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КРЕСНЫЙ ХОДА
FORT ROSS
The Stockade
circa 1840.
FORT ROSS
The Stockade
circa 1840.
GROUNDPLAN OF FORT ROSS:
As it appears in Fig. 5.
Scale: 1/4" = 10' 0"; Measurements approximate.
Features that appear in the drawing: 
Alternative locations: ---
MAP OF FORT ROSS

No. 13. THE MAP OF 1817 HAS THE FOLLOWING EXPLANATIONS:

A. Fort Ross
B. Fort's wall made of heavy squared timber 3 SAZHEN high, which are enclosed at the top by wooden spear-like obstacles.
C. Two-story octagonal fortress
D. Two-story Heptagonal fortress
E. Cabin for the bell
F. Water well
G. Fort Sally Gate
H. Small gate
K. Flagstaff

a. House of commander, which is built from (text is not readable. S.F.) rooms, passage hall, two storerooms, and at the lower level storage rooms and powder magazine.

b. Barracks for employee, made of boards. This barracks composed of one general hall and two separate small rooms.

c. Two-story storage place which is built of logs. This storage room at the lower level composed of two rooms whereas the upper level consists of three storage rooms.

d. House made of boards which consists of three separate chambers.
e.f. House made of boards which has foundry and workshop for coppersmith.
g.h.k.i.n. Closely connected structure made of boards which consists of the following:

g. pantry
h. kitchen for common use
k. office
l. jail
m. metal workshop
n. two-story provision storage room made of boards

I.L. 14 YURTS made of boards for Aleuts
M. Live-stock yard
N. Enclosure for sheep
O. About 50 enclosed kitchen-gardens in the vicinity of Ft. Ross
P. Enclosed place for raising wheat
Q. Brig Rumiantsev
R. Flagstaff
S. Cemetery
T. Barn
U. Shed for rowing boat
V. Smithy
W. Bath house
X. Pigsty
Y. Kitchen for baking bread

SOURCE: S. G. PEFOROVA - RUSSKOE NASELENIYE ALIAISKI
1 KALIFORNII, pp. 254-255
(The Russian Population in Alaska and California)
Late 18th Century to 1867. Izd. "NAUKA", Moscow, 1971.
Photo by Glenn Farris enlarged as fig. 11.

Photo by Glenn Farris enlarged as fig. 13.
OUTPOST
OF
AN
EMPIRE

A. South (8-Sided) Bastion
B. North (7-Sided) Bastion
C. Chapel
D. Kuskok House
E. Old Warehouse
F. Provisions Warehouse
G. Employees' Barracks?
H. Officials' Quarters?

J. Rotches House (not seen + perhaps not built).

? Unidentified building near Old Warehouse; perhaps inside walls of fort.
Man's urge to explore and acquire new lands has been universal throughout history, and in the centuries that followed the expansion of Europe into the Western Hemisphere reached a scale that changed the world. The sixteenth century voyages of the Atlantic-based powers of Europe in the New World are well known, but the later explorations and settlements of Europeans in North America of the eighteenth and nineteenth centuries are not so well understood.

Russian eastward expansion, the counterpart of European and American westward expansion, was an age-old trend in Russian history that took on a new dimension in the seventeenth and eighteenth centuries. At approximately the time that English colonists settled along the Atlantic seaboard of New England, Russian explorers, traders, and settlers penetrated northeast Siberia and in 1639 reached the Pacific Ocean opposite Alaska. By the mid-seventeenth century they had sailed through the strait that separated Asia and North America, and inadvertently discovered a sea route from the Arctic to the Pacific oceans. It was the determination of Tsar Peter the Great, however, to clarify the geography of the North Pacific that led to the Bering-Chirikov voyages and the discovery of Alaska. In two arduous voyages (1728, 1741) Vitus Bering and Aleksei Chirikov explored the strait that is now called "Bering Strait" and discovered the Aleutian Islands and Alaskan mainland, both of which were claimed for Russia.

The Bering-Chirikov voyages aroused great interest among Russian hunters and traders and a desire to gain access to the herds of fur seal and sea otter that dwell in the North Pacific. For centuries the fur trade had been the mainspring of Russian eastward expansion. Huge profits had been derived from furs both in Europe and Asia. Extending the hunting ground from Siberia to Alaska, therefore, opened an exciting new field for an age-old enterprise. From 1745 to the end of the century some 40 Russian trading companies were formed which sponsored over 100 voyages to the Aleutians and Alaskan mainland to gather fur pelts valued at nearly 8,000,000 rubles.

The rapid growth of the trade called for permanent Russian settlements in Alaska as well as redoubts for planning hunting expeditions and storing furs. These were often located on promontories at the mouths of rivers, or on bays or offshore islands. Russian settlements in the Aleutians and Unalaska probably began in the 1770's, but the first known permanent settlement was founded in 1783 by an enterprising merchant, Grigory Shelikhov, on Kodiak Island. This remained the principal Russian base until 1791. Shelikhov became one of the remarkable Siberian merchants of his day—hardy, ambitious and resourceful. Before his death in 1795 he advocated
Enlargement of photo taken by Glenn Travis from same vantage point as Fig. 3.
A. South (8-sided) Bastion
B. North (7-sided) Bastion
C. Chapel
D. Kuskov House
E. Old Warehouse
F. Provisions Warehouse
G. Employees' Barracks
H. Officials' Quarters
I. Unidentified Post next to Main Gate
J. Rotken House
K. Windmill
L. Outbuilding with gabled ventilator.

