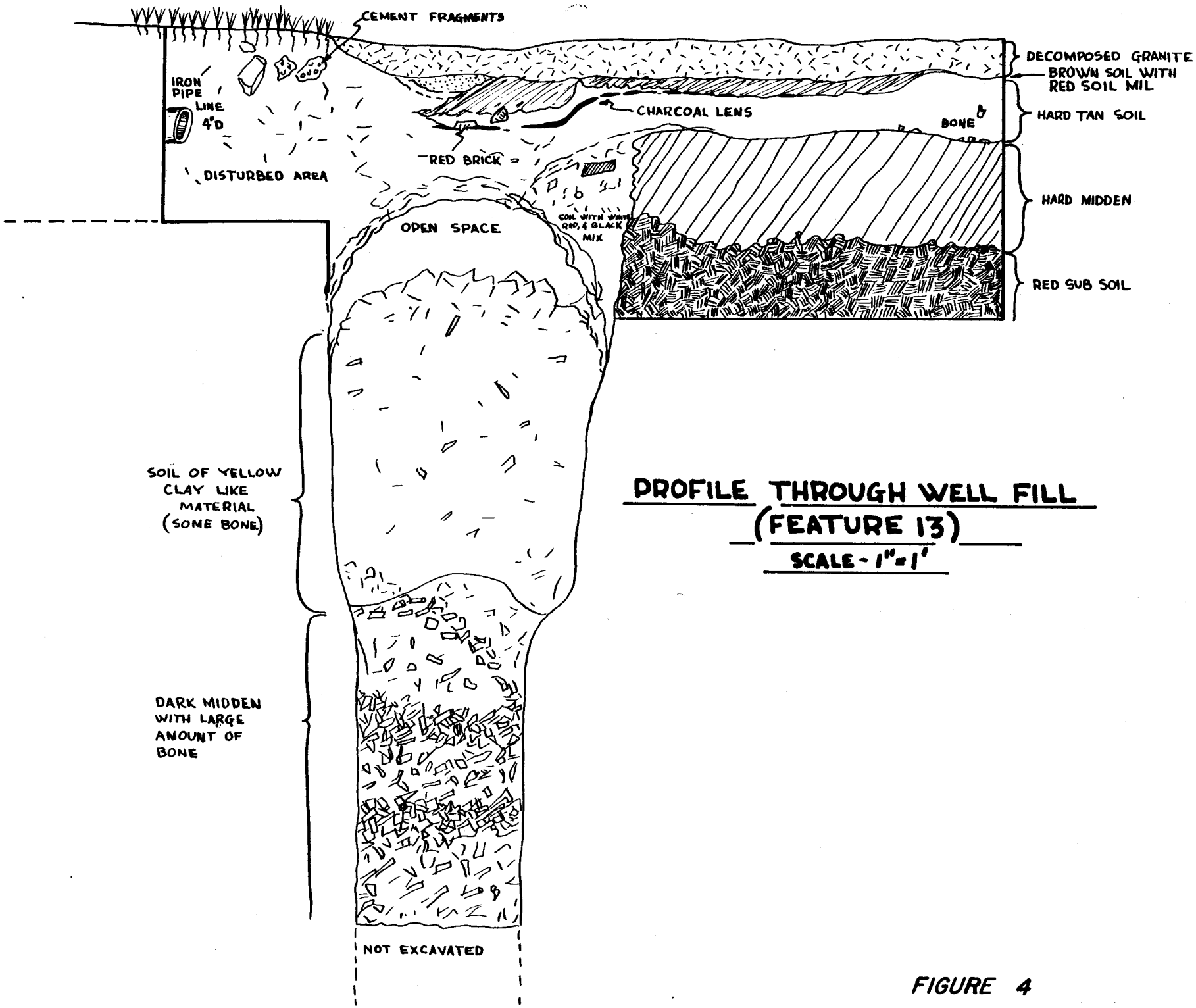
FIGURE 2



PROFILES OF BURIAL AREA

SCALE-1"=1'

FIGURE 3



PROFILE THROUGH WELL FILL
(FEATURE 13)
SCALE - 1" = 1'

