

Contents

<u>Report of the Preliminary Excavations at Fort Defiance</u>		Page
Acknowledgements	by	151
I. Introduction	John Robert Knox	1
II. Historical Background of Fort Defiance		4
III. Site DMS 1		13
IV. Rediscovery of the Site		16
V. Arch	An Essay Submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor of Arts	18
VI. Identification and Dating of the Site		23
VII. Conclusions	in the Department of	32
Appendix I (Art)	Anthropology and Sociology	36
Appendix II (Boston Mercants)		30
References Cited		33

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Illustrations: (owing p. 54)

I. Natural Wharf, Adventure Cove.	<u>Page</u>
 <u>Text Figures</u>	
1. Stratigraphy of Fort Defiance Site	18
2. Distribution of Rock	20
3. Distribution of Brick	20
4. Distribution of Clinkers	20
5. Type-specimens of Hand-Wrought Nails	38
6. Gunflints from the site of Fort Defiance	46
 <u>Maps</u>	
1. Contour Map of Site DhS1 1	20
2. Adventure Cove	32

Plates: (following p. 54)

- I. Natural Wharf, Adventure Cove.
- II. Mounds of rock which served as foundations for the stocks upon which the Adventure was built.
- III. Miscellaneous iron fragments.
- IV. Knife, unearthed prior to excavation.
- V. Fragments of Copper and Glass.
- VI. Gunflints, musket balls, and waste lead.
- VII. Artifact number 247, three shot attached by a common sprue.
- VIII. Sprue fragment.
- IX. Knot of wood, showing axe or adze cuts.
- X. Brick, typical of those found at Fort Defiance.
- XI. Slate pencils.
- XII. Fireplace base.

Much credit is due Mr. Ken Gibson of Tofino for reviving interest in Fort Defiance and Adventure Cove. Without his determination in bringing this important facet of local history to public view, none of the present work could have been undertaken. Recognition is due the Vancouver Men's Canadian Club and the Archaeological Sites Advisory Board of British Columbia for their financial support of the excavation.

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Report of the Preliminary Excavations at Fort Defiance

I. Introduction.

During the summer of 1968, archaeological excavations were undertaken at site DhS11, located on the west coast of Vancouver Island, on Meares Island on Lemmens Inlet, the supposed site of the eighteenth century American blockhouse, Fort Defiance.¹ The purpose of this report is to provide a record of these preliminary excavations, including a correlation and analysis of the data derived both archaeologically and historically concerning this site and the structure that once stood there. This task is undertaken to establish the identity of the site, and to analyze and describe the excavated remains with a view to providing a statement concerning the exact location of the building and those features of its architecture as may have been preserved.

Identification of site DhS11 as the location of Gray's Adventure Cove and Fort Defiance is, from the point of view of the study of the early history of the Northwest Coast, of considerable interest and significance. Although the details of the two voyages of the Boston trading ship Columbia are too familiar to students of Northwest Coast history to bear recounting here, a number of historically important facts are notable in connection with the second voyage of the Columbia during which the winter quarters of its crew were built at Adventure Cove.

¹Preliminary excavations of the Fort Defiance site were conducted under the direction of Dr. D.H. Mitchell of the University of Victoria, supported by a grant from the Vancouver Men's Canadian Club.

The Columbia was the first vessel flying the American flag to make an entire circuit of the globe. Explorations undertaken along the coast of what are now Washington and Oregon led to the first recorded discovery of the mouth of the Columbia River. A short time later, the British explorer, Captain George Vancouver, sailed up this great river, claiming the area for the Crown. Gray's discovery was in part ultimately instrumental in establishing American control over the Oregon Territory in the face of British claims supported by the trading posts, beginning with the Spanish settlement at Hootka, were established along the Northwest Coast of North America. Fort Defiance, in 1791, was the first of a series of forts and trading posts, beginning with the Spanish settlement at Hootka, were established along the Northwest Coast of North America. Fort Defiance, in 1791, was the first of a series of forts and trading posts, beginning with the Spanish settlement at Hootka, were established along the Northwest Coast of North America.

Fort Defiance was among the first buildings of European character to have been constructed on the Northwest Coast. The sloop, Adventure, built during the winter of 1791-1792 was only the second vessel of European design to have been built in this area. Establishment of the location of the site of Fort Defiance thus contributes an interesting and significant fact to the somewhat originally ill-documented history of the Northwest Coast. Both from the point of view of casting light upon a segment of one of the most important early voyages to this area, and of establishing possibly the value of the various contemporary accounts of the second voyage of the Columbia, the excavation of Fort Defiance and the conclusions to be drawn therefrom may prove to be of some significance to the history of this region.

During the period of the short lived maritime fur trade occurred the initial and perhaps most critically important contacts between the native population of the Northwest Coast area and people of European origin. The exploitation of the resources of the native

people, the introduction of disease and foreign manufactured trade goods to the area led to serious social and economic consequences for the Indians of the Northwest Coast. In this early period were laid foundations for the patterns of social and racial conflict and subordination that hamper efforts in the present day at finding solutions to the problems of the native people.

From the late eighteenth century onward a series of forts and trading posts, beginning with the Spanish settlement at Nootka, were established along the Northwest Coast of North America. Fort Defiance, in its small way, served as one of the forerunners of the later more permanent trading posts. Settlements such as Fort Simpson, Fort Victoria or Fort McLaughlin were of considerable significance and influence in providing ^{the} setting in which the contact ^{situation} of the nineteenth century developed.

In order better to understand the nature of the problems facing modern Indian society, a closer examination of the origins of these difficulties is needed. The evolution of the present-day socio-economic status of the native people can be traced backward in time to the period in which aboriginal culture came into contact with foreign civilization. Examination of the physical remains of the context of the culture-contact situation, correlation of these findings, and careful consideration of these generalizations may in turn lead to a greater understanding of a segment of the root of the Indian problem.

Closer comprehension of the exact physical nature of these forts and trading posts must lead to greater insight into the character of

their European inhabitants, into the relation of these historic sites to the development of modern Indian settlement patterns, and into the development of the influence of foreign material culture upon aboriginal systems. This latter notion must be undertaken through comparative analysis of contemporary Indian and historic sites, between which some relationship can be traced. Such a situation is exemplified in the case of Fort Defiance and the Indian settlements on Wickaninnish Island and at Opitsat, between whom considerable interplay took place during the winter of 1791-1792.

Although, at present, analysis of the Fort Defiance excavation cannot be taken to such lengths, archaeological investigation of historic sites on the Northwest Coast ought to proceed, therefore, from this point of view. The excavation of Fort Defiance, representing only a small part of the historical archaeological potential of this region, therefore, may be regarded as being both of historical and anthropological significance.

II. Historical Background of Fort Defiance.

The following reconstruction of Fort Defiance is based upon historical data derived from the surviving contemporary accounts of the second voyage of the Columbia to the Northwest Coast. In September of 1790, the Columbia set sail under the command of Captain Robert Gray with Robert Haswell as first officer. The day to day journals of the voyage kept by Haswell and two other members of the crew, John Hoskins and John Boit, comprise the major source of the historical background of this expedition and the subsequent

foundation and occupation of Fort Defiance.

In her holds, the Columbia carried the frame and floor timbers for a sloop of some forty-five tons. It was the intention of Captain Gray to find a suitable location on the Northwest Coast at which during the winter of 1791-92 he and his crew might spend the cold season engaged in construction of a new vessel, designed for use as a sister trading ship to the Columbia. On September 20, 1791, the Columbia sailed into its winter quarters at a place near Clayoquot Sound named Adventure Cove.

The day after their arrival Haswell and a party of sailors landed and set about clearing the immediate area of its dense covering of undergrowth and large trees, few of the latter it is claimed being less than twelve feet in circumference. The present forest cover of the site cannot now boast of trees of such great size although farther up the hillside behind the cove there still exist stands of large, mature trees, alive when the Columbia visited the area.

Only the sparsest information is available concerning the exact location and architectural details of the blockhouse built at Adventure Cove. The three journals present only a brief account of the building. The drawing and painting of Fort Defiance executed by George Davidson, the ship's carpenter, supply what little detail as can be gleaned from them concerning the general shape of the fort and the position of the Defiance. They appear to be decorated with a series of curious outside structures relative to it.

The foundations of Fort Defiance were laid well above the high water mark. Nine days later, on October 1, 1791, the construction of

the two-story building, thirty-six feet long and eighteen feet broad, was completed. The lower story was built of logs laid horizontally, one upon the other, at least eight layers of logs being utilized for this purpose. The ends of the logs were

(Hoswell, ...let into each other and trunelled together the seams were filled with mortar made of clay and burnt shells (Hoskins, 1941:218).

Davidson's drawing shows the logs to have been squared all along their length, this feature is not verified, however, by any remark in the three journals.

The upper story consisted of a spacious attic with a single gable at either end, quite high enough for a man to stand upright in it. This second story was framed and covered with boards acquired from the Indians in exchange for "a trifling consideration in iron" (Hoskins, 1941: 247).² A window was cut in both gable ends and a flagpole mounted at the peak of the roof on the western end of the building.

Inside the house, at the eastern end of the building, two fireplaces were built of bricks transported from Boston. Calculated from the rough drawing of Fort Defiance made by Davidson, the height of the brick chimneys serving these fireplaces may have been approximately

²These same boards are shown in Davidson's drawing of Fort Defiance. They appear to be decorated with a series of curious designs, possibly the artist's hasty interpretation of what may have been figures painted on them by the Indians from whom the boards were procured originally.

fifteen feet. The building contained also a forge for the ship's blacksmith "and shop convenient for his work" (Haswell, 1941: 305).

Included in the interior design of Fort Defiance was a carpenter's shop with benches "and several good lodging rooms and cabins" (Haswell, 1941: 305).

On October 31, fearing the collapse of the cook's fireplace chimney, owing to the indifferent workmanship with which it was erected, Haswell ordered it to be dismantled and reconstructed. (Haswell, 1941: 306). At an undetermined site outside the building, a lime kiln was burnt and mortar made for use in reconstruction of the chimney. It is not known if this kiln is located at the place where earlier in the season shells had been burnt in order to provide lime for the mortar used in chinking the building. To this point, excavation of the site has not provided any evidence as to the exact location of this feature.

The walls of the blockhouse were perforated with loopholes for muskets in the event of an attack by the Indians living a few miles away at the villages of Opitsat or Okerminna. Four of these loopholes are clearly visible in Davidson's drawing on the south side of the house. According to Hoskins, two cannon ports were cut in the front wall of the blockhouse, although no such openings are visible in the drawing. Boit mentions only that two cannon were mounted in the building. Haswell notes that two cannon were mounted outside the fort and one inside through a port. Again, in contradiction, Hoskins notes that

In the morning of the 4th sent four cannon, forty muskets several blunderbusses and pistols and a quantity of ammunition ashore to the house which was now called Fort Defiance...(Hoskins, 1941: 248).

Davidson's painting of Adventure Cove and Fort Defiance shows what may be a second gun port to the left of the doorway pictured in his earlier drawing, possibly lending support to Haswell's contention.

The confusion apparent from these conflicting accounts leads us to conclude that, in this area, it is impossible to state exactly what the architectural features of the front wall of Fort Defiance must have been. Davidson's drawing shows a door at this end of the house close to the south-west corner of the building. The door itself is cut in the middle after the Dutch fashion, each segment being attached to the door frame by two strap hinges. His painting however, is not at all clear at this point.

A window was cut in the south wall of the building close to its south-east corner. The sill of this window was in line with the loopholes in the wall and was placed, according to Davidson's drawing, at about the level of the fourth layer of logs. This opening was closed by a pair of shutters, each attached to the window frame by a pair of strap hinges and fastened from the inside by what appears to be an arrangement made from a sliding bar and a pair of staples.

Through this window, Davidson has drawn a portion of the interior of the blockhouse. It is impossible to say exactly which area he has indicated. This south-east corner of the building and its accompanying chimney may have served as the smithy, despite Boit's

vague remark that the blacksmith's shop was placed "near" the fort (Boit, 1941: 382), implying that it was situated outside the building. It must be remembered that Haswell stated that one of his reasons for rebuilding the main chimney lay in his concern that, if it fell, it would take the blacksmith's chimney with it (Haswell, 1941: 304). It may be assumed, therefore, from this statement and an examination of the drawing, that the smithy was at least inside the building and not nearby as suggested by Boit. This south-east corner is closest to the ship being built next to the blockhouse. The window perforating the wall in this area would have provided a convenient means whereby the iron goods manufactured by the smith could have been transferred to the shipbuilders.

Outside the blockhouse, parallel with its south wall, were erected the stocks upon which the sloop Adventure was built, and its accompanying slipways. Davidson's drawing shows this structure to have been raised off the ground by a series of upright timber supports and extending from the eastern end of Fort Defiance to the high water mark. During the launching of the sloop some difficulty was encountered with the slipways which floated at high tide, being "blocked with very buoyant wood" (Haswell, 1941: 331). When the tide fell, Haswell claims to have "fully prevented a future accident of the same nature" (Haswell, 1941: 313). What action he took is not specified. In spite of this course, the next day the Adventure only ran thirty feet before "the launching plank, being green pine, furred up before the bilge ways" (Haswell, 1941: 313). The

vessel was blocked and shored up again, although it is not stated exactly with what materials this task was accomplished. The Adventure was, however, successfully launched the next day, February 23, 1792, at three in the afternoon.

At the east end of the stocks-ways complex Davidson has drawn a rectangular box-like structure raised a few feet off the ground on a frame of upright timbers. It lies along a north-south plane, its north end obscured by the south east corner of the blockhouse. The exact function of this feature is not known although possibly it may have been a steam-box used in shaping the curved planking used in boat construction. Its north end is in close proximity to the south fireplace which may have served as a source of heat to the box. Such a speculation, however, cannot presently be verified.