? Unidentified building NW of Old Warehouse. New Kitchen?
"Fort Ross," an unfinished sketch by I.G. Voznesenskii. The clearly depicted high palisaded walls and octagonal shore bastions bear a strong resemblance to the earlier traditional Siberian ostrogs. The Orthodox chapel is visible on the right. The structure collapsed in the 1906 earthquake, was rebuilt in 1915, burned to the ground in 1970-1971, and was again faithfully reconstructed according to the original plans. It was dedicated in the spring of 1976 by a devoted historian, His Grace, The Right Reverend Grigori, Russian Orthodox Bishop of Sitka and Alaska. (Archive MAE AN SSSR.)

A. South (8-Sided) Bastion
B. North (7-Sided) Bastion
C. Chapel
D. Kuskov House or Provisions Warehouse
E. Old Warehouse
F. New (Grain) Warehouse?
H. Officials' Quarters
I. Unidentified Post next to Main Gate
J. Retchew House
THE GREEK CHAPEL AT FORT Ross
(From "The Romance of Fort Ross," by Gertrude Atherton;
FORT ROSS HOTEL.

CUSHMAN & LEONARD.

SONOMA, CO., CAL.
The Buildings of Fort Ross
Past and present

I. The Chapel of Fort Ross (restored)
2. The seven-sided Blockhouse (restored)
3. The 12 foot stockade (restored)
4. The Commander's House (restored)
5. The Eight-sided Blockhouse (restored)
6. The Barracks Building (site)
7. The Fort Ross Hotel (site)
8, 9 Barns & Blacksmith shop (site)
10. Warehouse (site)
11. Small building (site)
12. Ranger's "residence"
13. Garage
14. Parking Lot
15. Russian well (Excavated)
16. Ft. Ross Store
17. Gates (Sally Portas)
18. Kuskov House (approx.)

Highway #1 to Jenner, 13 miles.

From "The Restoration of Fort Ross 1831 to 1961
April 10, 1961 - J.C. McKenzie & Wm. E. Bishop
Bishop
R U I N S O F O N E O F T H E F O R T R O S S B A S T I O N S

(From "The Romance of Fort Ross," by Gertrude Atherton;

---

Balandin, 1979

Stacked wall
Fortifications
## TABLE 1

COMPARATIVE MEASUREMENTS OF BUILDINGS LISTED IN INVENTORY DOCUMENTS

<table>
<thead>
<tr>
<th>Area Measured</th>
<th>Vallejo Inventory</th>
<th>Sutter Inventory</th>
<th>Revised Figures</th>
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<tbody>
<tr>
<td></td>
<td>brazas¹</td>
<td>feet¹</td>
<td>toises²</td>
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<tr>
<td>Fort Ross Stockade circumference</td>
<td>172</td>
<td>1032</td>
<td>172</td>
</tr>
<tr>
<td>height</td>
<td>2</td>
<td>12</td>
<td>2</td>
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<tr>
<td>Old Commandant’s House</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Kuskov House)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>8</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>width</td>
<td>6</td>
<td>36</td>
<td>6</td>
</tr>
<tr>
<td>New Commandant’s House</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Rotcher House)</td>
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<tr>
<td>length</td>
<td>8</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>width</td>
<td>4</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>Commissioned Officers House</td>
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<tr>
<td>(Officials’ Quarters)</td>
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<tr>
<td>width</td>
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<td>21</td>
<td>3.5</td>
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<tr>
<td>Barracks</td>
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<tr>
<td>length</td>
<td>11</td>
<td>48(?)</td>
<td>11</td>
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<tr>
<td>width</td>
<td>4</td>
<td>24</td>
<td>4</td>
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<tr>
<td>Warehouse (Old)</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>8</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>width</td>
<td>4</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>Warehouse (New)</td>
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<td>42</td>
<td>7</td>
</tr>
<tr>
<td>width</td>
<td>4</td>
<td>24</td>
<td>4</td>
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<tr>
<td>Kitchen (New)</td>
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<td>4</td>
</tr>
<tr>
<td>width</td>
<td>3.5</td>
<td>21</td>
<td>3.5</td>
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<tr>
<td>Warehouse for food supplies</td>
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<td></td>
</tr>
<tr>
<td>length</td>
<td>6</td>
<td>48(?)</td>
<td>6</td>
</tr>
<tr>
<td>width</td>
<td>3</td>
<td>18</td>
<td>4(?)</td>
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<td>Chapel</td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td>36</td>
<td>No Measurements</td>
</tr>
<tr>
<td>width</td>
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<td>No Measurements</td>
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<tr>
<td>Well for water depth</td>
<td>2.5</td>
<td>15</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Sources: 1) Vallejo Papers, Spanish language; 2) Dufour 1933; 3) Sutter Papers, French language; 4) DuFlot de Moflas 1942; 5) Author’s calculations.

Note: For the sake of brevity only the structures within the fort are shown here. The inventory documents go on to list many buildings outside the fort as well as at the ranches and at the port of Bodega Bay.
Stockade Wall
Fort Ross

Reconstructed from Alley Bowen's verbal description in 1880

Figure 3
Fig. 26

On file, California Dept. Parks and Rec.
Interpretive Planning Unit.