FIGURE 4

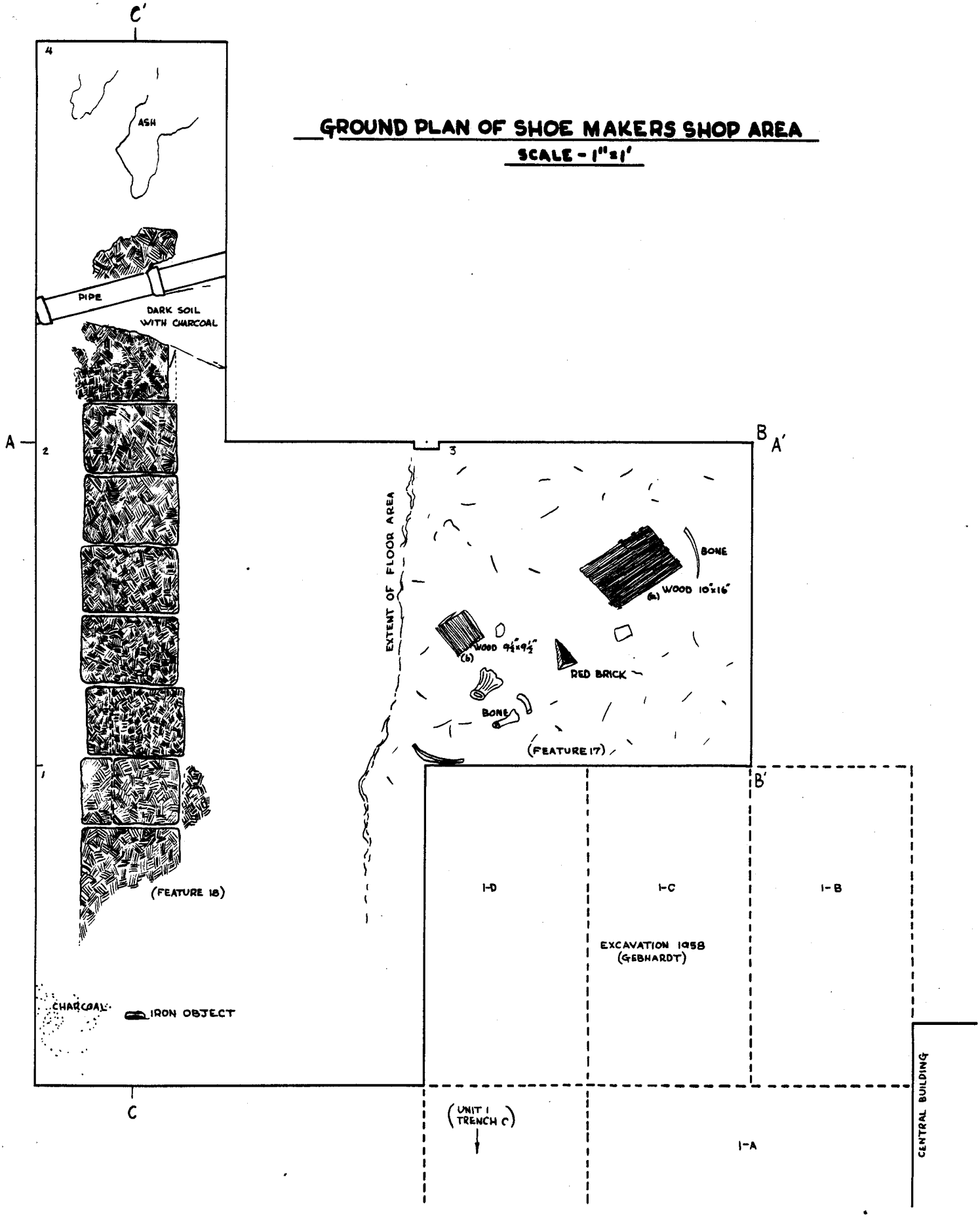
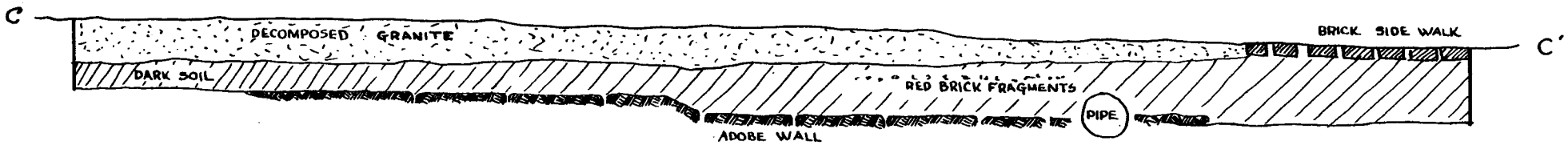