In conjunction with the shipbuilding project of Captain Gray and his crew, sawpits were erected in order that planks could be sawn for use in construction of the sloop and, presumably, the blockhouse as well. The oak planks that they had brought from Boston were damaged and rotted beyond use (Haswell, 1941: 305). Although Boit claims that two sawpits were erected and Haswell states that "the two whip-saws kept constantly at work" (Haswell, 1941: 305), only one complete structure is shown in Davidson's drawing. The fact that only one structure is shown in the drawing does not rule out the possibility of there being two sawpits at Fort Defiance, as indicated by Boit and Haswell. The other structure simply may have been hidden from the view of the artist.

This feature was placed several yards south from the ships stocks, roughly at a right angle to them. It consisted of three pairs of upright timbers capped by two timbers laid horizontally, one along either row of the uprights. At right angles to these horizontal timbers were laid two shorter timbers spanning the gap between the two rows of uprights. The last served no doubt as a platform upon which the log to be sawn was laid. The drawing shows further a number of large logs lying in the vicinity of the sawpit. Also to be seen are a pair of timbers resting with one end on the ground and the other at the westernmost horizontal timber of the structure. This arrangement possibly provided an inclined plane by which means logs could be rolled up on to the sawing platform in preparation for cutting into planks.

At the end of October 1791, "a party was sent to erect a frame and thatch it to serve as a shed" (Hoskins, 1941:252). This outbuilding was to be used as a shelter in which could be built a replacement for the damaged whale-boat of the Columbia, and where sawn timber could be stored safe from the weather. This structure was located, according to Davidson's drawing and his painting, a few yards from the rear of the blockhouse, parallel, in its longest dimension, with the east wall of the building. In both cases the shed is pictured by Davidson as being at least as high as the blockhouse itself, with a rounded roof, completely open on at least the southern end. That it was "thatched with the boughs of trees" (Haswell, 1941: 307) is evident from Davidson's painting. Its

function as a boat-building shed is further demonstrated in the painting. The stern of the whale-boat itself can be seen protruding from the southern end of the shed.

Although no record of such has been preserved, no doubt the relatively lengthy period of occupancy of Fort Defiance would have forced the construction of at least one latrine near the blockhouse and possibly more. No such feature has as yet been located however. Less certainly, there is the possibility that a central rubbish dumping area was used by the occupants of the Fort. Large quantities of game were consumed by the occupants of Fort Defiance, yet only a few small fragments of bone have been uncovered to the present time. Future excavation may lead possibly to the exposure of such a feature.

The ship's boatswain, Benjamin Harding, died at Fort Defiance in March of 1792. He was buried, it is said, "near to the Blockhouse" (Boit, 1941: 389). No record of the exact location of his grave in its relation to the building has been preserved however. Future excavation may locate the site of his grave but as yet no traces of it have been found. The advanced state of deterioration present in the few miscellaneous fragments of bone that were recovered would suggest that if Harding's skeleton is located, it too will have suffered from the ravages of time and a local annual rainfall of about one hundred and fifty inches.

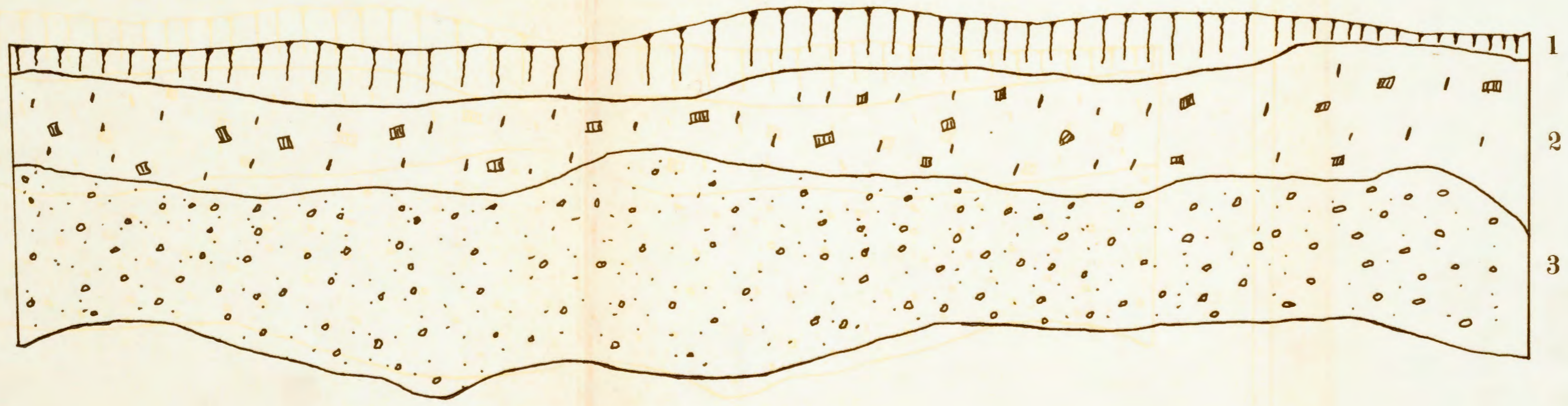
Before the departure of the Adventure from the site of Fort Defiance, all of the boards were taken off the building and all useful articles remaining there removed to the sloop. Some question

arises as to the fate of the blockhouse at that time. Although Haswell claims it was torn down, Hoskins states that only the boards were removed. Boit notes tersely that "In the morning we got the remainder of our affairs from the Shore" (Boit, 1941: 390). The tone of the last two statements would suggest perhaps that little drastic action was taken with regard to the building and that Haswell's remark may have been an overstatement, although his position as commander of the blockhouse and of the Adventure would strengthen the reliability of his assertion. In any case, the wooden structure of Fort Defiance has long since disappeared leaving little indication as to the exact nature of its architecture other than what can be gleaned from the historical records.

It is significant to note that only one presumed fireplace base has subsequently been discovered and, for that matter, in conjunction with this same foundation, only one pattern of bricks indicating the place where this chimney must have fallen. Haswell notes that a boat-load of bricks was removed from Fort Defiance to the Adventure to serve as ballast for the sloop. Since the remains of only one chimney have been located, Haswell may have ordered the dismantling of one of the chimneys to serve this purpose. This action would also lend support to his contention that the blockhouse was torn down before they left Adventure cove.

III. Site DhS1 1.

The site of Fort Defiance is located on a roughly level area, fronting on a gently sloping beach and facing westwards across a



- 1 Humus
- 2 Cultural material
- 3 Yellow-brown sandy gravel

Fort Defiance:
south wall of
square H12

scale: 1cm=20cm

small cove, approximately in the middle of which is a small, wooded island. The building was situated between a creek on its north side, and to the south, two branches of this stream and a shell mound representing prehistoric aboriginal occupation of the area. The large trees on the site are for the most part mature cedar and hemlock. None of these trees now exceeds ca. 24 inches in diameter unlike the trees with diameters of nearly 7 feet noted in the journals. Although the forest cover at the site does not date to the Fort Defiance period, there is no record, in living memory, of any major forest fire having occurred in the area, despite the presence of a great deal of charcoal in the stratigraphy of the site. Fires in that region are rare in any case owing to the extreme dampness of the climate there.

A more logical explanation for the disappearance of this large timber from the immediate site area would concern an analysis of the activity of the logging industry in the region. Only very generalized data are available with reference to this aspect of the history of the site. From December of 1911 to May of 1924, 639 acres of forest around site DhSl 1 were leased from the Crown by a Mr. W.H. Rich. No record has been preserved of what action was taken at that time to extract the timber growing there, however. On May 30, 1924, this licence was transferred to Messrs. J.B. Stone and P.Z. Horton who held it until December of 1934. Although no record of their activity at the cove is extant today, Mr. David Bond of Tofino recollects having logged in the area in the early 1930's as a boy with his father.

He states that, at the time, logs were skidded down to the sea by means of the creek, one branch of which, in the winter of 1791-92 presumably served as the water supply of the occupants of Fort Defiance. It seems certain, therefore, that trees were cut in the area of the site. The site itself, however, has not been logged^{recently} nor has there been disturbance caused by skidding or any contemporary occupation.

Some logging has taken place on the site since the American occupation of the area. The presence near the site of a now highly decomposed, sawn log of some forty inches in diameter and the stump from which it was cut nearby, is evidence in support of this contention. Although none of the excessively large trees noted by the diarists remains standing to this day, there are some trees in the immediate site area which are at least 170 years old. We may assume, possibly, that Haswell and the crew of the Columbia were responsible for much of the clearing of the site and that such logging as occurred in the region was generally limited to the higher areas behind the site.

The thick, characteristically west-coast undergrowth covering the site consists mainly of salal, ferns, and salmonberry. A layer of moss covers the ground. A coarse variety of grass grows close to the water's edge where it is flooded at high tide. Davidson's painting shows a similar form growing in the same area.

A small creek flows from the high ground behind the site. At a point some feet behind the proposed site of Fort Defiance, the stream divides into two channels. The larger of these two branches

flows close to the north side of the foundations of the blockhouse. During a period of rainfall this segment of the creek grows swollen with the runoff and becomes muddied. The southern channel (some 100 feet south of the site of the building) is not affected by this condition and remains clear. This channel likewise bifurcates before entering the sea. The third segment also remains clear during a rainfall or runoff period. The channel created by the second arm of the creek is of sufficient depth to warrant the conclusion that it was in existence during the occupation of the site.

According to all contemporary accounts, the winter of 1791-92 was an excessively wet season. For this reason and from present day observations of the main channel of the creek during such a wet period, it may be assumed that the "watering place" spoken of by Haswell was probably the smaller segment of the stream. It would be no less convenient for the occupants of the Fort to draw water at this place than at any other.

The beach at Adventure Cove consists of gravel and large cobbles. The beach forms a continuous shelf extending out into the cove. Ships of any large draught are thus prevented from coming close to the shore near to where the blockhouse was built.

IV. Rediscovery of the Site.

Efforts at locating Captain Grey's Adventure Cove and the site of Fort Defiance were first attempted in the year 1937 by the eminent New England historian, Samuel Eliot Morison, and Mr. Edmund

Hayes of Portland, Oregon (Morison, 1938). In a yacht belonging to Mr. Hayes, they undertook a survey of the south-west coast of Meares Island. A tentative location for Adventure Cove was placed on Meares Island almost due east of Tofino in the vicinity of Morpheus Island. No archaeological work was performed and time did not permit a closer examination of the area.

In the summer of 1966, Mr. Ken Gibson of Tofino re-opened the search for Adventure Cove. Armed with a copy of Davidson's painting, he searched the west coast of Meares Island in an attempt at locating a cove displaying characteristics similar to the area portrayed by the artist. His efforts and ultimate success have been well documented since that time (Hayes, 1967, McPhee, 1967, Fry, 1967). Mr. Gibson himself cleared away much of the undergrowth from the site area and attempted some small excavation on his own. He set about underwater exploration of the cove area as well, being successful in bringing up a number of clay bricks similar to those unearthed at the site.

Mr. William Folan of the Historic Sites Division of the Department of Indian Affairs and Northern Development, engaged in excavations at Friendly Cove, examined site DhS1 1 in 1967. He excavated a small area of the site and was successful in locating the pad of bricks and mortar described here as a fireplace base.

On the 8th of December, 1966, the area surrounding the site and adjoining cove were designated as an Archaeological Site under the Archaeological and Historic Sites Protection Act of the Province

of British Columbia. Preliminary excavations at site DhSl 1 were undertaken beginning in July of 1968. A period of nearly one month was spent at this task. Ten percent of the historic segment^{of the} site area was excavated, some 305 artifacts being collected. Excavation was carefully executed, utilizing standard archaeological techniques.

