



Courtesy Fort Vancouver Historical Society.

The Hudson's Bay Company's flag used at Fort Vancouver.

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EXPLORATORY EXCAVATIONS

AT

FORT VANCOUVER

by

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Archeologist



Department of the Interior
National Park Service
Region Four

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PREFACE

Archeological explorations at the site of the Hudson's Bay Company post of Fort Vancouver have demonstrated a procedure and a technique which should become standard for historical areas of the West. By means of full documentary research followed by expert archeological excavations, one of the great historic sites of the Northwest has been located after years of uncertainty as to its exact location. Research of this kind is fundamental, if the vestiges of our past are to be saved. In addition to knowledge gained, such a procedure helps to interpret the area to the public. Problems of preservation and land acquisition for that preservation are also facilitated.

The Fort Vancouver studies, although important, are not wholly unique. Similar techniques have been crystalized in other parts of our nation. Jamestown in Virginia, Fort Raleigh in North Carolina, La Purisima Mission, Monterey, and Sutter's Mill in California, and Whitman Mission in Washington, among others, have pointed the way for the development of the science of historical archeology in the United States. That recognition of this field on a larger scale is to be expected is indicated in the growing number of historical areas being preserved by private, local, state, and federal authorities. Each of these areas has problems common to those encountered at Fort Vancouver. The difference between sites lies largely, perhaps, in type and the degree to which the fundamental procedure of historical archeology is followed. All are dependent upon the documentary materials on hand; and each is limited by the funds and personnel available to do the needed research and excavations.

It is hoped that the Fort Vancouver archeological excavations will help to stimulate the people of the West to preserve the concrete examples of their past, as evidenced in this site and others. Awareness of the value of these sites for inspirational and sentimental reasons is important, if they are to be enjoyed by other generations than our own. That action must be taken immediately to preserve them is apparent in the increasing impact of population on the West. Almost every important historic site of the Pacific Coast is threatened to some degree by the progress and expansion of our industrial age. Fort Vancouver is no exception. Its stockade lies largely within the boundaries of a modern airfield. Dams, highways, new houses and factories, and many other activities threaten others. If, through our development of historical archeology, we are able to save some of our outstanding historical areas, our efforts will not be wasted.

The people of Washington and Oregon, who have done so much to encourage the preservation of the site of Fort Vancouver, deserve special credit for the part they have played in the gathering of documentary evidence and excavations on the site. The City of Vancouver, the historical and patriotic societies of Washington and Oregon, the United States Army, the representatives of the people in local, state, and federal authority, and the many others who have worked for its preservation, all are owed a debt of gratitude. To Dr. John A. Hussey, who has spent long hours in the research of historical documents, and to Louis R. Caywood, who has supervised the archeological excavations, we express our thanks for a "job well done".

National Park Service
San Francisco, California
December 18, 1947

Aubrey Neasham
Regional Historian

INTRODUCTION

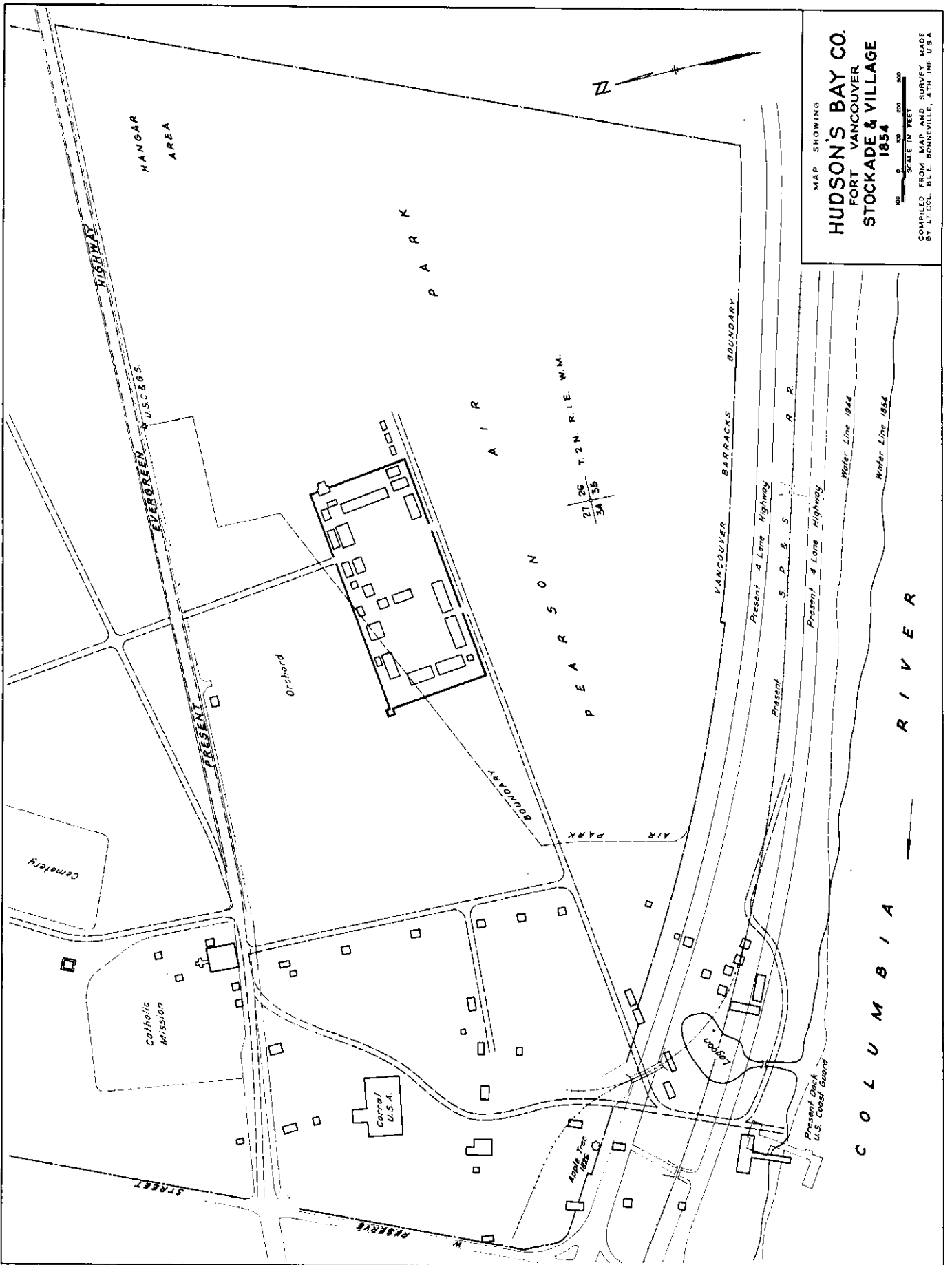
The archeological exploration of Fort Vancouver was undertaken as a result of a Congressional conference committee report which requested that \$7,500 of the National Park Service appropriation for physical improvements for the fiscal year 1948 be utilized for that purpose. Under this authority, Regional Historian Neasham laid out plans for the work and as archeologist, the writer was assigned to supervise the excavations. Since the area had been lost, as far as its actual location was concerned, it was necessary to locate the remains of the old stockade walls by archeological methods and to plot the fort on a modern map.

The actual excavation was begun on September 17, 1947. Archeological student help was not available at this time of the year and it was necessary to employ a crew of three local laborers. They soon became skillful in tracing out the remains of rotted posts of the stockade walls and proved to be unusually efficient in watching for historical objects during the field operation. The excavation program was carried on until November 10 when the backfill and cleanup work was completed and the crew was terminated.

Custodian Garth of Whitman National Monument spent one week at the area. His knowledge of the objects uncovered and experience in similar excavation work proved very helpful.

The temporary employment by the National Park Service of Dr. John A. Hussey as historian made it possible to locate and correlate many of the sources of research material on Fort Vancouver. He visited Portland and Vancouver from December 9 to December 12 to look over historical material not available elsewhere. His help in checking the historical data contained in this report is appreciated and acknowledged.

