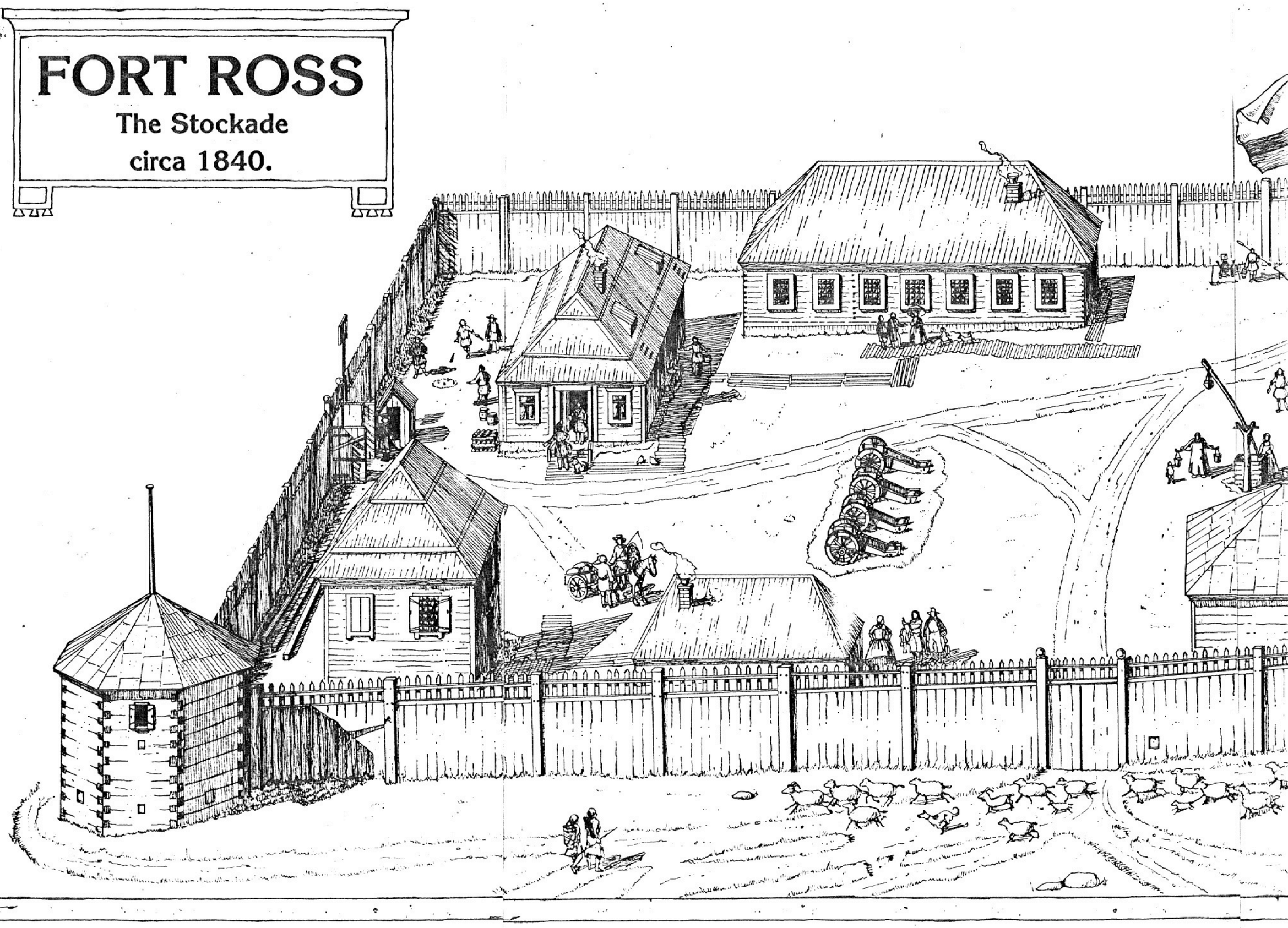
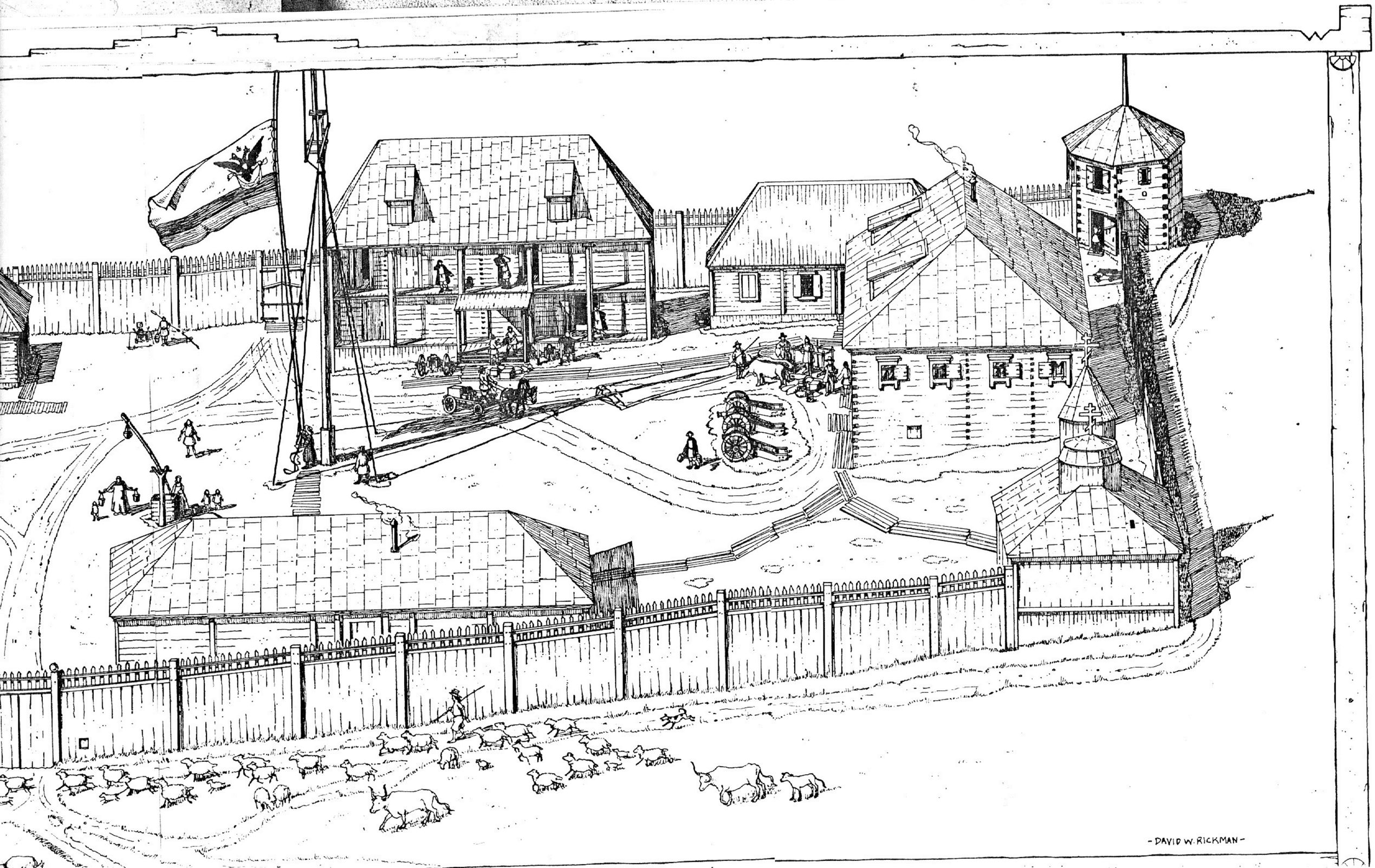
FORT ROSS

The Stockade

circa 1840.





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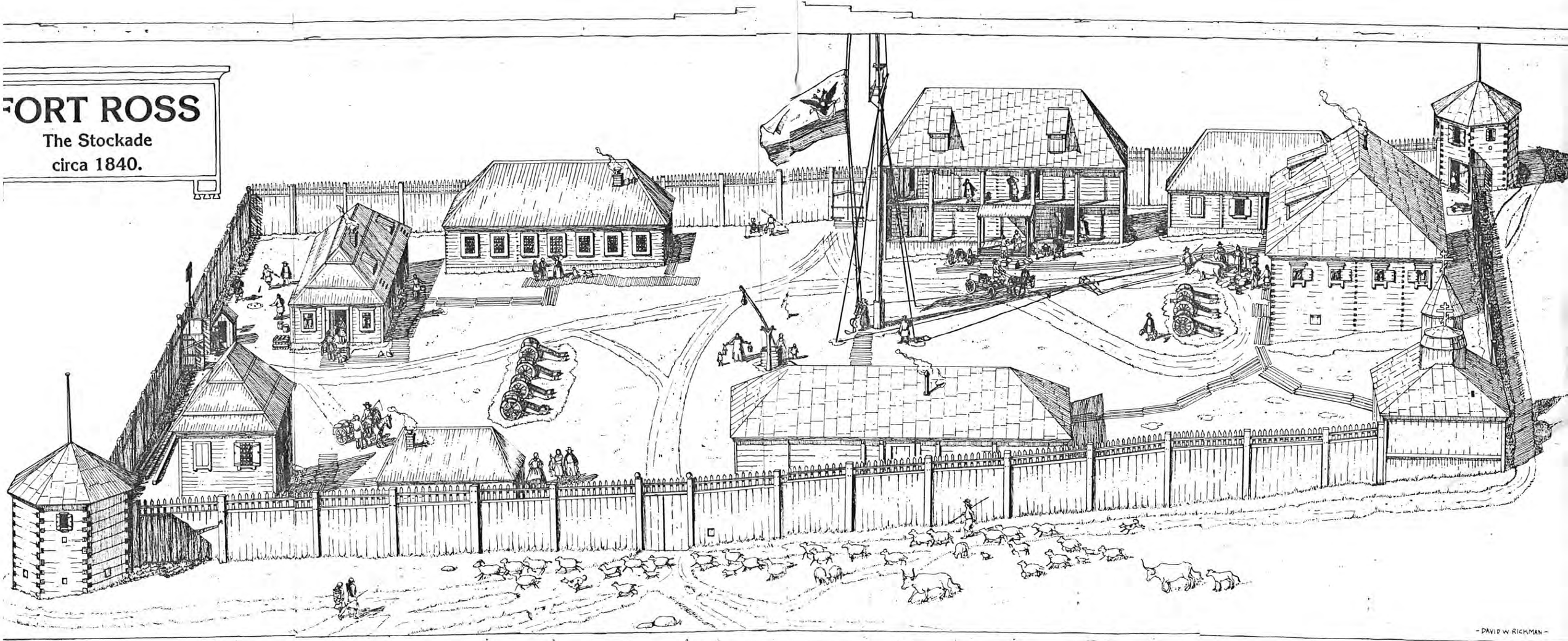
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The Stockade
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KREPOST' ROSS

A CHRONICLE OF RESEARCH FOR THE FORT ROSS VISITORS' CENTER DRAWINGS

by

DAVID W. RICKMAN

Historical Illustrator

July 1985

Foreword: A Bit About Historical Illustration.