AV Survivors

"Tally Paint"

2-87

Cl 1907
The following observations were made regarding the ruins of the original blockhouse at this corner of the fort:

"March 23, 1948 Memo. To C. Mehlert from J. C. McKenzie.
"The standing sides measure 9'10", 10'2", 10'00" and 9'11" from outside corner to outside corner. The present cote at the corners show three 132% angles. Each outside wall now standing has a gun port on the ground floor. The iron staples which held the har to secure these ports and the iron ring-pins which held the recoil lashings for the cannon are still in place at some of the old port holes."

To B. Henry
1-18-41
This is a construction study of the Eight-sided blockhouse at the south corner of Fort Ross. There were 6 cannon ports on the lower floor and only 5 on the upper floor. A door (shown and three shuttered windows were on the upper floor.
Port Holes or Gun Ports

The original gun ports varied in size and design. The openings were as large as 15" x 15", and as small as 12" x 12". Some had a rabbit edge 3" deep and 3" wide on all sides, as in # A, or lacked it on the bottom as # A', or had none on the sides as # A.
Mr. G.T. Kishbaugh, Superintendent
John C. McKenzie, Mon't Sup'r

Size of Original Gun Ports in Blockhouse.

I took measurements on several of the old timbers from the original Blockhouse to determine the approximate size of the gun ports and the location of the iron staples and rings which were on either side of each post hole.

I estimate that the port holes measured 14\frac{1}{2} to 16" wide and 17 to 18 inches high, inside measurement of the opening. The opening was rabbed out for a width of three inches on the top, bottom and sides in the inside edge of the hole. This rabbit was to a depth of 4\frac{1}{2} to 5 inches depending upon the thickness of the wall timber. The outer side of the port hole was beveled back on all sides, top and bottom. See diagram below.

John C. McKenzie
Monument Supervisor
Fig. 33

Drawn by John McKenzie

- Seven-sided blockhouse
- Stockade
- Small flag
- Structures in Fort Ross
- Tool shed
- Warehouse
- Fireplace foundation
- Manager's house
Drawing 29 (11-12-16)."Sitka Island." An inscription.

Kodiak in 1798

*Note size of flag.*
Fig. 36

Moose Factory near Ontario
Hudson's Bay Co. outpost
ca. 1800
Encyclopedia of Discovery
And Exploration, vol. 3
"Bridging a Continent"
by Martin Hillman

Fig. 37

Western factories (left) and church at Canton. (Tinqua, Peabody
Museum, Salem, Mass.)
Fig. 39

Fort Union circa 1855
By Rudolf Kurz
(P. Ross: A. David Hunt,
The Art of the Old West)
Cannon placement

1. Each bastion containing 6 cannons of 6 caliber (Vallejo, Atherton, de Mofras, Figueiras)
2. 4 12 pdr carronades piercing the walls (from DuBuit-Cilly, Slocum, de Mofras)
3. 3 cannons in front of the Russian house (one of which 1 brass 8 pdr. Vallejo and Belcher)
4. 4 6 pdr brass howitzers fronting the main gate (Fayerwar, DuBuit-Cilly, Vallejo, Atherton, Slocum)
5. 2 violenites beside the fur barn staircase (Vallejo)

Eyewitness Accounts

1813 Mariano S. Vallejo (not yet fully translated)
- Bastions each contained six cannons of 5 caliber
- Yard 6 cannons of the same caliber near the main gate

1824 Jose Fiqueria
- These (bastions) contain six cannons each.
- Various cannons are also placed throughout the square.

1996 Sir Edward Belcher
- These towers, armed with three guns each, in a second story, are on level with the top of the fence. In the center of the yard or square, in front of the governor's staircase, a brass 32-pounder gun commands the gateway.

1814 Saxon Man Atherton
- ... each tower mounting six guns, and perhaps a dozen others distributed about the square.

1817 William D. Slocum
- The fort is an enclosure 100 yards square, picketed with timber 9 inches thick by 16 feet high. Mounts four 13 lb. carronades on each angle, and four 6 lb. brass howitzers fronting the principal gate.

1840 Dr. de Mofras
- The enclosure, formed by thick timbers, is four stories in height. It is pierced by openings protected by cannon, and at opposite corners two hexagonal bastions are erected, of two floors, and armed with six guns.

1842 John S. Sutter (from letter written in 1879)
- From the Russian I have got only one fine brass field piece mounted with caisson...
8 pdr. Cannons on Naval Truck

12 pdr. Cannons on Naval Truck sitting on platform

2 4 pdr. Violettes (Russian) on Conning Towers

12 pdr. Cannons on Naval Truck sitting on platform
The many visitors to Fort Ross — traders, officials, sailors, and travelers — were probably given temporary quarters in the Official's Barracks. Perhaps they would stay a few days, conducting business and exchanging news, and then depart for the next port of call.

The Kuskov House served as the trading center for the colony. After Ratchev built the new commandant's house in 1836, it is possible the living spaces in the Kuskov House provided comfortable lodgings for the guests, such as the scientists, who stayed for long periods.

Official's Quarters, Ross  
(1900s)
Figure 7. Photo of the Old Warehouse circa 1878.

Figure 8. Photo of the Old Warehouse circa 1890.
April 9, 1985

David Hickman
12 Bayfield Road
Westport CT, 06880

Dear David:

I have copied the proportions of a traditional Russian Orthodox Cross as given to me by the Orthodox clergymen.