Acknowledgement is also made to Mr. Arthur Woodward of the Los Angeles County Museum for his identification of historical objects; and to the Forest Products Laboratory of the U. S. Forest Service, Madison, Wisconsin, for wood identification.



MAP SHOWING
HUDSON'S BAY CO.
FORT VANCOUVER
STOCKADE & VILLAGE
1854

SCALE IN FEET
 0 100 200

COMPILED FROM THE SURVEY MADE
 BY LT. COL. B. C. BONNEVILLE, 4TH INF. U.S.A.

SUMMARY AND RECOMMENDATIONS

Fort Vancouver, the headquarters for the Columbia Department of the Hudson's Bay Company, was the hub of all fur trade activity in the Pacific Northwest from 1828 to 1849. The company continued to operate the depot after that year, but Fort Victoria on Vancouver Island was made the district headquarters by Chief Factor James Douglas. The Hudson's Bay Company's license expired on May 30, 1859, and in June, 1860, the buildings and stockade were vacated. A board of U. S. Army officers examined the structures in that year and, finding them unfit for public use, recommended that most of them be burned. Before many years nothing remained to mark the site of the once powerful emporium of the fur trade west of the Rocky Mountains.

The archeological work in connection with rediscovering the location of the old fort and determining its boundaries was necessary in order that the area might be mapped and an archeological report made on the findings, to support boundary proposals of the National Park Service for the Fort Vancouver National Monument. By studying maps prepared when the fort was still in existence and by carefully examining and trenching the area, it was not too difficult to uncover what remained of the stockade walls. After determining the location of the four corners of the stockade, the measurement of the walls gave the following dimensions:

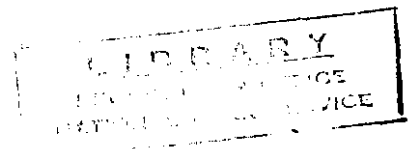
North wall - - - - -	731 feet
South wall - - - - -	733 feet
West wall - - - - -	326 feet
East wall - - - - -	323 feet.

Only a few hundred feet of the stockade walls (Plate 2) and the bastion (Plate 3) have been uncovered. The foundations of the powder magazine (Plates 4, 6, and 7) were the only remains within the stockade which were unearthed. There remain two wells and the foundations of 21 buildings yet to be uncovered. Outside the stockade area at the southeast corner, there were three small buildings, one of which was used as a cooper's shed. (Plates 2 and 9) No attempt was made to determine their exact locations.

A program should be prepared for the continuance of the excavation and recordation of information on the structures and materials found within the stockade. Since no evidence remains of the style of architecture in use at Fort Vancouver, a comparative study should be made of the architectural style used by the Hudson's Bay Company in its structures. A few of these buildings remain and these features are preserved in the restored Fort Nisqually at Tacoma, Washington. Such details will be necessary in case a scale model of the fort is constructed.

During the archeological trenching, a good sampling of broken china, glass, iron scrap and tools, and other historic objects came to light. These have been carefully preserved and will be available

for exhibit purposes should a museum be built. There was not sufficient time nor help to do more than clean, sort, and store the historical objects found during the excavation. All of the more important items should be cataloged. Many of them have already been photographed and given catalog numbers, but the catalog cards have not been prepared. A study of associated historical objects now preserved in museums in the Pacific Northwest and in Canada should be made so that objects which may be uncovered at Fort Vancouver can be more easily identified and interpreted.



HISTORICAL BACKGROUND

The Pacific Northwest first enters the pages of recorded history through the accounts of adventurous English and Spanish navigators who appear to have briefly glimpsed its coast line during the sixteenth and seventeenth centuries. Sir Francis Drake may have sighted the Oregon shore in 1578 while on his voyage around the world in the Golden Hind, and several Spanish pilots have left accounts of similar landfalls. It was not until the voyages of the Spanish explorers Pérez, Heceta, and Bodega in the years 1773 to 1775, however, that some of the main features of the coast were definitely described. 1/

Captain James Cook, on his third voyage of exploration for the British government, ran along an extensive section of the shore line in 1778, but failed to find both the mouth of the Columbia River and the Strait of Juan de Fuca. However, sea otter skins brought by his men from Hootka Sound to Canton sold for high prices and opened the eyes of merchants to the possibilities of trade on the Northwest Coast. It was not long until both British and American vessels came to exploit the opportunities thus revealed.

In one of these ships, the Columbia of Boston, Captain Robert Gray entered the mouth of the Columbia for the first time in May, 1792. Hearing of Gray's achievement, Captain George Vancouver, who was on the coast at the time to look after British interests and to conduct explorations, sent one of his officers into the Columbia to chart the stream for about one hundred miles above its mouth.

At the same time that the maritime traders and explorers were discovering and making known the features of the coast, the inland regions were being opened by fur traders advancing overland. In 1793 a representative of the North West Company of Montreal, Alexander Mackenzie, reached tidewater at the mouth of the Bella Coola River, thus becoming the first white man to cross the North American continent north of the Spanish colonies. A few years later the fur hunters of the same company were pushing their regular operations across the Continental Divide into the Columbia River Basin and the region known today as British Columbia.

In 1805 Simon Fraser and John Stuart established Fort McLeod, on McLeod Lake, the first inland fur trading post built west of the Rockies. During the next few years other posts were founded in the same region, and Fort McLeod became the headquarters of a prosperous district known as New Caledonia. Farther south, David Thompson in 1807 built Kootenai House near Lake Windermere, the first trading post in the area drained by the Columbia. Four other posts in the Columbia Department were constructed before the end of 1810.

1/ Carey, Charles H., A General History of Oregon, pp. 27-33.

Meanwhile, Lewis and Clark, sent out by the United States government, crossed the continent to the mouth of the Columbia on their great journey of exploration performed during the years 1803 to 1806. Their return stimulated the interest of the United States in the fur trade of the Far West. One of the Americans who saw the opportunities for profit offered by the furs of the Oregon country was John Jacob Astor of New York. Organizing the American Fur Company in 1808 and the Pacific Fur Company in 1810, he sent two expeditions, one by sea and one overland, to establish a trading post at the mouth of the Columbia. The company by sea was the first to reach its destination and founded Fort Astoria in 1811. During that year and the next, Astor's men established other posts at strategic locations as far east as the Rockies and from the Willamette Valley to Fraser River. Although the North West Company increased the number of its posts to meet the competition, it seemed for a while as though the American rivals might get the upper hand. But the War of 1812, with the resultant failure of supply ships to arrive, quickly ended Astor's hopes, and in 1813 his partners at Astoria sold out the Pacific Fur Company's interests on the Columbia to the British firm. Fort Astoria was almost immediately renamed Fort George.

When the North West Company united with the Hudson's Bay Company in 1821 under the name of the latter firm, new energy was injected into the operations of the Columbia Department. At first the Hudson's Bay Company thought of abandoning the region altogether, since the trade there had been a losing business for several years. But political, as well as economic, factors induced the new managers to continue, and in 1824 George Simpson, Governor of the Company's Northern Department, and John McLoughlin, a chief factor and newly appointed head of the Columbia Department, arrived at Fort George to reorganize the district.

One of Simpson's first moves was to order the abandonment of Fort George and to establish a new post on the north bank of the Columbia about one hundred miles above its mouth.^{2/} This change was made because the British did not believe they could obtain sovereignty over the land south of the Columbia in any boundary settlement with the United States and because they wished to strengthen their claim to the land north of the river by having a fully-established post there. Also, Fort George, according to the Treaty of Ghent, was to be restored to the Americans at any time they requested it. Too, Simpson saw that the land about Astoria was not suitable for the large-scale agricultural program which he planned to put into effect.

The new establishment, christened Fort Vancouver by Simpson in March, 1825, was located about three-quarters of a mile north of the river, on a bench overlooking the rich bottom-land prairie. The Washington State School for the Deaf today occupies the approximate site of this first post.

^{2/} Rich, E.E., McLoughlin's Fort Vancouver Letters, p.xxviii.

