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FORT ROSS ORCHARDS

Historical Survey, Present Conditions
and
Restoration Recommendations

by

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June 1979

"The preservation of the living trees planted by the Russians should be undertaken before it is too late....It is nothing less than criminal to allow the present progress of decay and despoliation to continue!..."

E. O. Essig
"The Russian Settlement at Ross"
1933

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INTRODUCTION

They found a good harbor, a fine building site, tillable lands, a mild climate, an abundance of fish and fur-bearing animals, and, above all, a region unoccupied by any European power. These were the conditions which beckoned the Russians to the California coast in 1812. (Figure 1) They came to settle, to hunt and fish, to log and build ships, and to till and plant the soil.

From an economic and scientific viewpoint, the development of Fort Ross was far ahead of any other settlement in California. Yet, it was one of the first to pass into obscurity. The efforts of the Russians in all the various activities conducted at Fort Ross having fallen short of their expectations; they left in 1841--only 29 years after establishing Fort Ross.

Abandoned behind them was a hillside orchard of vigorous and productive fruit trees. The trees' growth had successfully demonstrated that the land and climate of the northern coast were particularly adapted to the raising of fruit. The harvest collected from their laden limbs had protected the Russians in the Fort Ross colony from the ravages of scurvy.

Two in the succession of owners which followed the Russians established orchards of their own and carried on reconstructive measures in the old orchard. Then, once again, the trees were neglected. Left with no care, they began to show the effects of weather and time. Many could no longer hold their heavy crop year after year. Limbs began to fall. Trunks began to split. Soon the trees were no longer even safe from the livestock, for the

surrounding protective fence also began to deteriorate and crumble. But some of the healthier, sturdier trees endured; it is those that are of importance today.

Literature gives some insight into the decline of the orchard to its present state. Delving into history helps to unlock some of the questions concerning the orchards of Fort Ross. But perhaps even more knowledge comes from the study and observation of the orchards as they are today. Through thorough research and examination (historical and current), the proper decisions can be made as to the future of these ancient, respectable trees. The well-being of the living trees can be provided for by developing a program for the preservation and restoration of the orchards. Eventually (with precautions taken to allow for the trees' protection), these fascinating and little known areas of the Fort Ross hills can be fully shared with the public.

LITERATURE REVIEW

Orchard keeping in Hispanic California was practiced on a small scale during the early 1800's. Those plantings owned by private persons were often so insignificant as to attract little attention from historians. Humble orchards of fruit-bearing trees and vineyards were generally found only in the missions. When these orchards were owned by the missionaries, they had been kept in good order; but, later, after secularation, they were allowed to grow wild and in some places were destroyed.¹ Accounts of the missions make it plain that oranges, figs, olives, grapes, and all the hardy fruits would have been found prospering in these early orchards. As trade in California began to flourish, fruit trees were included in the barter and by the early 1900's along the coast all kinds of fruit trees could be seen growing and the fruit ripening.²

Fruit harvest often depended on the weather. If the summers were sunny and fogs were infrequent, the harvest would be plentiful; but if it were stormy from May to September and the sun seldom shone, the fruit would not grow.³ The favorable coastal climate, though, prevented the fruit from being troubled with the codling moth or other insects; and the soil generally brought the fruit to its fullest development.⁴

Initially, the Russians at the Fort Ross settlement were preoccupied with hunting and shipbuilding. The involvement of the colony in the horticultural and agricultural activities of raising fruit and grain had not assumed a role of large commercial importance. But, eventually, with the decline of those initial fur-hunting activities, agriculture became the colony's dominant

industry; and fruit growing received increased attention. In their rural endeavors the Russians discerned that vegetables and fruit were more prolific than the grain crops.⁵

Often these people are credited with being the first to develop horticulture in the Sonoma area. But, until the Russians exerted their efforts in the direction of agriculture and before the crops had reached productive maturity, the scarcity of fresh vegetables and fruit accounted in part for the prevalence of scurvy at Fort Ross in 1818 and 1819.⁶ The Russians experimented with fruit trees; and so, as that area of the state was so well adapted to the raising of fruit, the Fort was soon surrounded by fruit and vegetable gardens. In fact, many of the early apple orchards in Sonoma⁷ and the old stock of German prunes in California⁸ were said to have come from cuttings and seed produced there.

The first Fort Ross orchard was set out on the hills about three quarters of a mile from the Fort enclosure. The acreage was protected from animals by a fence made of redwood slabs or planks eight feet high.⁹ Here the plums, cherries, prunes, apples, pears, and other fruits could ripen fully, unharassed by the livestock.

Insofar as the origin of the orchard is concerned, Khlebnikov¹⁰ records that the first orchard tree, a peach, was brought from San Francisco by Benzeman. He delivered it by way of the schooner Chirikov in 1814, and from assorted accounts it is known that by 1820 fruit was already gathered from it. Next, grapevines were brought from Lima, Peru, in 1817.¹¹ Captain L. A. Hagemeister delivered the shoots which were planted and nurtured in the

hillside soil. The first robust clusters of grapes were harvested in 1823. After a trip to Monterey in 1818, Hagemeister brought to Fort Ross more peach trees to add to the expanding orchard. Apple trees then received their first introduction in 1820. They reached Fort Ross along with peach, cherry, and pear trees which had been purchased as cuttings in Monterey. Khlebnikov¹² and Essig¹³ also include bergamot as being among the plants unloaded from the brig Buldakov at this time. Although all of these later fruit trees were very small when planted, they began to bear fruit in 1828.

Throughout the period of Russian occupation of Fort Ross, the economic pursuits of the colony often varied with the person who occupied the manager's position. The third successor to the job, Paul Shelikhov,¹⁴ 1824-1830, was told by Governor Muravyov that, "Everybody must now be turned to the repair of buildings, grain cultivation, orcharding, and gardening, as well as cattle-raising which must be increased, not decreased."¹⁵ Shelikhov consequently had every patch of arable land near the Fort cultivated. In 1826 (during Shelikhov's managership) it was noted that the orchard at Fort Ross was "well arranged" and contained apples, pears, peaches, and grapes.¹⁶ The cultivation of the land was to produce food for the establishments, but despite great effort the grain yielded little profit. And, even after nineteen years the orchard included only 400 trees and 700 vine stalks,¹⁷ not nearly expansive enough to fully supply the Russian colonies in the North Pacific with fruit.

Soon, greater agricultural expansion was sought by the development and operation of three Russian ranches between 1833 and 1841--the Kostromitinov

Ranch near the mouth of the Russian River, the Khlebnikov Ranch, and the Chernykh Ranch in the Upper Salmon Creek Valley. It seems that fruit growing was confined to Fort Ross itself and the Chernykh Rancho.¹⁸

In 1836 there arrived at the Fort a Moscow-trained agronomist named Egor Chernykh who was sent to study the problems of crop production along the Sonoma coast. Chernykh recommended moving the farm activities of the settlement further inland. Consequently, later ranchos were established according to his instructions, only one of which we know contained an orchard. La Place¹⁹ who visited Fort Ross in 1839 remarked that, "In every respect Ross can be called the livestock farm, the garden, and the fruit orchard of the barren Russian colonies in the Pacific."

By 1840 there were two orchards at the Fort.²⁰ Both were situated on the lower slopes of the coastal hills about half a mile upland from the Fort (to avoid the nocturnal settling of cool air). The Chernykh Rancho at this time contained 2,000 vine stalks and some trees.²¹ Among Chernykh's observations is the following: "The fruits which grow to considerable size are: apples, pears, peaches, apricots, quince, plums. Generally the fruits are coarse. Blue grapes are cultivated and yield good harvest and good taste. Vine slips are stuck into the ground, and some of them bear fruit in three to four years..²²"

When the Russians departed from Fort Ross at the end of 1841, an inventory of the Russian properties revealed this of the orchards:²³ "Orchard of fruit trees: 330 ft. long, 144 ft. wide. It has more than 260 fruit trees, 207 apple trees, 29 peach trees, 10 pear trees, 10 quince trees, 8 cherry trees,

and also some vines." (Figure 2) This one-and-one-quarter acres was enclosed by an eight foot wooden palisade. Nearby, there was a little orchard, 84 feet long and 63 feet wide with more than 20 fruit trees and also some vines.²⁴

The Chernykh Ranch 1841 inventory listed a vineyard with 2,000 grapevines and several fruit trees.

From the time of the Russian sale and abandonment, 1841, until the purchase by George W. Call, 1873, Fort Ross was subjected to a series of ownership transfers. In 1841 John Sutter purchased the property with no intention of living on it; after removing most of the supplies, equipment, and livestock to Sacramento, it was sold to William Benitz in 1845. Benitz retained ownership for about 20 years before the ownership of the Fort was shifted to Fairfax and Dixon in 1869. They stayed only a few years before selling to George W. Call in 1873.

The inventory of Fort Ross (Figure 2) done by the Russians was used in the transfer of the Fort Ross properties by the Russians to John Sutter when he purchased it in 1841. During the short time of Sutter's ownership of Fort Ross, John Bidwell, Sutter's manager, made several visits to the area. He recognized that the Russians had an orchard of two or three acres and in January of 1841 he describes what he saw as:

...a small but thrifty orchard consisting of apple, peach, pear, cherry, and quince trees--the peach trees had not shed their leaves and several were in blossom; the quince and more than half of the apple trees were as green as in summer. Pear trees I am informed come to great perfection. Fig trees likewise are found in almost every orchard and grow well. The wine grape is cultivated and grows to great perfection. I again visited this place on February 3, saw wild plants in bloom--such as violet; apple and peach trees beautifully arrayed in blossom.²⁵

He later writes that on one visit to Fort Ross he dried the peaches and some of the apples and made cider of the remainder.