Regarding the authenticity of the details of the Pur Barn, every drawing of the fort which I have seen done under the 1812-1814 period indicates a large building at this site and all show a 'hip roof'. I haven't been able to determine if the building had one of two stories. The 'Tool Shed' at the north end of this building is clearly shown similar in construction to the walls of the 'chapel and barracks building. Archeology at the site of the 'Pur Barn' indicates there is large amount of osteological and other small trade items have been found on the site. Traces of an old log wall have been found. Old drawings and photographs show the vertical boards covering the exterior walls and a big exterior frans stairway at the south end of the building. Both features are contrary to Russian construction of the 1812-14 period at Ft. Ross. It is interesting to note that the logs on the east side of the Rotchev House were flattened to receive a layer of similar vertical exterior boards. So it is possible the Pur Barn was a log structure with a covering of vertical boards. The stairs at the south end of the Pur Barn is obviously made of milled lumber and is of questionable authenticity, Mr. C.A. Call told me there was an internal stairway at the north end of the building. It had a door from the Pur barn into the 'Tool Shed. Such a stairway is consistent with stairs in the blockhouses. One of the Call sisters fell down these stairs and broke her arm as a child. All of the roofs on this building are intended to be grooved long boards overlapping from the gable to the peak of the roof in layers. These grooves were up to two inches wide and 3/4 of an inch deep in original roof boards. Note that the windows and doors indicated on the east side of the Pur Barn appear to be of a different design than those suggested in the Rotchev House and the Kuskov House.

If you have any other questions please do not hesitate to let me know. My notes are poorly organized but I often find answers, I'd forgotten.

Note that all the timbers used in constructing an Orthodox Cross are of the same equilateral dimensions (5" x 5", or 12" x 12", etc.) the cross arms did not rise above the level of the center post.

Well, I must get this off and done before the mail truck arrives.

Good luck and best regards,

John C McKeezy

P.s. Rev Vladimir G. Derrubin
3657 Ross Dr.
Palo Alto, Ca, 94302.
I do not have his phone number.
21001 N. Coast Highway
Jenner, Ca. 95450

Mr. David Nickman,
12 Rayfield Road
Westport, Ct. 06880

April 13, 1985

Dear Dave;

I have just come upon notes I made after an interview with Mr. Carlos A. Call. He specifically mentioned the fact that the "Tool Shed" was about two feet wider than the floor of the "Fur barn" and that the roof of the "Tool shed" was about two feet higher than the joining "Fur barn roof."

My drawing is a tracing of the lines on an old photograph of 1880, showing both the Tool shed and the Fur barn. It clearly indicates that the barn walls were boarded up with vertical siding. My suspicion is that this was a "Mansion Period" feature. There is evidence that the front and east side of the Rochef House was also boarded over, in the Mansion period and Hotel times. We saw an original log building about the size of this fur barn in Kodiak, Alaska which had been boarded over since Russian days.

The window framing, door framing and porch construction should follow the details shown in the Rochef House. The R.A.M. furnished each outpost with a technical library dictating how all buildings should be built, whether in Siberia, Alaska or California. The builders were obliged to follow these directions.

There are several drawings of siding scientists and artists in the 1812-1841 period. All of them indicate that all the buildings inside the stockade had hip roofs. I have never heard or seen descriptions of the doors or windows on the east side of either of these buildings. Note that the windows on the east side of the building are almost at the level of the second floor and indeed may extend down into the lower floor. There may have been no windows on the first floor walls. Well, enough confusion and contradictory information for now. I'm sorry my notes are so disorganized and incomplete.

snc: Drawing of "Fur barn" with hip roof.

John C. McKee

[Signature]
The "Fur Barn" and "Tool Shed" are the two structures described. The Tool Shed has a higher roof than the Fur Barn, and the walls of the Tool Shed are made of overlapping boards, unlike the Fur Barn's wall. The floor plans indicate a transition between the two floors, with a stairway in the Eukov House and blockhouse. The diagram shows the layout with dimensions and annotations for details.

"Note Fur Barn roof slightly lower than Tool Shed roof. Wall of Tool Shed like walls of Eukov."
THE SIMPLE LIFE OF A VILLAGE

Sophisticated European travelers were astonished and repelled by the harsh life of the Russian villages. Such communities consisted of anywhere from a dozen to several hundred wooden houses clustered along a dirt or wooden street adjacent to a stream. In the north, the villages were made of logs insulated with moss; in the tree-scarce southern steppes they were generally made of clay and mud. A whole family lived, worked, ate and slept in a single room; often there was no chimney, and the smoke had to escape through shutters that covered the windows.

For entertainment the people visited one another, drank, and sang melancholy songs. Travelers were appalled by the amount of drinking that went on—especially when they had to join in. One Englishman wryly commented that the Russians seemed to feel that getting drunk on holidays showed respect to the saints—and, he said, there were many holidays.
A standing seam metal roof.
Another good incrustation in roof cladding. Main, nineteenth century.

* Note widely-spaced ridges (standing seams) running perpendicular to ridge of roof. Also, rectangular plates which, here, are staggered.
Arrangement of boards above door of Chapal, Fort Ross.

This reconstructed gutter is based on one at Old Sturbridge Village, circa 1835. Braces of wrought iron, though wood possible.
Plate 99  Wrought Iron V

Rolling and Slitting Mill, 1751

Vol. IV, Forges, 3rd Section, PI. III.

Denis Diderot
A Diderot Pictorial Encyclopedia
Pedia of Trades and Industry
Ed. Char. C. Gillispie, 2 vols.,
Vol. 1 (N.Y., Dover Inc., 1959)
+ orig. published in 1751.
The ecclesiastical Kremlin of Rostov, built on the order of the Metropolitan Jonas Sysoevich (1632-1691) when this city was at the peak of its prosperity. Though dating from 17th century later than the Moscow Kremlin, its thick walls and many towers reflect the archaic style.