It had been Simpson's plan to have the new fort serve as a mere trading post and to establish the main depot for the district near the mouth of the Fraser River. It was soon found, however, that the latter stream was not suitable for use as an avenue of communication and supply with the interior, and it was decided to make Fort Vancouver the permanent depot. But it soon became apparent that the new post on the Columbia was not conveniently located for this purpose. It was too far from the river for the ready transfer of supplies and furs between vessels in the river and the store houses within the stockade. Also there were no good wells at the fort, and water for the use of the occupants had to be hauled daily from the Columbia. These difficulties were overcome, during the winter of 1828-1829, by moving the buildings to a new site somewhat farther to the west and much closer to the river.

Under the direction of John McLoughlin, Fort Vancouver became the hub of all the Hudson's Bay Company's activities west of the Rockies. Here the supply ships from London landed their cargoes, and from the fort's warehouses went out the supplies for all of the many interior posts, for the fur brigades which ranged as far distant as California, and for the vessels and posts of the coastal trade, which extended its activities well up the coast of the present Alaska. And here the furs of the entire district were gathered for shipment to England.

At Fort Vancouver was established the first of the series of great farms which the Hudson's Bay Company and its subsidiary, the Puget's Sound Agricultural Company, maintained throughout the Northwest. Here were lumber mills, flour mills, salmon-drying houses, a shipyard, and shops for blacksmiths, coopers, carpenters, and many other types of artisans. Because it possessed the only adequate supplies of seed and farm animals, and because it was practically the only market for the produce raised by settlers, the Hudson's Bay Company, chiefly through Fort Vancouver, controlled the economic life of the Oregon country for many years. At Fort Vancouver also centered much of the social and cultural life of the region. Here was established the first school, the first circulating library, the first theater, and here were some of the earliest churches in the Northwest.

With the coming of the missionaries in the middle 1830's and the settlers from the United States in the late 1830's and early 1840's, the hitherto almost undisputed sway of the company began to be challenged. McLoughlin saw the danger to the fur trade inherent in the settlement of the country, but he did nothing to discourage the newcomers. In fact, his many kindnesses enabled them to survive and prosper. Fearing the Americans might attack the company's property on the Columbia, particularly in the event of a war between Great Britain and the United States, the directors ordered McLoughlin to establish a new depot farther to the north. Fort Victoria on Vancouver Island was founded for this purpose in 1843, but the actual transfer of the headquarters from Fort Vancouver was delayed for several years.

After the boundary settlement of 1846, the pressure from settlers upon the Hudson's Bay Company's properties in the area south of the forty-ninth parallel steadily increased, even though the firm's "possessory rights" had been guaranteed by the treaty. As the country became populated, the fur trade of the Columbia Basin declined, but for a number of years the company continued to make good profits by changing its activities chiefly to general merchandising. Gradually, however, increased competition, the necessity of paying import duties to the United States, and the incursions of squatters upon the lands claimed by the company, made the trade less remunerative.

The United States Army established a military post on the firm's property at Fort Vancouver in 1849, and the next year the buildings of the fort were included in a military reservation. McLoughlin had left the company's employ about the beginning of 1846, and James Douglas moved the district headquarters to Victoria in 1849, but agents of the firm continued to operate a general trading establishment in the old fort buildings. In 1859, when the Hudson's Bay Company's license for the control of the trade in the British territory west of the Rockies expired, the military authorities at Fort Vancouver considered that the firm's "possessory rights" had also terminated and asked the company's trader to leave. The buildings within the stockade were vacated by the company in June, 1860. A board of Army officers examined the structures at that time and, finding them unfit for any public use, recommended that most of them be burned. While it is known that some of the buildings were torn down, the recommendation evidently was not carried out immediately, since witnesses later testified under oath that a number of the structures remained standing for several years. By 1866, however, it was reported that only "one little rick of rotten hay and straw" remained to mark the site.

EXCAVATION

For many years the historic site of old Fort Vancouver has been lost to inquiring historians and inquisitive laymen. Pioneers knew that it lay someplace within the area of the present airport, but could not be positive as to its exact location. Uncovering the stockade walls and other features of the Hudson's Bay Company's one time headquarters of the Columbia Department was done from historical data and by archeological techniques.

We had hoped to find the stockade walls and the bastion by superimposing the Bonneville map of 1854 on a modern map of Vancouver Barracks. However, since the old cedar posts marking the bounds of the military reservation were no longer in existence, this was impossible. Even the cedar post and the stone marker for the section corner just south of the stockade area had been lost. Later, this old stone marker was uncovered by one of the excavation crew and a permanent cement section marker was put in its place.

Photostatic copies of a number of early maps were used in trying to determine the location of the old stockade. They proved to be of great help in identifying the foundations of buildings found in the course of excavation and in plotting the size of the stockade before the corners were all uncovered.

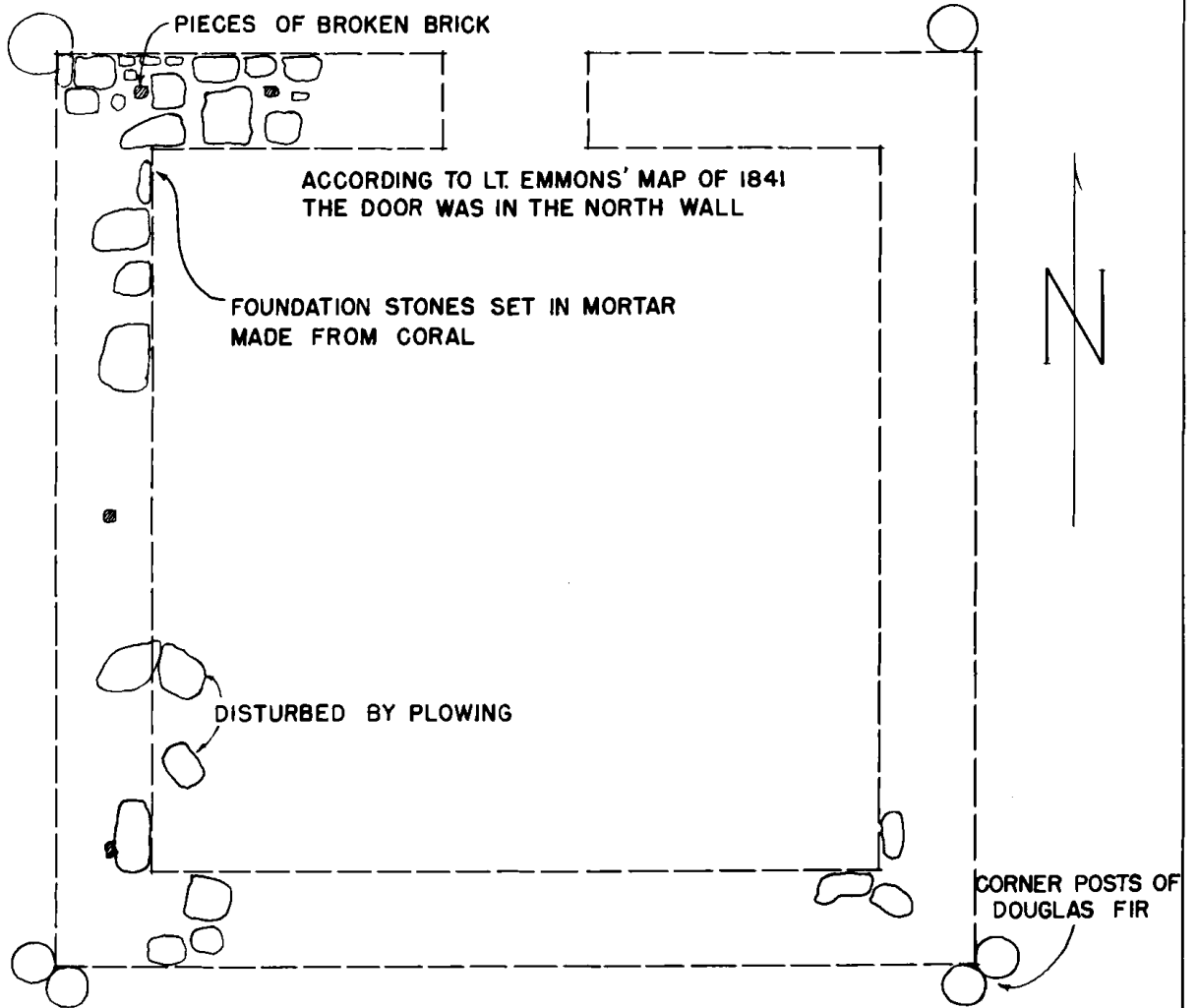
The earliest map used was that of Lieutenant George F. Emmons, a member of the U. S. Exploring Expedition of 1841, under the command of Commander Charles Wilkes. The rough diagram found in his journal 3/ gives the approximate size (700 x 400 feet) and layout of the stockade. Several particularly interesting details were noted by Lieutenant Emmons. At that time there was no bastion in the northwest corner, and the stockade posts were from eight to ten inches in diameter, 20 feet long, and buried from two to three feet in the ground. His small sketch showing the construction of a portion of the wall is both valuable and interesting (Plate 8).