But, for all of Bidwell's interest, no maintenance or improvements were carried on in the orchards during John Sutter's ownership. Only after the sale of Fort Ross in 1845 to William Benitz were changes made. The new owner undertook several ranch enterprises. He began the cultivation of wheat, oats, and potatoes; an imposing 1,700 trees were laid out.²⁶ (Figure 3) So, to the remainder of the Russian orchard was added the extensive Benitz planting.

Until the purchase of Fort Ross by G. W. Call, no further changes were seen in the orchards. The move of the Call family from San Francisco to the area was the culmination of G. W.'s search for a summer home. He brought his Chilean wife, Mercedes, and their children to the Sonoma coast to live in 1873 and commenced to use the Fort year round. From the recollections, photographs, and diaries of his family comes much knowledge of the orchard's history.

In 1877, four years after the Calls bought Fort Ross, there were still two orchards in existence (Figure 4), the larger Benitz orchard and the older Russian orchard. An observation written about the orchards during a trip to Fort Ross at this time states that "In addition to the trees originally planted in 1811 (1814) by the Russians, there is quite an extensive orchard planted some 25 or 30 years ago by Mr. Bennet (Benitz), comprising many choice American varieties."²⁷ The orchard was large; and although some of the trees were well along in age, they were still living and bearing fruit. Perhaps the best source of information as to what was planted by William

Benitz comes from an old, barely legible chart. (Figure 3) On this chart, the varieties of apples were listed and their layout shown. The following were included:

Lady Apples, Wine Sap, Jonathan, Greening?, R?, Roxbury Russets, Canadi Reim, Saps of Wind, Virginia Greenings, Smith's Cider, Fall Pippins, Red ? Pippin, Winter White Pearmain, Wood's Greening, Fancy, Rambo, Yellow Newton Pippin, Milomn, Saps of Wine, Golden Newton Pippin, Vandever Pippin, Early Hannis, Maiden's Blush, Summer Pearmain, Wine Sap, Ladies Sweetings, Golden Russet, Oro Pippin, Peck's E ? Sand, Gloria Mundi, Alexander, Limber Twig, Hannis, Wagen, Reed's ?rahen, Fall Beauty, Brod River, Baldwin, Esepus Spitzenberg, Ducoit, Yellow Bellflower, Swaar, Northern Spy, Red Jonathan.²⁸
(Figure 3)

The Call family used both the Benitz and the old Russian orchard for commercial purposes (Figure 5); then they later planted an additional orchard on the hills above Fort Ross. It was annointed with the name "Prune" orchard or sometimes "the Garden" as was befitting of its purpose; for the smaller Call orchard was actually a family orchard with a variety of fruit trees--but principally prunes and plums. G. W. Call had it planted in order that his own family's needs and desires be met with an assortment of fruit crops, some types of which were not found in the other two orchards.

The "Prune" orchard was enclosed by a fence and the gate was of peeled wooden poles. When the fruit was harvested for family use, the apples were taken down from the hillside to what was called the apple house.²⁹ It was well ventilated, and the apples were stored on wire shelves along the building's walls where they would keep all winter. It was said that there was applesauce on the table at every Call family meal.

G. W. Call was not a fruit man and had too many other interests to oversee to devote much time to the orchards. Consequently, in the first seventeen years that the family lived at Fort Ross, the orchard was pruned once; and G. W. informed some newspaper men that he thought it was more of an injury to the trees than a benefit.³⁰ The extent of cultivation received by the orchard was one plowing a year when it was sowed for hay. Regular pruning and maintenance procedures to maintain the trees' vigor and productiveness were not done. Yet, the apple trees were known to always have been loaded with bright red fruit which was firm enough to keep until late spring. As one grower said, "We always have apples until apples come again."³¹

By 1893 the Russian orchard, which in 1841 had consisted of 260 trees, numbered only 200 trees. In 1896 Call stated that of those, some fifty apple trees of Russian planting were still alive and bearing fruit every year, even though most of the survivors were described as looking very old and mossy and were not very vigorous.³² The Russians, it appears, did not plant their apple trees with a view to the long life or extended growth of the orchard. The trees were huddled close together and were not set out in rows. This more or less tended to exhaust their vitality and interfere with their fruitfulness although the flavor and quality of the crops did not seem to be affected. A description notes that the fruit had much better flavor and kept much longer than that raised in the interior. The cherry trees of the Russian orchard were pictured as resembling some old forest monarchs with their thick bark and wide-spreading branches.³³

In 1898, the Benitz orchard was recorded as having 463 trees.³⁴ According to Essig, even at this time, most of the trees in the old Russian planting had

been replaced by Benitz and Call after the departure of the Russians.³⁵

Through a newspaper article, we know that orchard improvements were indeed carried on by G. W. Call.³⁶

More than 1,200 apple trees were planted in the old orchards (Russian and Benitz) which for so many years had supplied the bulk of the apples shipped from that region to San Francisco markets. While many of the original trees set out by the Russians were still in good bearing, a number in both orchards had been destroyed by the storms and ravages of time; it was to replace those so destroyed that the new trees were planted.³⁷

In 1922, E. O. Essig found a portion of the original orchard fence still standing. Then in 1925 he aged the oldest trees in the orchard at 105 years old, having been planted in 1820. The apple trees of the Russians had faithfully brought a crop regularly every year for the life span of the orchard. In 1925 the yield was large, but came only from the hillside orchards, as all the others planted near the buildings outside the enclosure had long since disappeared as had those planted at distant ranches.³⁸

The most thorough and graphic information to be found on the Russian orchard is that by E. O. Essig in 1927. It has been included almost in its entirety because of its great descriptive value.

I have found the orchard to be a most interesting place. The old Russian fence has completely disappeared. A few bricks in the southeast portion indicate the location of the two powder magazines which Mrs. Call stated once stood there. A number of picket fences enclose most of the original area which is also used as a sheep pasture. The orchard occupies a considerable area of the rolling hills some five hundred feet above and three-fourths of a mile behind

the Fort at the edge of the native shrubbery and timber. Started in 1820 by the Russians with one hundred trees of peach, apple, pear, and cherry, brought from Monterey by Lieut. Kiryll Khlebnikov, it has since been added to, first by William Benitz, and later by G. W. Call. It has had indifferent care, but when well cultivated, yielded large crops of excellent fruit. There are now trees showing all stages of decay and in many places sprouts show where others once stood. A low spot near the road, which holds water in the winter, has a heavy growth of niggerhead grass, Juncas effusus Linn. var. brunneus Engelm., which has warded off the plow for years. Below it are some of the very largest pear trees in the orchard. They appear to be of the Vicar of Wakefield variety. Some large apple trees also stand nearby. They were probably planted by Benitz. In the upper northwest corner are the original Gravenstein apple trees planted by the Russians. Only the two which were in fruit could be definitely identified. They are large, vigorous trees, covered with moss and well laden with delicious juicy fruit. Just below and bordering the road is a veritable thicket of prune seedlings which is almost impenetrable. Nearby is a huge redwood which has apparently grown up since the Russians departed. Near the middle of the orchard is a row of six seedling cherry trees 12 feet apart, also planted by the Russians. These did not look like cherry trees. Their general appearance and the size, shape and texture of the leaves much more resembled the almond. However, Mrs. Call assured me that they were a sort of small seedling cherry. Returning again to the orchard I was able to find characteristic cherry seeds in the dry grass beneath the trees. Another thicket composed of apple, cherry, pear, and prune trees and native brush occurs on either side of a small spring or creek bed near the middle of the east side. One of the four remaining pear trees planted by the Russians is on the upper side of this mass of shrubbery--the three others are some distance below the spring. Two of these pear trees are decidedly different from any other varieties in the orchard. They are tall, open trees, bearing small leaves and small, very scabby fruit. The tree above the thicket and another below, the two already referred to, are much more compact in habit. No fruit could be procured from the first, but that of the latter, although small, was much better looking than that of the other two. On October 6 the fruit of the two typical trees was ripe, while that of the latter was still green. It is possible that only the two openly-framed trees were actually planted by the Russians. The pear trees planted by Benitz are as large as those planted by the Russians, but those set out by Call are much smaller especially in trunk diameter. The three Russian Bellflower apple trees are located near and just below the spring. They are tall and slender and do not possess the wide, weeping effect of the same variety grown elsewhere in the state. The fruit at this date was small, very slender in shape and highly colored where exposed to the sun.

Summarizing, it will be noted that there remain but fifteen of the original fruit trees planted by the Russians; two Gravenstein apple and three Bellflower apple, four Russian pear and six seedling cherry trees. A census of the entire orchard at this time showed the

following number of trees present: apple 54, cherry 11, pear 43, plums, several dense thickets of seedling prunes and plums, prunes 2, olives 5. The apples are of many varieties and not a few of the trees laden with fruit of good quality, which was well colored and of fine appearance except for scab and the work of the codling moth. The pear trees are especially large--some being nearly fifty feet tall. The varieties noted were Vicar of Wakefield, Bartlett, and some very beautiful sand pears of which there are portions of two rows in the southeast corner which were planted by Call. The original trees planted by the Russians were set closely together as illustrated by the cherry trees. However, they were usually not set in rows as was later done in some instances by Benitz and Call.