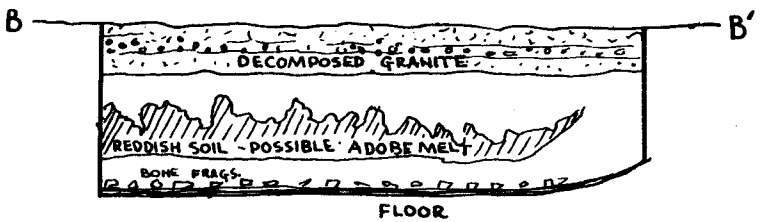
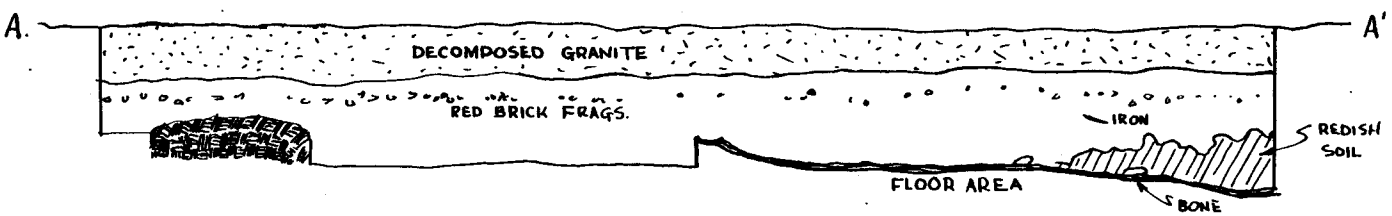