Another map, which closely follows in time, is that of M. Vavasour, Lieutenant in the Royal Engineers. Lieutenant M. Vavasour and Lieutenant Henry J. Warre 4/ accompanied Sir George Simpson, Governor of the Hudson's Bay Company, on an overland trip from Montreal to the West, starting on May 5, 1845, and returning in July of 1846. The expedition was ostensibly sent out for the purpose of making a military reconnaissance of Oregon. 5/ During his stay at Fort Vancouver, Vavasour made a vicinity map of the fort and the adjacent plains which incidentally shows the site of the early, 1825, stockade about a mile east and north of the fort. In the upper right

3/ Photostatic copy of pages from Lt. Emmons Journal of 1841. Emmons was at Fort Vancouver from July 25 to August 2.

4/ Schafer, Joseph, Documents Relative to Warre and Vavasour's Military Reconnaissance in Oregon, 1845-6, pp.85-86.

5/ Oregon Historical Quarterly, vol.26, pp.263-273.



POWDER MAGAZINE
FORT VANCOUVER



hand corner of this map is a scale plan of Fort Vancouver. The plan shows all of the buildings within the fort and the bastion on the northwest corner. According to the scale the size of the stockade was about 320 x 690 feet. Lieutenant Warre completed some fine colored drawings of scenes and forts of the Pacific Northwest of which the one of Fort Vancouver from the southeast (Plate 9) is most valuable.

Three additional maps showing the location of the old Fort were made by members of the U. S. Army in the years 1854 and 1859 on maps of the military reservation. The best known of these was made by Lieutenant Colonel B. L. E. Bonneville in 1854. The others were made by General Joseph K. F. Mansfield in 1854 and by Brigadier General W. S. Harney in 1859. On the Bonneville map the fort was carefully plotted in and shows the existence of stone markers at each corner at that time. On this same map C. A. Homan, C. E., showed the exact measurements of the north and west walls at a later date. According to his measurements, the stockade was 340.8 feet by 724.2 feet.

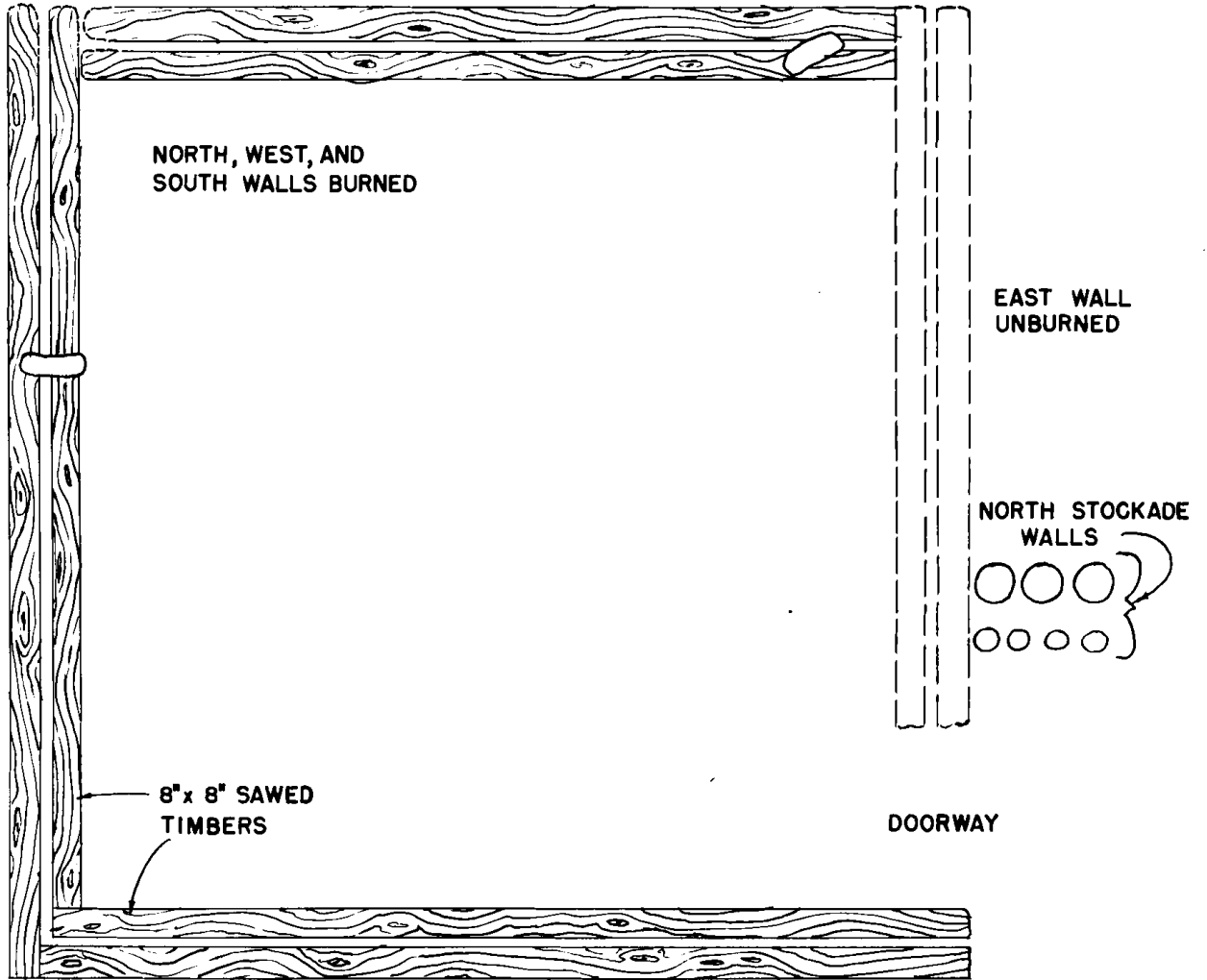
The 1854 map of General Mansfield is a plan of the military reservation, which was included in an inspection report of various forts in the Pacific Department. The plan was undoubtedly copied from the Bonneville map and does not have a scale. It shows all of the Hudson's Bay Company holdings by hatching.

The 1859 map of the Military Reservation of Fort Vancouver, W. T., was surveyed by order of Brigadier General W. S. Harney, under the direction of Captain George Thom by Lieutenants J. B. Wheeler and J. Dixon of the Corps of Topographical Engineers. The stockade was carefully plotted in and shows the various buildings and walks in existence at that time.

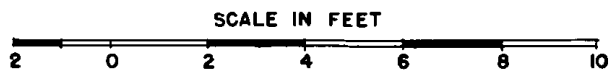
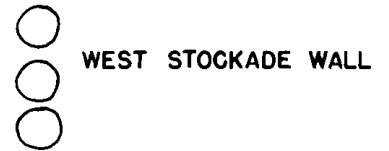
Two long trenches, one running east and west and the other north and south, were dug during the first day's operations in hopes of finding the bastion on the northwest corner. These trenches were dug to a depth of about two feet, but proved to be sterile. The east-west trench did reveal the root of a tree which was diligently followed until the stump was found. One tiny fragment of blue and white English china was found along this root. On the second day, work was shifted to what later proved to be the southeast section of the stockade area. Here large quantities of scrap iron and broken tools were found. From these finds it was surmised that we were in the area near the iron store and the blacksmith shop.