Because of the truth of "E Pluribus Unum," we are a people without a history in common. As Americans we take just pride in the cosmopolitan origins of our pioneer stock, yet it is to this fact that we may lay much of the blame for most of the public's appalling ignorance of our nation's history. It is difficult enough for most of us to accept the reality of our own daily lives, much less imagine the reality of life in a strange and largely foreign past. This does not mean that we are unwilling to learn, only that history ought to be made believable by creative means to those who cannot devote their lives to delving into it. People are usually attracted to visual images, so that one of the best ways I know of to create a sense of the past in others is to show it to them in a picture. Often it is the case, however, that a picture of a specific subject or event from the past does not exist, or it does not show exactly what we wish to illustrate. It is then that a reconstruction must be created.

I am referring now to a two-dimensional reconstruction, a picture, but there are, of course, three-dimensional reconstructions of the past in our historical parks. I am an enthusiastic believer in the use of those as well, and identify strongly with the historical "interpreters" who create them. Much of what I have to say here about the methods of the historical illustrator apply to interpreters as well.

For me, nothing can match a fine restoration or reconstruction in an historical park for its appeal to all of the human senses, or its ability to transport the visitor into another era. This may be as close as most of us will ever get to taking a ride in a time-machine. Yet a modern drawing, based on historical research, an "historical illustration", can not only serve as a substitute when rebuilding is impractical, but can augment the effects of a three-dimensional reconstruction as well.

An historical illustration is useful in the planning stages of an historical park, and later can serve to introduce visitors to the site. Drawings can focus attention on important aspects of what can be learned at the park, explain an activity that was carried on there, or express the drama of a particular moment in the site's past. Where budgets are limited, or work is not yet complete, an illustration can show what has not been rebuilt. Then there are many things which cannot be put into an historical park which the visitor ought to see in order to enhance the sense of experiencing the past. These include the large numbers of humans and animals who once lived and labored there, or the day-to-day signs of life such as the laundry hanging out, fields being tended, or butchering meat for the larder. Fashions and morals change, and there is no living history program in existence that can show the costumes of the past, (or, in the case of our earliest cultures, the lack of them), as accurately as an illustration can.

Historical illustrations have many ways to serve the parks, but they exist apart from them as well. Museum exhibits rely on historical illustrations to show what their collections cannot. But, by far, historical illustrations are employed most often in books and magazines that wish to bring to life the past in ways that photographs of artifacts and historic sites never can. Very often we think of such publications as suited for children only, but that has much to do with our society's habit of forcing upon the young what adults no longer bother with. Not since the days of Howard Pyle, the great historical illustrator, has this sort of artwork appeared regularly in major publications. But its continued presence in some issues of National Geographic, and certain Time-Life books has so-far forestalled the day when most people's only visual acquaintance with the past will have to be the sadly ridiculous images from Hollywood and the paperback covers of "historical romances."

A proper historical illustration is much like a written history. Both are

the end product of historical research. Simply stated, one collects information on a subject from the best available sources and then assembles it into a meaningful form which will express one's theories about the past in a way that can be understood by others. Unlike the "hard" sciences, where laboratory experiments or mathematical formulas can be employed to support one's theories, an historian seldom has any other tests than the scrutiny of his peers; and, naturally, they have information and theories of their own. Yet, the inexactness of this method must not lead us to assume that nothing of value can be achieved. By basing one's research on original sources, seeking additional understanding through the best of secondary sources, eliminating the unlikely interpretations of this information and establishing a case for the likely, we can come remarkably close to what was once reality.

Historical illustrators and historical writers use many of the same sources to achieve their quite similar ends. The writer searches memoirs, diaries, newspapers, government and business records, as well and the works of fellow historians in an attempt to understand and to explain to others a past individual, event, or era. An illustrator will look at those same sources, as well as early photographs, paintings, drawings, artifacts and archaeological reports in an attempt to communicate visually some aspect of an individual, event or era.

There will always come a time in historical research when the record is blank and there are no facts available to fill it in. The historian-author's usual reaction to this development is to write, "We really do not know what happened here," and, more often than not, will go on to say, "but, based on our knowledge of the times, the individual, or whatever, here is our best guess." This right of an historian in such cases to draw conclusions which are only partly substantiated is seldom disputed. History has too many blank spots not to attempt to plug some of them with reason.

In historial illustration, this same right to make "best guesses," based on knowledge but where no proof exists, should receive equal respect. After all, the blank in the record could mean the omission of a door, a floor, or a roof.

The search for solid evidence should never be abandoned. Yet because that search is never-ending, our results will always be only varying degrees of perfecting what the past might have been like. Any chemist or physicist who is candid will tell you that their researches yield no better results. As new information comes to light, and new theories can be formed about what the past looked like, there is no better laboratory in which to test these than a drawing or painting. There one may assemble the facts or test one's theories in a way that is instantly comprehensible. I do not mean to say that these drawings are easy to do, but as new theories supersede the old, it is far cheaper to redraw than to rebuild.

Just as no author of an historical work can claim that their's is the last word on a subject, neither can an illustrator say that nothing more can be learned. As an historical illustrator I am always aware that the contributions which I may make to the effort of recreating the past, and putting a human face on it, is simply one step closer to a goal that can be approached, but never attained.

In order to more fully explore the hows and whys of historical illustration, I will attempt in the following pages to take the reader step-by-step through one of my projects, a series of drawings for the Visitors' Center at Fort Ross, California. Largely, our attention will be focused on the most difficult of the reconstructions, my research for an aerial view of the stockade. My hope is that I will be able to show how I arrived at my conclusions, and where I had to make the best of limited or no information. I will also make a brief statement about my research for each of the other four

drawings. Since I believe that most everyone who will see this paper is familiar with the historic site and most of the sources I used, I will be as brief as possible with background information. Because this material makes for dry reading, I promise not to dwell on any subject longer than I must. However, there are a few subjects that I thought deserved greater space, and are treated in appendices at the rear of this report. Finally, I must apologize for the poor quality of most of the illustrations. Photocopying is not a good medium for reproducing such material. For this reason, I have chosen pictures which, for the most part, are available in good libraries, and I invite my readers to take a second look at them there.

For this Fort Ross project I have relied heavily on many persons whose knowledge and insights were absolutely indispensible. Admittedly, I did not always take their advice, but in every case the information and opinions which they so generously shared, have deepened and enriched my research. I would like to warmly thank the following individuals: Glenn Burch, E.A.P. Crownhart-Vaughan, John Curtis, Glenn Farris, Victor Petrov, William Pritchard, Louise Revol, Nicholas Rokitiansky, Carles E.Smith, Mercedes Stafford, Kaye Tomlin, George Tretiakoff, Michael Tucker, and Basil Ushanoff. I would especially like to thank retired State Park Historian John McKenzie who, with the loving assistance of his wife Alice, gave unstintingly of his intimate knowledge of the fort's construction despite his poor health at the time of my research.

INTRODUCTION: THE PROBLEMS OF RESEARCHING A CULTURAL MELTING-POT.

As most of us know all too well by this time, Fort Ross is the name we commonly give to the settlement established by the Russian American Company on the California coast north of San Francisco Bay. From its founding in 1812, until its sale in 1841, this site was a lively scene, thronged with people, livestock, and every sign of life that we might expect to find at a frontier center for hunting, trade, manufacture and agriculture. After the departure of

the Russians, all of this changed. Never again was Ross to be the scene of quite so much life and industry. The many buildings and improvements which the founders left behind were stripped, remodeled, left to decay, or wantonly destroyed, making the task of the modern researcher, seeking to reconstruct the past, very difficult indeed.

In creating my illustrations, I have always tried to rely first on Russian sources, which has proven most difficult becuase I do not know the Russian language. However, I have relied heavily on certain generous souls who do, most notably my friend Professor Nicholas Rokitiansky. Also, because my task is primarily a visual one, I have often done my research in the international language of pictures. Yet, despite my very high regard for the importance of Russian sources, I could not depend entirely on them. Many of the best eye-witness descriptions were made by visitors who were not Russian, and who recorded much that was commonplace to those who were. Moreover, I have used some non-Russian sources because the culture at Ross was only predominately, but not exclusively, Russian.

Located at a crossroads of the Pacific, Fort Ross felt the undeniable influences of many nations. The number of Aleut, Tlingit, Kashaya and other Native Americans at the site, taken as a group, far outweighed that of the Russians. Hispanic territory abutted and influenced that of the Russians in California. Among the Company employees were "Finns," (persons drawn from several Baltic lands), and such Siberian natives as the Yakuts and Tungus. Their influences, too, must have been felt among the more numerous Russians. Then, too, the almost commonplace arrival of men from the United States, Canada, Britain, Hawaii, and sometimes France and other nations must have created an especially lively melting-pot. Into the settlement came merchandise from these countries, as well as China, the Phillipines, India, Latin America and many parts of Europe. Add to this the growth in Russia of a "Western" style of

culture since, at least, the time of Peter the Great, which was quite different from the indigenous Russian lifestyle, and one can see why it would be impossible to rely solely on Russian material culture to reconstruct life at Ross.

All of this can be overstated, of course. As I have said, Russian culture certainly predominated at the settlement. But to demonstrate the effects of this cultural mingling, perhaps we should just let the research speak for itself.

THE RESEARCH: EVIDENCE AND CONCLUSIONS.

The Lay of the Land: In my drawing of the fort, the land slopes gradually from the right to the left. The U.S. Geological Survey maps of the area show that the land at the site drops from an elevation of 134' above sea level at the middle of the NE wall, (i.e. behind the Kuskov House), to 111' at the Main Gate; a drop of 23' over a distance of about 310'. Overall this slope is gradual, but at points, such as the western corner of the Chapel, it is pronounced. Photos of the Chapel taken prior to the 1906 Earthquake show that the topography has changed little since the 19th century. Fig. 5 Fig. 7 Figs. 16 18.

Orienting the Fort: My first step was to lay out a grid over an enlargement of the U.S.G.S. map at a scale of 3/8"=10'0". As luck would have it, the current maps, based on aerial photos, record the location of the Rotchev House and the walls of the fort in very close to accurate scale. The Rotchev House is the only original structure left and is still sitting in its original location. With this building placed on my plan, the rest of the fort was laid out based on each structure's relationship to the Rotchev House. Sources for the groundplan are, for the most part, well known, (Bryn 1976; Dufour 1933; Farris 1981a and 1981b; Fedorova 1973; Haase 1952; McKenzie 1948-56, 1960 and 1961; Muniz 1859; Munro-Fraser 1973; Sutter 1841; Treganza 1954). In addition, there Fig. 7

are four original source drawings of the fort which have proven invaluable, (O'Brien 1980:i, 5-6, 21-22, and Sandels 1945). To check my work, I enlarged the 1817 Map of the fort, (a very fine photo-enlargement sent to Professor Nicholas Rokitiansky by the Academy of Sciences, Leningrad), by means of an opaque projector. I was very pleased by how well it fit my groundplan. The modern plans of what has so far been reconstructed at the fort fit nicely as well, (Pritchard and Tucker 1979). Figs. 10 12, 14 & 15 Fig. 8

A noteworthy point about the structures at Ross, both walls and buildings, is that none of them have their corners oriented at right-angles, but clearly askew. This fact is confirmed by excavation and by the 1817 Map.