All of the trees are bushy and covered with lichens which give them a truly aged appearance. Mrs. Call told me that the orchard had been plowed every year excepting last year, but there are certain spots which seem not to have felt the plow for many years.

The trees appear never to have been pruned and were never sprayed....

...The preservation of the living trees planted by the Russians should be undertaken before it is too late. The speedy acquisition by the state of the entire Fort Ross Ranch would be a great investment for the future.

It is nothing less than criminal to allow the present progress of decay and despoliation to continue!...³⁹

This is heretofore the most current description to be found of the orchards at Fort Ross. Since the early 1900's little was recorded and no further inventories were made. Consequently, only a small amount has been known about the orchard's growth, harvest, and decline which have brought it to the state in which it now endures.

PROCEDURE OF STUDY

Involved in the study of the Fort Ross orchards from an historical standpoint was the need to know the current status in which they exist. It was evident that for progress to be made in determining the historical significance of each of the trees, an inventory of the orchards was necessary. Only by knowing what types of trees were still living could a study be conducted to determine their importance and make recommendations for their preservation and restoration. Included in preparing an inventory of the Fort Ross orchards were the jobs of mapping and identifying individual trees.

Experts were sought in the field of fruit science to help identify the various types of fruit trees. Farm advisors, fruit science professors, orchardists, and rare fruit enthusiasts were contacted by mail and telephone in an attempt to solicit their help and garner some of their knowledge.

Historical research was conducted simultaneously with the study of the orchards as they are today. Various diaries, documents, and other literary materials were delved into in search of descriptions and information pertaining to the trees. Descendants of the Call family and other individuals who were interested in the Fort Ross orchards were contacted in an effort to accumulate anything in reference to the orchards.

Field trips were conducted for the purpose of both historical and current research. Individuals were met and interviewed. As the research continued it became imperative that there be some documentation on which to base communications about the trees. Consequently, each tree in the orchard was

marked with a metal tag, identifying it individually by number, and then plotted on a map. (Figures 8 & 9) The completion of an accurate map of the Fort Ross orchards has provided a solid foundation for the further extension of work conducted on this project.

RESULTS

The following map of the Fort Ross orchards was developed in order to have an accurate record of the trees' location. An aerial photograph⁴⁰ was printed which spanned the area in which the orchards existed. It was produced at a scale of 1" = 150' in order to facilitate easy plotting of individual trees. By enlarging the photograph to this size particular trees could be recognized in the photograph and used as reference points in plotting others. Sheets of mylar plastic were placed over the photograph and the vegetation boundaries, roads, and other reference points were traced upon it. The mylar was then xeroxed as a method of transferring the plastic tracing to a paper medium. The rest of the trees were then plotted through on-site work and the help of a previous map done by Mel Badger, State Park Resource Ecologist.⁴¹

(Figure 6) All of the trees were referred to by number on the map. These numbers directly relate to metal tags which are stamped with the same number and tied around each tree with plastic coated wire. The Fort Ross Orchard Map was then transferred to clear print for the production of a final copy.

Fort Ross Orchards - Sheet Number 1 of 2

KEY TO FORT ROSS ORCHARD MAP AND TAG NUMBERS

AREA I--Russian Orchard

Tag Number	Tree Type	Comments
1	Pear	Located outside fence alongside road.
2	Plum	Located outside fence alongside road.
3	Apple	Tree is in good condition.
4	Prune (European Plum)	
5	Pear	Fruit is ball-shaped and long-stemmed.
6	Apple	
7	Pear	
8	Pear	Trees are currently in good condition. They are large with expansive trunk circumferences. (Refer to Discussion section for further information.) (Figure 10)
9	Pear	
10	Pear	
11	Pear	
12	Apple	Tree is lying on the ground in very poor condition.
13	Apple	
14	Apple	Tree is hollow and weak.
15	Apple	Very small fruit set this year due to low bee pollination. Probably because the tree is located in the wind.

16	Prune (European Plum)	
17	Pear	
18	Prune (European Plum)	
19	Prune (European Plum)	
20	Prune (European Plum)	
21	Apple	
22	Apple	Fruit is flattened in shape and the leaves are large. (Refer to Discussion section for more information.) (Figure 11)
23	Apple	Tree is down and in very poor condition. Fruit is spherical in shape.
24	Apple	Tree is split and down. (Figure 12)
25	Pear	
26	Plum	
27	Pear	
28	Prune (European Plum)	Tree is down.
29	Apple	

30	Cherry	
31	Cherry	
32	Cherry	(Refer to Discussion section for more information.) (Figure 13)
33	Cherry	
34	Cherry	
35	Prune (European Plum)	Tree is broken apart.
36	Apple	(Refer to Discussion section for more information.)
37	Pear	
38	Prune (European Plum)	
39	Pear	
40	Pear	
41	Pear	
42	Pear	
43	Pear	
44	Pear	Large tree with very round leaf shape. (Figure 14)
45	Pear	Large tree in good condition.
46	Prune (European Plum)	Broken into three main parts.

47	Pear	Located across the creek.
48	Apple	Tree is down.
49	Apple	Tree is down. The leaves are large. (Refer to Discussion section for more information.)
50	Prune (European Plum)	
51	Prune (European Plum)	Tree is down.
52	Prune (European Plum)	Tree is down and in three main parts.
53	Prune (European Plum)	
54	Prune (European Plum)	
55	Prune (European Plum)	Tree is down.
56	Pear	Tree has a shiny pointed leaf. (Refer to Discussion section for more information.)
57	Prune (European Plum)	
58	Olive	(Refer to Discussion section for more information.)
59	Olive	
60	Prune (European Plum)	

61	Olive	(Refer to Discussion section for more information.)
62	Olive	
63	Prune (European Plum)	
64	Prune (European Plum)	
65	Pear	(Refer to Discussion section for more information.)
66	Pear	Located under the redwood tree. Fruit is very round and has no neck. The leaves are pubescent.
67	Pear	
68	Apple	

AREA II--Hillside Trees (Refer to Discussion section for more information.)

Tag Number	Tree Type	Comments
120	Plum	
121	Plum	
122	Apple	Tree is down and in bad condition.
123	Plum	Located far above Call orchard.
124	Plum	
125	Plum	
126	Plum	
127	Plum	
128	Plum	
129	Plum	
130	Plum	
131	Plum	
132	Plum	
133	Plum	

AREA II--Call Orchard

Tag Number	Tree Type	Comments
140	Plum	
141	Plum	
142	Plum	
143	Prune (European Plum)	
144	Plum	
145	Plum	
146	Plum	Tree is down.
147	Plum	
148	Plum	
149	Plum	
150	Prune (European Plum)	
151	Prune (European Plum)	
152	Plum	
153	Prune (European Plum)	

154	Prune (European Plum)	
155	Plum	
156	Prune (European Plum)	
157	Plum	
158	Plum	
159	Fig	Located just on the edge of the natural vegetation.
160	Prune (European Plum)	
161	Plum	
162	Cherry	
163	Walnut	
164	Cherry	
165	Prune (European Plum)	
166	Plum	
167	Plum	
168	Prune (European Plum)	

169	Prune (European Plum)
170	Apple
171	Prune (European Plum)
172	Apple
173	Plum

AREA III--Benitz Orchard

Tag Number	Tree Type	Comments
101	Apple	Located in the natural vegetation along the edge of the cultivated field.
102	Apple	Located in the west corner of the field on the left side of the gate. (Figure 15)
103	Apple	
104	Apple	Located behind a group of redwoods back toward the natural vegetation.
105	Apple	Located out in the field. Fruit has uneven sides. (Refer to Discussion section for more information.) (Figure 16)

DISCUSSION

Seemingly inherent in the study of the Fort Ross orchards are the differences of opinion of the people concerned with the welfare of the orchards. It has been one of the goals of this project to eliminate some controversy by clearing up underlying questions. Particular trees in the orchards have attracted attention because they may be of historical importance for Fort Ross as it is interpreted in the Russian time period.

The Russian Orchard (Area I) seems to carry the burden of most of this disagreement. Apparently, most of the original trees planted by the Russians at Fort Ross were seedling types purchased from the Spanish at San Francisco, Monterey, and other southern locations. They were not propagated as named varieties except possibly the "Gravenstein" and "Yellow Bellflower" apple varieties.⁴² This would account for the lack of historical listings of the types of trees planted by the Russians other than by the common names.

Part of the controversy results in that Larry McGraw, McGraw Experimental Garden,⁴³ believes that these two named varieties, the "Gravenstein" and the "Yellow Bellflower," received their first introduction into the West in 1847--after the Russian departure. According to his studies, they were brought by covered wagon to Milwaakie, Oregon, by Henderson Luelling. Even though the 'Gravenstein' and 'Yellow Bellflower' apples were listed by G. W. Call⁴⁴ and E. O. Essig⁴⁵ as having been planted by the Russians, McGraw discounts this.