V. Archaeological Evidence Obtained.

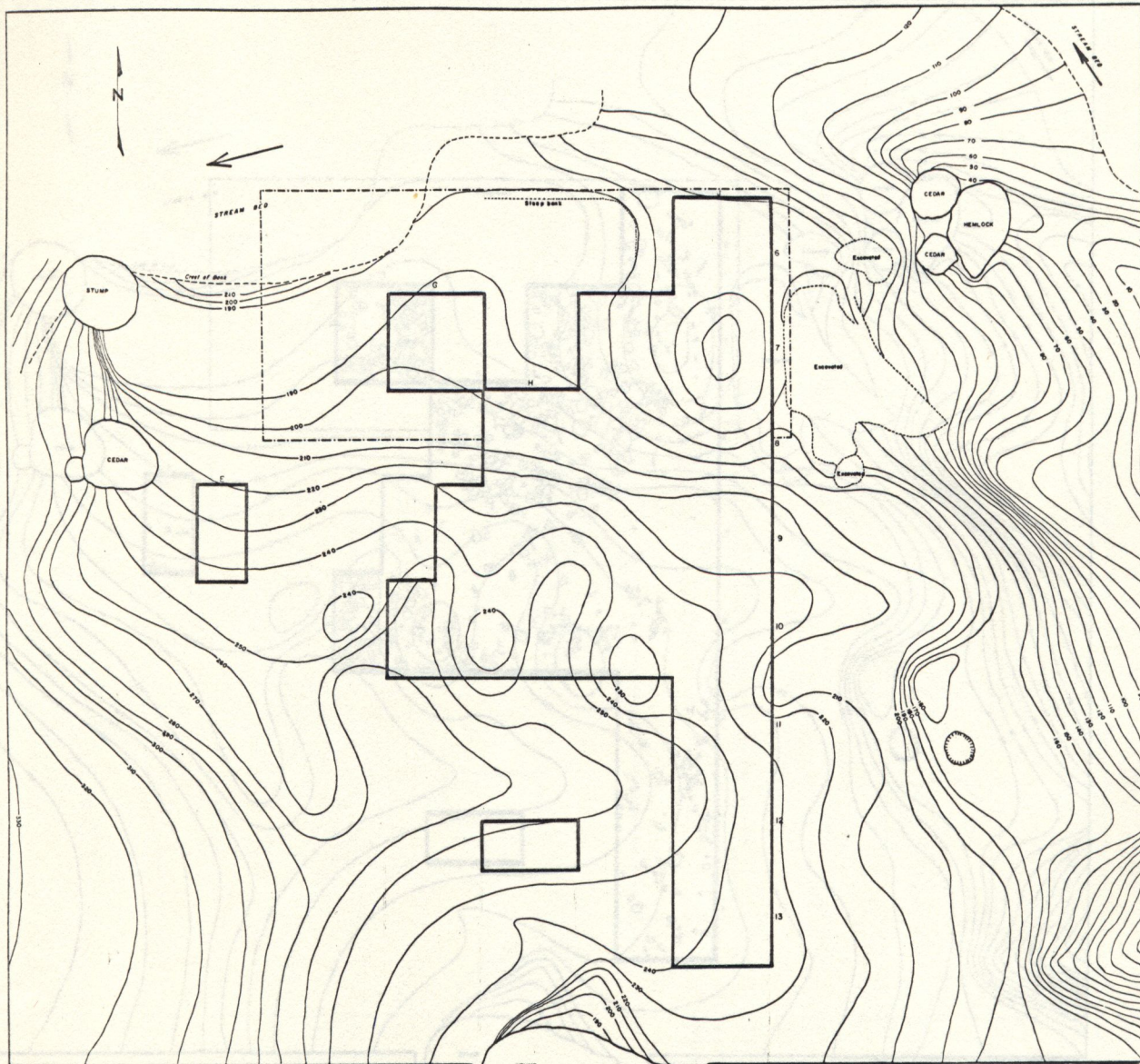
Excavation began in what appeared to be the most logically suitable location for the placement of a log house and an accompanying stocks-slipways complex, just south of the main branch of the creek, about 50 feet from the sea-shore. Difficulties would have arisen had Fort Defiance and the shipyard been constructed much farther south of this position. It would have been placed atop the shell heap located on the site (if this heap in fact predates the site), thus causing a number of problems to the shipbuilders in launching the sloop. Concentrations of loose brick on the surface of the site in its northerly region close to the creek argued for the commencement of excavation in that area. The specific location and east-west orientation of the blockhouse, shown in Davidson's drawing, gave support to the decision to begin excavation in this particular area.

The stratification of the Fort Defiance site consists of three generalized layers (fig. 1). The uppermost stratum consists of a layer of humus ca. 20 cm. thick. The second, and in this case, culture-bearing stratum, contained a mixture of sand, gravel, whole and broken brick, large cobble, cinders, clinkers, charcoal and artifactual

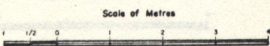
material (see Appendix I). The third and final stratum excavated consisted of a layer of sterile yellow-brown sandy gravel, containing no trace of any cultural material. The excavation was on the whole very shallow, in no case exceeding 42 cm. at which depth it was well beneath cultural material.

Excavation of the culture-bearing stratum laid bare an irregular pattern of large, water-worn cobbles, broken brick, and clinkers. At the northwest corner of square J8, a pad was found consisting of fourteen baked clay bricks joined with mortar. It seems reasonable to assume that this feature constitutes the foundation of some small brick structure, probably a fireplace. In this case, such a fireplace would have been one of the two constructed at the rear of the blockhouse. Excavation north and south of this brick pad to a distance in excess of the original width of the blockhouse (18 feet) failed, however, to locate any second such solid brick arrangement or fireplace base.

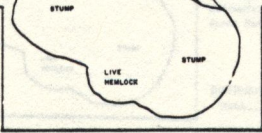
Approximately 4.4 metres south of the brick pad, a series of five low mounds were uncovered, roughly 1.6 metres in diameter, consisting of rough heaps of rock and broken brick. These mounds are 3 metres apart and may constitute either of two alternative features. They may mark the foundation of the south wall of the blockhouse, or, more probably, they may constitute supports for the stocks upon which the sloop Adventure was constructed. The east end of this structure is recorded as having been located 75 feet (23 metres) above the high-water mark. Such is not the case today,



**FORT DEFIANC
CLAYOQUOT SOUND, BRITISH COLUMBIA**



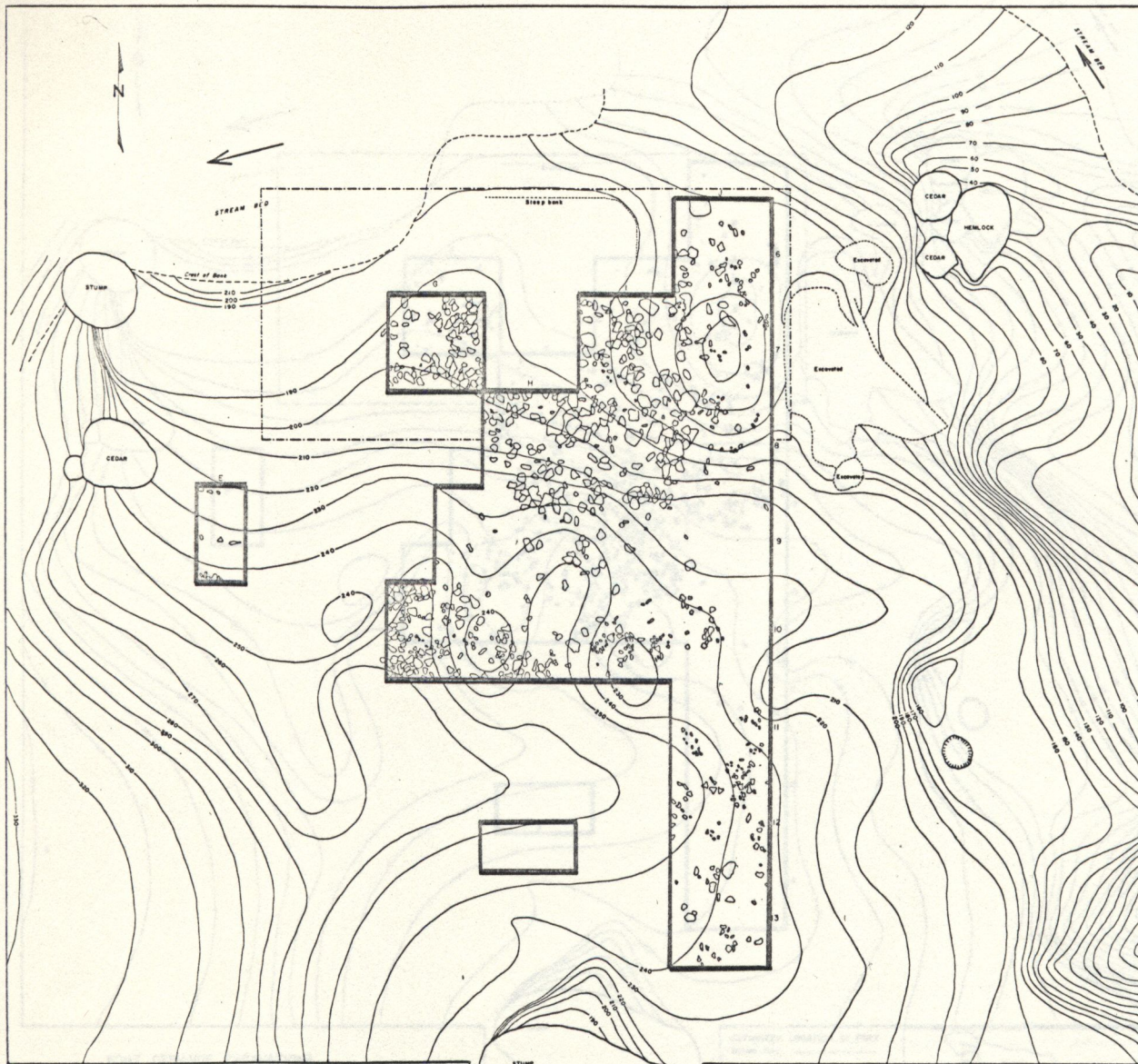
CONTOUR INTERVAL 10 m.
(measured below datum)



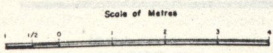
ESTIMATED LOCATION OF FORT
Shown Thus



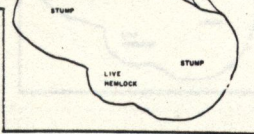
LOCATION OF
FORT DEFIANC
ON
VANCOUVER ISLAND
BRITISH COLUMBIA



**FORT DEFIANCE EXCAVATIONS
1968
CLAYOQUOT SOUND, BRITISH COLUMBIA**

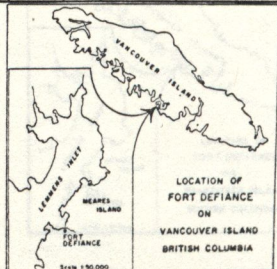


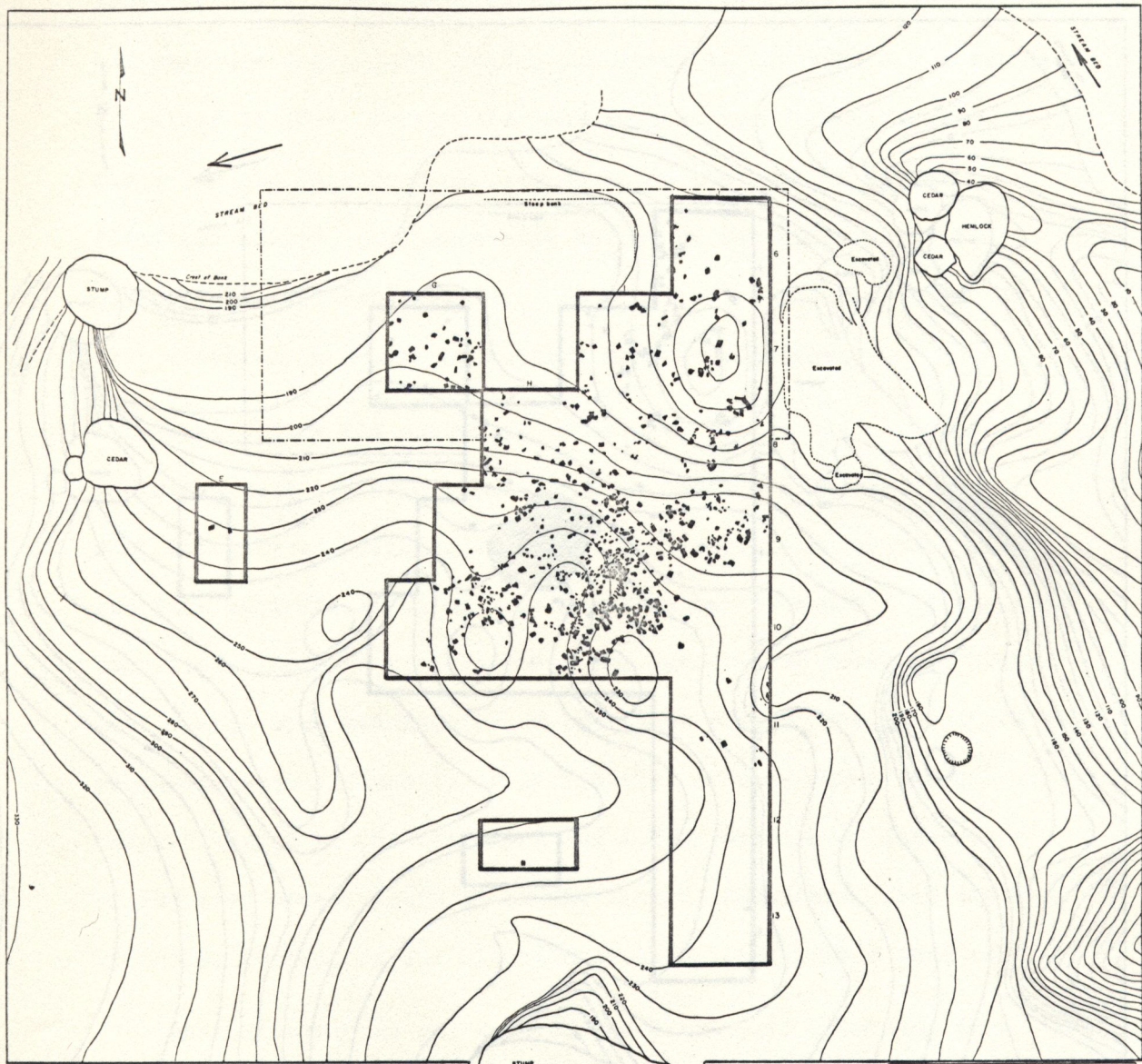
CONTOUR INTERVAL 10 cm.
(measured below datum)



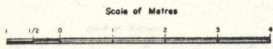
ESTIMATED LOCATION OF FORT
Shown thus

DISTRIBUTION OF ROCKS
Rock

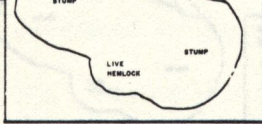




FORT DEFIANCE EXCAVATIONS
1968
CLAYOQUOT SOUND, BRITISH COLUMBIA



CONTOUR INTERVAL 10 cm.
(measured below datum)