GROUND PLAN OF SHOE MAKERS SHOP AREA
SCALE - 1" = 1'
C'
4
ASH
PIPE
DARK SOIL WITH CHARCOAL
A
2
3
B
A'
EXTENT OF FLOOR AREA
BONE
(a) WOOD 10"x16"
(b) WOOD 9½"x9½"
RED BRICK
BONE
(FEATURE 17)
B'
1
(FEATURE 18)
I-D
I-C
I-B
EXCAVATION 1958 (GEBHARDT)
CHARCOAL
IRON OBJECT
C
(UNIT 1 TRENCH C)
I-A
CENTRAL BUILDING

FIGURE 5



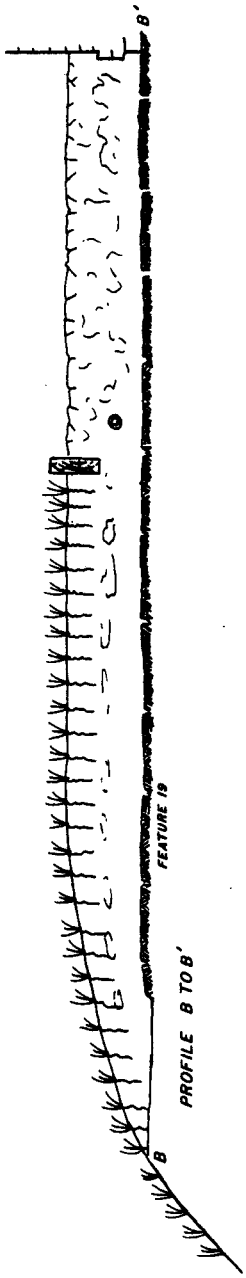


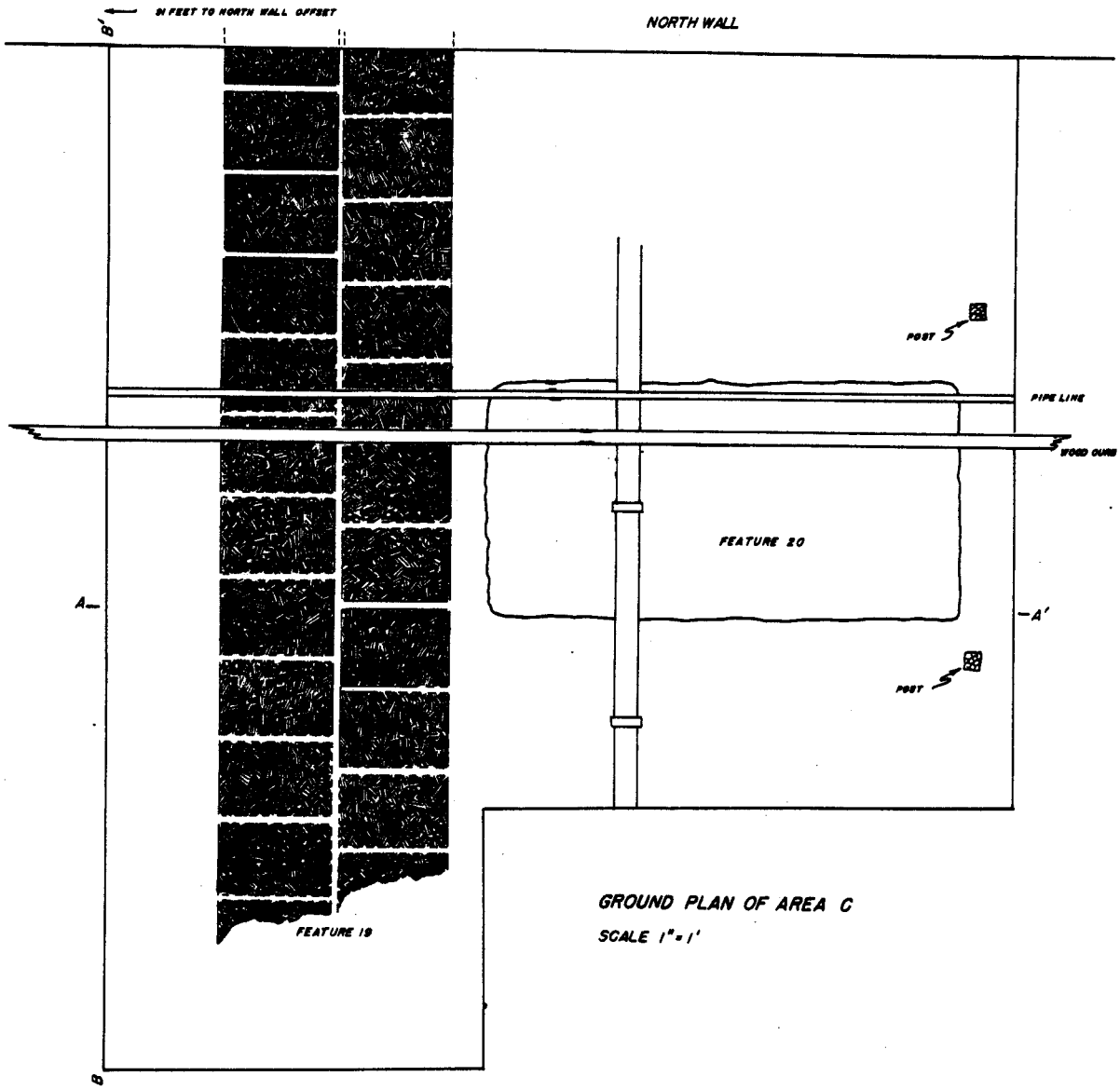


PROFILES OF SHOE MAKERS SHOP AREA

SCALE - 1" = 1'