Exploratory trenches from six to twelve inches in depth at various locations brought out the fact that we were on the site, but no definite features were discovered to tie us to the old stockade and its buildings. In one location on the west, quantities of beads were found by Dr. Neasham. It was thought that this might have been the location of one of the two large buildings containing supplies.

Several times while walking over the area searching for clues, we had seen flat stones barely exposed on the surface. These stones were different from the round stones found in quantity everywhere. Trenches were started in this area and the discovery of definite stone foundations proved to be those of the powder magazine. After these foundations were exposed



**BASTION
FORT VANCOUVER**
(NORTHWEST CORNER)



to give the size, orientation and layout of the building, it was a simple matter to scale off from the Vavasour map the distance to the south and west stockade walls. The approximate location of the southwest corner was determined and the length of the west stockade wall was measured off. Still in search of the bastion in the northwest corner, trenches were dug in that area down to the yellow undisturbed earth which was now known to be from about eighteen inches to two feet below the surface. At 9:45 A.M. on the morning of September 25 the north and west stockade walls were found in the two trenches simultaneously. Trenching along the lines of posts, we were soon able to determine their direction and condition. The post remains on the north wall were badly charred along the tops, but below the charred area there was hardly any rotted remains left. The ground was damp and hard. On the west wall the posts showed no evidence of burning and were in better condition. Here the ground was fairly soft and dry. Objects found during this excavation included two grape shot and one cannon ball. Work was stopped here as soon as the charred remains of one of the bastion walls were found. (Plate 10)

Work was again started in the southwest corner area. The corner was soon discovered and the west and south walls traced out far enough to determine their direction. The stockade posts in this area were badly rotted. Only occasionally was there evidence of charcoal. In one test trench on the south wall, 285 feet from the southwest corner, well preserved posts were found with charred tops about 12" below the surface.

Excavation was next started in the northeast area to locate the northeast corner. A double row of stockade posts was found here. This area was badly disturbed by the burial of huge blocks of reinforced concrete. This extraneous material had been placed in a hole which was deeper than the depth of the posts, thereby destroying all evidence of the stockade wall. To further hinder matters some of the concrete blocks were too heavy for our small crew to remove. The area of this excavation was about 687 feet from the northwest corner, the length of the north wall according to the Vavasour map. Excavation in this vicinity finally revealed among the broken blocks of concrete and bars of reinforcing iron a row of posts going toward the south. The corner post was gone, as well as others in the nearby area. Thinking that this was the northeast corner, a test was made to the south at 128 feet from the corner, on the line of the supposed east wall. Here a line of posts was soon found, seeming to verify the finding of the northeast corner and east stockade wall.

From the northeast area, work was shifted to the southeast in order to find that corner. Since this portion of the stockade was on one of the airport runways, the trenches had to be backfilled at the close of each day's work. The south wall was encountered without any difficulty, but the corner was more elusive. Finally, more than 50 feet beyond where we thought it to be, the southeast corner was found.

By this time it was decided that what was supposed to be the northeast corner was definitely something else. Going back to the Vavasour map, it was seen that what had been uncovered was probably the east wall of the harness shop and the east wall of the long dwelling house. Search was again made for the northeast corner. Huge sections of concrete flooring were encountered which could not be moved. This flooring was part of one

of the buildings erected by the Spruce Division located here from 1917 to 1919. Fortunately, over the exact area where the northeast corner of the stockade was located a large slab of the flooring had been removed (Plate 12) leaving the posts undisturbed. The flooring had missed the tops of the posts by inches. In addition, a 14 inch concrete tile had missed the corner by a foot.

After finding the northeast and southeast corners work was resumed in the northwest area again to uncover the bastion and show its relation to the north and west stockade walls (Plate 13).

In the meantime a survey was made by a crew from the Clark County Engineer's Office to locate the section corner just south of the stockade and to lay out a grid system. There was considerable delay in finding the section corner, because the markers had been removed or lost. The survey crew located two points either of which might have been the section corner.

By excavating at a point suggested by Bernard Morris of the County Engineer's office, the old original stone marker was found and a new concrete marker put in its place. Custodian Garth of Whitman National Monument and I tried to lay out a grid system, but heavy rains during the week he was here prevented us from accomplishing this. The survey crew took up where we had stopped and by working two Saturday mornings completed the grid system of 100 foot coordinates.

The excavation of the bastion proved very interesting. Two badly charred horizontal timbers had been uncovered earlier eighteen inches below the present ground level while tracing out the west stockade wall. These proved to be the foundation timbers of the south wall of the bastion. The stockade posts definitely ended where the bastion wall timbers intersected them. The same proved true of the north line of stockade posts. It was thought that some evidence of the corner of the stockade wall would be encountered within the bastion, because the Emmon's ground plan does not show a bastion on the northwest corner. Commander Charles Wilkes states, "Between the steps (of Dr. McLoughlin's home) are two old cannon on sea-carriages, with a few shot to speak defiance at the natives I mention these, as they are the only warlike instruments to my knowledge that are within the pickets of Vancouver, which differs from other forts in having no bastions, galleries, or loop holes . ." 6/

Three sides of the bastion foundation showed evidence of conflagration. Only the west wall was unburned. The timbers were of eight inch square Douglas fir. The heat from the fire had been so intense that even the earth was burned to a ruddy brown. Over these charred timbers was a deposit of from four to five inches of fine ash with hardly a trace of charcoal, adding to the proof of the intense heat when the bastion was fired. The foundation timbers of the west wall, which had not burned, probably because of moisture in the ground, were so badly rotted that very

6/ Wilkes, Charles, Narrative of the United States Exploring Expedition, Vol. IV. p. 327.

little remained of them. A door undoubtedly had existed in the southeast corner of the bastion, but evidence of this was not too conclusive except for the fact that no great amount of rotted timber showed in that section.

According to Lieutenant Vavasour's report of 1845 and 1846, "The bastion of the northwest corner was twenty feet square, the two lower stories are loop-holed and the top story is an octagonal cap containing eight three pound iron guns. . " 7/ Measurements of the foundation of the bastion show overall dimensions of twenty feet six inches on each side. The eight inch square timbers which formed the foundation of the bastion, undoubtedly moved outward a few inches from pressure and perhaps from buckling during the fire. The distance between the parallel timbers varied from one to five inches. (Plates 4 and 13)

Vavasour recommended that 8/ "the simplest method of strengthening this post against sudden attack would be to dig a ditch around it, throwing the earth against the pickets, which would be loop-holed and a banquette formed on the interior, erecting another small block house at the south-east corner to flank the south and east sides, and placing small traverses behind the gates." According to a footnote 9/ which states, "Which was done, to the great annoyance of the American settlers" it was expected that some evidence of a small bastion would be encountered during the excavation of the southeast corner. Exactly what sort of a structure was built is not known. It does not show on any of the ground plans nor the drawings of Fort Vancouver. No evidence of such a structure was found during the excavation.

A total of 301 feet of the stockade was uncovered. Most of the work was done along the north wall, but sections of the west and south walls were also uncovered. According to the report of Lieutenant Emmons, the posts were of pine. 10/ From Lieutenant Vavasour's report, we learn that the fort was an enclosure of cedar pickets fifteen feet high. Excavation proved that the posts measured from five to thirteen inches in diameter. The few that were entirely dug out showed evidence of having been saw-cut when felled. Identification of parts of three posts proved that the trees used for the stockade were Douglas fir. 11/ The larger posts were those used at the corners of the stockade. The smaller ones were used in the line forming the walls.

The stockade posts in most instances were very rotten. Only a few, those in the southeast corner, were in fairly good shape (Plates 15 and 16)

7/ Schafer, Joseph, Documents Relative to Warre and Vavasour's Military Reconnaissance in Oregon, 1845-6, p.86.

8/ Idem., p.86

9/ Ibid.

10/ From photostatic copies of pages of the original document in the Yale University Library.

11/ Communication from the Forest Products Laboratory, U. S. Forest Service, Madison, Wis.