ESTIMATED LOCATION OF FORT
Shown Thus -----

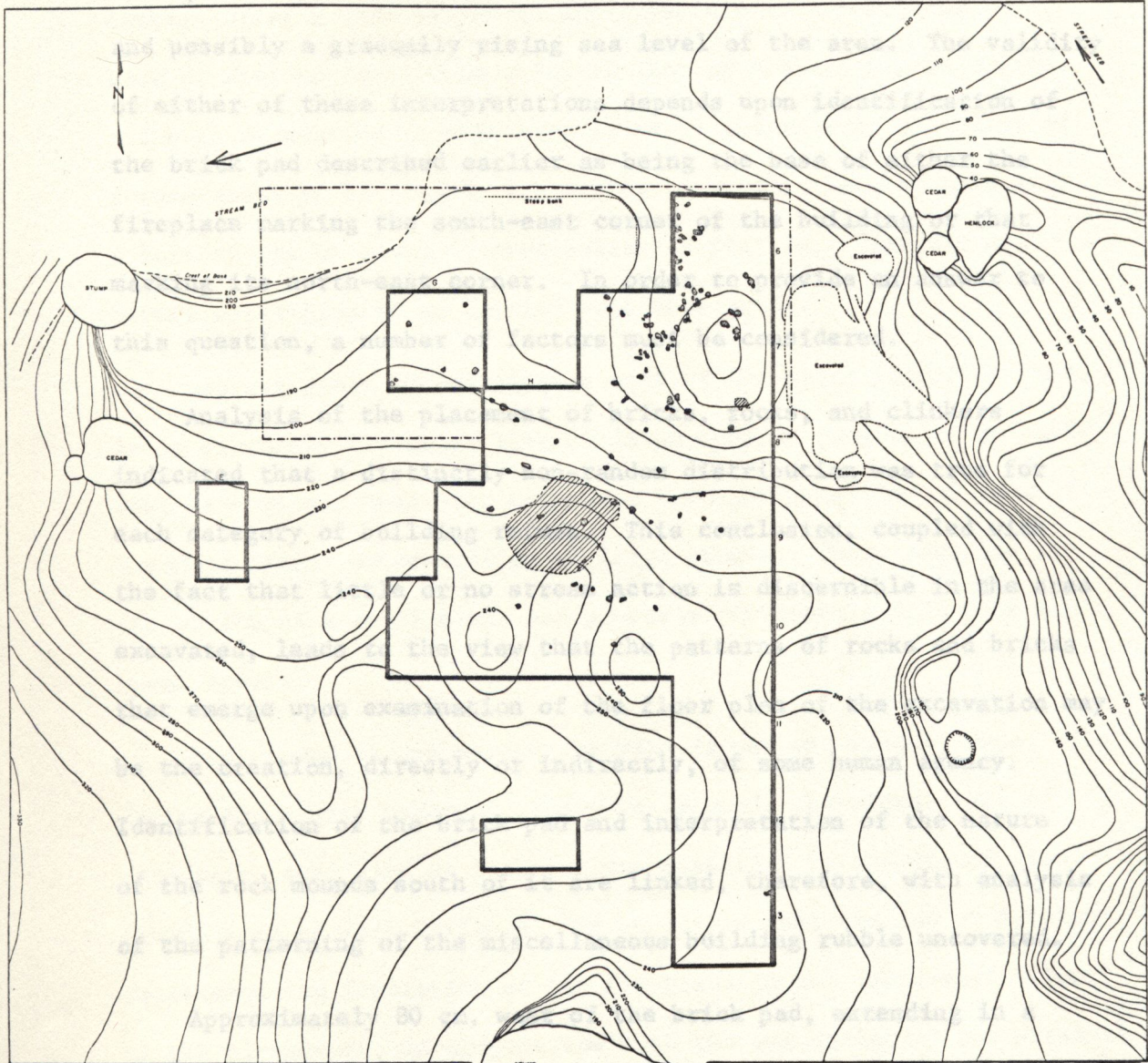
DISTRIBUTION OF BRICKS
Brick.....



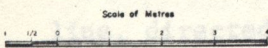
however, the distance from high tide to the east end of the building, parallel with the shore, is now only 15 metres. This difference no doubt is attributable to both an original inaccuracy in measurement

possibly a gradually rising sea level of the area. The possibility of either of these interpretations is not supported by the evidence of the brick pad described earlier.

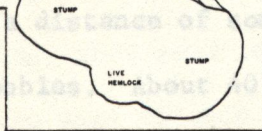
fireplace marking the south-east corner of the building. This question, whether or not the plan is a reconstruction of the original site, is not resolved by the plan.



FORT DEFIANCE EXCAVATIONS
 1968
 CLAYOQUOT SOUND, BRITISH COLUMBIA



CONTOUR INTERVAL 10 cm.
 (measured below datum)



ESTIMATED LOCATION OF FORT
 Shown thus - - - - -

DISTRIBUTION OF CLINKERS AND CLAY
 Clinker.....
 Clay.....



LOCATION OF FORT DEFIANCE ON VANCOUVER ISLAND BRITISH COLUMBIA

however, the distance from high tide to the east end of the building, parallel with the stocks, is now only 16 metres. This difference, no doubt, is attributable to both an original inaccuracy in measurement and possibly a gradually rising sea level of the area. The validity of either of these interpretations depends upon identification of the brick pad described earlier as being the base of either the fireplace marking the south-east corner of the building or that marking its north-east corner. In order to provide an answer to this question, a number of factors must be considered.

Analysis of the placement of bricks, rocks, and clinkers indicated that a distinctly non-random distribution was true for each category of building refuse. This conclusion, coupled with the fact that little or no stream action is discernible in the area excavated, leads to the view that the patterns of rocks and bricks that emerge upon examination of the floor plan of the excavation may be the creation, directly or indirectly, of some human agency. Identification of the brick pad and interpretation of the nature of the rock mounds south of it are linked, therefore, with analysis of the patterning of the miscellaneous building rubble uncovered.

Approximately 80 cm. west of the brick pad, extending in a northerly direction for a distance of some 5 metres is a roughly regular line of large cobbles. About 40 centimetres west of this line, directed along the same plane, is what appears to be a second line of large rocks, roughly 80 centimetres wide. Its entire length has not yet been fully excavated. Again, after a gap of some 40

centimetres, a further line of rocks of roughly the same width was uncovered, likewise running in a northerly direction towards the creek. After a further gap of approximately 40 centimetres, the base of what appears to be a fourth line of cobbles was uncovered. Although excavation in this area is still incomplete, this line of stones seems to be roughly 1.6 metres in width. West of this line, a further gap of about 40 centimetres is visible. Time did not permit excavation to be carried past this point.

Approximately 60 centimetres west of the brick fireplace base, is an extremely irregular line of large cobbles running in an east-west direction. Some 40 centimetres south of this line of rocks is a second linear concentration of large stones. These last lie at the bottom of a small slope and probably represent a fall from the upper level.

The ground on and around the site is wet and spongy, especially during the winter season. It may be assumed, therefore, that of necessity, some kind of flooring was essential to the ground-floor living area of Fort Defiance. If we assume that the pad of bricks represents the foundation of the fireplace in the south-east corner of the blockhouse, in conjunction with the assumption of the presence of a floor in the building, then some interpretation of the pattern of parallel lines of rocks west of this feature can be suggested.

If a flooring of wooden planks was utilized in Fort Defiance, then doubtless some means was necessary to provide support for the

eighteen foot lengths spanning the width of the building or, conversely, the probably longer segments running parallel to the north and south walls of the blockhouse. The length of these rows of cobble is roughly eighteen feet, the width of the building as recorded by Hoskins. These rows of stones alone possibly may have been used as support for the floor of the building. Conversely, and perhaps more reasonably, these transverse rows of stones may represent the efforts of the builders at scraping away a space (uniformly ca. 40 centimetres in width) in order to provide an area in which could be placed a sleeper beam upon which the wooden floor could be fastened. The cobbles are water-worn, however, and may have been carried from the creek nearby and laid in position. In conjunction with a complex of sleepers, these stones would have provided an extra support to the floor.

If this interpretation is correct, then a number of questions concerning identification of features in the site tentatively may be answered. The southern extent of the blockhouse would roughly be established along the lateral row of stones extending westward from the fireplace base. The fireplace base then becomes established as the approximate south-east corner of the building.

The mounds of rock to the south of the brick pad may then, with more certainty be regarded as the foundations upon which the sloop Adventure was constructed. Davidson's drawing shows this structure to have been placed parallel with the south wall of the blockhouse. The length of the row of mounds is only slightly in excess of the

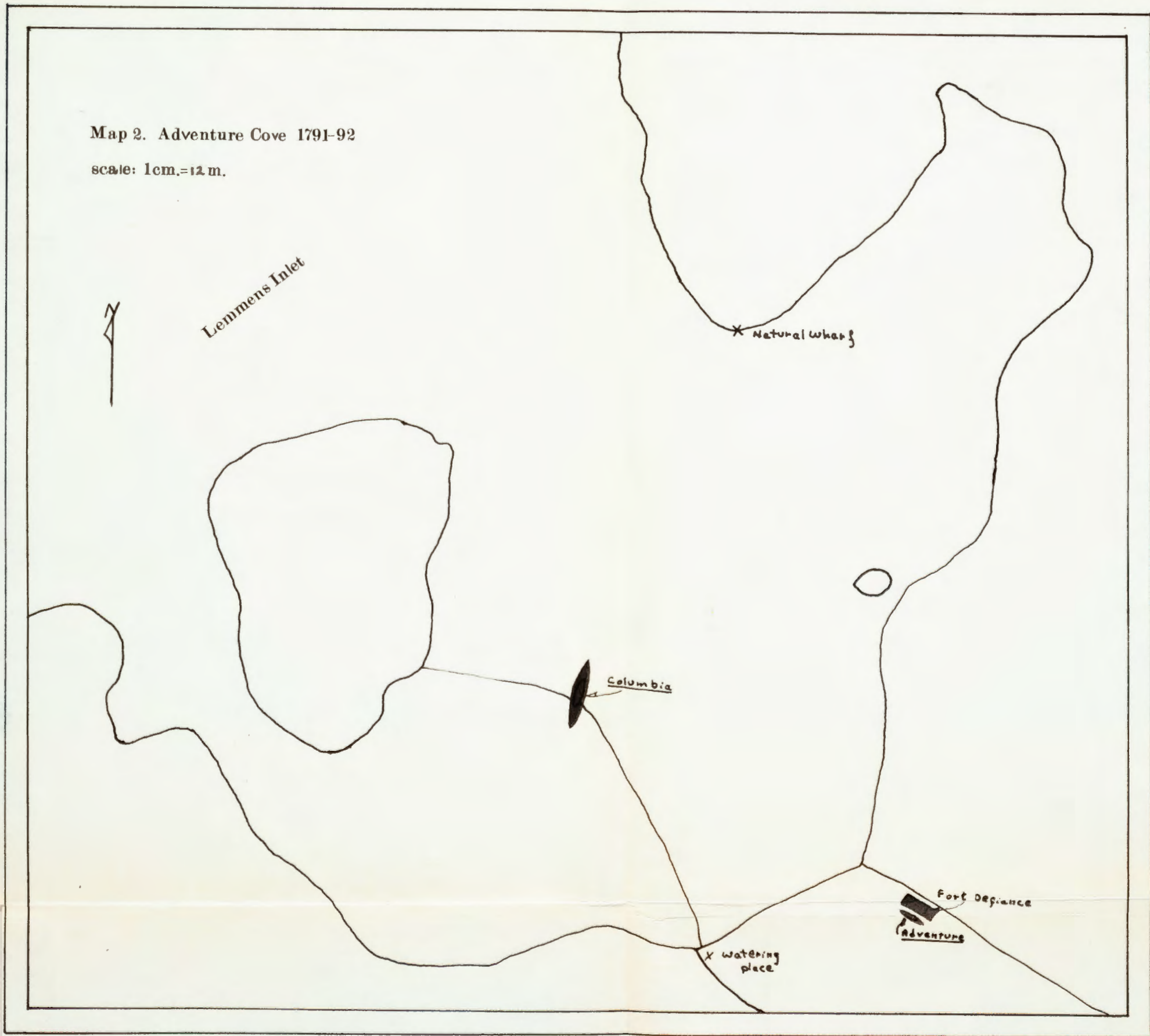
original length (36 feet) of the building. Since during the construction of the sloop, most of the weight of the ship would be concentrated in its keel, it would be essential to provide a secure foundation to the frame upon which it lay. The slipways leading from the stocks to the water's edge would not require this added foundation since they were provided with "bilgeways" supporting the sides of the ship, as Haswell mentions. This structure was in fact so crudely founded as to allow it to float at high tide. A large concentration of nails and other artifacts found in the area of the rocky mounds gives evidence for the presence of some construction activity in that area of the site. It may be suggested, therefore, that this feature does in fact represent the foundations upon which was placed the wooden structure serving as the stocks of the sloop Adventure during its construction.

The concentrations of bricks south of what we have described as the foundation of the south wall of the blockhouse, may represent the fallen superstructure of the fireplace chimney located at the south-east corner of the building. The main concentration of the fallen bricks is roughly fifteen feet in length, the same length as that of the chimneys calculated from Davidson's drawing relative to the size of the house. The chimney may have fallen in this south-westerly direction, scattering its bricks into their present position, or it may have been deliberately torn down either by the crew of the Adventure or by Indians of the area.

at present, difficult to be exact in interpretation of this particular

Map 2. Adventure Cove 1791-92

scale: 1cm.=12 m.



No fireplace base was uncovered in the area north of the brick pad in the area where the north chimney ought to have been placed. Nor, for that matter, has any large concentration of brick that might have been described as the remains of the fallen chimney been located. The creek, however, has been active in the area where this particular fireplace would have been placed. As mentioned earlier in this paper, the bricks from this north chimney may have been used as ballast for the Adventure. This matter poses a problem that must await further excavation of the building area before a suitable solution to it can be proposed.

Very few large stones were found in the area of the brick fireplace base, nor were there many in the area north to the proposed north wall of the house. It seems reasonable to suggest that the area around the fireplaces would be left unfloored thereby dispensing with the need for support for such a structure in the form either of wooden sleeper beams or creek cobbles.