FIGURE 6


B'
FEATURE 19
PROFILE B TO B'
B


B'
34 FEET TO NORTH WALL OFFSET
NORTH WALL
POST
PIPE LINE
WOOD CURB
FEATURE 20
A
A'
POST
FEATURE 19
GROUND PLAN OF AREA C
SCALE 1" = 1'
B

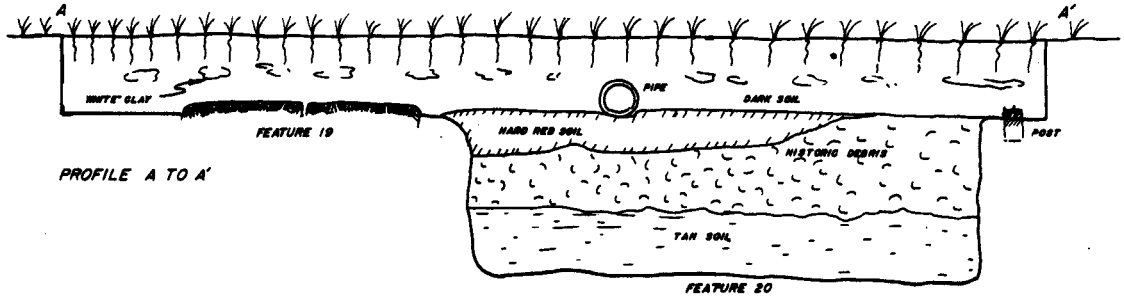
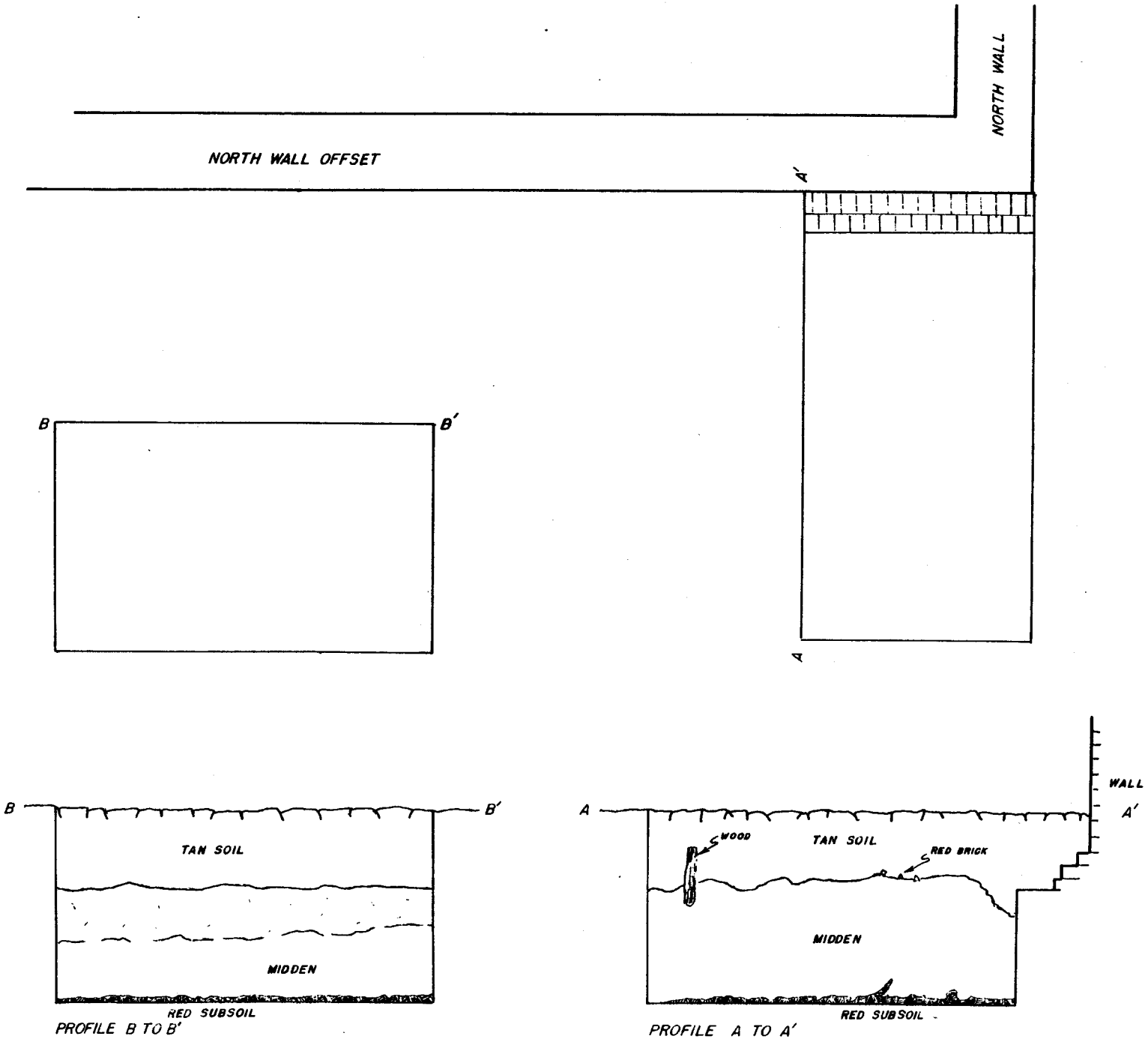