The Stockade Walls: The height of the walls is problematic. The best estimate is the 1841 Inventory as interpreted by Glenn Farris (1981a), which establishes them as 14' high, (two sazhens). Fig. 23

Major Ernest Rufus, who investigated the fort in 1845, just three years after the Russian departure, was the basis of my drawing of the walls, (Munro-Fraser 1880:364). Most of his detailed description of the walls' construction is confirmed by earlier visitors, (Arguello 1816; 1817 Map and Key; Payeras 1820; Duhaut-Cilly 1929; Blok 1850; Essig 1933), old photos, and by the excavations of Adan Treganza (1954:23-24). Treganza verified so many of Rufus' details that he recommended the walls be reconstructed according to the Major's specifications. I have done so, with the only difference being that I spread out the pickets of the cheval-de-frise, which tops the wall, so that it is more in keeping with the usual appearance of that type of defense in examples from Russian Alaska and Siberia. There is no evidence that Ross' cheval-de-frise was of what may be called the "crossed-spikes" kind, as some have recently suggested to me. Fig. 8 Fig. 27 Fig. 25 Fig. 24 Figs.28 & 40

In E.O. Essig's 1933 description of the walls (191-193), mention is made of twenty loopholes, (presumably for muskets). Essig's description is

otherwise quite accurate, so this may be as well, but no sources are given so I was unable to confirm this assertion. Such loopholes were know in Siberia Fig. 22 (Balandin 1974).

There is, however, good evidence that there was a gun emplacement on each wall. At least three early visitors, Duhaut-Cilly (1925:5), William Slacum (1912:205-208), and Duflot de Mofras (Dufour 1933:85), mentioned the use of these four cannon. Duhaut-Cilly's description of 1828 is the fullest: "On the four sides of the fort, corresponding to the four cardinal points, are four doors, each one defended by a mortar with fixed breeching, showing at a port-hole, as in a ship." This description is not without error, (there are only three gates, and they do not lie at the cardinal points), but is otherwise clear and plausible.

The location of these gunports is still open to discussion, but our best evidence so far indicates their locations as I have shown them. William Pritchard, Supervisor of the Interpretive Planning Unit of the state parks system, and John McKenzie, retired State Park Historian, have both devoted many years to discovering the details of the fort's construction. Both tell me that there is physical evidence of cannon platforms near the sallyports and the northern bastion. There is also evidence that the fourth emplacement was on the SW wall next to that bastion, (personal correspondence, 1985). Fig. 5

The height of the gunports in the walls, as well as their style of construction is based on my assumption that they would resemble the ones in the bastions, (McKenzie 1948-1956). I have used carronades, as Slacum and Duflot de Mofras state, rather than mortars, and the height of such a 12 lb. gun mounted on a naval truck matches well the height of these gunports. More about ordnance below. Figs. 30 31 & 32

Main Gate and Sallyports: The locations of the Main Gate and the SE Sallyport are based on the current reconstruction at the historical park. For the

position of the NW Sallyport, I used the recently uncovered evidence which shows it was actually closer to the Old Warehouse than previously believed, (personal correspondence with Glenn Farris, 1985). This position is also borne out by the 1817 Map. Fig. 8

Details of the gates' construction are based on photos of the remains of one of the original gates. My use of wooden spheres at the tops of the gateposts is adapted from a fort in Alaska. Drawings by both Voznesenskii and Waseurtz af Sandels seem to suggest an "onion dome" for finials, but are not definite enough on this detail to be reliable. Both are clear, however, on the presence of a tall post ending in an oblong shape, standing on the NW side of the Main Gate, and probably attached to the wall. The fact that both artists independently show this detail confirms its existence, but its purpose is unknown. A semaphore, a gate barrier, a seal or crest, perhaps even an icon all suggest themselves to me, but are unsubstantiated. Fig. 26 Fig. 40 Figs. 14 & 15 See also Fig. 12

Though frequently asked about by visitors to the fort, there is no evidence that a parapet, (raised walkway), was ever used on the fort walls to allow the defenders to look over, and shoot over, the top. Apparently the Russians relied upon the loopholes, (if they existed), the gunports with their carronades, and the cannon in the bastions to protect the walls.

Bastions: The many descriptions of the bastions by early visitors to the fort are almost useless for their reconstruction, as they are mostly brief and contradictory. My drawing of these structures match closely the towers as they are presently reconstructed at the historical park. These are based on archaeological investigations, early photos, and the observations of those who saw the last of their remains in this century, (Treganza 1954; McKenzie 1948-56, Haase 1952). I only differ from the park's bastions in that I have extended and capped their central posts so that they correspond to early representations, and, based on the Voznesenskii watercolor, have given them Figs. 19 21 Figs. 29, 30, 31 & 32 Figs. 12, 14, 15 & 34

metal roofs, (see Appendix II for my case for metal roofs). In my first reconstruction of the fort (Rickman 1983), I showed the tall central posts in use as flagpoles. There is no conclusive evidence for this, so I have omitted the flags in this drawing. However, I still believe they may have been used as such because of their height and the cap seen on the drawing from Sitka. The use of such posts to display flags is not uncommon with other North American forts. Furthermore, their use would not entail cutting a hole in the roof of the bastion, as some have suggested, in order to reach the staff, but merely the nailing of a few strips of wood to the roof, like the rungs of a ladder, to climb up on. The use of such rungs on roofs is well known from Russia.

Fig. 6 Fig. 34 Fig. 36

Perhaps because some of the early drawings show windows on every side of the towers, it has lately been pointed out to me that I omitted some windows in my first drawing of the fort. I have continued to leave these windows out of my latest drawing because original sources starting with the groundplan on the 1817 Map, to the 1877 advertisement for the Fort Ross Hotel, early photos and studies of the towers show the same irregular arrangements of windows and gunports which the historical park, and I, have reproduced on the bastions.

Fig. 14 Fig. 6 Figs. 8, 19 & 21

Belltower: Another item which I have omitted from this second reconstruction, that appeared in the first, is the belltower against the western corner of the fort. This, and an identical structure in the eastern corner, were shown in the 1817 Map, and were described by visitors; the last I know of was in 1822 (Payeras:3). Furthermore, the ringing of bells by sentries, on the hour and as general signals, was common in Russian America (Payeras 1822:2, 4; Blomqvist 1972:133). But, as the chapel replaced the eastern corner belltower about 1825, and I have no proof that the western corner belltower either continued or was removed, I have left it out this time.

Fig. 6 Fig. 8

Sentry Box: A report to Mariano Vallejo mentioned this feature in 1833.

Describing the Officials' Quarters, the report stated that it "is located by the gate next to the sentry box," (Anonymous 1833:6). Waseurtz af Sandels, who was at the fort in 1843, wrote that an Indian woman, who kept the keys, let him into the deserted fort by, "the gate near the sentry box, (1945:82). Captain Belcher tells us that the Main Gate was normally the only one kept open during the day, and that it was guarded by one sentinel, armed with a cutlass, (1836:59). Based on these descriptions, I have represented the sentry box next to the Main Gate, and the one sentinel, armed with a cutlass, (1836:59). ~~Based on these descriptions, I have represented the sentry box next to the Main Gate, and the one sentinel.~~ The exact location of the box, and its appearance, are unknown. I have based this one on Russian sources which, it is interesting to note, always show them painted with black and white diagonal stripes. I have left mine plain for the sake of caution, yet it is significant that Payeras describes that the large cemetary cross was painted black and white, no doubt for the sake of visibility, (1822:3). Fig. 69

The Buildings: According to the confidential report to Vallejo, (Anonymous 1833:7), there were nine buildings inside the compound at Fort Ross by early 1833. This was later confirmed by the 1841 Inventory though, it must be admitted, there is no proof that these were the same nine, (Sutter 1841). Based on the sources mentioned above, in Orienting the Fort, it is possible to locate and, for the most part, reconstruct seven of those nine buildings. Fig. 7

1. The Rotchev House: This is not the original structure known to have been built on this site, but, "la nouvelle maison du commandant," or, "the new house of the commandant," according to the 1841 Inventory, (Sutter 1841). The 1817 Map shows a narrower structure, described as having three separate rooms, which had entrances on the SE side of the building. The present house was probably built on the site of the old, and so it remains, having seen considerable Fig. 8

modifications over the years, but now returned to what must be very close to its original appearance.

When I published my first reconstruction, (Rickman 1983), I thought that there was good reason to believe that the main entrance to the Rotchev House was located centrally on the SE side. Since then I have become convinced that I was wrong about this point. After studying the careful measurement in the Ynez Haase report, (1952, fig.1), which shows that all of the original openings on the SE wall were close to 3'10", while all known doors of Russian make on the building were close to 5' or wider, and discussing other structural details with John McKenzie, I have recanted.

The only changes which I have made to the present house is on the chimney, which is not known to be positively Russian. I have modified it to more closely resemble the sort used in Alaska. Fig. 34

2. The Officials' Quarters. The 1817 Map shows that this building originally had a smaller structure connected to its NW side, which served as a foundry and coppersmith's shop. It is unknown if this shop still stood in 1840, after the building had become the residence for unmarried officials, and the foundry and coppersmithing operations had been moved to locations outside the walls of the fort. (Sutter 1841). Because the extra length which this workshop would have given to the Officials' Quarters is not reflected in the 1841 Inventory, (Farris 1981a), I have chosen not to include it in my drawing. Instead, I have shown this building much as it is currently reconstructed at the historical park, which is based on archaeological and other original source evidence. My only noteworthy addition is the dormer windows which I base on the Voznesenskii watercolor. Fig. 23 Figs. 44, & 46 Figs. 9, 12, & 13

3. Warehouse for Provisions: This is shown in the 1817 Map and described as, "a two-story provision storage room made of boards," which was located in the

SW corner. A roofline shown in this position in the Voznesenskii watercolor indicates a two-story building still stood in that location by 1840. Based on the 1841 Inventory's description of the "Warehouse for Provisions, (made of) planks," measuring 42' x 21', I have reconstructed this building, (Sutter 1841, Farris 1981a). Since the site has not yet been excavated, details are lacking. Door and window placements are hypothetical.

4. New Kitchen: Mentioned only in the 1841 Inventory, we have no firm evidence of this building's location and appearance, other than its dimensions, 28' x 24.5', (Farris 1981a). I have placed it in the otherwise unoccupied SE corner because it seems logical to have kept it near to the Provisions Warehouse, as well as close to the Officials' Quarters and Barracks which it probably served. The Kuskov House, (see below), had a kitchen of its own, (Sutter 1841). There are, however, other possible locations, (See Appendix III). Fig. 23

5. Employees' Quarters, (Barracks): As yet unexcavated, the general location of this building is reasonably certain from the 1817 Map of Voznesenkii's watercolor. The 1841 Inventory gives the dimensions of the barracks as 28' x 77', (Farris 1981a). Again, from the 1817 Map, we know that the construction was of planks, and I have used the "post and sill" method known from the Officials' Quarters. The metal roof is shown in the Voznesenskii Watercolor, (See Appendix II), but the door and stovepipe are hypothetical, (See below, Ovens, Stoves and Chimneys). Figs. 8 & 12 Fig. 46

6. Chapel: Because the Chapel was not built until the 1820's, it is not mentioned in the 1817 Map, yet it is still one of the best understood of the fort's structures. This is because it remained intact until 1906. My version is based on the archaeological excavation, old photos and drawings, and the description ~~of~~ by Major Ernest Rufus, (Munro-Fraser 1880:365; McKenzie 1960). I

made the unfortunate error of not completing the drawing of the crosses on my first published view, and have not heard the end of it since. For this reason I, as so many before me, have chosen to ignore the evidence, and acquiesce on the question of the number of crosses that can be proven to have been used on the Chapel, tradition aside. My case for the use of a metal roof on the Chapel, and other buildings, will be found in Appendix II.