Identification of the brick pad as specifically the foundation of the blacksmith's source of heat is further advanced by the presence of a large concentration of clinker material in square I7 to its north-west. Presumably the forge was separate from its source of heat in order to allow for the use of a bellows arrangement whereby heat from the fireplace could be intensified for use in the shaping of iron. This concentration of clinkers may have served as the catch-all area around the blacksmith's forge. It is, however, at present, difficult to be exact in interpretation of this particular

feature. Further excavation may suggest another direction of thought in this matter.

VI. Identification and Dating of the Site.

The principle problem of analysis of the excavations at site DhS1 1 concerns determination of the exact identity of the site as being either that of Fort Defiance or some other structure. This question can be approached from two directions, by establishing the existence of similarities between details of the local physical geography of the proposed Adventure Cove region with the features described in the journals and shown in Davidson's drawing, or by applying a date to the site through analysis of the artifactual assemblage. Since no record exists of any other permanent occupation ever having been situated at site DhS1 1, dating either from the eighteenth century or from any other period, the establishment of the artifactual assemblage as dating from that early period would place a seal of authenticity upon identification of the site as Gray's Adventure Cove.

The striking similarities between the general physical geography of the region and that shown in Davidson's drawing and painting have been thoroughly discussed elsewhere (Fry, 1966; Hayes, 1967; McPhee, 1967; Nicholson, 1966). In this regard, therefore, we may say no more other than to observe that the present day site of Adventure Cove resembles in almost every physical detail, the scene depicted by the ship's artist in his sketch of the area.

Useful historical data for verification of the site as being Adventure Cove concern the following aspects of the area, the beach, the anchoring points of the Columbia, and the "natural wharf". The beach area and its adjoining undersea shelf, although preventing a large ship from approaching the shore adjoining the building, would provide a depth of water suitable for a ship to be landed, its bottom examined at low tide and later refloated. Exactly such a graving process was undertaken with the Columbia (Hoskins, 1941: 268). It was hauled up on to the beach, the bottom of the ship being scraped and burned. The Columbia was later floated off at high tide, the process being repeated the next day.

A narrow channel of deep water separated this undersea shelf from a small island located in the middle of the cove. This channel forms the only safe passage through the cove for a ship of any large size. Had the Columbia been moored in a full view of Fort Defiance as Davidson indicates, it would have to have been anchored in this channel in close proximity to the island. The entrance to the cove, as today, was so small, says Boit, only 100 feet wide,

That when the ship was moored, you might throw a stone upon the beach in any direction (Boit, 1941: 381).

According to Haswell's account, they

moored with the sheet anchor to the NW in the mouth of the cove, the small bower cable clinched to a tree on the harbour island from the larboard quarter and a hawser from the starboard quarter to a tree nigh the watering place (Haswell, 1941: 304).

as would still be possible in the present day were the Columbia in existence to repeat her famous voyage.

Davidson's drawing shows a variety of lines extending from the Columbia. One, it appears, is attached to the transom of the Adventure, another to a rock just offshore. This rock is not at the present time visible in the immediate offshore area. A small submerged reef does, however, exist roughly in the area of this mooring rock and may be the same feature having been inundated by a gradually rising sea level. To the north-west of the site, close to the shore is a reef that remains exposed at all times, regardless of tide. This rock is not shown in Davidson's sketch. The artist shows a third line stretching from the starboard quarter of the Columbia back out of the picture presumably attached to the island as Haswell said. These few discrepancies between Haswell's account and Davidson's picture need not be cause for confusion however, since the drawing represents a different time of year, after which the Columbia had been moved on several occasions. In any case, there is a striking similarity between the 1791 anchoring place of the ship and the present day geography of the cove adjoining site DhS1 1.

On the northern shore of Adventure Cove, Davidson shows what appears to be a landing place and storage area. In his drawing, some logs or lumber, a number of large barrels, and two or three anchors are shown to have been placed at this point. The area seems to consist of a small cliff, its heavily wooded edge having been cleared to provide storage room for the objects shown to have

been placed there. This natural wharf is duplicated exactly in an area of the north shore of the present day Adventure Cove. At this end of the cove is a small rocky cliff (see plate I). It is obscured by vegetation but is covered in most places by only a bare minimum of soil or humus, much of the top of the cliff being bare rock. At high tide there is sufficient depth of water to allow as large a ship as the Columbia to approach this landing place (see also Haswell, 1941: 310).

A careful ground survey of this natural wharf area failed to come up with any evidence of human occupation. Excavation at this point is impossible, the ground being mostly solid, bare rock. Evidence of human activity in the area was recovered, however. A diver, working in the sea below the natural wharf, recovered a single clay brick, similar to those unearthed at the site of the building on the east shore of the cove.

From an historical and geographical point of view, therefore, verification of the identity of the area as being the Adventure Cove of Captain Gray and second voyage of the Columbia seems certain. Further evidence, collected archaeologically, may be offered in corroboration of this conclusion.

For purposes of dating the collection, the most important single artifactual element in the entire Fort Defiance assemblage is the large group of square-shanked, hand-wrought iron nails recovered from the area close to which the Adventure was constructed. Of concomitant importance in the task of applying a date to the site

is the large number of clay building bricks collected from the surface of the site and unearthed during excavation. Other classes of artifacts in the assemblage cannot with any degree of accuracy be utilized in the dating of the site. Apart from the important function of certain classes of the specimens in providing a date for the site, little can be concluded from the nature of the assemblage concerning the specifics of life at Fort Defiance.

Type specimens of the nail artifacts were sent for expert examination to Mr. Lee H. Nelson, an architect with the U.S. National Park Service at Philadelphia and specialist in the subject of using nails as a means for the dating of old buildings. Mr. Nelson was able to provide detailed information concerning identification of the classes of nails found in the Fort Defiance assemblage and stated definitely that all of the nails he examined were hand-wrought and not machine manufactured.

The presence of hand-wrought nails in the assemblage does not in itself lend a specific date to the site. Hand-wrought nails have been found in historic sites dating from the mid-nineteenth century (Caywood, 1955: 57) and possibly later. The significant point is, however, that only hand-wrought nails are found in the collection, no machine cut nails of any kind being present. The absence of any of the later types of cut nails would place the present collection in time at least prior to the year 1800.

Although machine cut nails were available in 1791 the machines were limited to small nails (ca. 1 1/2" or less). At that early date their use was limited to plaster lath or small trim... (Nelson, 1969: p.c.).

Cut nails of all sizes were not available in New England until at least the year 1796 (Mercer, 1924: 172).

...cut nails everywhere superseded the ancient wrought nail at the end of the eighteenth century, namely, not long after 1797, when two cut nail factories had been established in Philadelphia (Mercer, 1924: 173).

It seems reasonable to assume that had a venture such as the voyage of the Columbia been mounted after 1797, at least some cut nails would have been included in the cargo. As it is, none was found in the site. Although obviously the site cannot be dated specifically to a particular year by way of the nail artifacts, the total absence of cut nails, and the advanced state of corrosion and deterioration of the nails recovered would point to a early date.

The classes of nails recovered from the site seem to correspond with the types of nails listed in the cargo manifest of the Columbia. Although many of the technical terms used in describing the nail artifacts (Appendix I) do not appear in the ship's manifest, it must be remembered that the person preparing such a document could not be expected to be familiar with such technicalities (Nelson, p.c.). Two penny and ten penny nails were found in both the site and in the cargo manifest. The two sizes of "T-headed brads" collected may possibly be some of the "brads assorted" (Howay, 1941: 450) listed in the cargo manifest of the Columbia. One "round head dog nail" was collected. This may be one of the "200 round head nails" (Howay, 1941: 450) mentioned as being in the cargo of the Columbia.

Artifacts such as gunflints and cuttings from sheet lead, present in the collection, are specifically mentioned in the cargo manifest. Other parallels may be drawn between the presence of lead sprue fragments in the assemblage and shot-moulds in the cargo lists, between gunshot found in the site and the several references to shot found in the manifest, between lumps of clay not native to the site, and the item, four logsheads of clay listed as part of the cargo. At least one lump of very hard coal was collected. Six chaldron of sea coal were carried on board the Columbia. A few snippets of copper sheeting were recovered, related no doubt to the 267 sheets of copper listed in the cargo manifest. Even this only rough correspondence between the Fort Defiance assemblage and the cargo lists of the Columbia may be used as an argument in favour of identifying the site as that of the Adventure Cove of 1791.

Early in 1967, two of the bricks collected from the surface of the site were sent to Boston for examination by the Society for the Preservation of New England Antiquities. Mr. Abbot L. Cummings, Assistant Director of the Society, who examined one of the bricks, stated the following about it.

In the matter of size and general finish character, it is, in my opinion, a brick which can be dated to the late 18th or early 19th century. In other words, it has all the surface attributes of similar bricks in our architectural museum which can be dated to that period (Hayes, 1967: 108).

The brick examined by Mr. Cummings is in all respects similar to those unearthed at the Fort Defiance site. The same conclusions

can be drawn, it may be assumed, concerning those bricks as well. The presence of these more precisely dateable artifacts in the assemblage adds a degree of certainty to the rough date suggested for the nails.

Discussion in this section has served two purposes, to draw a series of parallels between aspects of the present day geography of site DhS1 1 and the Adventure Cove of 1791, and to show that the artifactual assemblage uncovered at the site and the human occupation that it represents can be dated to the late eighteenth century.

VII. Conclusion.

Preliminary excavation at the site of Fort Defiance has uncovered remains that, through a simple interpretative process, can be shown to resemble much of what is known of the ground floor plan of the blockhouse, both in location and in architecture. The site itself can be dated to the late eighteenth century and in physical aspect closely resembles the area described by the three diarists in their account of the winter spent there. Although excavation at the site is by no means complete, it seems reasonable at this time, to state that DhS1 1 is indeed the site of the Fort Defiance of Captain Robert Gray and the crew of the Columbia, built and occupied during the winter of 1791-92.

Map no. 2 indicates what at the present time appears to be the most appropriate location for Fort Defiance in the Adventure Cove area. Roughly forty percent of the ground floor area of the block-

house has been uncovered, a number of significant features of the building having been unearthed. The most important of these features is the foundation of the fireplace situated in the south-east corner of the structure. The rough foundation of the south wall of the building has likewise been exposed. The foundations of what must have been the floor of the building consisted apparently either of a series of parallel rows of water-worn cobbles spanning the width of the structure, or of a combination of this feature and a series of sleeper beams laid at irregular intervals along the same plane as the rows of rocks. Only the spaces that these beams may have occupied have been found. The planking which doubtless formed the floor of the blockhouse would, in that case, have run along the length of the building.

The blacksmith's forge tentatively may be placed in the south-east corner of the house, in the area of square I7, in conjunction with a relatively large concentration of clinker. The hammered end of a thick iron rod (artifact no. 281) was also found in this vicinity.

Some 3.8 metres south of what has been described as the outline of the south wall of the blockhouse are the foundations of the stocks upon which the sloop Adventure was built. These low mounds of rock form a line roughly 40 feet long, parallel to the length of the building.

Further investigation at the site must take the form of excavation of the remainder of the area of the building foundation and a search for the various other features of the Fort Defiance

complex. The position of structures such as the sawpits and the thatched shed behind the blockhouse, may possibly be traced from post-moulds marking their outline, although none of these last has as yet been found. A careful ground survey of the harbour island may prove to be of some value in determining if any activity took place there during the occupation of Fort Defiance.

Further excavation of historic sites on the Northwest Coast ought to be attempted with a view to establishing correspondence between strata found in these and aboriginal sites in order to determine the nature of the connections or relationships that may have existed between these two cultural groups. The extent to which the introduced material culture was present in the native system, and rough dates at which contact may have taken place initially possibly might be determined by such analysis. Excavation of Indian sites may serve to ascertain the extent which ownership of trade goods was dispersed throughout any particular settlement group, whether limited to a few more prosperous house sites, or spread throughout the community.

Excavations at the Indian villages of Opitsat, Clayoquot, Wickaninnish Island or at Okermina may be of some value in this matter. The limited, and rigidly defined occupation period of the Fort Defiance site would be of value in tracing the connections between the American settlement of the area and these villages with whom extensive contact took place. Specific elements of the intrusive material culture at these sites would be traceable to

the Fort Defiance assemblage. It cannot be assumed, however, that the presence in Indian sites of artifacts from this particular assemblage would be diagnostic of the period of occupation suggested for site DhS1 1. No doubt the relative abundance of these historic artifactual elements would diminish with succeeding time periods. Some of the material left behind by the crew of the Columbia could have been collected by the natives of the area for a considerable number of years following 1792. Comparative analysis of these historic and aboriginal sites would be of considerable anthropological interest. Further excavation of sites of this nature ought to be undertaken with this view in mind.

1. Metal

1. Iron

1. Nails

Square-shanked, hand-wrought iron nails comprise the largest part of the iron artifacts in the collection, some 94 nails, both whole and fragmentary being uncovered. Without exception they

APPENDIX IArtifactual Evidence.

In all some 305 artifacts were collected during the excavation of Fort Defiance. They consist mainly of building materials, building hardware, ammunition, and the waste material from the construction of the Adventure. The following description is an attempt at classifying the artifacts according to both composition and function. Within each class some effort at establishing a typology of variations within the group has been undertaken. Wherever possible dimensions have been given in the metric system. Those of the nails, gunflints, and musket shot have been given in the English system, it being the most commonly used system for artifacts of that nature. When excavation of the site has been completed, a much clearer picture of life at Fort Defiance is certain to emerge, if only from the point of view of providing material confirmation of the contemporary accounts of activity at Adventure Cove. Only artifacts of a more durable nature were recovered. Objects made of leather or wood, if left behind in 1792, have either not yet been uncovered or have perished.