Perhaps these varieties of trees were in California prior to 1847 as seedlings and not the grafted commercial type to which McGraw addresses himself. And, if indeed the 'Gravenstein' historically (and possibly currently) found in the Fort Ross orchard were really planted by the Russians, then those people may be credited with first introducing the named varieties of apples to California.⁴⁶

With the other unsolved controversies, similar to the one discussed above, it seems best to simply address each one individually. As a result, each orchard tree has been separately considered. The following discussion will concern those trees which have already been given extensive attention. Not intended as solutions to the controversies, the following information is simply a statement of what is known. At this time answers cannot be formulated but hopefully in the future this will change.

AREA I--Russian Orchard

The prunes or European plums, Prunus domestica, located in the Russian orchard seem to be young trees and seedlings. Most were probably planted by the Calls or have germinated in recent years from seeds dispersed by natural means.

The pear, Pyrus communis, is a deciduous fruit tree which typically grows into a pyramidal shape with a strongly vertical branching pattern. Trees numbered 7, 8, 9, 10, and 11 are pear trees located on the northwest side of the Russian orchard. They are in good condition and standing upright. Their large trunk diameter and height attest to great age which is also characteristic of the species. (Figure 10).

Possibly, these are the pears mentioned by E. O. Essig as "...some of the largest pear trees in the orchard."⁴⁷ He states that they appear to be of the 'Vicar of Wakefield' variety. It is most likely that these trees were planted by Benitz as part of the reconstructive measures he conducted in the Russian orchard.

Sonoma County Farm Advisor John Smith feels that these trees could easily be well over one hundred years old. His judgment is based on their unusually large trunk diameter and the overall size of the trees. Their age is feasible due in part to the isolated location of the orchard which has tended to protect its inhabitants from the diseases which sap the vitality of pears found in inland orchards.

The tree bearing tag number 22 is found in the upper northwest corner of the orchard on the uphill side of a clump of redwoods. This apple tree, Malus sp., tends to be the center of much controversy. (Figure 11) The tree is in fair condition and does have a crop this season. Although distortion is prevalent in the fruit due to a heavy aphid infestation, the apples still show a characteristic flattened shape. This factor along with large, oversized leaves tends to lead toward an identification as the 'Gravenstein' variety.

The 'Gravenstein' apple was the most popular summer apple in California. Its fruit is medium to large in size, slightly one-sided, and flattened.⁴⁸ The stem is deep-set and very short. The greenish-yellow skin is overlain with broken stripes of light and dark red when the fruit ripens.⁴⁹

E. O. Essig states that, "In the upper northwest corner are the original Gravenstein apple trees planted by the Russians."⁵⁰ He says that they were large, vigorous trees and had a heavy crop. If this tree is indeed a 'Gravenstein,' it could be one of those that Essig described since their locations in the Russian orchard coincide with one another.

Carlos Call was known to have once stated that all of the 'Gravenstein' apple trees that have been planted by the Russians had died. However, Kaye Tomlin, a descendant of the Call family, has an apple tree which was grown from a graft of this tree in the Russian orchard. He claims that it is a 'Gravenstein.' The small crop that Mr. Tomlin's tree has produced the last few years, he states, has shown all of the unique characteristics attributed to the variety. Another graft is also being attempted by Sonoma County Farm Advisor John Smith in order that the tree can be grown under observation. Identification later in the season when the fruit matures should give a solid varietal name to this tree.

Trees numbered 30, 31, 32, 33, and 34 are found near the middle of the orchard. They are five cherry trees which were planted in a row. On one end are the remains of a dead tree which was probably also a cherry of the same type. (Figure 13)

Essig's article identifies a "...row of seedling cherry trees twelve feet apart, also planted by the Russians."⁵¹ He says that they do not look like typical cherry trees but rather resemble the almond. The description written by E. O. Essig could indeed be used today to describe these five cherries.

John Smith sent leaf, flower, and fruit samples to the University of California at Davis for scientific identification. The trees were keyed out as Prunus serotina, the Black Wild Cherry or Rum Cherry. This identification has not been totally accepted. Mel Badger, State Park Resource Ecologist contests the identification on the grounds that Prunus serotina is a deciduous tree; he has observed the five Fort Ross cherries in winter and found them to be in full leaf. Consequently, the trees should be keyed out again with samples being taken during the winter as well as during the blooming and fruiting seasons. It is not an uncommon occurrence for some deciduous plants to maintain foliage throughout the year, either partially or fully, when they are grown in a mild climate. This could be a factor in this case and should be a consideration.

The apple tree tagged number 36 has been identified by Mel Badger as the 'Winter Banana' variety. It is characterized by large fruit which is irregular in shape. The skin of the mature fruit has a clear, waxy, pale yellow color with a delicate blush which sometimes deepens into a bright red.⁵² Samples sent to the University of California at Davis at the time of fruit maturity should give confirmation of its full scientific name.

Tree number 49 is another apple, possibly of the 'Gravenstein' variety. At this point of development it also shows the typical flattened fruit and large leaves. (Refer to Discussion of tree number 22.)

The two pear trees numbered 56 and 65, Pyrus communis, have shiny pointed leaves. The fruit at this early stage resembles the 'Bartlett' variety. At maturity a typical 'Bartlett' tree should have medium to large size fruit with

short, definite necks.⁵³ The skin has a characteristic yellow pear color and may be slightly blushed. The 'Bartlett' is a standard summer pear.⁵⁴

The olive trees, numbers 58, 59, 61, and 62, of the Russian orchard tend to be somewhat mysterious in regard to their origin and background. The only mention of Olea europaea is by Essig when he summarizes that five olives were in the orchard in 1927. As to who planted them, there are no clues; it is most likely that it was the Call family.

AREA II--Hillside Trees

These trees are scattered throughout the hills above the Russian and Call orchards. In all probability they were not planted by any of the owners of Fort Ross but were most likely the results of the growth of seeds dropped by birds or other animals.

AREA II--Call Orchard

Tree number 159 is an Edible Fig, Ficus carica. It is found along the southeast side of the orchard at the edge of the natural vegetation. Because the fig is generally a fast growing tree which can quickly develop a heavy, smooth, gray-barked trunk, it is not uncommon to find a very old knarled tree. Since the tree at Fort Ross is small, it leads us to believe that it is fairly young.

AREA III--Benitz Orchard

The five living trees left from the Benitz orchard are located along the edges of a hay field which is under cultivation. The trees could either be of the original Benitz orchard or may be left from the replanting which G. W. Call conducted in the orchard. (Figure 15 and 16)

RECOMMENDATIONS

In making recommendations for future work on the Fort Ross orchards, there are three main areas which should be given attention. Further work in the identification of the trees is first priority. Second is the preservation and restoration process which needs to be conducted on the trees themselves. Thirdly, more extensive research would be valuable in providing information necessary in the interpretation of the orchards.

With the Fort Ross Orchard Map completed the main thrust of the project became the identification of individual trees. As the fruit developed, it was determined to which general category each belonged (plum, prune, pear, apple, etc.). But, as work progressed the difficulty of the rest of the task became evident. Some trees were in such a state of decline that no fruit was set, and even determining the general category to which they belonged was somewhat difficult. Those trees that were fruiting often had crops distorted by insect damage which tended to mask characteristics that mark a specific variety. Yet, identification is possible, and the work should continue. Time needs to be taken to collect samples of leaves, flowers, and mature fruit--marked with their appropriate tag numbers--and have them sent to the University of California, Davis for identification. In mature fruit samples, varietal characteristics will be prevalent and the variety name (as well as genus and species) can be determined. Some on-site identification work can also be done with the help of experts. Dr. Bill Griggs, pear specialist, U.C.D., and Dr. Dillon Brown, apple expert, U.C.D., should both be contacted in an effort to solicit their help in this type of field work. (Figure 7)

Along with the need for an accurate and complete inventory is the necessity for the preservation of the trees before more deterioration occurs. As recommendations are made for the Fort Ross orchards, maintaining the welfare and vitality of the trees is the priority consideration. It was realized that from an historical context many of the horticultural practices which need to be established at Fort Ross are inaccurate. Various methods of preserving the living trees--pruning, bracing, and wiring--would not have been historically conducted in the same way. Neither would the modern practices of irrigation, fertilization, and cultivation have been in use.

Although it may seem inconsistent to make these types of recommendations knowing the discrepancies that exist, it is deemed necessary. All of the following recommendations are felt to be essential to the welfare of the Fort Ross orchards. The only concession which can be made to history is that all of these recommendations have been done with an effort to keep the visual impact as accurate as possible. The implementation of these suggestions should be carefully planned so that the final effect is as historically correct as possible. Modern devices, such as sprinklers, should be hidden from view whenever feasible. The valuable inclusion of the orchards as part of the interpretation of the way of life at Fort Ross will far outweigh any misconceptions caused by the practices followed in the trees' maintenance.

Many of these fruit trees are in poor condition. There are many broken limbs, much dead wood, and even some fallen trees. Clean-up and special repair work should be the first step in the preservation process. As John Smith describes there are basically three jobs which initially need to be done. Selective

chain saw cutting, ground propping and bracing, and overhead support wiring should be carried out by a commercial tree pruning company or an arboriculture crew. All of this special work can be done in the summer before harvest.

Selective chain saw cutting is necessary in order to remove dangerous branches or sections of trees. The removal of dead, unproductive, or weak portions will benefit the welfare of the trees as well as increase the safety of the crews doing further work.