7. Kuskov House: One of the first structures built, now the most recent, this building is described in the 1817 Map as the House of the Commandant, built of timbers, and a floorplan is given. By 1841 the timbers had been covered over with a double layer of planks; no doubt to prevent further decay, (Sutter 1841). It disappeared sometime between 1843-1845, (perhaps dismantled for the scrap lumber) and so we have no other record of its appearance than Duhaut-Cilly and Voznesenskii, (both of whom just show the roofline), and Waseurtz af Sandels. Sandels' sketch matches the known information very well, showing an arrangement of doors and windows, and the indication of two interior walls, that match the 1817 Map's floorplan.

Fig. 8

Figs. 10, 12 & 15

Fig. 8

For my drawing, I have followed closely the current reconstruction at the historical park, which is based on excavation and other original sources (Pritchard and Tucker 1979). I have not shown the plank sheathing because I could not find a source for its appearance. The metal roof is based on Voznesenskii, (See Appendix II), as is the absence of rear dormers. Front dormers are shown by Sandels, whose correlations to the 1817 Map show his sketch to be a reliable source, (See Appendix I). Assuming that a stove might have been built over the outcropping of rock which lies beneath the structure, I have placed the flue in that position, (See below, Ovens, Stoves and Chimneys).

Fig. 44

Fig. 12, 9 & 13

8. New Warehouse: Like the New Kitchen, this warehouse is not mentioned until the 1841 Inventory, though it may have been built by 1833, or earlier,

(Anonymous 1833:7). This inventory describes it as a "Grain Warehouse," built of planks, 28' x 49', (Sutter 1841; Farris 1981a). Fig. 23

Here again the location is hypothetical, but based on the reasoning that this building might be placed next to the Old Warehouse to serve as an annex. The Voznesenskii watercolor shows three peaked roofs paralleling the NW wall, Fig. 12 which would have to be the Rotchev House, the Old Warehouse, (the center and tallest of the three), and one other, unidentified roof nearest to the viewer. For the sake of this drawing, I have assumed that this last was the New Warehouse, (See Appendix III for an alternative theory). Details such as placement of doors and windows are hypothetical.

9. The Old Warehouse: Sometimes called today the "Fur Barn," this building is described in 1817 as a "Two-story storage place built of timbers." It had two Fig. 8 rooms on the lower level, and three above. Most of my reconstruction is based on the history of the structure and its excavation written by Glenn Farris (1981b), and on my discussions with him. An important point made by his report Fig. 48 is that the Old Warehouse, in common with some other Russian warehouses in Alaska, had a "peristyle," or walkway on its second level.

Details appearing on my reconstruction which might need explaining include the following: a porch which has not been established by excavation, but which appears on the 1817 Map, and on a similar structure on Kodiak Island, Fig. 8 (Blomqvist 1972: figs. 11 and 12). Dormer windows are based on Duhaut-Cilly. Fig. 10 The number and arrangement of the doors is based on the description of the number of rooms in 1817, the excavation, (Farris 1981b), and on features of the American-era barn that are more fully discussed in Appendix III. The metal roof is discussed in Appendix II.

Other Features: Several other aspects of the drawing remain to be explained, and their sources given.

1. The Well. Shown in the 1817 Map and excavated by Treganza in 1954 (22), the well was located near the center of the fort. The cribbing and the dipping device were not preserved, so are based on Russian sources both here and at the historical park. I have added a stone weight to the end of the "dipper" as the Russians did, as a counter-balance. Pictures of such wells that I have seen usually show a wooden pole with a hook at the end of the dipper, but no bucket permanently attached, so that those who used the well had to bring their own. Fig. 56

2. The Flagpole. As described by an early Russian source, the flagpole was raised in 1812, and consisted of a mast and topmast, dug into the earth, and located in the middle of the fort, (Fedorova 1979:9). The 1817 Map shows that the pole was not set at the exact center of the fort. Our only other source on the flagpole is the drawing by Duhaut-Cilly. My interpretation of the Voznesenskii drawing and watercolor, and the memoirs of Waseurtz af Sandels (1945:81), is that by 1840 there may not have been a flagpole within the compound at Ross. Clearly the post with oblong finial seen in both the sketch and the watercolor are the same object and, I believe, attached to the wall next to the Main Gate. Sandels describes the flagpole as having stood outside the fort. Fig. 8 Fig. 10 Fig. 12

George Tretiakoff, who has devoted years of study to the fort wrote to say that since we know for certain that there was a flagpole in this location at Ross throughout much of its Russian era, but are not certain about its disappearance by 1840, wouldn't it be wiser to include it in the reconstruction? With thanks to him, I have taken is advice, (personal correspondence, 1985).

Details of the flagpole's construction have had to be adapted from non-Russian sources since I could find no information from Russia. However, the basic shape of the pole is taken from drawings by Voznesenskii, Duhaut-Cilly and views of other contemporary flagpoles. Figs. 10, 34, 37 & 39

I estimate the height of the pole was roughly 100' by comparing its

height in Duhaut-Cilly with the reconstructed height of the Kuskov House, 37'2" (Pritchard and Tucker 1979). I allowed for the fact that the pole lay some 100' beyond this house and down a 10' slope. This size compares well with that of the other flagpoles I used as reference. Fig. 7

3. The Flag. Professor Nichols Rokitiansky gave me the dimensions of the sole remaining Russian American Company Flag, now preserved in the Soviet Union, as well as a copy of the original design for the flag. However, his flag's size, circa 3' x 6', is much too small to be seen from a distance, and probably was a ship's jack rather than a fort's flag. I have enlarged it proportionately to approximately 12' x 22.5', which is more in keeping with a flagpole of this size, and with other pictures of Company flags flown over forts. Figs. 41 & 42 Figs. 10, 35, 76 & 77

4. Ordnance. Michael Tucker's painstaking researches were the basis of the artillery shown in my drawing, (Tucker 1980; Pritchard and Tucker 1979). The use and positions of the four carronades has been discussed above, (See The Stockade Walls). It is significant that in the original sources, the number and calibres of the guns described indicate a growing collection of cannon at the fort, and not simply that the same guns were being moved about the compound and recounted by each visitor, giving a false impression. Fig. 43

There is no evidence that the guns, other than those in the bastions, and the carronades on the walls, were mounted on naval trucks. Duhaut-Cilly mentions carriages, (1919; 323-327), and Sutter's cannon, since it came with a caisson, could hardly have been mounted on a naval truck (Sutter 1879). Gun carriages for field artillery were not beyond the Russian craftsmen's abilities to construct, since they built wagons and carts. Nor was it beyond the Russian officials' understanding of basic tactics to realize that some of their cannon needed to be mobile in case of an offensive action, or a retreat. It should Fig. 38

also be pointed out that General Mariano Vallejo had a company of artillery in Sonoma trained as "light" or mobile artillery, and armed with 4,6 and 8 lb. cannon mounted on carriages, (Larios 1984:24-26, and plate 3).

5. Ovens, Stoves and Chimneys. Since I am representing only the outsides of these buildings, I will not enter into the discussion of whether or not metal stoves were used at Ross, thank you. I have, however, chosen to show both brick chimneys and metal pipe flues used at the fort. George Tretiakoff tells me that metal flues can be used on brick ovens, and not just metal stoves, (personal conversation, 1985). In the only original source I know of that shows a brick chimney in use at Ross near to Russian times, Waseurtz af Sandels, only one is shown, on the Rotchev House. The drawing on the 1817 Map has been offered as proof of the use of chimneys, but it has yet to be proven to have been done by an artist who visited the site, (i.e. it could have been drawn imaginatively from the map or another's sketch). The artist does show chimneys, but on all of the buildings, including two warehouses. I find that unlikely.

Fig. 15

Fig. 8

The most accurate view of Ross, the Voznesenskii watercolor, shows no chimneys in use, despite the fact that we know that cooking and heating had to take place at the fort. It is my belief that by 1840, metal pipe flues could have been in use at Ross, along with brick chimneys, as this same artist shows in his view of New Archangel. Despite the fact that brick was manufactured by the Russians in California, and that it was certainly used for ovens there, metal pipe may have been used at times for flues because it is more convenient to set up, easier to clean and repair, and less likely to blow over in a storm. The fact that no brick chimneys can be seen in Voznesenskii's watercolor could be due to the fact that metal pipe was used instead and, because it is so slender, would be more difficult to see from a distance. There is a photo from Moscow that confirms this.

Fig. 12

Fig. 34

Fig. 70

As a warm-blooded Californian, I placed more chimneys and flues in my original drawing than would have been needed. On the advice of George Tretiakoff, who assures me that a good Russian-style brick oven puts off plenty of heat, I have removed some of these. Fig. 6

6. Board and Dirt Paths. The flow of traffic through the fort, as represented by the beaten pathways, is based on nothing more than logic and speculation. Waseurtz af Sandels shows a pathway leading out of the NW Sallyport, and I have represented a similar one leading out of the SE. Fig. 15

Wooden walkways were used in Alaska, and consisted of nothing more formal than lengths of board laid out on the bare earth. Both Ferdinand von Wrangell (1969:207), and Glenn Farris (1981b:17) have commented on the clayey soil at the fort, and, I believe that with the heavy traffic and moist climate, such walkways would have been welcomed at Ross as well. Figs. 34 &74

7. Wagons and Carts. Among the farm machinery listed in the 1841 Inventory, I found "five four-wheeled carts, (wagons)," and "ten two-wheeled carts," (Dufour 1933:71). I doubt that the Russians used the crude Hispanic carretas much, and the four-wheeled wagons were almost certainly of Russian manufacture. For this reason, I have shown traditional Russian wagons and carts in use by the employees. The carreta next to the Kuskov House belongs to Californio visitors. Fig. 64

8. General Neatness. Many visitors to Ross commented on the general military air of the fort, and its neatness. Drawings and photos of the Russian settlements in Alaska, and even in Russia itself seem to indicate that very little of value was left unattended in these places. Figs. 28, 34,70, & 74-80.