Joel Carnecheel
An Illustrated History of Russia (NY, Reynal & Co., n.d.).
Pskov, Saint Nicholas Gate - Church, 1565

*compare standing seam metal roof, (here with plates laid on in parallel rows), with wooden plank roof on left.*
Allhouse, 1980

* The principal church of the Goritskii Monastery. The roof of the building below is a standing seam metal roof, painted red. The roof of the dome to the right is a "cross-hatch" metal roof, painted light green.
Faurschou and Ivanov, 1979

Note the soldered metal roofs of the domes and the "cross-hatch" metal roofs covering the vaults.
A really extraordinary idea it put the capital of Russia at the world's end! Though Moscow were not cold enough, we had to be given Petersburg! A wild wasteland that separates Mother Moscow from her little son. The air is clear with fog and the sun, grey-green earth bears nothing except charred tree-stumps and hummocks of grass. The only consolation is the dead-straight, mile-long road with the sowing, rolling troika carrying one at lightning speed. And what a difference! What a tremendous difference, between the two towns!

Even today Moscow is still the bearded Russian, while Petersburg is an elegant European. Old Moscow spreads itself out and lolls at ease, whereas Petersburg, the fop, stands at attention, fingers pressed against trouser seams! Moscow surrounds it on all sides—the Neva, the Gulf of Finland, the canals. Ample opportunity for self-admiration... Petersburg is in perpetual motion, from cellar to roof at midnight it begins to bake the French rolls which will be devoured next morning by all the different nationalities that make up its population, and one or another of its yellow eyes is always blinking through the darkness. Whereas Moscow never sleeps, night and day, as it sets out at daybreak, crossing itself and bowing to all four points of the compass, to eat its modest breakfast in the market.
Vue de la fête solennelle à St. Petersbourg après la fête du soixante-dixième anniversaire de la fondation de cette ville à l’honneur de son fondateur Pierre.
* Note the sentry box painted with black and white stripes. It has a standing seam metal roof, painted red. The food stall in the right foreground has a red metal roof as well. On the left is another food stall with a green metal roof. The boat house behind it has one as well.

Emperor Alexandre I. le 12 Mai 1803.
photographs by Fenton, taken in the autumn of 1852,
Kremlin as seen from the Moskva, the gilded cupolas of
cathedrals and a row of houses facing the monastery of
a wooden house in the left foreground is a taktir, or
establishments were of various kinds, the grander serving
caviar, sturgeon and other delicacies, while the more humble
provided vast quantities of weak tea, black bread and salted
cucumber.
Unpaved streets, like the one shown here, were still to be
encountered at the beginning of this century.

* Moscow, 1852.
A close inspection of this photo
reveals the use of standing-seam
metal roofs not only within the
Kremlin walls, but also on the
humbler timber-built structures
without. I have marked the roofs
I believe are metal with a star. *
They are distinguished by widely
spaced vertical seams quite different
in appearance from the other wooden
plank roofs. Darker roofs may also
be metal. Also of interest is the
cylindrical flue on one roof, which
is very likely a metal pipe.
### Liquids

<table>
<thead>
<tr>
<th>Description</th>
<th>No. of Ref.</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rum</td>
<td>7</td>
<td>222 gal., 1/6, 540 vedros</td>
</tr>
<tr>
<td>Brandy</td>
<td>5</td>
<td>17 cases/1/8</td>
</tr>
<tr>
<td>Gin</td>
<td>2</td>
<td>2 gal.</td>
</tr>
<tr>
<td>White wine</td>
<td>2</td>
<td>1/3 / 133 vedros</td>
</tr>
<tr>
<td>Cognac</td>
<td>1</td>
<td>911 vedros</td>
</tr>
<tr>
<td>Rum, cognac, gin, arak</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Vinegar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vinegar, general</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Vinegar, cider</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Vinegar, wine</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Coconut oil</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Olive oil</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Resin</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Resin and pitch</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Tar and pitch</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tar</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Turpentine</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Olive/sweet oil, Bottles</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Misc.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molasses</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Treacle</td>
<td>8</td>
<td>1 #</td>
</tr>
<tr>
<td>Vinegar, general</td>
<td>4</td>
<td>5 gal/9-4 lbs/774</td>
</tr>
<tr>
<td>Vinegar, cider</td>
<td>1</td>
<td>3 gal / 35-1/4 vedros</td>
</tr>
<tr>
<td>Vinegar, wine</td>
<td>1</td>
<td>1/8</td>
</tr>
<tr>
<td>Coconut oil</td>
<td>2</td>
<td>39 barrels/10</td>
</tr>
<tr>
<td>Olive oil</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>Resin</td>
<td>1</td>
<td>Barrel</td>
</tr>
<tr>
<td>Resin and pitch</td>
<td>2</td>
<td>Barrels</td>
</tr>
<tr>
<td>Tar and pitch</td>
<td>1</td>
<td>226 barrels</td>
</tr>
<tr>
<td>Tar</td>
<td>1</td>
<td>17 barrels</td>
</tr>
<tr>
<td>Turpentine</td>
<td>2</td>
<td>60 liters</td>
</tr>
<tr>
<td>Olive/sweet oil, Bottles</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td><strong>Rey. Goods</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Metals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron, general</td>
<td>7</td>
<td>quntal / 7,720 puds / cu.</td>
</tr>
<tr>
<td>Iron, treated</td>
<td>4</td>
<td>120 / 2 quintals / 7 arrobes</td>
</tr>
<tr>
<td>Iron, platinated</td>
<td>4</td>
<td>340 arrobes / 20 sq.</td>
</tr>
<tr>
<td>Iron, semi-platinated</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Iron, sheets</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Copper, general</td>
<td>4</td>
<td>265 puds 9,640</td>
</tr>
<tr>
<td>Copper, sheet</td>
<td>1</td>
<td>344 puds 6,257</td>
</tr>
<tr>
<td>Steel, general</td>
<td>5</td>
<td>quintal</td>
</tr>
<tr>
<td>Tin, general</td>
<td>1</td>
<td>96 puds</td>
</tr>
<tr>
<td>Tin, sheets</td>
<td>1</td>
<td>1,100</td>
</tr>
<tr>
<td>Tobacco</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobacco, Virginia</td>
<td>16</td>
<td>40 puds / 4 arrobes / quir</td>
</tr>
<tr>
<td>Tobacco, Circassian</td>
<td>3</td>
<td>19-4-5 lbs / 238 puds</td>
</tr>
</tbody>
</table>