I. MetalA. Iron.1. Nails:

Square-shanked, hand-wrought iron nails comprise the largest part of the iron artifacts in the collection, some 94 nails, both whole and fragmentary being uncovered. Without exception they

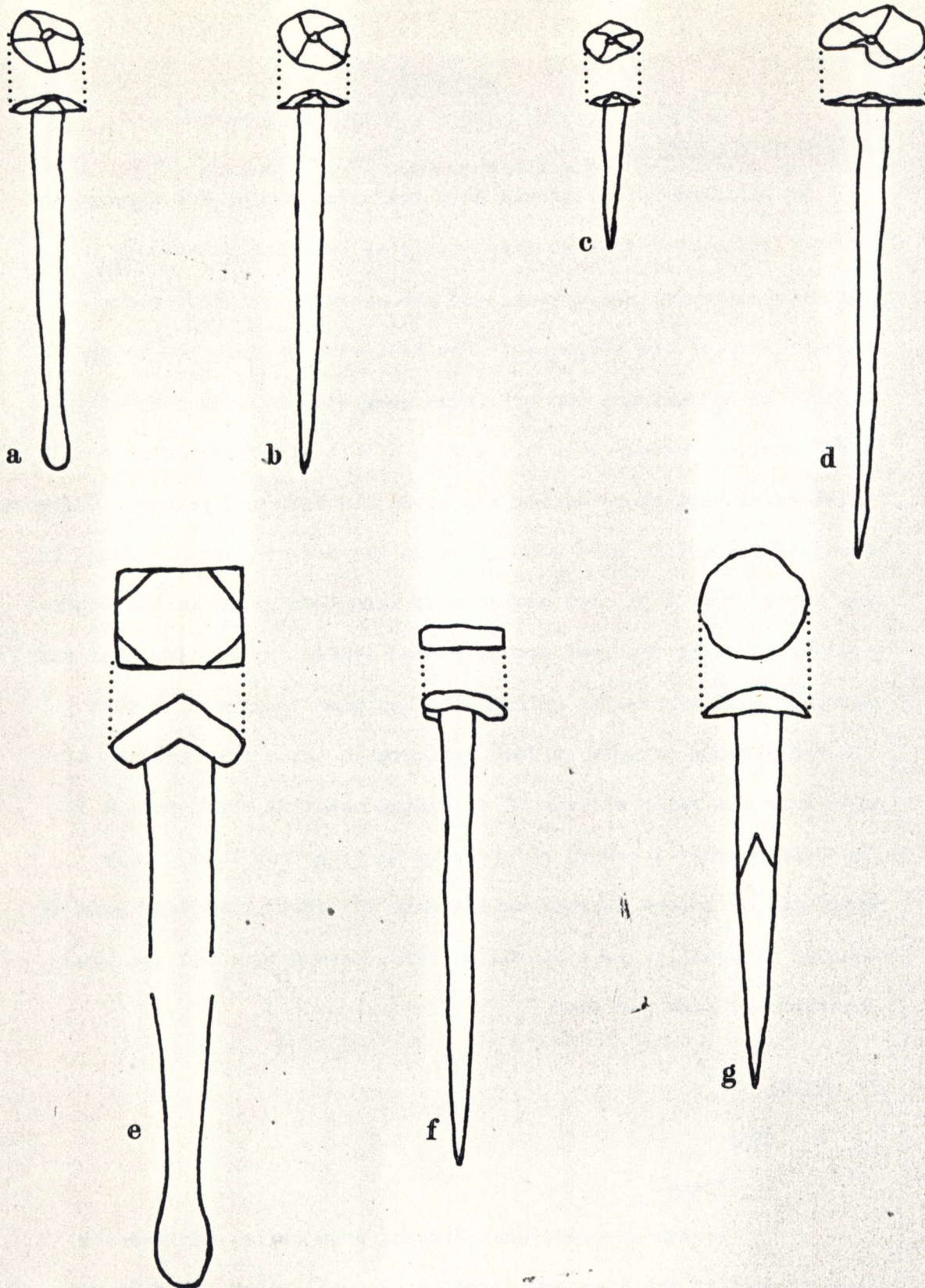


Figure 5. Type-Specimens of Handwrought Nails from the Site of Fort Defiance.

 in.

are all badly rusted, often to a degree at which it is no longer possible to recognize specific characteristics of the nail. Most of the nails have fragments of wood or charcoal as well as lumps of rusty concretion adhering to them. In some cases, the nail fragment is entirely encased in concretion, in others only the nail head or some area of the shank is affected. In almost every case deterioration of the nail has taken the form of a breakdown of the iron body of the nail leaving a fragile outer skin of iron as evidence of the original character of the artifact. The degree to which this corrosion is found among the nails varies from the few nails that remain basically solid iron to some that are now simply a rectangular tube of iron filled with rust.

Specific categories of nails are determined by differences in head shape, point shape and overall length.³ Since there are no cut nails in the assemblage, differences in method of manufacture may be disregarded. The terms used in the following typology are those most frequently encountered in the nail industry at the end of the eighteenth century.

The cross-section dimensions of the nails were measured at the junction of the head and shank of the nail. Shank length was measured from this junction to the point of the nail. Slight

³ Tables of the standard lengths of nails may be found in Blakelee's Industrial Cyclopaedia, New York, 1889, p. 26; and Knight's Mechanical Dictionary, Boston, 1872, vol. 2, p. 1505.

deviations from the given standard dimensions occur within the types but these variations may be attributed to corrosion or frequent manufacturing inaccuracy.

Nail Types:⁴

- a. Hand-wrought "spikes" with a "broad deck" head and "flat point": (fig. 5e)

Length: ca. 4½" (spike) (Blakelee, 1889: 26)
 Shank: ca. ½" x ½"
 Head: ca. ¾" x ¾"
 Number: 15 whole, 9 fragmentary

This type of nail was almost always made with a "flat point" (chisel-shaped but rounded at the end). It was generally used for rough framing. The term "broad deck" indicates that the corners of the nail-head were hammered down.

- b. Hand-wrought "rose head" nails (fig. 5a):

- i. with "flat point"

Length: ca. 2½" x 8 (8 penny)
 Shank: ca. 3/16" x ¼"
 Head: ca. 1/2" x 3/8"
 Number: one complete specimen

This type of nail was for general use rather than finish work.

- ii. with "sharp point" (fig. 5c)

a. Length: ca. 1" (2 penny)
 Shank: ca. 1/8" x 1/8"
 Head: ca. 3/8" x 5/16"
 Number: two complete specimens

Nails of this type were most often used for lathing in usual building construction.

b. Length: ca. 2½" (8 penny) (fig. 5b)
 Shank: 3/16" x ¼"
 Head: 5/8" x 3/8"
 Number: six complete specimens

c. Length: 3" (10 penny)
 Shank: ca. 3/16" x 3/8"
 Head: ca. 5/8" x 3/8"
 Number: four complete specimens

⁴I am indebted here to Mr. Lee H. Nelson, Architect with the U.S. National Park Service, for his identification of the type-specimen nails and his general comments on the subject of nails used here. Technical terms referring to characteristics or parts of a nail are enclosed in quotation marks.

Four artifacts (nos. 46, 68, 94, 221), although 10 penny "rose head" nails with "sharp points", represent a deviation from the usual "rose head" design. Their heads are thin and irregularly shaped. (fig. 5d). Both nos. 68 and 46 show signs of having been "clinched" (bent over) to prevent them from working out. In technical terms they can be referred to as "hinge nails". Their thin heads were often intended for hinges where one leaf was mounted behind a wooden casing. The two clinched specimens in this assemblage may have been used in the construction of "batten doors" (Isham, 1968: 3), the type probably used in the building. Batten doors were usually held together with clinched nails.

The assemblage contains fragments of twelve more "rose-head" nails. It is not possible to be accurate in estimating the original length of the nails owing to the similarity in shank dimensions of the two types. They cannot therefore be placed here in either of the two sizes of "rose head", "sharp point" nails. In each case the point of the nail is missing thus rendering impossible any distinction between "sharp point" and "flat point" nails of this type.

c. Hand-wrought "T-headed" "brads" with "sharp point" (fig. 5f)

- i. Length: ca. 2½" (8 penny)
- Shank: ca. 3/16" x 1/8"
- Head: ca. ½" x ¼"
- Number: one whole, one incomplete specimen.

Brads of this sort were most often used for lathing in usual building construction.

- ii. Length: ca. 3" (10 penny)
- Shank: ca. ¼" x ¼"
- Head: ca. 5/8" x 1/4"
- Number: one whole, one incomplete specimen

These specimens have heavy shanks for their length and appear to be crudely made.

d. Hand-wrought "round head", round shank, "flat point" nail (fig. 5g).

- Length: 2½" (8 penny)
- Shank: ca. ¼" in diameter
- Head: ca. 3/4" in diameter
- Number: one complete specimen

Although the first inch of the shank is round, the last 1½" of it have been squared. This nail is properly called a "dog nail" (Nelson, 1969; Knight, 1872: II, 1505). Made with "flat" or "sharp" points they were intended to go through a round hole in any iron device to secure the iron to wood. Nails of this type were sometimes called "jobent nails" (Nicholson, 1819: 386).

Twenty-nine further fragments of iron nails were collected. None of these is in a state of preservation which would allow for classification of the fragment into any of the four general classes described above. Most are encased entirely in rust or concretion obscuring all the diagnostic features of the nail, or consist only of the last half inch or so of the nail shank and point. All these points that are exposed are "sharp". The shank dimensions of these fragments do not exceed those of the smaller sizes of nails described earlier (from 1/8" to 5/8" on any one side of the shank).

2. Miscellaneous Iron Fragments:

Sixty-two miscellaneous fragments of iron were collected, none of which can be identified with any certainty as to its original character. The majority of the fragments consist of small flakes or lumps of iron ranging in length from 1 cm. to 6 cm. These particular specimens are rusted beyond recognition. Most have lumps of wood, gravel, broken brick, or concretion adhering to them, frequently encasing the entire artifact.

The cut-off ends of three iron bars were recovered. Number 281 measures 1.6 cm. long with a 1.9 cm. diameter. Number 8 is 2.4 cm. long with a ca. 1.3 cm. diameter. Number 245 is roughly square, being 1.7 cm. long and 1 cm. by 1 cm. in cross section. One thin iron bar (no. 145) was likewise recovered. It measures 8.2 cm. in length with a 0.5 cm. diameter. These and many of the other iron objects may have comprised refuse from the blacksmith's shop in the blockhouse.

Four iron rings (nos. 143, 162, 244, 250) (plate III) were collected. They were manufactured by folding a flat strip of iron until the outside edges met resulting in the formation of a tear-shaped passage. The length of the piece of iron forming the ring varies from 1.2 cm. (no. 244) to 1.8 cm. (no. 143). They are all badly corroded and encrusted with debris.

Two flat fragments (nos. 73, 74) of iron were recovered. Number 73 measures 8.7 cm. in length by 1.1 cm. and 2.7 cm. at opposite ends. This fragment is ca. 0.3 cm. thick and is badly warped. Number 74 measures 7.5 cm. in length by 1.5 cm. and 1.8 cm. at opposite ends. This specimen is 0.2 cm. thick. Both are heavily encrusted and of unknown character.

Artifact no. 119 is a small strip of iron measuring 1.7 cm. by 1.2 cm. and 0.9 cm. at opposite ends. It is 0.1 cm. thick and exhibits what appear to be round nail holes of ca. 0.3 cm. diameter at either end. The original function of this fragment is not known.

Artifact no. 259 is a roughly cube shaped fragment of iron. It measures 2.6 cm. by 1.7 cm. by 2.9 cm. It is heavily encrusted and is of unknown character.

Artifact no. 165 is a fragment of iron 2.9 cm. long, 1.1 cm. thick and tapering from 2.2 cm. to 1.5 cm. in width. The widest end flares from the body of the fragment into a semicircle, as, for example, does the posterior end of a gouge blade. The reverse side of the specimen has been roughly flattened along 2.2 cm. of its

length. The sides of the flared portion of the artifact form two, thin, sharp edges. This fragment may well have been part of a broken chisel or gouge.

A knife blade (11 cm. in length) including the core of its handle, 11.8 cm. long, (plate IV), was unearthed at the site, prior to the investigation reported here, in square J12 or 13, from a depth of 20 cm. There is no maker's mark anywhere on the specimen. It is in an extremely good state of preservation in comparison with all the other iron recovered at Fort Defiance. The threading at the end of the handle core remains uncorroded as does the blade itself. The bowie-knife shape of the blade belies its identification as part of the assemblage of 1791-2 since that particular knife design was not developed until the early nineteenth century (Russel, 1967: 194). This specimen represents probably an intrusion dating perhaps from the early days of the logging industry around Adventure Cove.

B. Copper:

Three fragments of thin copper sheeting (plate V) were collected, probably discarded trimmings, much crumpled and folded, from a larger sheet used in the construction of the Adventure. The largest fragment (no. 97) measures some 3.5 cm. by 2.5 cm. and is perforated at one edge by two small holes, the largest of which is no more than 0.5 cm. in diameter. Fragment no. 115 measures approximately 2 cm. by 1.5 cm. and is perforated by a number of small holes. There is no apparent pattern to the placement of these holes however. They have probably been caused merely by the effects of corrosion, as was doubtless the case for the holes in no. 97.

The third piece of copper (no. 96) is a roughly circular fragment approximately 1.5 cm. in diameter. It is perforated by a square hole, $\frac{1}{4}$ " by $\frac{3}{16}$ " in size, corresponding roughly to any of the smaller sizes of rose head nails or brads described earlier. The state of preservation of the copper is generally good apart from the usual green bloom of copper oxide, as is found on most corroded copper, and the few tiny holes noted previously.