The propping of branches and trunks is to support those trees that are leaning or have limbs and trunk parts which are down. According to Mr. Smith the best brace to use is a concrete pier (similar to that used in the foundation of a home) which is placed under the section in need of support. A two or three inch pipe imbedded in the cement will make a stable brace when inserted into the underside of the limb or trunk. Often times a wound can be found in which this pipe can be placed rather than creating a new one.

In those trees where there is a possibility of losing upper limbs because the center of the tree has rotted and can no longer support the weight, the arboriculture crew should conduct overhead support wiring. This process involves placing one and one-half inch fence staples on the inward side of opposing limbs. Fourteen gauge galvanized wire is then figure-eight wired onto one staple and stretched across to the other where it is similarly attached. With this method the limbs support each other thereby removing some of the burden from the decaying trunk. If many branches on the same tree need to be supported, a washer is used in the center of the tree and all of the wires are attached to it from the limbs. It is important that all of the

wiring is twelve feet above the ground so as to be out of the way of ladders (which are used in pruning, harvesting, and maintenance work) and in order that the support is applied where the weight and pressure are most intense.

The special work previously described can be accomplished during a summer season. Fine surgical repair work (selective pruning) should follow in the same year after harvesting. A special pruning crew needs to be brought in to do this selective pruning. The heavy cutting will encourage a large amount of vegetative growth and the old trees will benefit from the stimulation of new shoots and fruiting spurs. For this work, consultation with Mr. John Smith is recommended. (Figure 7) His advice needs to be carefully followed in order that the trees not be placed under more stress than is necessary. Although the corrective pruning may need to extend into a second year, the vitality restored to the trees should be evident upon the onset of the growing season. With the heavy removal of branches the balance of a tree can be upset and the branches exposed to various types of damage.⁵⁵ Therefore, whenever a limb larger than an inch in diameter must be removed, the cut should be made as close as possible to the branch from which the limb arises without leaving a stub.⁵⁶ Large pruning wounds must be protected in order to exclude rot-causing fungi. For this purpose commercial preparations may be used. Bordeaux paste alone serves temporarily while a good permanent covering consists of combining Bordeaux powder with paint.⁵⁷ Mr. Wallace Winkler, orchardist, is the person to contact, with Mr. John Smith's referral, in reference to conducting corrective surgery work. (Figure 7)

In the orchards are trees which have declined beyond feasible repair as well as those which have died. In order to preserve the orchard, these trees should be replaced. Before the process of replanting is begun, it is imperative that a deer fence be installed for the protection of young trees that will be newly planted. Perhaps the best plan would be to erect the fence along the historical fence lines, some of which are visible in aerial photographs.⁵⁸ In order to insure the exclusion of deer, a fence needs to be built eight feet high on level ground. On sloping, uneven land that does not facilitate an effective starting or landing place for the deer to jump, the fence need only be seven feet high. Mr. Smith suggests that steel posts be used for the fence to be strong enough to withstand any pressures exerted on it from the livestock which graze on the state property. Sheep fencing should run along the bottom with one strand of barbed wire at the ground level to prevent animals from digging under the fence. Two or three barbed wires stretched along the top should be a sufficient deterrent to leaping animals.

In order that the most accurate replanting be achieved, it is imperative that the replacement be done with stock produced from the propagation of the actual trees in the orchard. Done by either budding or grafting, the new trees would essentially be identical to the mother tree; and thereby, when planted in the same location, would be historically correct. This process needs close supervision so that all of the materials are properly labeled at every stage. The tag numbers which identify the trees will become a handy tool in simplifying the keeping of good records.

Wallace Winkler is again the person to contact with reference to the propagation of the old trees. His skills in orchard work would be invaluable to the project, especially at these stages.

As the propagation process is being conducted and the replacement trees are in the initial stages of growth, work can be done in the field to prepare for the actual replanting. In clearing the areas in the old orchards where individual trees will be planted, the tree that is to be replaced should be removed along with the stump and as many old roots as possible. If this is not done, the decomposition of these dead plant parts may cause problems later on.⁵⁹ With the individual sites cleared and marked so that the replanting can be done in exactly the same location, the next step would be clean-up measures conducted in the whole orchard. The control of noxious weeds would best be accomplished at this time (prior to planting) along with the smoothing of rough ground. Any drastic changes in the land's contour that can be eased will eliminate potential problems and make the site more favorable for growing trees. This would include filling gullies, low spots, or washouts, and gently leveling sharp ridges. This evening-out process would make maintenance practices easier.

Another factor which is best addressed at this time is that of soil fumigation. Certain nematodes pose serious setbacks for young trees, which will not reach their maximum growth when nematodes are present.⁶⁰ The soil should be tested for the pest by digging in the field to a depth of eight inches at the base of an existing tree. A substantial sample can then be gathered which contains both soil and fine roots. John Smith, if contacted at this time, can carry out the testing process. If, indeed, nematodes are

present, fumigation should be done before replanting occurs. Only the individual tree sites (an easier method in this case as opposed to fumigating the orchard as a whole) need to be treated.

With the field preparations completed, the actual layout of the new trees can be carried on. Ideally, they should be planted in December or January and not later than early April⁶¹ since they need to be in the ground to receive a good soaking rain or irrigation before the growing season starts.⁶² A young tree tends to withstand transplanting better than an older one⁶³ so replacements should not be grown too long before being placed in the field. The stock needs to be closely inspected and all broken or injured roots removed before planting. The remaining roots should be shortened to approximately six to ten inches.⁶⁴ Holes for planting need not be larger or deeper than necessary to accommodate the roots in their natural position. The trees should be set in the orchard at approximately the same depth as they stood previously.⁶⁵ Deep planting is dangerous; if any part of the trunk is buried it may be attacked by a fungus or the roots may smother and die.⁶⁶ At this time the top growth needs to be cut back to balance the roots lost during planting preparation. Immediately after planting, the entire stem of the young trees should be protected from sunburn and borers with a coat of white wash. John Smith recommends latex paint as perhaps the easiest coating to use.

An adequate supply of good irrigation water is necessary in most fruit producing areas. Under some coastal conditions fruit trees can completely maintain themselves on rainfall after being watered a few times when young, but even in these places supplemental irrigation--two or three times a

season--will improve yield and vigor.⁶⁷ Young replanted trees, though, must have regular irrigation in order to make a good start and be kept growing vigorously during the first few years. Frequent irrigations of about once a month should be applied during the first two years until the trees are well established.⁶⁸ This treatment will also benefit the old trees.

Irrigation programs vary according to location, soil type, and tree size; consequently, the specific water requirements of the Fort Ross orchards must be determined. Soil moisture measuring devices such as tensiometers would be useful in helping to determine when to apply water, keeping in mind that it is unnecessary to water during the dormant season after the leaves have dropped.⁶⁹

For individual sites the method of application often differs. For instance, on fairly flat land irrigation by the use of furrows, square checks, or sprinklers is practical while on rolling lands or uneven ground, the sprinkler system is the most efficient.⁷⁰ Although the sprinkler system is expensive to install, for the orchards at Fort Ross its results would far outweigh the cost factor. Sprinklers result in the good distribution of water throughout the orchard without the need for extensive soil moving and leveling operations which other systems require.⁷¹ In respect to the repair work conducted on the old trees at Fort Ross, this system would not interfere with the propping and bracing necessary for their preservation.

Because the orchards are located on the slopes and hills above the Fort where there is danger of soil erosion, the land should be maintained under a system which John Smith refers to as the mowed weed program. The volunteer weeds and

grasses are allowed to grow with only a minimum of maintenance done by simply mowing the area. This will eliminate any possible problem with erosion by sustaining ground coverage. The system as a whole would be easy to maintain, low in cost, and easy to walk on (which is an important factor in a public area).

A couple of other minor cultivation practices, if done at Fort Ross, would show productive results. First, digging away the soil from the uphill side of the tree trunks is suggested by John Smith as being beneficial. Over the years the soil has built-up causing the roots to be buried lower and lower. Removal of the soil should release stress from the tree roots. Secondly, the elimination of weeds found around the bases of the trees (especially the young trees) would reduce competition for soil moisture. This can easily be achieved by chemical treatment or periodic hoeing.⁷²

A test which would yield informative results is a soil analysis for type and fertility. As a general rule, fruit trees will show a response to nitrogen,⁷³ and it should be applied annually; with precise testing results, any other deficiencies can also be noted and needed corrective measures started. The annual application of nitrogen fertilizer will promote tree vigor with the fertilizer best applied in early March so that the nutrients are in the ground and available to the tree when it begins to grow in the spring.⁷⁴ According to John Smith, the young trees should receive one tablespoon of actual nitrogen in the drip line the first year. This should be increased to two tablespoons the second year. At maturity all of the trees

would respond well to sixty pounds of nitrogen per acre per year. Mr. Smith states that urea is recognized as a good nitrogen source and it tends to be the least expensive.