Some of the posts had charred tops and a few were burned down to the bottom. They were buried from 24 inches from the present surface to as much as 52 inches. This extra depth resulted from fill made on the surface in recent times. During World II the area was used as a motor pool for the armed forces, and sand and gravel were spread on the surface to prevent the cars from bogging down. The depth that the posts were buried from the original ground level was from two to three feet as mentioned by Lieutenant Emmons.

The tops of the posts were usually about eight inches from the original ground level. In this eight inches, chips of rotten wood and chunks of charred wood were found, but never any posts in position. After the stockade was abandoned by the Hudson's Bay personnel, parts of it were burned and parts were torn down.12/

Still later the area was used as a field for raising wheat and potatoes. As the field was plowed from year to year, the plowshares finally sheared off all of the posts at the plow line level of from eight to ten inches below the surface. In some instances several posts in line will show where the plow shaved off portions of the sides, but did not remove the entire post. In other cases, the entire top of a post has been torn off and mashed down to one side of the post.

Along that portion of the north stockade wall which was excavated, two rows of rotted posts were found, usually from six inches to a foot apart. One row was always much better preserved than the other. The bottoms of the better preserved posts were most often a little deeper than those not so well preserved. The existence of these two rows of posts is explained because of the necessity of replacing the rotten posts after a number of years. No doubt in other sections of the stockade wall replacements were made at least once, but the rotten posts were removed when the trench was dug. Along the north wall a parallel trench was dug when replacement was necessary.

The fill around the stockade posts consisted of almost everything from coal dust to broken dishes, coal, clinkers, broken brick, small stones, and even sawed timbers. These timbers were sometimes from six to ten feet in length and may have been scantlings used as bracing in connection with the stockade.

12/ Bancroft, H. H., History of the Northwest Coast, pp. 710-711.

ARTIFACTS

As previously stated, the excavation work done during the fall of 1947 was made primarily for the purpose of locating the stockade and outlining its perimeter. Aside from the work done at the powder magazine, only the bastion and the remaining three corners of the stockade were uncovered. Test trenches were dug along the north wall to determine its extent and construction. Some work was done in the southeast area in order to obtain a sampling of the iron objects so plentiful there.

During the course of this excavation, a great number of historic objects were uncovered, including iron, china, glass, and other interesting artifacts. No objects of Indian manufacture were found.

Iron Objects

The importance of Fort Vancouver as a center of operations is emphasized in the finding of so much iron. It was the rendezvous for the company's fur trade as well as the depot for all goods brought from England; also the supply center for traps, guns, and other supplies needed by trapping brigades. It served, too, as the repair shop for all vessels before their departure to other parts of the world.

The blast furnaces and rolling mills of Great Britain were producing iron in large quantities at this time.^{13/} Factories were manufacturing many different kinds of tools and hardware for home use as well as for the export trade.

In 1845, an iron store and a blacksmith shop were part of the stockade establishment. The blacksmith, during the time that McLoughlin was Chief Factor, was a Kentuckian named Cannon.^{14/} Mr. Cannon was ingenious in his trade and well-liked by Dr. McLoughlin. He had his anvil and forge beneath a spreading fir tree, and made many of the items for the important projects planned and completed by Dr. McLoughlin. It was he who made the overshot water wheel for the sawmill. He also rigged up the flour mill of wheels and cogs when the fort outgrew the old hollow stump and the spring pole that worked the heavy pestle. Cannon came overland with Mr. Hunt, partner of the Astor Expedition, in 1811, and remained with the Hudson's Bay Company. After the company abandoned the old fort, he went to live on French Prairie and died there about 1865.

Mr. Cannon must have been a busy blacksmith at Fort Vancouver from the great amount of scrap iron found during excavation. It would indeed make an interesting story, if we only knew more about him and his handiwork. An instructive diorama showing him at his forge could be made for a museum.

^{13/} Truran, William, The Iron Manufacture of Great Britain, p.282

^{14/} Clarke, S. A., Pioneer Days of Oregon History, pp.184-5.

A total of 3,355 pieces of iron were found during the excavation. These were broken down for counting, by areas and objects. Further excavation will reveal hundreds of additional pieces of iron in all parts of the stockade, as well as on the outside. The greatest concentration of iron and iron objects occurred in the southeast section of the stockade. The foundations of neither the blacksmith shop nor the iron store were found. The earth in that vicinity was a mixture of coal, ashes, clinkers, and iron. A number of good artifacts, such as beads, gun flints, and broken china were also found here.

The iron found near the blacksmith shop consisted of scrap of all descriptions, including broken blacksmith tools and broken beaver trap parts. It is interesting to note the various standard sizes of strap, bar, and rod iron ends cut off as waste. The sizes of strap range from 1/16 inch to one inch in thickness. Widths vary from $\frac{1}{2}$ inch to $3\frac{1}{2}$ inches. Thirty-eight sizes of strap iron were found in all, and in addition there were six thicknesses of plate iron, six sizes of bar, and ten sizes of rod.

The strap iron was made up in widths according to the following table:

8 widths of 1/16 inch
7 widths of 1/8 inch
7 widths of 1/4 inch
12 widths of 3/8 inch
3 widths of 1/2 inch
<u>1</u> width of 7/8 inch

38 different widths

The fact that so much standard size strap, rod, bar, and plate iron was found here is indicative of the premise that many of the iron tools and supplies were probably fabricated at Fort Vancouver. These were made up as the need arose for special orders and when the stock of standard items was depleted. Fort Vancouver was fortunate in having the services of such a blacksmith. From inventory lists at the various other forts ^{15/} we know that all manner of manufactured items were imported and carried in stock. The lists read much like the goods that would be carried in a general country store of several decades past. However, these out of the way posts probably could not boast of a blacksmith as one of their personnel.

The list of iron objects found include the following:

Axe blade	Hinges	Metal drill bit
Chisels	Chain	Blacksmith tongs
Swage	Thimbles	Blade mattox
Punches	Wedges	Latch and door plates
Picaroon	Scythe	Beaver trap parts
Hooks	Trowel	Horse and mule shoes
Latches	Hasps	Cannon balls
Grape Shot	Hand wrought nails, spikes, bolts, nuts and washers.	

^{15/} Rich E.E., Journal of Occurrences in the Athabasca Department by George Simpson, 1820 and 1821, and Reports, pp.141-167.

All iron tools found during the excavation were broken or worn out. The blacksmith tongs consisted of parts of eleven pairs. A total of eight punches and chisels which had been used in connection with the blacksmith work were uncovered. Although these tools have been buried in the damp ground for almost one hundred years, they are still in a remarkably good state of preservation. (Plate 17)

There were twenty-nine pieces of broken links of chain and two short sections of chain. Eleven pieces of one-eighth by one-quarter inch strap iron bindings were found. These had apparently been placed around the ends of small squared wooden timbers to keep the wood from splitting. The sizes of the openings varied. The ends of the straps were interlocked by bending to keep them in place.

One well-made hand trowel was uncovered which measured fifteen inches in total length. The blade was curved and measured ten inches long by two and one-half inches wide and the shank was serrated to take a wooden handle. (Plate 18) A section of scythe blade was found (Plate 18) which measured eleven inches long by two and one-half inches wide.

Three large cannon balls were found which measured three and one-half and four inches in diameter. They weighed five pounds fifteen ounces and eight pounds fifteen ounces respectively. Six grape shot measuring from three-quarters of an inch to one and one-quarter inches in diameter were unearthed at various places. A gun lock and powder pan (Plate 19), from what was probably a U. S. Army Springfield flintlock of 1843, was identified by Mr. Arthur Woodward of the Los Angeles County Museum of History, Science, and Art. The cannon balls and grape shot probably also belonged to the U. S. Army period.

Pieces of broken stove lids and iron kettles were found along the north wall behind the location of the kitchen.

The large amount of iron unearthed is probably only a small portion of what still lies buried beneath the ground. If further excavation is done, a more thorough study of the iron alone will be a project of prime importance.

Other Metal Objects

A few interesting objects of other metals, mostly brass and copper, were discovered. One very fine brass candle snuffer was found along the north stockade wall.