C. Lead:

The lead found at Fort Defiance can be classified into three categories, fragments of waste lead, gunshot, and the clipped off stems (sprues) from a gunshot mould. The state of preservation of the lead is uniformly bad. In many cases it has deteriorated to the extent that the surface of a fragment is covered with a white bloom (lead oxide), the piece itself being extremely fragile and liable to crumbling.

1. Waste Lead:

A considerably large amount of waste lead was collected, all, it may be assumed, being the result of molten lead having been spilled during some casting process. Some eighty-four artifact numbers were assigned to the fragments recovered. The lead waste fragments ranged in weight from a small fraction of a gram to 126 grams (no. 17).

One of the 8 penny T-headed brads described earlier is encased in a lead spill. The largest fragment collected (no. 17), upon

close examination proved to have a number of small white feathers adhering to it. These last were in a remarkably good state of preservation considering the length of time they had lain buried.

Three other fragments appear to be cuttings from the edge of a larger sheet of lead. The smoothly cut or sheared edge along one side of each fragment gives evidence for this contention. The largest of these specimens measures 5 cm. by .75 cm. in size and a maximum of 0.25 cm. in thickness. The cargo manifest of the Columbia lists 134½ lbs. of "milled sheet lead" as being present in the ship. These three fragments no doubt represent part of that item before processing. One further lead fragment (no. 167) measuring 2.5 cm. x 0.6 cm., shows signs of having been beaten on one surface. The reason for this phenomenon is not immediately discernible.

2. Gunshot:

Four separate musket balls were collected (plate VI) as well as three gunshot of very small size still attached together by a common sprue.

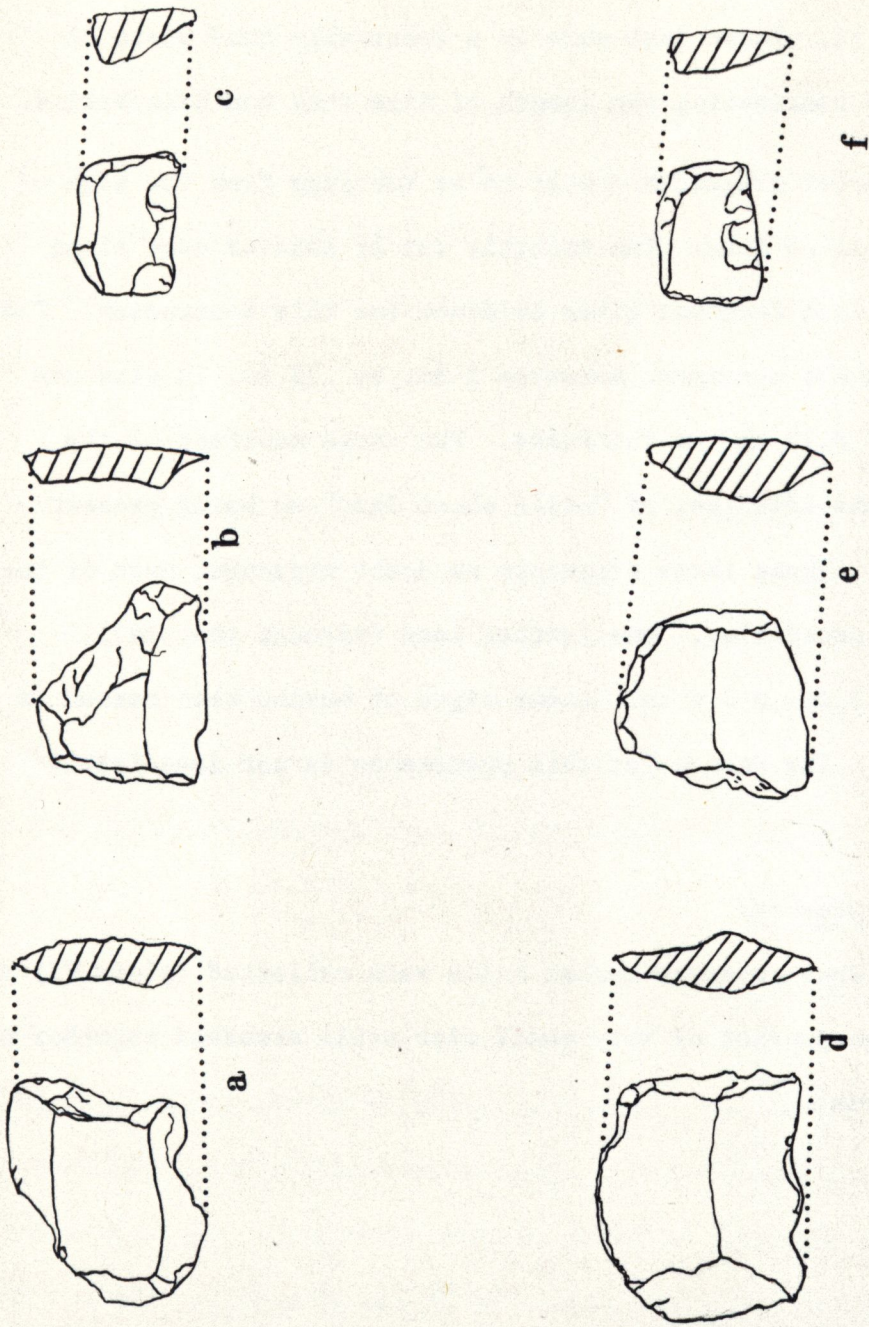


Figure 6. Gunflints from the site of Fort Defiance (DhSI 1)

CM

Musket Balls from the Fort Defiance Site

<u>Artifact number</u>	<u>Diameter (.000")</u>	<u>Weight (grains)</u>	<u>Remarks</u>
No. 247	.028"	8.95	Three dust shot attached by a common sprue, unfired.
No. 253	.346" (mean)	65.58	Flat cut sprue, cast in poorly fitting mould, slightly deformed but apparently unfired, small casting hole, surface pitted and corroded a "lead ball" (Webster's Dict. "shot").
No. 256	.346" (mean)	66.35	irregularly cut sprue, probably fired, one face slightly flattened by impact, surface pitted and corroded, knife marks on surface, a "lead ball" (Webster)
No. 263	.314"	41.72	cut sprue, cast in poorly fitting mould, slightly deformed but apparently unfired, surface pitted and corroded, buckshot (Russel, 1957: 235).
No. 284	.314"	39.66	cut sprue, surface, badly pitted and corroded, apparently unfired, buckshot (Russel, 1957: 235).

3. Sprue Fragments:

Five sprue or sullage-piece fragments (plate VIII) were collected. Two of these (nos. 57, 291) exhibit a continuous series of stems. Fragment no. 175 consists of only two of these stems and is similar in size to the mould waste seen in artifact no. 247 (plate VIII). Artifact no. 130 shows only one of these connections. The gunshot cast in these moulds was extremely small, of the size no doubt of no. 247 (see above table). Fragment no. 200, however, exhibits a sprue from which was cut a musket ball much in excess of the size of nos. 253 and 256 (see above table).

II. Flint

Gunflints:

Six gunflints were collected from the excavation (fig. 6).

Apart from these whole or nearly whole flints, five small flakes were recovered as well. These last no doubt represent some attempt at sharpening or refashioning used flints and range in diameter from 0.4 cm. to 1.2 cm. The gunflints are probably of French manufacture, exhibiting the rounded, retouched ("gnawed") heels of the French shape (Caldwell, 1960: 187).

Only one of the gunflints (no. 212) retains its original colour, an opaque light milky grey. The other five flints have all been subject to intense heat, and as a result, have altered both in consistency and colour (Dolomieu, 1960: 54). Three of the flints (nos. 70, 113, 122) are badly damaged, a large proportion of each having been broken away. The terminology utilized in the following description is that generally accepted for the various analogous parts of the English gunflint (Clarke, 1935: 55).

No. 70: 1 1/16" x 7/8"; 1/8" thick at the heel (fig. 6b); of an opaque milky white colour; very brittle having been subject to heat; the edge is chipped and the right corner of the heel has been broken away.

No. 113: 1 5/16" x 1 1/16"; 1/8" thick at the heel (fig. 6a); of an opaque grey white colour; surface crackled; very brittle having been subject to heat; both sides of the flint, the edge and the heel are much broken.

No. 116: 3/4" x 1/2"; 1/4" thick at the heel (fig. 6f); of an opaque grey white colour; very brittle having been subject to heat; a pocket pistol flint showing signs of having been crudely resharpened, otherwise intact.

- No. 122: 15/16" x (1"); narrows from 5/16" to the mid rib to ca. 1/8" thick at the heel (fig. 6e); of an opaque grey white colour, surface crackled; the flint very brittle having been subject to heat; the entire left side of the flint has been broken away.
- No. 212: 3/4" x 1/2"; 1/4" thick at the heel (fig. 6c); of an opaque milky grey colour; no signs of its having been subject to heat; a pocket pistol flint showing signs of having been crudely resharpened, otherwise intact.
- No. 252: 1 1/4" x 1 1/8"; narrows from 3/16" at the mid rib to 1/16" at the heel (fig. 6d); of an opaque grey colour; very brittle having been subject to heat; crudely manufactured; badly chipped at the edge. (5)

III. Glass.

One irregularly shaped fragment of yellow-green glass, measuring approximately 3 cm. by 1.5 cm., was collected (plate V). A curve at one edge of the glass fragment forming a rounded right angle would indicate that it was originally part of a thin walled vessel. The vessel itself may have been a bottle of the "case" variety, the body of such a bottle being square or rectangular in shape. The glass itself shows no sign of decay or deterioration and is in a remarkably good state of preservation.

IV. Wood.

Two knots of wood (nos. 47, 48) were collected from a depth of .2 m. below the surface in the culture bearing stratum of the site. They are slightly charred and show signs of adze or axe cuts at their thickest extremities (plate IX). They may have been part of a barked

⁵A flint closely resembling this specimen is illustrated in Walter Johnson's Folk Memory and described there as an "Old English strike-a-light" (Johnson, 1908:191). Final identification of this flint must await further investigation.

and roughly squared timber, such as were used to construct the walls of the blockhouse.

They may well date from the period of American occupation at Adventure Cove, since one rectangular fragment of wood measuring 9.5 cm. by 4.5 cm. was likewise recovered. It is badly charred, very fragile, and of unknown character.

V. Bone.

Only a few small fragments of bone were collected, ranging in size from 0.2 cm. x 0.2 cm. to 5 cm. x 3 cm. Included in the assemblage are one small fragment of bird bone (1 cm. long) and two fragments of rib bone from a large game animal, presumably a deer in this case. One tiny fragment of calcined bone (no. 149) was recovered. The bone is uniformly badly preserved and is in a state of disintegration.

VI. Brick.

Some 1009 whole and broken bricks were collected from below the surface of the site. Prior to the excavation a large, undetermined number was collected from the surface of the site where they were scattered. The bricks are roughly manufactured and in size and shape resemble the type of brick used in New England during the late eighteenth century and early nineteenth century (Hayes, 1967: 108). A typical specimen of the bricks measured 6.7 cm. by 14.5 cm. by 3.5 cm. (plate XI). One fragment of brick (no. 283) exhibits what appears to be traces of mortar adhering to it, part no doubt of the fireplaces or chimneys of the blockhouse.

VII. Clinkers and Cinders.

Three hundred and fifteen fragments of clinker were recovered from the excavation. These probably find their origin in the blacksmith's forge at the Blockhouse. Only one piece of coal cinder was collected. A substantial amount of coal was carried on board the Columbia, most of it, no doubt, being burned at Adventure Cove. One fragment of iron slag (no. 12) was collected, measuring ca. 3 cm. x 2.5 cm. This object too is probably part of the refuse of the blacksmith's shop.

VIII. Miscellaneous.

Two ground stone (slate or siltstone) rods (nos. 108, 278) (plate XI) were collected, measuring respectively 3.2 cm. x .6 (diameter), and 2.25 cm. x .6 cm. (diameter). The body of the specimens is grey-brown in colour and is quite soft in consistency. Each exhibits a series of flat sides, presumably the result of the rod having been ground down on another surface. The ends of no. 108 have likewise been crudely rounded. These artifacts may be tentatively identified as pencils used in writing on a piece of slate. At this point however, the exact nature of the composition and function of the two specimens has not as yet been determined.

APPENDIX IIBoston Merchants

The following is an attempt at identification of the merchants, who in 1790, were partly responsible for supplying the cargo carried by the Columbia on her second voyage to the Northwest Coast. The names of these men were taken from the cargo manifest of the ship (Howay, 1941) and located further in the Boston City Directory of roughly the same period. These merchants dealt mainly in hardware and nails with the exception of one who sold bricks to the expedition. I am indebted here to Mrs. B.C. McMillen and Mrs. G.F. Borden, both of the Reference Department of the Library of the Boston Athenaeum, for their assistance in this small project.

This information may be used, conceivably, in further research into the artifactual assemblage of the Fort Defiance site, particularly from the point of view of determining the place of manufacture, whether local or foreign, of such important elements of the collection as the nails.

1. John Andrews (Howay, 1941: 448, 450, 457, 462): In 1796 he is listed in the Directory as "John Andrews, hardware, No. 4 Union St., house Common St."; in 1798 as "Blacksmith High St."; and in 1800 as "hardware merchant" at the 1796 address. Andrews sold most of the nails to the expedition as well as the majority of the tools and hardware carried on board. He supplied also 107 pieces of American Duck, possibly material for the sails of the Adventure or for sailor's clothing.