Notes on Other Drawings:

1. Indians. I feel that my representation, in an effort to be offensive to no one, and to represent persons and activities which might be called "typical" comes off like, "Norman Rockwell visits the Kashaya." Be that as it may, I believe that my sources, listed briefly below, and in more detail in the bibliography, have assured general accuracy: (Dogopolov 1952; Gifford and Kroeber n.d.; Heizer 1978; Kroeber 1925; Kroeber, T. and Heizer 1968; Kroeber, T. et al 1977; La Place 1854; Wrangell and Kostromitinov 1974). Most of the artifacts were shown to me by Larry Dawson, a curator at the Lowie Museum, U.C. Berkeley. I have also had the advice of anthropologists Louise Revol and Charles E. Smith, who both have close associations with the Kashaya. It is my greatest regret that, try as I might, I could elicit no direct response to my drawings from the Kashaya People themselves. Fig. 1

2. Ploughing. This drawing is set in one of the fenced fields directly behind the fort, seen in the Voznesenskii watercolor, and shows the windmill and part of the community next to it. Fig. 2 Fig. 12

The man ploughing is a Native Californian, since much of the agricultural work at the settlement was done by them. They were often paid by the Russians with clothing (Wrangell 1969), which explains his style of dress. The clothes themselves are based on my researches, (Rickman 1985).

Kyrill T. Khlebnikov wrote, (1976:119), about farming at Ross, "There were workers from all parts of vast Russia in the settlement, and each one made tools according to his own liking. There were Finnish plows, Little Russian plows, Great Russian plows, Siberian plows, and California plows..."; a fine example of the sort of cultural mix at the settlement and its effects on the material culture there. I have taken this method of ploughing from drawings and photos of 19th century Russian farmers (Obolensky 1979, fig. 109), and the Fig. 56

plough is based on a Russian example, (Academy of Sciences 1971). A mule is used to pull it, (Dufour 1933:71).

3. Tinsmith's Shop. The shop is based on the one in the Officials' Quarters currently reconstructed at the fort. The craftsman is of early middle-age, perhaps in his forties, but with the sort of weather-beaten features one would expect of a frontiersman. His face, and style of hair are based on Russian sources, (Obolensky 1979, Kamelova 1961), while his clothing is based on my researches, (Rickman 1985). His pipe is not typical of an early 19th century Russian, which was a long-stemmed affair that required one hand to steady it. This is a native pipe from eastern Siberia. Tobacco was a common purchase for promyshlenniks, (Lists 1817-32, Wrangell 1969). Fig. 3

4. Religious Procession. For this drawing, I am very grateful for the assistance of a certain reverend father of the Russian Orthodox Church who advised me about the details. For reasons of commendable humility, he asked not to be named. Fig. 4

The subject here is based on Father Ioann Veniaminov's 1836 visit to the fort, and the procession he led, (Veniaminov 1836). One detail is affected by this date, August of 1836, and that is the roof of the Chapel. The metal covering which I believe was used (Appendix II) may have been ordered by Alexander Rotchev, who took command that same year. For this reason, I have shown a roof of planks.

The curious arrangement of boards above the door of the Chapel had previously led me to believe that a porch with a roof was connected there, (Rickman 1983). The more plausible explanation of a rain gutter was given to me by George Tretiakoff, but the illustrations he sent really did not show anything resembling the remains on the Chapel. I was at a loss to see how one board sloping downward from the building could keep the rain off visitors. I Fig. 16 Fig. 57

chose, however, to show the boards just as they appear in the photos, and as they are currently reconstructed at the fort. Not until after the drawings were submitted did I find a possible solution, while visiting Old Sturbridge Village, a reconstructed 1835 village in Massachusetts. A rain gutter there was identical to that of the chapel, except that it had another board added, parallel to the first and forming a right angle, that made an efficient trough. I believe this was how the gutter on the chapel could have been made. Fig. 18 Fig. 58

The processional cross and the shape of the banners are from photos of Russia (Obolensky 1979, fig. 471). The subjects of the icons and the banners are taken from a description by the icon maker himself, who wrote that he sent to the "village of Ross," in 1825, four icons that were 10'5" (4 1/2 arshiny, here interpreted as banners, since icons of that size for a chapel are unusual). Their subjects were the Resurrection of Christ, Kazan Mother of God, John Bogoslav (not shown), and Aleksandr Nevsky. Two others were sent, Nicholas the Miracle Worker, and the Prophet Elijah. These last were smaller, 6 vershki (10 1/2"), (McKenzie 1960). Interestingly, Father Veniaminov mentioned that the Chapel had only two small icons, and I believe they were probably these (1836).

My hope was that the crowd would represent the mixed ethnic origins of the residents of Ross: Kashaya, Aleut and Russian, mostly. Their faces and clothing are taken from original sources. Of particular interest are the priest's vestments (Vaughan and Holm 1982:29), the nankeen cotton shifts and turbans of some of the native and creole women (Khlebnikov 1817-32:47; Shur and Pierce 1978:361; Zagoskin 1842-45:68), and the Russian clothing worn by the boys (Khlebnikov 1817-32:47).

Appendix I. The Earliest Visual Sources: Though tempted, I will not repeat the old saw about the number of words that one picture is worth. But in the case of Fort Ross, we have four pictures dating to, or just after the Russian

era which, while not sophisticated in technique, are invaluable for research because of the number of details they give, and share between themselves. I refer to the lithograph of an original sketch by Duhat-Cilly (1828); the unfinished sketch, and the watercolor by Voznesenskii (1840-42?); and the sketch by Waseurtz af Sandels (1843). The later woodcut adapted from Sandels' drawing is unreliable, but at times is useful in clarifying details. Figs. 10, 12,14,15 17

The point has been made to me by one fellow researcher that none of these three artists had proper training as draughtsmen or architects and so, while their work may be, "somewhat useful and interesting," they cannot be relied upon for proof of anything.

It is my belief that original visual sources are much like original written sources. The reliability of a written source is judged by the ability of an historian to verify one or more important details with another original source. So, too with a visual source. The more details in a picture, (as with a written account), that can be verified with other reliable sources, the more likely we are to accept other details which cannot be proven. This is standard historiography, and a vital tool of research because no witness can see everything, or, in the case of a picture, there may be a difference of angle, the amount of detail, or the ability of the artist.

From the standpoint of a professional artist, who has also had training as an historian, I would like to come to the defense of the three artists who recorded Fort Ross. To appreciate the value of their work, one must first understand that there are basically two sorts of draughtsmen in the Western tradition of art. One relies only upon what is seen, and records as accurately as possible the image of an object as it is perceived visually. This is the "Academic Tradition" of art, whose methods date back to the Classical and Renaissance eras. This "school" of art requires the mastery of linear and atmospheric perspective, the study of proportional relationships, and the

effects of light on solid forms.

The other "school" of art relies on what is known to be true about an object, and its artists almost always put down this information as truthfully as they can, without regard to such techniques as those used by the academically trained artist. If a house has four sides, all of them must be shown. If an animal has four legs, all of them, (and frequently a diagram of the major internal organs as well), must appear. Nevermind about foreshortening, or the possibility that something might be hidden, truth is what counts. I have difficulty giving a single name to this school, because it is practiced everywhere, and under many different titles. It is the oldest way of drawing, as we may see in ancient cave paintings, yet is still followed widely, as may be seen from any collection of modern "tribal" arts, "folk" art, the works of the Cubists, or the efforts of any child. For convenience, I will use the common term, "naive" without approving of its connotations.

There are, of course, naive artists who consciously stylize an object, to make it ornamental or fanciful. The Celtic manuscripts of Ireland are just one example of this. But even there the tendency is to stylize only imaginary objects or creatures, and to report with considerable accuracy actual objects such as human and animal forms. Not until modern times do we find artists deliberately abstracting and modifying actual objects in an effort to distort or hide their true shapes.

It is impossible to find an artist who is so well trained academically that absolutely no stylization, no "shorthand" technique that represents what is known and not perceived, appears in his work. The artists who recorded Ross lay in between the purely naive and the academic. They were not unaware of perspective and other academic techniques, but, to varying degrees, they were not their masters either. But in either case, naive or academic, they were seeking to accurately portray what Ross was, and in no way were they interested

in taking "artistic license" with it.

Clearly, the artist who leaned most closely to the naive was Waseurtz af Sandels who, unlike the other two artists, probably had no training in drawing whatever. However, he sketched often and, in other works of his, with verifiable accuracy (Sandels 1945).

Because of the angle of his view of Ross, some have gone so far as to suggest that Sandels never laid eyes on the place and perhaps made his sketch from someone else's, or even from a description. Were it just for the fact of his delightfully written memoirs alone, which are filled with accurate detail and incidents connected with his trip to Ross, we would be certain that this could not be the case. But there is more.

By comparing Sandels' drawing with those of the other two artists, not only are the major points of Ross' appearance verified, (the rectangular stockade with bastions at the north and south corners, the positions and shapes of the buildings, the location of the settlement outside the walls, the windmill on the rise, etc.), but many minor ones that might normally be overlooked in a verbal description are also present. The shapes of the belltower and cupola on the Chapel, the windmill's pyramidal base, house-like body and four arms, the post with its oblong finial standing on the western side of the Main Gate, the location of the chimney on the Rotchev House, and an out-building standing next to the SE wall distinctive because of a gabled ventilator, (of a type known from New Archangel), projecting above its roofline, are all details that can be found in either Duhaut-Cilly or Vosnesenskii. Fig. 86

If we believe that Sandels copied his drawing from someone else's, it would prove little; the angle would still have been impossible for the original artist to draw from because it lies at a great height and out to sea. But that would be assuming that this hypothetical "lost" drawing was done using academic

techniques.

Knowing that as a naive artist Sandels was attempting to record details in his crude, but effective manner, (rather like a Grandma Moses, or other "folk" artists), details which can mostly be confirmed, we can accept that he did not need to stand on some non-existent rise to make this drawing. Neither do you nor I need to hover over our neighborhood to draw an accurate map of it. He was putting down on paper what he knew to be true.

Despite a certain innocence of academic technique, all of these artists' works have real value for those who would reconstruct Ross because they contain information that is available nowhere else. With our ability to cross-check details between them, and confirm even more with other original sources, we can go on to rely upon these representations for evidence as securely as with the written word.

Appendix II. A Case for Metal Roofs My representation of metal roofs on several of the structures in the Fort Ross compound has come in for a good deal of criticism. Most of the remarks have come from persons whose long research into the history of Russian America has made me respect their opinions, so I am taking this opportunity, (and quite a bit of ink and paper), to explain my reasons for including metal roofs once again in my latest reconstruction of the Fort Ross stockade. Figs. 5 6

When I published my first reconstructed view of the fort (Rickman 1983), I based the presence of sheet iron roofs on an article by the respected Soviet ethnologist, E.E. Blomqvist (1972). I was familiar with the circa 1840 painting of the Ross settlement by Il'ia Voznesenskii through a color photograph which my friend Professor Nicholas Rokitiansky had obtained from the Academy of Sciences, Leningrad (O'Brien 1980:19-20). However, neither he, nor anyone else I consulted, could explain why the artist, who had rendered this view of the settlement so carefully and accurately, had shown some of the Fig. 12

buildings' roofs as dull red in color, and others as the same greyish-tan as the wooden walls of these structures. Figs. 9 13

Then I found the Blomkvist article which, in describing this painting, stated that, "Some of the buildings within the enclosure - the two sentry boxes (bastions), the church, the first and third buildings on the left, and the buiding on the extreme right - have metal roofs shown in red." (Blomqvist 1972:106). Further on in this article (141), the author described some of the buildings at New Archangel, drawn by the same artist, as also having metal roofs. The nearest of these has a roof marked with a distinct pattern of rectangles arranged in staggered rows horizontally, but in parallel rows vertically. Fig. 34

I then consulted with Glenn Farris, an archaeologist, and Michael Tucker, then historical interpreter, both with the California Department of Parks and Recreation. Both of these friends of mine have spent years closely involved in the investigation and reconstruction of the fort, and are very familiar with historical construction materials. They agreed that the red roofs could represent sheet iron, which industrial nations were producing in large quantities by the early 19th century. They showed me a piece of "Russia iron", sheet iron, from a 19th century steam locomotive's boiler, and told me that this Russian export was highly regarded in its day, and widely used in this country. On my own I assumed, incorrectly and out of ignorance, that the red color of these roofs came from the sheet iron having rusted.