Three brass buttons came to light in various parts of the area. One was uncovered in the western area near where the storehouses had been. It had never been used on clothing and was undoubtedly part of the stock of goods stored there. It still had part of the gilt finish on its face. On the reverse side of one of the buttons was the lettering "STANDARD ORANGE GILT". Loops of copper wire soldered to the backs of the buttons were used for attaching them to clothing. Buttons similar to these were found at Whitman National Monument and had silver finish on the face instead of gilt.

The find which created the most interest was a brass door lock (Plates 22 and 23), uncovered in the northeast area. In its day it could have been part of the fixtures on the Chief Factor's house. Upon comparison with the brass locks on the McLoughlin House in Oregon City, it was found to be identical in shape and size. The locks now in use on the McLoughlin House were originally on the Barclay House.

Of the brass cartridges found, the most common type was the 45-70 U. S. Army Springfield, which date around the period 1886-1888 and one Spencer 52-52 which dates from the 1860's.^{16/} A percussion cap which fitted over the nipple of a cap-and-ball type rifle was found at the powder magazine. Three brass tubes with wires attached came from various locations within the fort. One was found near the powder magazine. These are portions of friction cannon primers of the period 1850-1860. These primers were thrust into the touch holes of old muzzle loaders and the end of the friction wire covered with a detonating substance which set off the powder priming in the tube. Only one round-headed brass pin similar to our stright pins of today was uncovered.

Another find was that of three brass keys (Plate 24) in the northwest section of the bastion. They look alike, but each one is different as to the lock it fitted. The one has a diamond shaped opening in the end, while the other two have triangular openings of different sizes.

Other objects include two small hand-wrought square copper nails, a number of pieces of copper sheeting and tubing, a copper bar bent similar to the mouth piece of a horse bit and several rims of copper vessels.

Objects of Glass

The glass count amounted to 1,615 fragments. These consisted mainly of broken bottles, probably wine, rum, and brandy. However, there were many fragments of thin window glass, an item much sought after by American emigrants after their long trek across the plains. Even Mexican California did not have such a luxury at that time. When the fur trade declined, the Hudson's Bay Company saw the advantage of stocking hardware, fire-brick, glass and other items not obtainable from any other source on the Pacific Coast. Much of their profits came from sales of these items to settlers in the Willamette Valley.

Glass beads were found everywhere. They are the typical Venetian trade beads, dating probably from 1830 to 1860. Many of these same kinds of beads are found in California and may have been traded to the Indians by people who bought them from the Hudson's Bay Company.

Some of the finer glass fragments include a ground glass stopper for an apothecary bottle, a piece of milk glass, and a portion of a large tumbler.

A few fragments of opaque bluish-green glass suggests Sandwich glass of the early 1820's. A more thorough study will have to be made on these pieces to verify such an identification.

^{16/} Communication from Arthur Woodward, November 4, 1947.

Great Britain was making as great strides in the perfection of ceramic processes as she was in the revolution of the iron industry. The last half of the eighteenth century saw a development unparalleled in ceramic history in the little midland county of Staffordshire. Not only was Staffordshire famous for its important iron and coal deposits, but it was there that the clay which made the Wedgewood ware so famous was found. It is taken from the "Potteries" district of North Staffordshire, where extensive china and pottery factories still exist.

It was in this English County that Josiah Spode began as an apprentice potter in 1749. During his lifetime two great developments were perfected; first, the blue underglaze transfer printing, and second, the bone china formula. ^{17/} From his discoveries there resulted the standardization of English porcelain in the last decades of the Eighteenth Century. In the early part of the Nineteenth Century William Copeland entered into partnership with Josiah Spode the second. From 1833 to 1847 the name of the firm was known as Copeland and Garrett; from 1847 to 1867 it was W. T. Copeland, and from 1867 to recent times, as Copeland and Sons. Today the company is called Copeland and Thompson.

During the time that this fine china, Late Spode, was finding its way to every part of the world, the Hudson's Bay Company was buying it for the use of its employees. Fragments of broken china (Plates 25 and 26) are found in every corner of old Fort Vancouver. A total of 6,252 broken pieces were collected during the excavation. The greater percentage of this ware is Copeland and Garrett which was manufactured between the years 1833 to 1847. A number of other kinds of china have also been found, but no positive identifications have as yet been made. Sixty-four pieces were shipped to Copeland and Thompson, Inc., the Spode representative in the United States, for identification of patterns and times of manufacture.

In all, 377 broken pieces of crockery were found. What has been tentatively identified as Bennington Ware was the most numerous. This beautiful brown glazed crockery was made at Bennington, Vermont. Pieces of yellow glaze, blue glaze, and lustre ware were collected, but not in any great quantities. The word "SNUFF" appears on one small fragment of green glaze ware. Broken pieces of blue and white Chinese porcelain were found in small quantities. Some of these appeared to be fragments of "ginger jars", while others were from deep bowls. This porcelain was brought to the Northwest by way of the Sandwich Islands.

Other objects made of clay include the parts of cosmetic jar tops (Plate 27). One of these is the top belonging to a cold cream jar and the other to a shaving cream jar. The shaving cream top fits the only jar found (Plate 28). On the bottom of this jar is the imprint "COSNELL" and "1 $\frac{1}{2}$ oz."

Another very common item which was found in every section of the stockade was the broken clay pipe. A total of 904 pieces of pipe stems and bowls was cleaned and stored for study purposes. A few of the better examples (Plate 29) may be used for exhibition. The name of the manufacturer, "FORD & STEFNEY", is imprinted in the clay of the bowl of some specimens.

^{17/} Hayden, Arthur, Spode and His Successors, p. 101.

Miscellaneous Objects

Among the few remaining items which came to light during the excavation were oyster shells, coral, brick, and coal.

The oyster shells appeared in large quantities behind the kitchen along the north wall. The oysters undoubtedly came from Shoalwater Bay just north of the mouth of the Columbia. The oysters were gathered by Indians, 18/ bought by the white settlers in exchange for goods, and sold alongside vessels for \$1.50 per bushel. Apparently the gentlemen of Fort Vancouver liked their oysters.

Coral of a very primitive type was found in various places.19/ It had been used for making mortar and was in the foundation of the powder magazine. According to the Warre and Vavasour report, ". . . there being no limestone found on the Columbia nearer than Fort Colville or Vancouver's Island in the Straits of Juan de Fuca, the lime used by the Hudson's Bay Company in building their chimneys being made from coral brought from the Sandwich Islands."20/

Broken bricks and well-preserved coal were found in many areas, especially in the southeast. Broken brick was used all along the stockade wall for helping to hold the posts upright. Although no identification has been made, it is thought that this brick probably was made locally. The coal could have been brought either from England or Vancouver Island.

18/ Stevens, Isaac I., Narrative and Final Report of Explorations .. p.157.

19/ Arthur Woodward, communication of November 4, 1947.

20/ Schafer, J. Op.cit., p.86.

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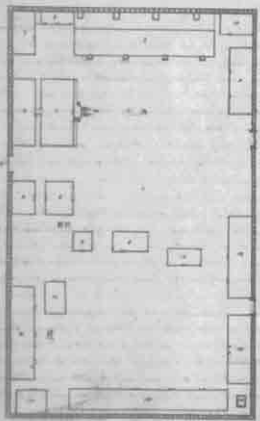


Stone foundation of powder magazine which led to the discovery of the fort.



Northwest corner of powder magazine.

The above is a plan of the fort as it was
 with a Prison which was built on the
 plan & importance of which is not mentioned
 in any particular.



1. The main building
2. " " " " " "
3. Chapel
4. " " " " " "
5. Works office
6. Chapel for soldiers & privates
7. Bakery
8. " " " " " "
9. " " " " " "
10. " " " " " "
11. " " " " " "
12. " " " " " "
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29. " " " " " "
30. " " " " " "

The whole enclosure about 200 feet by 200.
 The walls forming the enclosure being of stone - from 12 to 18 inches
 in diameter - about 20 feet high - and a foot apart - & besides
 the earth & that the upright was an additional support
 pieces of scuttles are pinned together with iron nails
 top & bottom forming the whole length. & from the upper
 end of them an occasional beam
 is taken ground forming a lattice
 support like B
 Every wall the fort contains at less depth at the top
 of the earth, and will soon require replacing & repair
 independent of the timber & a hospital
 & two back the structure. A kitchen shop and
 several other out buildings about the present
 & some rising of about 25 buildings occupied by the



Plate 9 Missing



Intersection of west stockade wall and south bastion wall.