This John Andrews, judging from his occupation, address and family connections, is the same Andrews, an observer of the "Siege of Boston" during the American Revolution, whose letters were published in the Proceedings of Massachusetts Historical Society for 1865. An interesting sidelight concerning his connection to the second voyage of the Columbia may be traced in his relationship to Joseph Barrell, the senior partner in the financing of the expedition. William Barrell, who died in 1778, to whom Andrews' published letters were addressed, was the elder brother of Joseph Barrell (Proceedings, 1865: 318) and brother-in-law of John Andrews. No doubt some relation may be traced between this close family connection and the proportionately large amount of business transacted between Andrews and the outfitters of the expedition.

2. S. Fales (Howay, 1941: 462): Stephen Fales is listed in the Directory for 1796 as a merchant, house No. 4, Church Square, Cornhill. The 1798 entry is the same except that the house number is 3. There is no listing for Stephen Fales in 1800, but Fales & Keith, shopkeepers, No. 18 Cornhill, and Fales & Athearn, merchants, N. Spear's wharf are given. In 1803, Stephen Fales once again appeared as shopkeeper, No. 66 State Street, house on Cole Lane. Fales sold several thousand 20 penny nails to the expedition.

3. Benjamin Greene, Jr. (Howay, 1841: 454, 460): Greene is listed in the Boston Directories for 1796, 1798, 1800 and 1803 as merchant, house on Orange Street. He sold a considerable quantity of nails to the outfitters of the voyage as well as sixty barrels of pork and a large quantity of clothing.

4. E. Morse (Howay, 1941: 452): The only E. Morse listed in the Directory for this period is Eliakim Morse, druggist and grocer, No. 6, Dock Square, in the year 1796. In 1798, 1800, and 1803, the address remains the same although his occupation is listed as merchant and druggist. Morse supplied the 5470 bricks carried on board the Columbia.

5. T. Newell (Howay, 1941: 463): This is probably Timothy Newell, esq., house on Cambridge Street listed in the Boston Directory for 1796. The entry for 1798 gives the home address as Bowdoin Square. He is not listed in 1800, but Mrs. Mary Newell is given as living in Bowdoin Square, Cambridge Street. This Mrs. Newell is probably Timothy's widow (Borden, p.c.). Newell supplied a cask of ten penny nails to the ship as well as eight muskets at 26 shillings and sixpence apiece.

6. Samuel Whitwell (Howay, 1941: 452, 459): Samuel Whitwell's listing is simply Samuel Whitwell esq., No. 11 Cornhill. In 1803 his occupation is listed as hardware, Union Street and his house on Elm Street. Among other things, Whitwell supplied to the expedition, five hundred four penny nails and the blacksmith's bellows.

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Plate I. Natural Wharf, Adventure Cove



Plate II. Mounds of rock which served as foundations for the stocks upon which the Adventure was built.



Plate III. Miscellaneous Iron Fragments



Plate IV. Knife, unearthed prior to excavation.

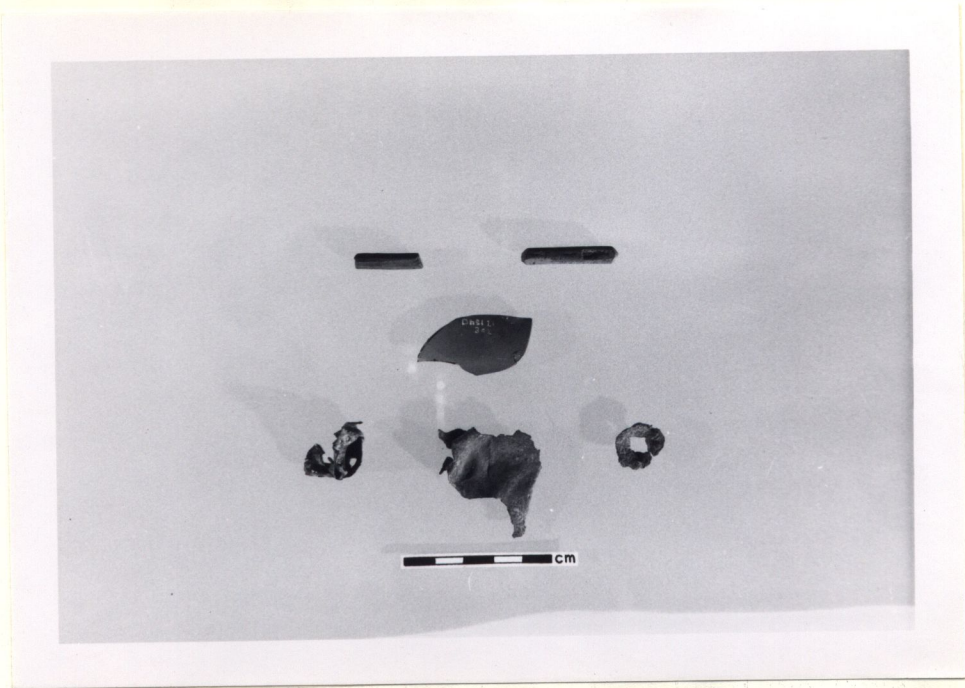


Plate V. Fragments of Copper and Glass.

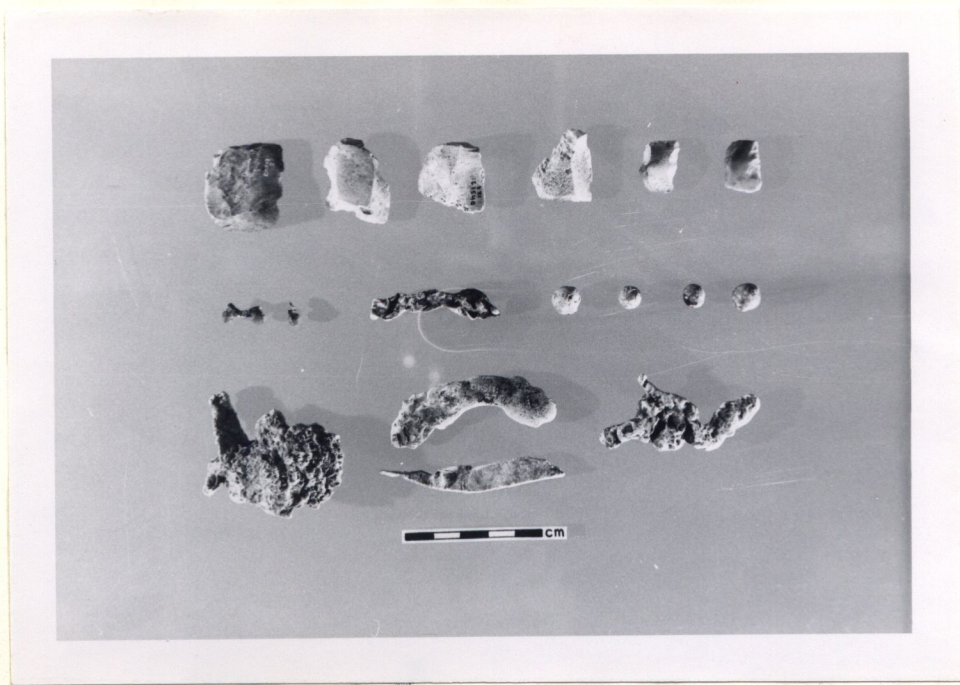


Plate VI. Gunflints, musket balls, and waste lead.

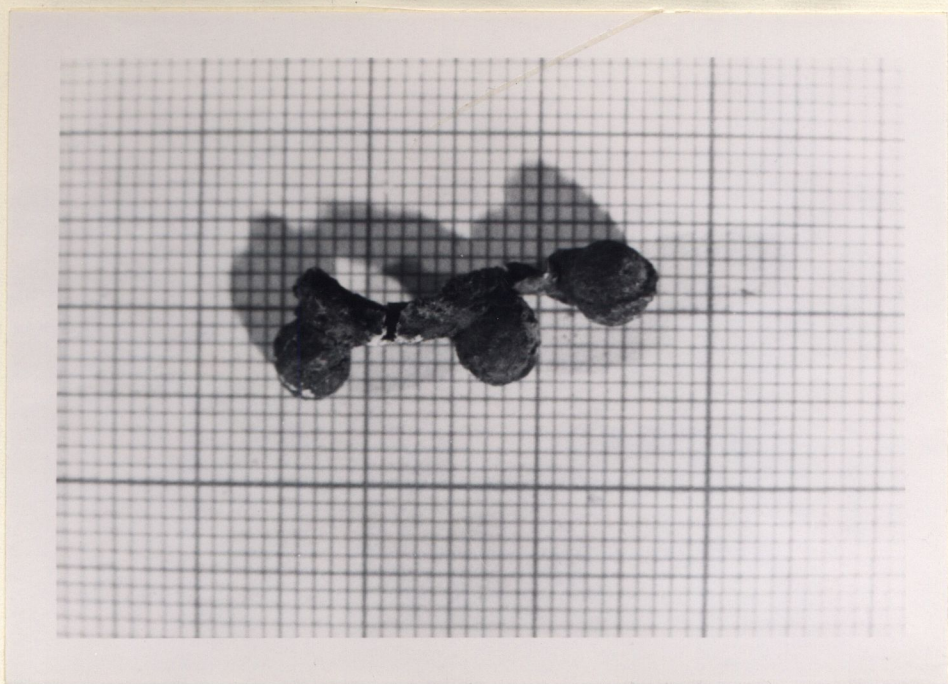


Plate VII. Artifact no. 247, three shot attached by a common sprue.

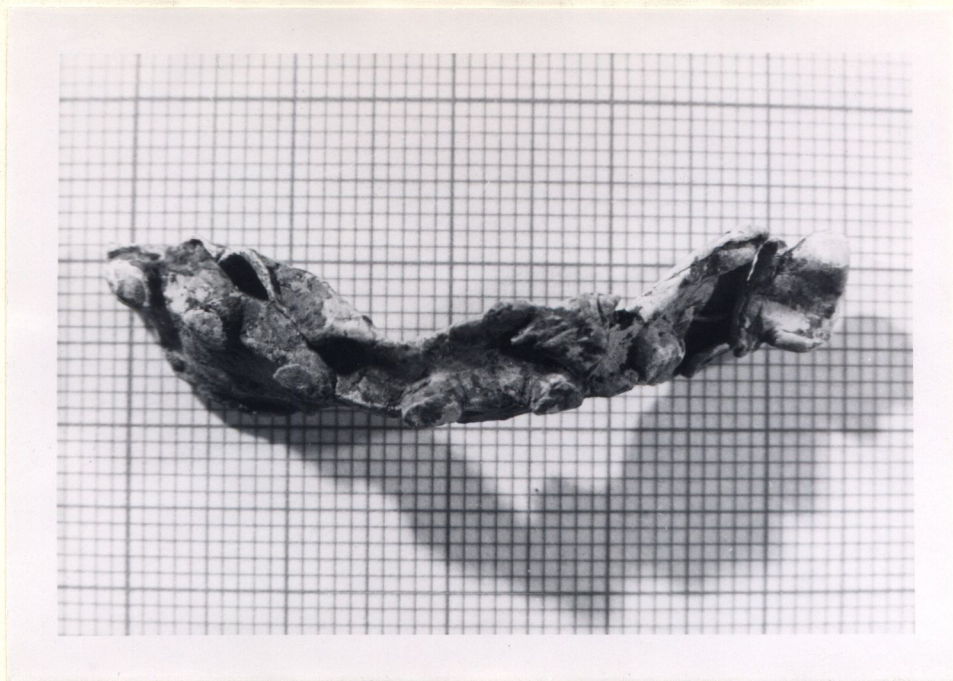


Plate VIII. Sprue Fragment



Plate IX. Knot of wood, showing axe or adze cuts.



Plate X. Brick, typical of those found at Fort Defiance.

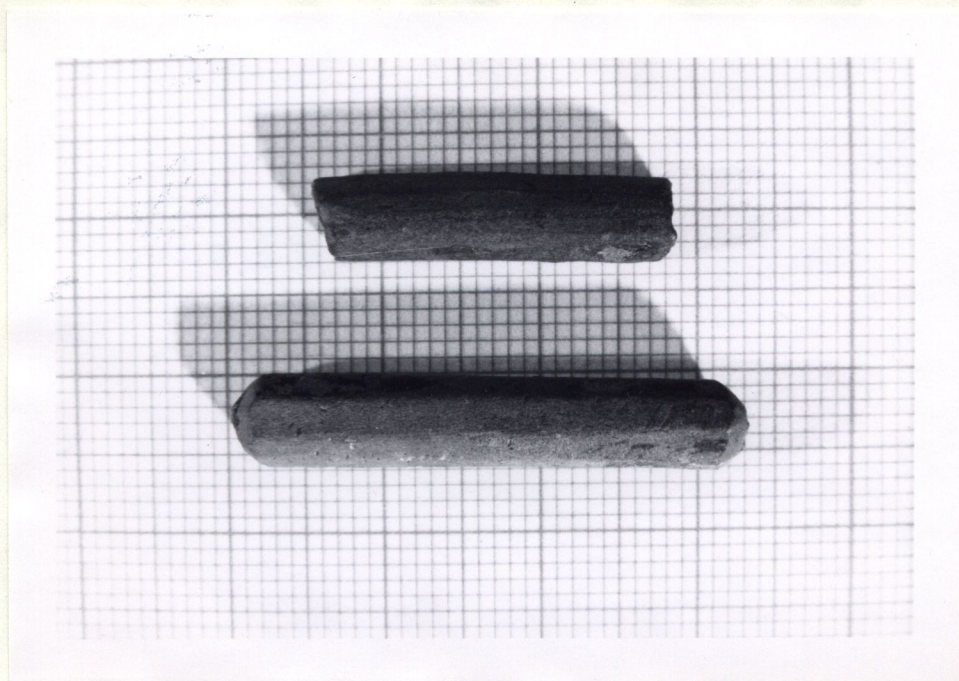


Plate XI. Slate Pencils.



Plate XII. Fireplace base.