During the first four years of the young trees' growth, the primary aim in pruning should be to develop a shape that will lend itself to a strong, vigorous, and productive tree.⁷⁵ The basic consideration after those first few years is to maintain the bearing trees in a proper balance between vegetative growth and fruit production. The problem is that excessive growth is usually produced at the expense of fruit production while over-bearing causes less growth and sometimes loss of vigor.⁷⁶ Nearly all the pruning should be done while the tree is dormant.⁷⁷

The trees at Fort Ross must be cared for and maintained on a regular basis once this process is begun in order for the work to be of value. It must be recognized that if the work recommended for preserving the orchards (selective chain saw cutting, bracing and propping, wiring, selective surgical pruning, propagation, and replanting) is done, the progress must not be lost due to poor follow-up maintenance. A yearly program of irrigation, cultivation, fertilization, and pruning has to be established. If this was not done, the condition of the trees would once again deteriorate. It is imperative that this be accepted as a long-range, on-going project and be funded as such in order to allow for the proper upkeep of the orchards.

Although the most urgent need is to begin preservation work on the trees, the ultimate goal should be for the complete historical re-creation of the orchards. This work, though, cannot be accurately done without further

research and study. At this point only enough is known to facilitate the replacement of dead and dying trees; the orchards as a whole cannot be redesigned for a particular time period without more knowledge. Nothing is known about the layout of the Russian orchard in particular. Perhaps with more extensive research into Russian customs and cultural habits as well as the orchard practices of the Siberian peoples at the time, substantial information could be gathered and related to Fort Ross. A plan could then be developed to establish the orchards as they existed in their peak periods of production.

SUMMARY

For the Russians, California had at first seemed ideal. No end could be seen to the abundant natural resources found on the northern coast. Fish and sea-otter swam plentifully in the ocean while inland, there were profuse forests of redwood and other native timber. The land proved to be fertile and the climate mild.

On a fine building site the Russian people endeavored to establish Fort Ross as a productive colony. Yet their attempts at hunting, fishing, logging, ship-building, farming, and gardening all failed to meet the needs of the people. Planted on the hills above the Fort enclosure was an orchard of fruit trees which proved to be vigorous and productive. But, the orchard alone was not enough to enable the Russians to stay. Consequently, the trees were abandoned along with the Fort in 1841 when the Russians left California.

Of the owners which followed the Russians only two granted any attention to the hillside orchard. Having been neglected as they were, the trees began to decline. Many showed loss of vigor, some fell, and others died.

Today it is important to deal with those trees that are still living and protect the orchards from further loss. By doing historical research some knowledge as to the orchards' past has been collected. Along with this has come a respect for the value of the orchards to the interpretation of Fort Ross as a State Historic Park. The recommendations laid out for the preservation and restoration of the orchards are necessary for the welfare of the trees. Further identification and research work in this project will show progress in

determining the historical significance of each individual tree. But, in order that the orchards be of value in the future, action must be taken now in the form of corrective procedures and maintenance. The decline of the trees' vitality will be an on-going process and deterioration will continue unless the matter is dealt with as recommended. The value that the orchards can add to the interpretation of Fort Ross requires that they be given immediate attention. With a plan for the repair of the trees along with a guide for their general upkeep, the public will be able to enjoy the orchards of Fort Ross.

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5	Call, Carlos. Diary. 1898-1900. In the possession of Mercedes P. Stafford.
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4	<u>Fort Ross: the Russian Settlement in California, Indians--Russians--Americans.</u> Jenner, California: Fort Ross Citizens' Advisory Committee, 1974.
1	<u>Fort Ross State Historical Monument.</u> Sacramento, California: The Resources Agency.
3	Old Benitz Orchard Chart. A very old chart which is done on the back of a cardboard advertisement for Holcombe Brothers Shoe Store. Possibly by William Benitz about 110 years ago (1869). In the possession of Mercedes P. Stafford.

APPENDIX



Figure 1. Location of Fort Ross

Figure 2. Document X, 229, Russian Inventory-Sale of Fort Ross

KOSTROMITINOFF TO VALLEJO

Offer for sale (undated and unsigned) of all Russian properties in California as described in attached inventories.

(Vallejo, Documentos, X, 229. Original in Spanish.)

The undersigned: Agent of the Russian American Company, Don Pedro Kostromitinoff, and the Commandant General, Don M. Guadalupe Vallejo, having made preliminary arrangements signed the following articles:

I. The Russian American Company, evacuating Ross with the approval of His Majesty the Emperor of all the Russias, cedes its rights to Mr. M. G. Vallejo over all settlements and farms on the coast of New Albion at the port of Bodega, and to the North at the presidio of Ross according to the inventory arranged and signed by both individuals entering into the treaty.

II. It is agreed that as the price of all the settlements which the Russian American Company cedes to Mr. M. G. Vallejo he shall pay within the interval of three years counting from the year 1841.

III. The payment of the said shall be made by drafts on the English Hudson Bay Company.

IV. If perhaps for unforeseen reasons Don G. Vallejo can not pay the total in drafts on the Hudson Bay Company, he shall pay at least half in drafts on that company and half in products of the country according to the prices set below.

V. Mr. G. Vallejo binds himself to provide products according to the following prices within the period of Art. II.

6,000 fanegas of wheat at 2 pesos

300 fanegas of peas at 2 pesos

400 arrobas of soap at 3-1/2 pesos

700 arrobas of tallow at 1-1/2 pesos

400 arrobas of suet at 2 pesos

It is understood that all these products are to be of the best quality:--wheat and peas are not to be stale, the soap is to be dry, the tallow and suet--clean--5-1/2 Spanish arrobas to the fanega.

VI. Mr. M. G. Vallejo binds himself to fulfill the payment in drafts of the English Hudson Bay Company in the currency of the year 1841. Half of the produce should be ready for the 1st of August, 1842. The other half or the rest of the payment mentioned in Art. II should be made by the 1st of August, 1842 (sic. should read 1843 or 1844).

VII. It is agreed that the Russian American Company shall send its boats to the port of San Francisco for the produce during the period set in article VI and Mr. G. Vallejo is to take the measures necessary for loading the produce prepared immediately on the arrival of the boat so as not to lose time in vain.

VIII. If because of failure of the crops they are not ready at the time of the arrival of the boat at the appointed time and the above mentioned boat should be obliged to return without a cargo, Mr. M. G. Vallejo shall take charge without question of the expenses of the boat from Sitka to San Francisco, that is the expenses of the crew and freight.

IX. The boats of the Russian American Company, sent for the produce as mentioned in article V, shall enter without the payment of duties and

tonnage. On its part, the Russian American Company binds itself to adopt means so that articles of commerce shall not be brought in the Russian boats for trading with the inhabitants of the country. However, in case that some debtor wishes to pay his debt with produce, the authorities shall not prevent him.

X. The Russian American Company is entirely convinced of Mr. Vallejo's promptness in payment, but to bind the contract and for unexpected events, up to the time of the payment of the total mentioned in Art. II, the estates at Ross with the port of Bodega (or whatever name they are called in the future) with everything that is in the inventory, signed by both parties to the bargain, shall remain a guarantee, so that if the payment is not completed the Russian American Company shall enter again into its proprietary rights and Mr. M. G. Vallejo shall return everything faithfully according to the inventory. In this case the same condition is to be extended to Mr. M. G. Vallejo's heirs in case of his death, that is before the completion of the present contract and in case the said heirs shall not complete the payment mentioned in Art. II.

X.(sic). It is agreed that, if in case of war between Russia and some other nation the Republic joins the enemies of the Russian Empire, the sanctity of the present contract is to be inviolable,--and the period set for the arrival of the boats is the only thing susceptible to change, it being supposed that the above mentioned boats would not be able to remain in safety.

XII. It is agreed that this contract shall be presented for the ratification of the Government of California and in conformity with the laws of the Republic shall be retained in the possession of the Russian American Company.

And that this may stand for all time and have full force, we set the signatures and seals of both the contractors.

REAL ESTATE

The estates are: (A) at Fort Ross, (B) Costromitinoff Ranch, (C) Chlebnikoff Ranch (Basil), (D) Gorgy Rancy, and (E) at Bodega.

(A) FORT ROSS

Square fort, made of planks, 1032 feet in circumference, 12 feet high; it has two turrets at the angles.

IN THE FORT ARE:

Commandant's house (old) made of thick wood, 48 ft. long, 36 ft. wide, roofed with double boards. It contains six rooms, a corridor and kitchen.

Commandant's house (new) made of thick wood, 48 ft. long, 24 ft. wide, contains 6 rooms and a corridor.

Commissioned Officers' house of ten rooms, two corridors; 60 ft. long and 21 ft. wide.

Barracks of eight rooms, two corridors, 48 ft. long, 24 ft. wide.

Warehouse (old) two stories, 48 ft. long, 24 wide, has an open gallery with pillars.

Warehouse (new) of thick planks, 42 ft. long, 24 ft. wide.

Kitchen (new) 24 ft. long, 21 ft. wide.

Warehouse for food supplies of thick planks, 48 ft. long, 18 ft. wide; a prison here.

Chapel with cupolas, 36 ft. long, 24 ft. wide; a bell tower here.

Well, 15 ft. deep.

OUTSIDE THE FORT AT THE FOOT OF THE HILL:

A forge, anvil, and shop for a blacksmith, of thick wood, 33 ft. long, 18 ft. wide.

Tanning shop 30 ft. long, 18 ft. wide; here a machine to compress tanned hides.

Bathhouse for troupes, 18 ft. long, 15 ft. wide.

Shop for coopers, 60 ft. long, 30 ft. wide.