A
A'
WHITE CLAY
PIPE
DARK SOIL
FEATURE 19
HARD RED SOIL
POST
HISTORIC DEBRIS
PROFILE A TO A'
TAN SOIL
FEATURE 20

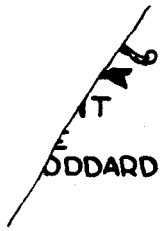
FIGURE 7



GROUND PLAN OF AREA D
SCALE 1"=1'

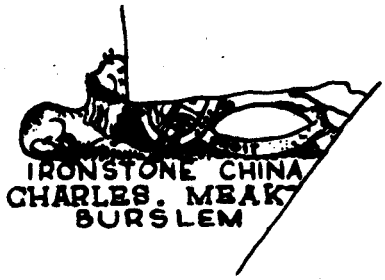
FIGURE 8

a



b

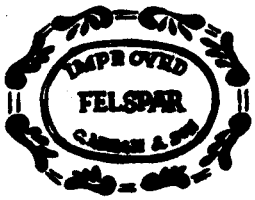
c



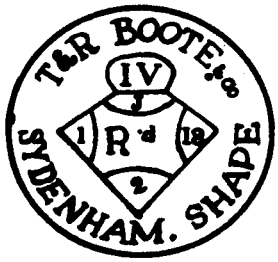
d

e

f



g



h

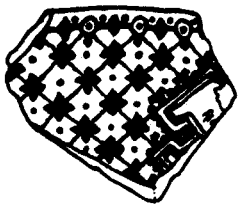
Fig. 9

MOPE & CARTER
BURSLEM

a

J. & G MEAKIN

b



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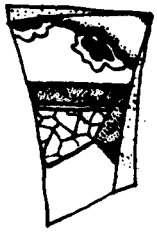

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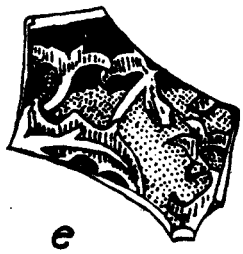

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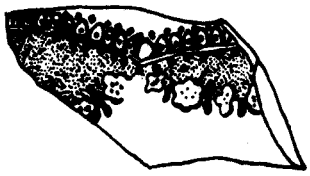

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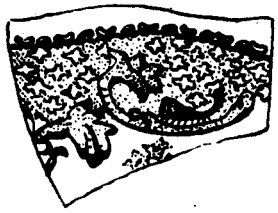

g

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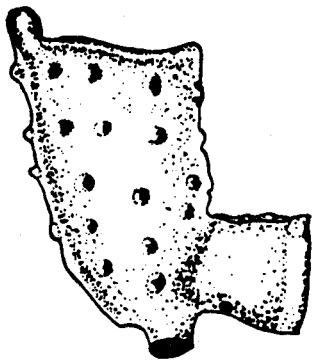

i

Fig. 10