In summary, my decision to include metal roofs on my original reconstruction brought the following comments:

1. The red roofs painted by Voznesenskii at Ross do not represent a different material, but were added to liven up the color scheme. This was just a bit of "artistic license."
2. There is no clear evidence of the use of metal roofs in the Russian

colonies in Alaska and California.

3. Some metal roofs may have been used in Alaska, but they were of copper.
4. We have no evidence of the use of iron roofs in Russia, except in the interior, at least twenty-five miles away from the corrosive effects of salt sea air. By extension, metal roofs would not be used in the American colonies because they were built on the coast.
5. Metal roofs were in use in Russia only in the "very late 19th century."
6. Sheet iron was too expensive a material during the Fort Ross era, (1812-1841), to make roofs from.
7. Sheet iron is too heavy to be used for roofing.
8. There is no mention of sheet metal roofing being imported into the Ross settlement, and it is quite unlikely that the Russian American Company would ship such a heavy, expensive material all the way from Russia to California.
9. Metal roofing material is nowhere mentioned in the 1841 Inventory of goods offered for sale to John Sutter, though almost everything else of value was. There is no record of either Sutter or the departing Russians removing the iron roofs, and no remains of the metal have ever been found, ergo they never existed.
10. Why would the Russian American Company use sheet iron for roofs when the Russians were the masters of woodworking and literally surrounded by trees at Fort Ross and in Alaska? By implication, metal roofs have no advantages over the sort of wooden plank roofs known to have been in use in those colonies.

These arguments seemed quite persuasive, and I had to admit that there was much I did not know about metal roofs. Yet the Blomqvist information seemed so

sensible. I found it hard to believe that the red roofs in Voznesenskii's painting of Ross, and the definite rectangular pattern on the roof in Sitka, could represent wood. A thorough review of the subject was needed before embarking on the new drawing of Fort Ross. Here is what I found.

Metal is one of the most durable roofing materials known. Some European roofs of copper and of lead are still in use after several hundred years (Nash 1971:91). Due to certain characteristics, metal roofs have many advantages over wood. Sheet metal is quickly and easily applied to roofs of almost any pitch. Such a covering will last an average of 25-50 years, and far longer if well maintained. It is easily patched with caulking or solder, sheds snow more easily than wood, and is absolutely watertight. Needless to say, they are hard to burn, as well.

In contrast, a roof made of wood will last an average of only 10-20 years. Wooden roofs are more difficult to repair than metal, especially when they are constructed, as the original roof on the Fort Ross Chapel was, of sandwiched layers of boards and cloth, (personal correspondence with John McKenzie, 1985). Just to replace a plank in such a roof would mean having to plane a board to the exact width of the original, since fit would be critical to its watertightness. Wooden roofs <u>do</u> burn, even redwood ones, especially prior to the development of modern fire retardents. Because of these contrasts, wooden roofs are only initially cheaper than the longer-lasting metal (Nash 1971:94; Time-Life 1977:67,98). By the early 19th century, the cost of sheet metal had dropped so low as to make the investment worth serious consideration.

It was the Industrial Revolution of the 18th and 19th centuries, with its widespread development of blast furnaces, water-powered hammers and rolling mills, in Europe and North America, that brought the price of sheet metal down. Such prodigious amounts of metal, especially iron, were produced, that new uses were sought for this once-luxurious material. When rust, the greatest short-

coming of iron, was overcome by improved plating methods, iron began to be applied to some very mundane purposes. By the late 18th century weathervanes, lanterns, rain gutters, pots, pans, plates, cups, baby bottles, footwarmers, cookie cutters, cabinets and every description of container were made from "tin". That is, of course, thinly rolled sheets of iron dipped into molten tin to plate it, (Kauffman 1966:31-35, 131-148). Figs. 60, 61 & 62

A very similar material, called "terne", was used for many of the same products, as well as roofing by this time. I am indebted to John Curtis, director of the curatorial staff at Old Sturbridge Village, Massachusetts (the noted museum village which recreates the early 19th century New England lifestyle), for explaining to me the production and use of terne. Terne, an alloy of lead and zinc, (or lead and tin), was applied to thin sheets of iron by "hot-dipping" them into cauldrons filled with the molten alloy. The plated iron, (also called terne), was finished with red, (iron-oxide pigment), linseed oil based paint.

The most common method of attaching a terne roof was the "standing seam". Plates of the metal, approximately 1/32 inch thick, and at least a square foot in area, would have their edges crimped on two opposite sides. Vertical rows of these plates would then be laid onto the solid wood surface of a roof, and held in place with nails. The crimped edge of one row of plates would overlap that of the next row, and so on, across the roof, forming the distinct pattern of ridges, or "standing seams," which make these roofs very simple to identify in drawings and photographs. The joints between the seams and the plates were soldered to make them watertight. There were several variations on this method, one being to arrange the plates in a diamond or "cross-hatched," pattern, which is even easier to recognize. Figs. 59, 82 & 83

Once a terne roof was attached, it was given another coat of linseed oil

based paint to completely seal it. Usually this was the same red oxide paint as before, but any other colors could be used. Paints pigmented with iron oxide and copper oxide, (red and green), tended to be the most common, because they were the cheapest. Regular painting was usually all that was needed to ensure a durable, waterproof, and fireproof roof for decades to come, (Vara 1985:26-27; Time-Life:67,98).

Another excellent roofing material used in this era was sheet copper. It required no painting, and came from the rolling mill with its surface still bright. Once it was attached as a roof, using the same methods as terne, it soon oxidized to a distinctive light green color. Copper was not as widely available as tern, because of limited supplies of raw material, and so was never as commonly used, (Time-Life:67,98).

By the 1830's, terne roofs were well known and widely used in Europe, the United States, and any other part of the world where industrial nations transported them, (conversation with John Curtis). But were metal roofs used in Russia, the homeland of Ross' builders? A brief survey of the history of Russian architecture shows that on many of the great masonry-built churches of Kiev, Novgorod, Moscow and other medieval cities, metal roofs have been used for centuries. Other public buildings, such as the kremlins of Moscow and of Rostov, likewise have had standing seam metal roofs for several hundred years, (Faensen 1975:23). No doubt, metal roofs were costly at these early dates, but these buildings were important enough to warrant using the best. Figs. 65, 66 & 67 Fig. 63 70

It was the same Industrial Revolution which made sheet metal roofs common in other European nations, that made them popular in Russia as well. The fact that Russia is a mineral-rich country was appreciated and exploited by at least the 1630's, when the iron-fields of the Urals began to be opened up using Dutch technology. By 1755, the annual output of iron from Russia was approximately

3,600,000 tons, exceeding even that of Great Britain. (Vernadsky 1961:139; Rice 1970:146). Not surprisingly, the use of this metal became increasingly common in Russia, at least by the wealthy. During the reign of Catherine the Great (1762-1796), the nobles and wealthier merchants of Moscow and St. Petersburg boasted homes protected by iron or copper roofs (Kochan 1969:81). Fig. 68

Russia's iron production began falling behind the growing British and American industries by the time of Catherine's death, but under succeeding tsars there were renewed bursts of growth. By 1830, Russia was responsible for 12% of the world's iron production, (Mulinkov 1968:194-195).

Searching the visual evidence, (drawings, paintings and photos of Russia to the mid-19th century), we find that the distinctive pattern of widely-spaced vertical seams that distinguish metal roofs from any other kind, begin appearing on increasingly humbler structures. Color, too, is usually a distinctive feature associated with metal roofs, with red, green and other bright hues contrasting with the duller browns and tans of wood. Sheet iron roofs were becoming as affordable in Russia, as they were anywhere else. Figs. 69 70

One indication that Russian iron was becoming competitive at this time is the price it commanded on the American frontier. According to the accounts books for 1821-1822 of the American Fur Company post at MacKinac, (located between Lakes Huron and Michigan), the retail price of Russian bar iron was $5.00 per hundredweight, (@ 112 lbs. per hundredweight, this would equal $.044 per lb.). This compares reasonably well with English bar iron @ $.041 per pound, and Swedish bar iron @ $.048 at this same outlet, (Russell 1967:370). According to John Curtis of Old Sturbridge Village, Russian sheet iron, known commonly as "Russia iron", was well known in the United States by the early 19th century, confirming what was told to me some years ago by Glenn Farris and Michael Tucker, (see above). Thus, Russia did not find this material either

too heavy, or too expensive to ship abroad. He went on to say that most often it came in 10" x 13" sheets.

We might assume that only Russian iron would be used if metal roofs were constructed in Russian America, but this need not be the case. The Russian American Company traded often with the Britons and Yankees, and we know that if the Russians were not willing to transport iron halfway around the world, these others were. At Fort Vancouver, (a Hudson's Bay Company outpost on the Columbia River, established in 1824), archaeologists have uncovered quantities of British sheet iron of seven different thicknesses, ranging from 1/2" to 1/32", (Russell 1967:375, n.8).

We know also that iron was used in large quantities at Fort Ross. Extracts of the trade records for the colony between 1817 and 1832, (taken mostly from shipping manifests and the accounts of Khlebnikov 1817-1832), show that between those years, at least 305,254 lbs. of iron were landed. Most of this is listed as "iron, general," but other listings were for, "iron, treated," "iron, platinated," "sheet iron" as well as "sheet tin." (Lists, n.d.). Fig. 71

There could be plenty of material on hand at the fort if we read these lists carefully. My greatest shortcoming in undertaking the research for these drawings is the fact that I do not speak or read Russian. I have neither my Russian-speaking friends, nor even a Russian language version of these trade inventories with me now. However, I believe both the "treated", and the "platinated" iron could mean terne; sheet iron plated with lead-zinc alloy. "Platinated" must be a mistranslation. Neither Glenn Farris nor John Curtis had ever heard of the process, and the Oxford English Dictionary defines the word as coating metal with platinum. This would be an unlikely import for a frontier workshop. As for "treated", I could find no treatment for iron in the

early 19th century other than plating sheet iron with tin or terne.

Sheet tin is listed, and it, too, might have served as roofing, but more likely was used to manufacture domestic items in the workshop. The sheet iron would also have served, if the tin which is listed in these records was melted to coat it. But these last two options do not seem as likely to me as my interpretation of "treated" and "platinated" iron as terne.