\[\text{pud} = 36\text{lb} \]
Beiträge
zur Kenntnis
des Russischen Reiches
und der
angrenzenden Länder Asiens.

Auf Kosten der Kaiserl. Akademie der Wissenschaften
herausgegeben
von

Erstes Bändchen.

Wrangell's Nachrichten über die Russischen Besitzungen
an der Nordwestküste von Amerika.

St. Petersburg, 1839.
im Verlage der Kaiserlichen Akademie der Wissenschaften.
zerschossen wurde"). Im Jahre 1804 nahm Baranow den
Koljuschen ihre eigene Versammlung ab, und gründete
in deren Nähe die Faktorei Neu-Arhangelsk, an der
selben Stelle, wo sie noch heutigen Tages steht, unter
37° 2' 50" N. Br. und 224° 42' O. L. von Greenwich.

§ 5. Ursachen der Besitznahme des
Sitiche- Meerbusens.

In dem Sitiche-Meerbusen und den benachbarten
Meeren hielten sich zu jener Zeit die See- Ottern
in grosser Menge auf; der Fang dieser Thiere war der
Hauptbeweggrund der Besitznahme des Meerbusens. Allein
auch ausser der reichen Ausbeute, die sich von den
See-Ottern erwarten liess, schien die neue Besitzung für
die Stiftung einer Haupt-Faktorei sehr bequem und vor-
theilhaft gelegen. Ein vorzüglicher Hafen, Waldungen,
die das herrlichste Baumholz liefern, grosse Höhe der
Fluth, Ueberfluss an Fischen, kurz alle notwendigen
Erfordernisse eines guten Hafens, Schiffswerftes und
er einer nicht unbedeutenden Niederlassung, fanden sich bei
dem Sitiche-Meerbusen vor, und gewährten noch jetzt
Neu-Arhangelsk grosse Vorzüge vor allen andern
Besitzungen der Compagnie, obgleich die See-Ottern
gänzlich verschwunden sind.


Die Gebäude sind ohne Ausnahme von Holz, ge-
hören theils der Compagnie, theils Privatleuten, und sind
to Wohnungen für die Beamten und Arbeitleute be-

*) Im Jahre 1800 wurde von den Koljuschen auch die An-
siedlung der Compagnie in Jakutiat gänzlich zerstört; sie ist bis auf
den heutigen Tag nicht wieder errichtet worden.

stimm. Zu diesem Behufe sind Quartiere und Kasernen
erholt worden; ferner verschiedene Gebäude für das
Hospital, die Schule, das Kompotier, die Packhäuser, die
Werkstätte des Hafens, ein Arsenal, die Kirche,
Badstube, u. a. m. Fast alle Gebäude der Compagnie sind mit Eisen ge-
deckt. Die Ansiedlung ist von einer Seite durch das
Meer geschützt, von den andern Seiten umschlossen sie
eine hohe Holz-Wand, die an den wichtigsten Punkten
Thüren und wohlbediente Batterien trägt. Die Fahrzeuge,
liegen der Ansiedlung gegenüber, im Hafen vor Anker;
die Anker hängen an Ketten und werden von Fässern ge-
halten, an welche das in den Hafen eingehauchte Fahrzeug
befestigt wird. Alle Fahrzeuge sind mit Kanonen besetzt.

Im Bereiche einer der Küsten-Batterien liegt, gegen
Westen, ein Meeresufer, ein Koljuschen-Dorf, das bis-
weilen an 1000 Bewohner zählt, sämmtlich Eingeborene.
Gegen Osten, längs dem Ufer ist ein niedriggelegener
Landstreif als Kartoffelfeld benutzt worden, sowohl zum
Gebrauche der Compagnie, als auch für Privatleute.

Moräste, Wälder, hohe und sehr steile Berge um-
schließen Neu-Arhangelsk, in dessen Nähe keine
gärige Wiese, kein freundlicher Hain zu sehen ist.


Im Jahre 1853 belief sich die Zahl derselben auf
847 Individuen, nämlich:
Der Ober-Direktor (Verwalter
der Compagnie).

Dessen Gehilfe.

Der Sekretair des Gouvernements, ein Civilbeamter.
Schiffsbefehlshaber, Oberoffiziere der Kaiserl. Marine.