The southwest corner of the stockade. The posts were very rotten and some had entirely disappeared.



Tile and cement flooring almost destroyed the northeast corner.



Foundation timbers of the bastion uncovered.
These were all badly burned except those on the east wall.



North wall of bastion showing the charred remains of foundation timbers.



Well preserved stockade posts along south wall.



Custodian Tom Garth from Whitman National Monument cleaning earth away from posts in southeast corner of stockade.

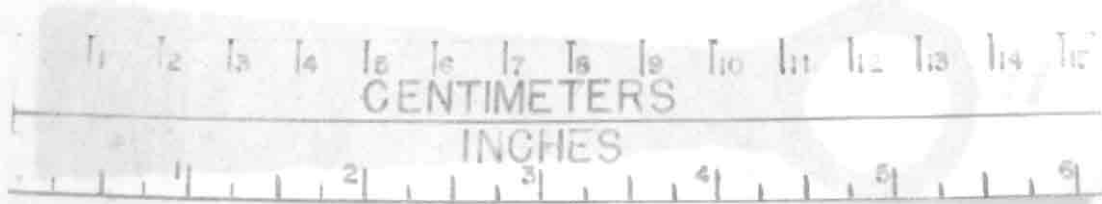


Broken blacksmith tools unearthen in southeast corner of stockade.

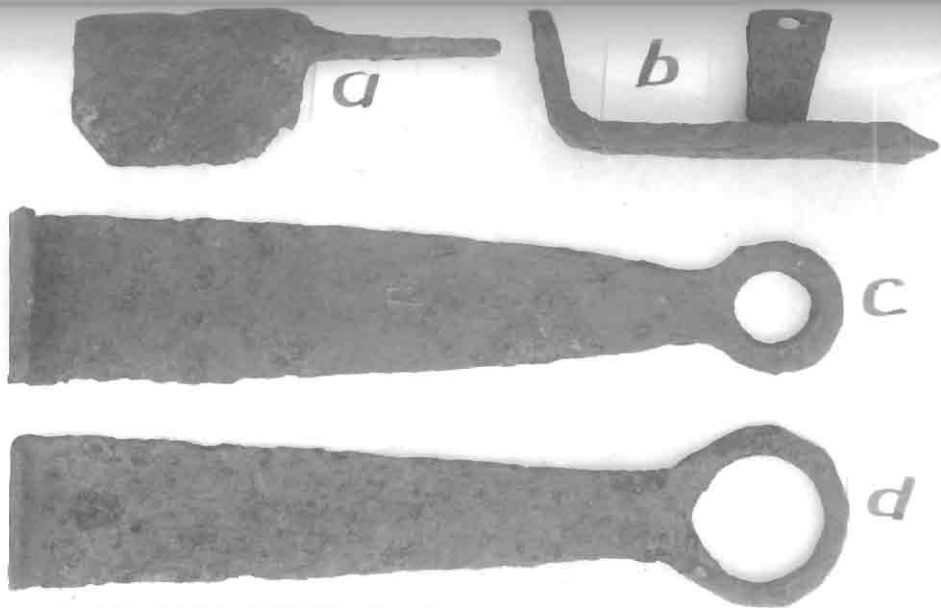


Upper. Broken scythes.

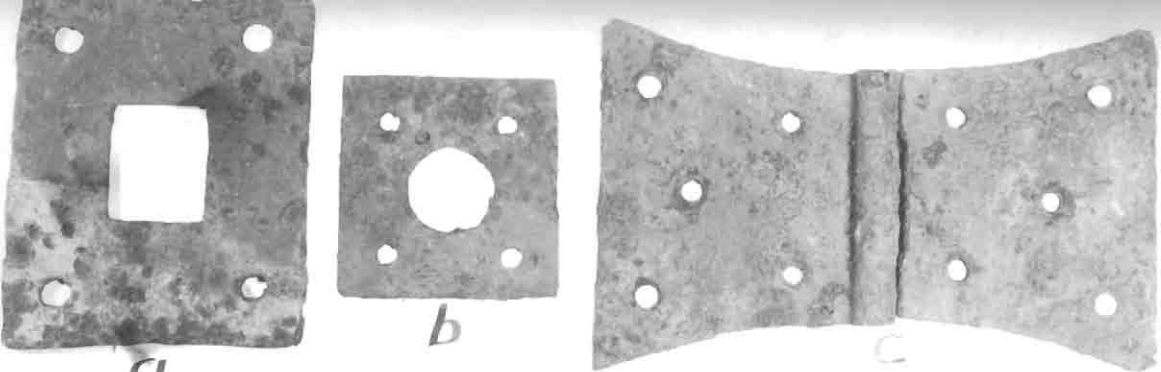
Lower. Handmade trowel with serrated handle.



Gun lock and powder pan of 1843 Springfield flintlock rifle.



Beaver trap parts. a. Trigger pan. b. Rest where trap jaw rested when trap was set. c and d. Broken springs showing openings of two sizes.



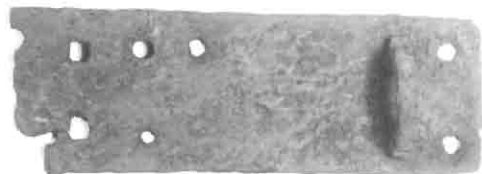
a

b

c



d



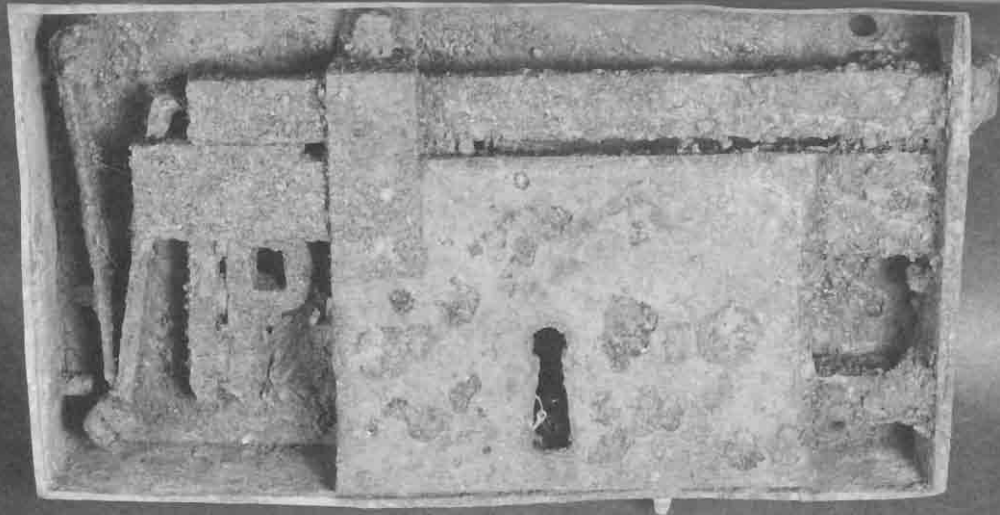
e



a and *b*. Door plates. *c*. Large hinge from bastion. *d*. Offset hinge. *e*. Hasp.



Brass door lock identical with those now on McLoughlin House at Oregon City.



1000 Reverse side of brass door lock.



1 2 3 4 5 6 7 8 9 10 11 12 13 14

CENTIMETERS

INCHES

1 2 3 4 5

Brass keys found during excavation of bastion.



Two large fragments of Cbpeland and Garrett blue and white platter.



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

CENTIMETERS

INCHES

1 2 3 4 5 6



Cosmetic jar lids.



Jar in which shaving cream was originally packed



CENTIMETERS

Broken clay pipes and stems.

FORT VANCOUVER