It should be stressed that the inventory lists which I have stop nine years short of the Russian sale of Ross. Before that time, 12,254 lbs. of "treated" and "platinated" iron alone were imported into Ross. The best quality terne, that is, the thickest iron and heaviest coating of terne, is described as "26 gauge, 40 lb. terne". This translates as 1/16" thick, (which is quite thick for metal roofing), with a coating on it equivalent to using 40 lbs. of terne to cover 436 square feet of surface area. This is what the professionals would call "heavy-duty" sheet metal roofing, and yet it weighs only 76 lbs. per 100 square feet. It is clear that this material was not too heavy to use as roofing at Ross (Vara 1985:21,27). It is likewise clear that the 12,254 lbs. of treated and platinated iron, if it was terne, would probably have been enough to cover the six roofs I have shown covered at Ross. There is no reason to believe, though we do not have the records, that the rate of iron imports to be settlement would have been less for most of the period between 1832 and 1841.

We know then that Russia's American colonies could have used sheet metal roofs by the 1830's. Such roofs had long been in use in Russia, even in such "corrosive" environments as St. Petersburg, which was built next to salt water. Moreover, the Industrial Revolution had made Russian sheet iron plentiful and competitive on the world market. The Russian American Company colonies probably had enough of the right sort of material on hand to produce such roofs at

a reasonable cost; or at least they could obtain it. Finally, we know that sheet metal roofing, coated with terne and red oxide paint was lightweight, durable, easily applied and repaired, waterproof and fireproof, and so quite an advantage to have. But did the Russian American Company, in fact, use metal roofs at any of their colonies in North America?

In answer to this question, State of California archaeologist, Glenn Farris, kindly sent to me a copy of his own translation of a passage from Baron Ferdinand von Wrangell's account of Russian America. Wrangell wrote that in Sitka, (New Archangel), Alaska, where he was the Company's chief manager from 1830-1835, "Nearly all the company buildings were covered with iron." Figs. 72

Captain Edward Belcher, of the ship Sulphur, visited New Archangel in 1837. In describing the chief manager's mansion, he noted that, "The roof is pitched (i.e. coated with pitch) and covered with sheet iron," (Pierce 1972b). 73

Apparently, the Russian American Company employed sheet iron roofing by the 1830's, despite the fact that Sitka is considerably closer to salt water than 25 miles. We must assume, therefore, that these iron roofs had a coating of tin or terne to prevent rusting, and maintained their waterproofing by the best method known, then and now, linseed oil based paint, probably pigmented with red oxide.

A painting of New Archangel in the possession of the Etholen Family of Stockholm, and probably painted when Captain Adolf Etholen was chief manager there, (1840-1845), shows red roofs in use on many of the buildings (Pierce 1972a). I believe we may assume that these are the irons roofs described by Wrangell and Belcher. Not only does a red roof appear on the chief manager's mansion, but also on the Orthodox and Lutheran churches, a bastion, the quarters for the married officials, many smaller buildings, and even a humble shed. In contrast, we see that there are still some buildings with wooden plank Fig. 74

roofs, which are recognized by their greyish-tan color that matches the walls of all of these wooden buildings. We can also see that several buildings' roofs are of a pinkish color and are marked with a diamond pattern. I believe that these are also metal roofs, laid on in the "cross-hatch" technique.

Metal roofs continue to appear among the wooden, in pictures of New Archangel for decades to come. Voznesenskii did his drawing of Sitka in the 1840's. (Blomqvist 1972:139). Though his rendering is in monochrome, the building near the foreground has been described by Blomqvist as having a metal roof. It displays the pattern of vertical rows of rectangles that, by now, is so distinctive of standing seam metal roofs. The chief manager's mansion and the Orthodox church, which the Etholen paintings of this same period show as having red roofs, are also described by Blomqvist as being covered with metal and display the pattern of widely spaced vertical lines which we would expect of a standing seam metal roof seen from a distance. Fig. 34

Other images from the 1850's and 1860's continue to show the red color or vertical seams, or both, which indicate metal roofs. In addition, there is photographic evidence as well. Eadweard Muybridge, the first photographer known to visit Alaska, arrived in 1868, within a year of the Russian departure. His photos of the buildings at New Archangel include some that clearly show the widely-spaced vertical lines on the roofs that identify them as being made of metal. Figs. 75 -79 Fig. 80

In the 1860's, blue-green roofs begin to appear among the red and tan in paintings of New Archangel. These may represent copper roofs, but are more likely terne roofs painted this color. Dr. Basil Ushanoff, an artist who has devoted himself to researching and painting the history of Russian America, has written to me that iron roofs in Russia were commonly painted either red or green, and that by the 1860's, the roofs at New Archangel were often these

colors as well. Color photos of metal roofs in use in Russia in the early part of this century confirm this fact, and it is easy to understand why. As mentioned earlier, iron and copper oxides are among the cheapest of pigments, (Allhouse 1983:35-36, 78-79, etc.).

Since iron roofs were so widely employed at Sitka by the mid-1830's, it seems reasonable to believe that they were used at other Company settlements as well, including Fort Ross. This question leads us back to the painting by Voznesenskii. Blomqvist dates this painting to 1843, after the artist left California. Perhaps this is because of the letter of that date which accompanied it back to the Academy of Sciences in St. Petersburg, (Blomqvist 1972:107). I believe that the painting could have been done earlier, while the artist/scientist was in California, (1840-1842). It hardly seems possible that this meticulously accurate work, (compare Figs. 9, 12 & 13), was done from memory, but more than likely was done on the spot. Then again, it may have been done later, in 1843, but from a detailed sketch and notes. Fig. 12

Though some have suggested that the red roofs shown in this watercolor were a bit of "artistic license", intended to liven up the color scheme, Blomqvist stated that they were made of metal. This now seems quite likely, yet there is no harm in asking just where the author's information came from. Glenn Farris did just that, writing to one of the translators of the Blomqvist article, E.A.P. Crownhart-Vaughan of the Oregon Historical Society. Mrs. Crownhart-Vaughan has very kindly allowed me to reproduce here her reply. In a recent telephone conversation with me, she reconfirmed her belief, as stated in the letter, that, "the comment on p. 106, (of the Blomqvist article) about metal roofs...was undoubtedly taken from Voznesenskii's notes..." For support of this, she quotes an article by the noted Soviet scholar R.G. Liapanova, which states that, "the material in the (Blomqvist) article was based on unpub- Fig. 84

lished letters, reports, diaries, collection lists and other documentary materials of Voznesenskii." With so much material to draw on, it does not seem likely that Blomqvist would make things up.

Presently, it is impossible to state just when these metal roofs were first employed in Russian America, or more to the point, at Fort Ross. However, when Chief Manager von Wrangell visited Ross in 1833, he described the condition of the fort unfavorably, stating that, "almost all the buildings and the palisade itself with the watchtowers are so old and dilapidated that they need repairs, or they will have to be replaced by new structures" (Wrangell 1833). Since metal roofing may be applied over a previously existing wooden roof, and is a good way of rehabilitating an old plank surface, the terne cladding may have been part of a renovation and building program believed to have been carried out by the last commandant, Alexander Rotchev, 1836-1841, (Farris 1981b:6). It is noteworthy that Voznesenskii shows red roofs only on structures known to have stood at the fort for fifteen years or longer.

Having demonstrated that metal roofs were almost certainly in use at Ross by 1840, the time of my reconstruction, it really does not seem necessary to account for what became of the iron plates when the Russians left. Yet, because some have argued that since the Russians sold other valuable property, such as cannon, bells and farm equipment, they would have left the iron roofs as well. They go on to state that since neither John Sutter, the purchaser, nor anyone who came after, ever mention the iron plates, they could not have existed.

This is, of course, negative evidence, which is something that every researcher should avoid. There are many items that disappeared soon after the departure of the Russians, including several large buildings, that are never accounted for specifically by original sources. To begin with, the cannon are

never mentioned in the inventory (Sutter 1841), and we only know that Sutter bought one because he later happened to complain that the Russians would not let him have more, (Sutter 1879). Household furniture is not mentioned in the inventory, yet we only happen to know what Sutter received because a handwritten note remained among his papers (Sutter 1846-1870). What of the items that could have gone either way, with Sutter or the Russians, which we assumed must have existed, but which we have no record of? The workshops were sold, that is, the buildings, but what of the tools? There is no more mention of them in the inventory than of the cannon or the furniture. What of the valuable metals imported for use in the workshops, (Lists, n.d.), did they stay, or leave? The record is silent.

We could spend quite some time speculating about the final fate of the terne plates and proving nothing. I assume that if they were salvageable, someone did, and there is an end to it. With what I have presented here I believe that I have answered all of the questions put to me concerning the practicality and use of metal roofs in Russia and in Russian America. For me, there is evidence enough to show metal roofs in my reconstruction of the Fort Ross stockade of 1840.

*While completing work on this section, the magazine Country Journal published an article on roofing materials. The section which deals with standing seam metal roofs may be of interest, so I have copied it, and included it with the illustrations. Figs. 82 83

Appendix III. The New Kitchen and Old Warehouse. The most intriguing interpretation of the evidence surrounding the locations of the New Kitchen and New Warehouse came to me, unfortunately, just before I turned in my final drawings. Even now, this lead requires more investigation before I could make a reconstruction. The information came to me from John McKenzie, the retired

State Park Historian who has gained wide respect by devoting almost a lifetime of investigation into the history and construction of Fort Ross.

The evidence which Mr. McKenzie sent to me concerns the widely held belief that the American-era barn, (often called the "Old Barn"), was, in fact, the Russians' Old Warehouse, somewhat modified. He also points out that there was a smaller "Tool Shed" very close to, or touching, the barn's NE wall. From its "post and sill" construction, this shed could have been Russian as well. Drawings reconstructing the earliest and later appearances of these buildings, made by Mr. McKenzie, accompanied his letters. As you may see by the dates, this theory has been given a good deal of thought.

Figs. 33, 52-53

I believe that Mr. McKenzie has developed a very plausible, and potentially very valuable theory. With many thanks to him, I would like to expand a bit on his ideas.

The 1841 Inventory (Sutter 1841; Farris 1981a) states that the Old Ware-house was 28' x 56' in dimensions and the excavation of its site by Glenn Farris gives the only slightly different size of 27'8" x 57'9" (Farris 1981b:33) The discrepancy is due, no doubt, to the lack of a standard measure in those days.

Fig. 23

Major Ernest Rufus, whom we discussed above concerning the stockade walls, also measured most of the standing buildings at Ross. He gave the following description of the Old Warehouse as it looked in 1845:

> On the west side of the north angle was a two-story building 28 feet by 80 feet. Roughly constructed...the framework of the building was very large, having timbers ...12 inches square, (Munro-Fraser 1880:365).