Shed for the fishing boats, on rafters; 60 ft. long, 30 ft. wide.

IN THE VICINITY OF THE FORT:

Barracks kitchen, a bakeshop here, 30 ft. long, 18 ft. wide.

Two cattle barns of thick planks, 120 ft. long, 21 ft. wide; here a corral 168 ft. long, 120 ft. wide.

8 sheds, 8 pools, and ten kitchens.

The houses have plank roofs, windows with glass, and wooden floors.

WITHIN 5000 FEET OF THE PRESIDIO ARE:

Wooden threshing floor with floor of planks, 60 ft. in diameter; here a shed 30 ft. long, 15 ft. wide.

Orchard with fruit trees: 330 ft. long, 144 ft. wide.

It has more than 260 fruit trees

207 apple trees

29 peach trees

10 pear trees

10 quince trees

8 cherry trees

also some vines.

The orchard has a new house with 4 rooms, 27 ft. long, 24 ft. wide, roofed with planks; here a kitchen 15 ft.

Nearby there is a little orchard, 84 ft. long, 63 ft. wide; this orchard has more than 20 fruit trees, and also some vines.

Ross has about 70 acres of cultivated land, which are enough (to raise) 175 fanegas of crops.

The larger part of this land is fenced. The fort has a vegetable garden, 420 ft. long, 120 ft. wide; here is a hot bed.

(B) COSTROMITINOFF RANCH

Barracks, 48 ft. long, 18 ft. wide, roofed with planks; it has three rooms and two corridors with roofs.

Warehouse, 42 ft. long, 18 ft. wide, roofed with planks; of wood for washing wheat in the river.

House, 18 ft. long, 12 ft. wide.

Two threshing floors, one 60 ft., the other 48 ft. in diameter; it has a floor of planks and walls of boards.

Floor for winnowing wheat, 12 ft., made of thick wood and beams.

House for Indians, made of planks, 42 ft. long, 15 ft. wide.

Kitchen with two ovens, # ft.

Bathhouse of planks, roofed, 18 ft. long, 12 ft. wide.

A boat to travel on the Slavianca (Russian) river.

The ranch has about 100 acres of cultivated land, which is sufficient for 250 fanegas of wheat.

A corral

(C) CHLEBNICOFF RANCH

Adobe house, which has three chambers, 21 ft. long, 15 ft. wide, roofed with lapped boards, here a sun dial.

Barracks, 60 ft. long, 21 ft. wide, has three divisions, roofed with boards.

Warehouse, 45 ft. long, 21 ft. wide, the floor of wood.

Wooden floor, large, 72 ft. in diameter; the floor of planks.

Kitchen, bread oven, and forge, 36 ft. long, 15 ft. wide.

Bath house, 21 ft. long, 12 ft. wide.

4 houses of various sizes; 1 for food supplies, 2 for Indians and one for tobacco.

Mill worked by horses with one stone; can grind 4 fanegas.

A corral.

There is sufficient farming land here, suitable for beans, corn, tobacco, etc., etc., etc.

(D) TSCHERNICH RANCH (D. GORGY)

Barracks with 6 rooms, 42 ft. long, 18 ft. wide.

Kitchen, 24 ft. long, 12 ft. wide.

Bath house, 18 ft. long, 12 ft. wide.

Warehouse for supplies, 42 ft. long, 18 ft. wide.

Floor for winnowing wheat, of planks, 108 ft.

Two houses for supplies.

Two hot beds.

Vineyard with 2000 plants and some fruit trees.

The cultivated land is enclosed; there is enough to sow 50 fanegas. The larger part of the land is suitable for corn, beans, onions, chili, etc.

(E) BODEGA

Warehouse, 60 ft. long, 30 ft. wide; quite suitable for dry goods and some foot supplies.

House, 18 ft., with four rooms and a stove.

Bath house, 24 ft. long, 12 ft. wide.

Corral.

A boat.

There are also here:

A house with a stove, 12 ft. long.

A large corral.

A hut and corral where the drove of horses is pastured.

A 20 ton launch, excellent for the coast.

A four oars boat.

CHATELS

Farm machinery

Steel machine for cleaning wheat.

Rake with steel teeth.

26 horse plows.

19 ox ditto.

2 native ditto.

19 rakes with iron teeth.

10 ditto with wooden teeth.

25 harnesses for horses.

18 ditto for oxen.

15 halters.

20 reins.

5 carts with 4 wheels.

10 ditto with 2 wheels.

Cattle

The settlement has 1700

Head of cattle:

Oxen	70
For slaughter	174
Small	<u>111</u>
	355

Full grown cows	777
Half grown ditto	409
Small ditto	<u>159</u>
	1345

There are 1700 head.

Horses and Mules--940 head:

Large mules	55
Stallion asses	20
Ditto, half grown	30
Ditto, small	50
Large mares	320
Ditto, half grown	70
Ditto, small	90
Horses	<u>305</u>
	940

In this number there are 100 plow horses and 20 pack mules.

Sheep 900 head:

Large sheep	100
Ditto, small	35
Large ewes	540
Ditto, half grown	217
Ditto, small	<u>8</u>
	900

In all, 3,540 head.

Figure 3. Map of Benitz Orchard with Key to Varieties

Copy of Old Benitz Orchard Chart

Handwritten text on a page with a grid pattern. The text is extremely faint and illegible, appearing as a series of light-colored marks and lines. The page is otherwise blank.

Layout of Apple Varieties in Benitz Orchard

?		ROXBURY RUSSETS	CANADI REIM 18	SAPS OF WIND 24	VIRGINIA GREENINGS 48	SMITH'S CIDER 48	
GREENING 48	R ? 48						
WOOD'S GREENING 48	FANCY 12	RAMBO 36	YELLOW NEWTON PIPPIN 48	MILOMN 18	SAPS OF WINE 24	GOLDEN NEWTON PIPPIN 47	VANDEVEER PIPPIN 47
LADIES SWEETINGS 48		GOLDEN RUSSET 48	ORO PIPPIN 48	PECK'S E ? SAND 18	GLORIA MUNDI 24	ALEXANDER 48	LIMBER TWIG 48
FALL BEAUTY 24	BROD RIVER 24	BALDWIN 48	ESEBUS SPITZENBERG 54	DUCCOIT 12	YELLOW BELLFLOWER 24	SWAAR 48	NORTHERN SPY 48

L FENCE LINE

Apple Varieties--Benitz Orchard

Variety	Number
Alexander	48 trees
Baldwin	48 "
Brod River	24 "
Canadi Reim	18 "
Ducoit	12 "
Early Hannis	18 "
Esepus Spitzenberg	54 "
Fall Beauty	24 "
Fancy ?	12 "
Gloria Mundi	24 "
Golden Newton Pippin	47 "
Golden Russet	48 "
Hannis ?	? "
Jonathan	48 "
Ladies Sweeting	48 "
Lady Apples	60 "
Limber Twig	48 "
Maiden's Blush	18 "
Milomn	18 "
Northern Spy	40 "
Oro Pippin	48 "
Peck's E ?? Sand	18 "
Rambo	36 "
Red Jonathan	24 "
Reed's ?rahan	24 "
Roxbury Russets	48 "
R ?	48 "
R ? Pippin	12 "
Saps of Wind	24 "
Saps of Wine	24 "
Smith's Cider	48 "
Summer Pearmain	48 "
Swaar	48 "
Vandever Pippin	47 "
Virginia Greenings	48 "
Wagen	? "
White Winter Pearmain	48 "
Wine Sap	66 "
Wood's Greening	48 "
Yellow Bellflower	24 "
Yellow Newton Pippin	48 "
? Greenings	48 "

Names and numbers taken from an old chart of the Benitz Orchard (several names and numbers illegible).