9
Looking south over a part of the town of Sitka in Ehoten's day. The tall red-roofed building at the left, with three fan windows showing, was the Lutheran Church. To the right, the old St. Michael's Church which was torn down after the completion of St. Michael's Cathedral. The small steamer at may be the MEB, if so was the first steamer to be built on the Pacific Coast.

Looking toward the southwest. The Governor's House, which later became known as the Baranof Castle until it burned in 1894, stands prominently against the sky to the left. Below it are several log buildings that grew into the Twentieth Century. The long building at the right was probably quarters for married officers of the company or the Navy and their families.
A bark in the outer harbor, plus a Tlingit dugout canoe and a Aleut baidarka. The governor's house shows prominently. The church at the right is probably the old Saint Michael's, torn down when the cathedral was finished.

The inner harbor at Sitka with a bark and, directly behind the bark, a brig at anchor. At the right are buildings of the shipyard and ship repair shops, with the Indian village beyond.
Sitka from the southwest in the 1860's. This series of water color paintings is said to have been done by a Russian naval officer, but his name has been lost. His work is almost photographic in quality, with buildings shown in great detail.

Looking west toward Mount Edzusamne, with the Governor's House at the extreme left and the Missionery and Hospital at the right.

Looking north from the Governor’s House on what is now Castle Hill with the shipyard and fish saltery in the foreground and the Indian village or Ranchie beyond.

Note use of sheet iron roofs, distinguished by red color and broadly spaced vertical lines (standing seams) in use on boat sheds.
Siberia, let us not overlook the work done by him—it seems that he was working continuously.

From early youth, Veniamin

THE CLOCK

An illuminating incident in his student days. Bishop Klim build a tower clock on the ground for his residence and named Klim to construct it. The mecanic was given to Klim, the Bishop's residence. The Bishop noted how students quite frequently left the clock maker at his work. This was idling away a great deal. He reported the matter to the Bishop, who upon investigation it was ascertained that the supposed idler was Veniamin, an average and serious student. In the end, it was also ascertained that Veniamin, the clock maker in filing, had actually made himself useful.

Naturally he was not given a visit to the tower, but we find him making use of the benefit of his people and now we still have the cathedral which was constructed by Veniamin.

A year before graduation, Veniamin was ordained a deacon, and he changed his plan to continue studies at the Theological Academy at St. Petersburg. Later he was ordained a priest.

In 1823 an order from Moscow was received that a priest was required for the charge of the Unalaska district. However, there was no priest available. The Bishop of Unalaska, who had this order remained unanswered, was fast becoming unpopular. One day the Bishop asked the Bishop of St. Petersburg to send a priest to Unalaska, who pictured the

Fig. 81

ST. MICHAEL'S CATHEDRAL, SITKA

Erected in 1848, on the site of the first Sitka church, which was built in 1811, this is one of the most picturesque and historic religious structures on the Pacific Coast.

Photo from early 20th century. The standing-seam metal roof is evident on the porch. Both the bell tower and cupola are also covered in soldered metal. Paintings from the 1860s (figs. 76, 77 and 19) show the roofs painted light green.
Country Journal
April 1985

Figure 8: Standing-seam terne metal roofing

and $300 per square. That means that enough slate to cover a modest house is liable to cost $2,000 or more, but then you’ll have a roof that will last. If you have the good fortune to live in a slate-producing area, you may be able to buy slate at a discount by purchasing it directly from the quarry. Quarry owners will often sell slate with defects—such as broken corners or surface irregularities—that don’t affect its utility.

Another possibility is finding some used slate, but don’t expect to get it for nothing. Even after decades on a roof, slate doesn’t necessarily depreciate in value. But if you discover some likely-looking slate on a crumbling outbuilding (in Vermont’s slate belt, an hour’s drive from where I live), even woodsheds and chicken houses were often built with slate roofs a hundred years ago, you probably can strike a fair deal with the owner if you do the salvaging yourself. You’ll need a slate ripper [Figure 7], a tool that enables you to reach up under each course and cut the nails free without damaging the slate. Even then, you can expect to break some slates before you get the hang of it. You can also expect the job to take up a lot of your time. But what’s time to a slate roof?

Standing-Seam Metal

There are two general classes of metal roofing. The older, more traditional variety consists of flat, flexible metal sheets. Known as standing-seam metal, this variety is tailored to fit each roof individually by using sheet-metal tools to form the seams that connect the sheets. The second type, called metal panels, is more like an off-the-rack suit: it comes in stiff panels of standard lengths and widths which fit together by means of overlapping ridges or corrugations. I’ll discuss standing-seam roofs first.

A standing seam locks together the edges of adjoining sheets in tightly crimped vertical folds [Figure 8]. Because rainwater never sits over the seams themselves, running instead along the troughs between them, the possibility of leakage between sheets is virtually nonexistent. There is also little chance of leakage through holes in the sheets; the roofer secures a standing-seam roof to the deck by driving the nails through underlining cleats rather than through the surface of the roofing material.

Any metal durable enough to withstand prolonged weathering and malleable enough to take the tight bends required in standing-seam construction can be used for roofing. During the closing decades of the nineteenth century, standing-seam copper roofs were popular—they’re still occasionally used—but given the high price of copper today, a much
A more practical alternative is a material called *terne metal*.