This description matches what we know about the Old Warehouse very well,

except that the length, 80 feet, is about 22 feet too long. Rufus was reasonably good at measuring. His record for the Rotchev House was 29' x 50', which compares nicely with its actual dimensions of 29' x 54' (Munro-Fraser 1880:365; Haase 1952). Elsewhere in the fort he was similarly close to the mark. What, then is the explanation for the Old Warehouse? Fig. 47

In studying an old photo of the "Barn" and "Tool Shed", John McKenzie arrived at estimated dimensions, I believe I understood him to say, by counting the number of vertical boards on its walls and multiplying their number by the width of actual specimens of these boards which survived the barn's destruction. His estimate of the length of the barn is 64' and of the shed, 24'. Allowing for the degree of error inherent in estimates of this sort, the combined lengths of these two adjacent structures is 88', which is very close to Rufus' measurement. Mr. McKenzie's estimate of the width of the Barn, 22' is no farther off from Rufus' measurements, but it does make us wish for a more accurate figure. Fig. 51 Fig. 52

Glenn Farris' report of his excavation of the Old Warehouse is our best source for finding the Barn's size. He, too, has been intrigued by the McKenzie theory (1981b:10). Mr. Farris points out that a survey made of the Call Ranch, (the later American-era enterprise on the site of the Russian fort), made by Frank B. Veasey in 1892, shows that the Barn measured 28' x 80'. There is some question about whether this measurement included the Tool Shed. If it did not, this would mean that the Barn could be a different structure from the Warehouse. The problem arises from the fact that a photo made of the Barn in circa 1890 does not show the Tool Shed; it has been removed. If this photo does predate the 1892 survey, then the Barn itself, and not the combined Barn and Tool Shed, measured 80' long and our theory goes out the window. Yet, because Rufus almost certainly measured the Warehouse, and not the Barn, and Fig. 51

because the date of the photo is not certain, I will assume that the picture came later than the survey.

Additional data concerning the identity of the Barn comes from the excavation itself. As stated earlier, Glenn Farris found evidence only of a structure that measured 27'8" x 57'9", but not of anything indicating a 22' wide building of a length of 80' or more. He did note, however, that an earlier test excavation of the site by Cabrillo College located a sill (remains of a wall),on the NE side which was believed to be a wall of the Warehouse. This sill, made of redwood as are the rest of the wooden fragments connected with the Warehouse, was later shown to not belong to the Warehouse, but lay 22' beyond its NE wall (Farris 1981b:15-16). I believe this sill could represent the NE wall of the Tool Shed, which would mean that its dimensions were 22'8" x 27'8", given the excavated width of the Warehouse. If the Tool Shed was built in Russian times, then it would be easy to imagine Rufus combining the measurements of these two buildings, (27'8" x 79'9") and coming up with the 28' x 80' which he recorded. This, too, could explain Veasey's measurements of the building, (28'x80').

There are other clues pointing to possible Russian construction of the Tool Shed. To begin with, there is a precedent for structures at the fort having smaller additions attached to one side. The 1817 Map documents a workshop connected to the NW side of the Officials' Quarters, (see above, Officials' Quarters). In the circa 1840 watercolor by Voznesenskii, we find three rooflines paralleling the NW wall, which we now know must be the Rotchev House, the Old Warehouse, and, (closest to the viewer), a third, unidentified, building. Thus something did lie on or very near to this site in Russian times. The "post and sill" construction is difficult to see in my copy of the photograph from circa 1878. Mr. McKenzie worked from the original, I believe,

Fig. 8
Fig. 12

and so his reconstruction of the planks laid on in a vertical direction may be based on this photo. The 1878 advertisement for the Fort Ross Hotel shows the planks of the Tool Shed laid on in a horizontal direction. Whichever was the actual case, there is a precedent for it in the architecture at Ross because of the construction methods used for the Officials' Quarters and for the Chapel. Fig. 19 Fig. 16, 46

With dimensions of 22' x 27'8", this structure, if Russian, could only be the New Kitchen. This is listed in 1841 as 24.5' x 28', (Farris 1981a). But, given my prior reasoning for locating the New Kitchen and New Warehouse where I have in my drawing, I have difficulty in explaining why the New Kitchen would be attached to the Old Warehouse, (see above New Kitchen and New Warehouse). Moreover, all the known buildings within the stockade at Ross, (with the exception of the New Warehouse, which is still unlocated), can be shown to have had their longest walls parallel to the nearest wall of the fort. If this is the New Kitchen, it would break that "rule." We then are faced with the question of what sort of roof to put on this structure when we go to reconstruct its appearance. From Duhaut-Cilly and Voznesenskii we can see that all of the visible roofs within the walls of the fort are "hipped" roofs, though the Russians did made use of gabled roofs in their settlements. The Voznesenskii watercolor seems to show that whatever roof lay to the NE of the Old Warehouse, it was parallel to the roof of the Warehouse and Rotchev House. Trying to fit a hipped roof onto a building that is wider than it is long, and making it look like Voznesenskii's depiction, is beyond my know-how. With problems like these, I felt it was better to wait and do more research than to include this new interpretation in my drawing. Figs. 10 12

Still, the subject does intrigue, and offers new directions in reconstructing the fort. If this Tool Shed was the New Kitchen, where would the New Warehouse go? It could have been in the SE corner where I have placed the New

Kitchen in my current drawing. It was, after all, a warehouse for grain, and a spot next to the Provisions Warehouse seems plausible. So far, we have not found a use for the large expanse of space in the SE corner, and it might just be that when Major Rufus wrote, "On the eastern side of the south corner was a row of low sheds, probably for stock and feed," he may have been referring to the remains of the New Warehouse, (Munro-Fraser 1880:365). However, Sandels shows nothing in that corner, and he was there about two years earlier than Rufus. Most likely, Rufus meant the nearby Employees' Barracks which, in Sandel's drawing is partially dismantled and might have only looked like a row of sheds. Fig. 15

A much more tempting location for the New Warehouse is the NE corner where, again, nothing is positively known to have stood in Russian times, despite the fact that there was plenty of room. Voznesenskii's unfinished sketch has always troubled me because, in comparing it to his watercolor, there is a nagging inconsistency. The watercolor has three roofs, and thus three buildings, aligned along with the NW wall, while his sketch shows only one, or possibly two if we count not just the tall building, (probably the Warehouse), but also a slight line making an angle atop the wall on the left side of the drawing. Nothing is to be seen of the third building on the NE side of the Warehouse, despite the fact that it appears so clearly in his watercolor. Instead, we see a lower building with its longer side aligned with the NE wall of the fort. In other words, a building which sits near to the Kuskov House. If we interpret this slight, and clearly unfinished, sketch to mean that a small New Kitchen is connected to (and possibly hidden by the peristyle and porch of) the Old Warehouse, then the low building near to the Kuskov House could be the New Warehouse. The fact that its roof does not appear over the wall in the watercolor may mean that it was only 14' tall or less. The roof of Fig. 14 Fig. 12

the Employee's Barracks may also have been similarly low, to judge by the watercolor.

At the same time that the Tool Shed was photographed next to the Barn, the camera caught a glimpse of a low building in very much the same position as the unidentified building in the Voznesenskii sketch. John McKenzie recorded its approximate location and size on a sketch map of the fort. Its length is indicated on this map as being about 50 feet, (the New Warehouse was 49' long). Its width, however, as estimated by Mr. McKenzie, seems to be somewhat less than the recorded 28' (Farris 1981a). Nevertheless, the possibility that this could be the New Warehouse does exist. The photo showing the Tool Shed and this unidentified building was taken in about 1878. The next known photos of the area show that both these structures had disappeared by or before the 1906 Earthquake, indicating that they might have been of similar age and construction.

Fig. 51

Fig. 33

Figs. 51 88

There is a great deal of difference between the appearances of the Russian Old Warehouse, and the American Old Barn. The Warehouse had a high, hipped roof with dormer windows, a walk-way supported by pillars, and was constructed of heavy, horizontal timbers. The plain shape, exterior stairway, vertical planking and lower, gabled roof of the Barn presents quite a contrast. Taking a second look, though, one notices a curious feature.

If one was to imagine that the hipped roof of the Old Warehouse was completely removed, and the four exterior walls were cut down so as to fit on a gabled roof, then the small, square windows appearing in the 1890 photo of the Old Barn could be the remnants of the upper level doorways. We know that there were three rooms on the upper level of the Old Warehouse from the 1817 Map, and three of these square windows appear on the upper level of the SE wall of the Barn. These could be the lower parts of the doorways. Another such

Fig. 87

Fig. 51

Fig. 8

window, higher up, shows on the SW wall of the Barn. This could be the upper part of a doorway. We would have to assume in such a case that the peristyle, or walkway, came around to that side of the Warehouse, and this is suggested by the French version of the 1841 Inventory when it says, "entoure de peristyle," (surrounded by a peristyle), (Sutter 1841; Farris 1981b:6). Longer, rectangular windows, of an American "doublehung" form also appear on the SE wall, randomly placed. These were probably a later addition.

It troubles me that the circa 1878 photo of the Barn does not seem to show these small, square windows. I have not been able to study the original photo, and even if I could I suspect that I would not not find them since the photo shows only a portion of the Barn, the detail on that wall appears to be mostly washed out by the light, and if the windows were closed at the time, (as one of the windows is in the 1890 photo), they very likely would not show up at all. Fig. 51

Two doors appear on the lower level of the SE wall of the Barn. One of these is narrower, and could match the width of the square "windows" above it, meaning it could be from the Russian era if this theory is correct. The other is a doubledoor, which might also be Russian as such a door appears in a drawing and later photo of a Russian warehouse in Sitka. It is sensible that this door would be wider because just inside it was the main stairway leading to the second level. Figs. 48 49 Fig. 55

Glenn Farris believed the double door to have belonged to the American era because the soil there was extremely hard packed, and none of the accumulated debris could be dated to the Russian era, (Farris 1981b:22). This is certainly strong evidence, but I would like to suggest that if the peristyle and lower porch were removed when the conversion I propose took place, only then would this soil have been exposed to traffic and debris.

I assume that this hypothetical conversion, involving not just the removal

of the peristyle and porch, but also the cutting down of the walls and replacement of the roof, took place in the American era. The unfinished Voznesenskii sketch, and the 1878 Fort Ross Hotel ad seem to show very similar structures standing in the same location, which might lead us to believe that the conversion was Russian work. However, the Voznesenkii watercolor shows us three quite distinct roofs, not the later, lower blending of the roofs of the Barn and the Tool Shed. Moreover, it was the 1841 Inventory sent to John Sutter that stated that the Old Warehouse was "surrounded with a peristyle," (Farris 1981b:6).

Figs. 14 &19

Fig. 12

The last difference in appearance between the Barn and the Warehouse, the vertical planking rather than horizontal timbers, is easily explained. Almost certainly this planking was added in the American era, directly over the timbers. We know that the Kuskov House had been planked over by the time the Russians were getting ready to leave, because it is described in the Inventory (Sutter 1841). But the Old Warehouse is still described as being made of thick logs or beams by this same document, (Farris 1981b:6). Both the Rotchev House and the Officials' Quarters received this same treatment during the American era.

The theory proposed by John McKenzie, and later explored by Glenn Farris and myself, that the Old Warehouse and Old Barn were the same structures, and that the Tool Shed was likewise a Russian construction, offers us the best possibility so far of discovering the locations of the "missing" New Kitchen and New Warehouse. It is not yet the solution. Since a general excavation of the fort, the best route to an answer to this and many other questions does not seem likely, I am afraid that we must continue the search on paper.

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