Terne is an alloy of 20-per-cent tin and 80-per-cent lead. Terne-metal roofing is manufactured by taking sheets of copper-bearing steel—the copper is added for increased malleability—and plating them with terne metal in a hot dipping process similar to galvanizing. Several grades and gauges are available. Gauge, or overall thickness, determines the stiffness and dent-resistance of the material. Durability is determined by the "grade" or weight of the weather-resistant terne plating. The longest-lasting roofing—whether 30-, 28-, or 26-gauge—is identified as 40-pound terne, which indicates 40 pounds of plating for each 436 square feet of surface area. Even heavy-duty terne doesn't weigh much; 26-gauge, 40-pound terne weighs a mere 76 pounds per roofing square. Standing-seam terne is applied over a conventional board or plywood deck, with an underlayment of rosin-sized building paper rather than roofing felt. Terne metal is a good choice for low-sloped roofs (but not lower than a 5-12 slope).

A terne roof does require a certain amount of maintenance. It must be kept painted, or else rust will begin to streak through microscopic chunks in the lead-and-tin armor. If given a good coat of linseed-oil-based paint every five or ten years (never use tar-based sealants) it can last a long time. Thomas Jefferson's Monticello has standing-seam terne roofing more than 200 years old.

In addition to being extremely durable, terne also can harmonize with almost any type of architecture. Its clean vertical lines are as appropriate on an ultra-modern house as on a traditional Cape, and the range of color possibilities—limited only by paint manufacturers' imaginations—is unbeatable. The price is comparable to that of cedar shingles, at $125 to $160 per square. Terne roofing is also available on a stainless-steel base sheet at a cost about double that of the standard variety. It requires no painting, and weathers naturally to a uniform gray.

Unlike asphalt roofing, shingles, or slate, terne roofing is not well suited for do-it-yourself application.

**Metal Panels**

Metal roofing panels [Figure 9] don't last as long as standing-seam terne, and as most people would probably agree, they're not as good looking. But panels offer some definite advantages of their own. The first is cost. A homeowner can buy good-quality galvanized-steel roofing for about $70 per square, about the same as the best fiber-glass-based asphalt shingles. In addition, the cost of sheathing when using panels is far lower, because of the panels' inherent stiffness, a solid deck is unnecessary. Roofers normally lay the metal panels directly over 1-by-4 strapping spaced on 12- to 24-inch centers. No underlayment is required, although a layer of felt is sometimes used to help prevent air infiltration in cold climates.

Moreover, metal panels are the fastest and easiest roofing to apply. Individual sheets come in continuous lengths—up to 24 feet—and in widths from 24 to 36 inches. One panel provides a total coverage—even after overlapping the edges—of 22 to 30 inches, and because of the pressed ridges or corrugations, the panels self-align. Each successive sheet is simply lapped over the preceding one and nailed fast to the underlying 1-by-4 strapping. To prevent leakage through the nail holes, special roofing nails are driven only into the ridges—never into the troughs [Figures 9 and 10]. The nails have snug-fitting lead or neoprene washers just beneath the heads which effectively cap the punctures left by the shanks.
Mr. Glenn J. Farris  
Cultural Resources Management Unit, DPR  
2572 Port Street  
West Sacramento, California 95691  

14 June 1984

Dear Glenn:

It was a special pleasure to meet you when you were in Portland earlier this spring - I was very much interested in all the work you have done on Fort Ross, and it is always a treat to meet in person with scholars who are working in the same area of research as we are. I am delighted to have the wonderful report you've done, as well as the articles - you are very generous to send these along for our library, where they are much appreciated.

I am enclosing a relatively recent view of the Erskine House. Of course as soon as I looked at the photograph and at an early drawing of the site, I realized I had mis-remembered the structure of the Erskine House. I am certain you are correct in identifying the structure in your report as the warehouse. I don't know the name of the present curator of the Erskine (now called Baranof) House, but certainly a letter addressed to the curator in Kodiak would reach her - Kodiak is a pretty small place and the museum is a town landmark.

In regard to your question about the Blomkvist article on the Voznesenskii drawings: the comment on p. 106 about metal roofs is almost certainly hers - but was undoubtedly taken from Voznesenskii's notes - this is speculation on my part, but I don't believe she could have concluded the roofs were metal just from the drawing. In the Sbornik Muzea Antropologii i Etnografii No. XXIV (Leningrad: 1967): Kultura i Byt Narodov Ameriki, R. G. Llapunova has written an article entitled "The expedition of I. G. Voznesenskii and its significance for the ethnography of Russian America." On p. 6 she comments, "In 1951 E. E. Blomkvist published 3 of the drawings of I. G. Voznesenskii preserved in the Museum of Anthropology and Ethnography, which he had made during his travels in the former Russian possessions in America.... The material in the article was based on unpublished letters, reports, diaries, collection lists and other documentary materials of Voznesenskii, including materials from the R. K. Gilzen archive."
I am going to be at the Bohemian Grove this weekend - the last time I was there we had a special expedition (a small number of persons, that is) to Fort Ross - if I'm lucky, perhaps we will again this time. It would be most exciting to see all the work that has been done since I was last there five years ago.

Again - I do want to tell you what a pleasure it was to meet you, and how much I appreciate your kindness in sending all the fine materials to me. Warmest congratulations on all the superb work and research you are doing!

With all best wishes,

[Signature]

E. A. P. Crownhart Vaughan
Russian Department

(much easier than Elizabeth Ann Perpetua!)
THE OLD WAREHOUSE.

Because it is uncertain how, or even if, the peristyle extended to this side of the building, I have left it out here.

Hypothetical conversion of the "Old Warehouse" into the "Old Barn."

Plan of upper level, circa 1840.

Plan of upper level, circa 1870.

THE OLD BARN.