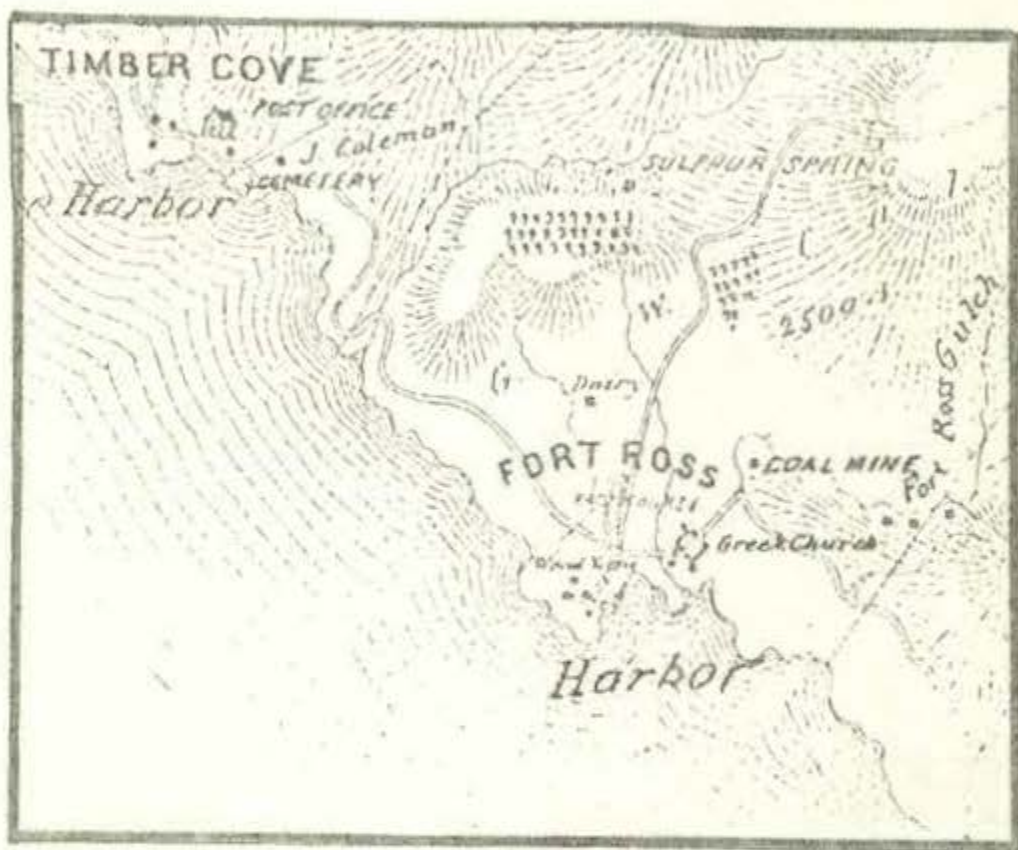


Figure 4. Fort Ross and Vicinity in 1877, showing Russian Orchard (right) and Benitz Orchard (left) north of the Fort.

Figure 5. Carlos Call Diary

NOTE...this information pertaining to the apple harvesting and transporting to market of the apple crops from the Fort Ross Ranch has been extracted from the records kept by Carlos A. Call for the purpose of illustrating the amount and variety of the crops and the work involved. The "market" was San Francisco, the method of transportation was the schooner ("La Chilena" and then the "Mary C"), and the wholesaler in San Francisco was "Ross & Hewlett" on Davis Street in San Francisco. It is my understanding that the produce was delivered to the docks, and picked up at the dock by the wholesaler.

Of interest to historians: the OLD ORCHARD (Russian) was referred to as a separate entity in all the records and shows the amount that the orchard was producing for market at this stage of its history.

Mercedes Pearce Stafford
September, 1975
Santa Rosa.

"ALL ABOUT APPLES"

Information from the daily record of Carlos A. Call at Fort Ross from September, 1898 to June, 1901.

NOTE--there were three orchards on the Fort Ross Ranch as follows:

- (1) the 'old' orchard...planted by the Russians
- (2) the 'new' orchard...planted by William Benitz (1699 trees)
- (3) the Sea View orchard, located on the ridge--1500' elevation

1898 - 481 Boxes shipped by schooner to San Francisco for the season--(late July to December)

1899 - 492 Boxes shipped by schooner to San Francisco.

Carlos Call's DIARY (1898-1901) lists Lady apples, Swaars, Golden Russets, Ladies Sweeting, White Winter Pearmain, Virginia Greenings, Northern Spy, Bellflowers, Gloria Mundi, Baldwins, Smith's Ciders, Virginia Greenings, Wine Saps, G. Newton Pippins, Spitzenbergs, "red apple" and, in addition - King apples, and Banana apples, probably from the orchard at Sea View - Gravensteins from the Russian orchard.

1898 (the diary begins on September 16th-Friday)

The schooner 'La Chilena' - this schooner was owned by George W. Call, and made weekly trips to and from San Francisco, weather permitting, arrived on September 18th, and the notation appeared on the following day:

September 19th--"Chilena dispatched, sailed at 11:45, smooth sea, 230 boxes of apples aboard"

September 29th--"...rigged a box to load apples"

October 3rd--"...190 boxes of apples down" (on 'La Chilena')

October 4th--Carlos Call, brother George and 2 sisters (Emma, Lucy) "picked and packed 26 boxes of apples"

October 5th--the same four persons, plus another sister (Ceda) "picked and packed 34 boxes of apples"

October 17th--"Chilena loaded and sailed at 12:30 pm--222 boxes of apples down. Smooth sea with light NW wind."

October 18th & 19th--Carlos Call, brother George and 3 sisters (Emma, Lucy, Laura) went to the Sea View orchard and packed 20 boxes each day.

October 20th--"We ship on the next steamer" -

15 boxes Spitzenbergs (marked A) - 90¢

2 boxes Gloria Mundi (marked B) - 65¢

11 boxes fall Pippins (marked C) - 70¢

1 box 20 oz Pippins (King)(" D) - 75¢

7 boxes red apples (from the lower

part of the Sea View orchard)E - 70¢

4 boxes Bellflowers (marked F) - 90¢

Ship to ROSS & HEWLETT - San Francisco

October 27th--Carlos, George and 3 sisters packed 31 boxes of apples in the 'new' orchard

(Received for apples picked Oct. 4th and 5th, shipped to Enlish Nash & Co. 60¢ for Kings - 65¢ for Bellflowers)

"ALL ABOUT APPLES"
(continued)

- 1898 October 28th--George, Carlos and 3 sisters (Emma, Laura, Ceda) packed 29 boxes in the 'new' orchard
Next shipment to ROSS & HEWLETT, 60 boxes Kings 65¢
- November 3rd & 4th--Carlos, George & sister Emma went to the 'new' orchard and packed 10 boxes the first day and 20 boxes the second day
- November 5th--Carlos, George & sister Mary went to the 'new' orchard and packed 10 boxes of apples.
We ship to ROSS & HEWLETT on the next steamer--
19 boxes Bellflowers - 60¢
11 boxes Kings - 60¢
10 boxes Smith Ciders - 55¢
- November 9th--George, Carlos & Martin Hanson (friend & employee) packed 21 boxes apples in the 'new' orchard
- November 10th--the same three persons packed 25 boxes in the same place
- November 11th--in the AM 6 boxes were packed by the boys, and in the PM they were joined by 4 sisters and they packed 19 boxes (in the 'new' orchard)
- November 12th--in the AM, Carlos & Martin and two sisters (Mary & Ceda) packed 29 boxes
in the PM, Emma & Ceda packed 10 for the house in San Francisco, and for friends.
- November 14th--"Sea smooth with foggy weather off shore. 'La Chilena' sailed about 1:30 PM light NW wind. We ship on her this trip, to ROSS & HEWLETT" -
2 boxes Smith Ciders (marked A) - 60¢
28 boxes Virginia Greenings (" B) - 60¢
3 boxes red apples (near the above) (" C) - 60¢
3 boxes G. Newton Pippins (" D) - 60¢
16 boxes Northern Spys (" E) - 60¢
13 boxes Kings (" F) - 60¢
32 boxes Swaar (" G) - 60¢
3 boxes Bellflowers (" H) - 60¢
- November 17th & 18th--Carlos, Martin, and Mr. Daly (the ranch foreman) picked apples for the house (home) 40 boxes each day
- November 19th--Carlos, Martin and Mr. Daly went to the 'new' orchard and the OLD ORCHARD and picked 25 boxes for the house and 789 pounds for Morgan (W.W. Morgan, Fort Ross resident and postmaster)
- November 23rd--"Hauled apple boxes to the apple house in the PM Martin started plowing the 'new' orchard."...
- November 24th--"Thanksgiving Day. Made apples boxes in the AM"
- November 25th--Carlos, Mr. Daly and 2 sisters (Ceda) went to the 'new' orchard, in the AM (joined by 2 more sisters (Emma, Mary) in the PM) and they packed 30 boxes.

"ALL ABOUT APPLES"
(continued)

- 1898 November 26th--Carlos, Martin, Mr. Daly and 2 sisters (Emma, Ceda) packed 36 boxes in the 'new' orchard.
"We ship to ROSS & HEWLETT on the next steamer" -
16 boxes Spitzenbergers (marked 2) - 60¢
34 boxes Bellflowers (marked 3) - 60¢
16 boxes Baldwins (marked 4) - 60¢
- November ? th--"We shop to R & H on Chilena this trip also
12 more boxes picked this PM by Martin, Daly & I"
10 boxes Baldwins (marked 4) - 60¢
2 boxes Northern Spy (" 5) - 60¢
- December 3rd--Carlos, George, Daly and 2 sisters (Mary, Ceda) packed 18 boxes in the AM in the 'new' orchard...in the PM Emma (sister) went to the OLD ORCHARD & packed 5 boxes.
QUOTE-- "A great many of the apples have fallen already. Emma and Ceda put 735 Lady Apples in 1 box"
- December 5th--Carlos, George and Daly went to the 'new' orchard and packed 10 boxes. "wind and sea calm"
- December 6th--Same three persons, plus Ceda in the PM went to the same orchard and packed 18 boxes.
- December 7th--Same group, plus Emma in the PM, packed 22 boxes.
- December 8th--In the AM, same group packed 15 boxes...in the PM Carlos and Daly shook down the remaining apples and fixed the fence around the orchard ('new') "Wind and sea calm, sea very smooth"
We shipped to ROSS & HEWLETT on next steamer -
7 boxes Virginia Greenings (marked 2) 22 bxs.
30 boxes Wine Saps (" 3) 50¢
6 boxes Baldwins (" 4) 2 bxs.
4 boxes Lady apples (" 5) 25¢
1 box Swaars (" 6) 8 bxs.
1 box brown pears N. Orchard (" 7) \$ 1.00
4 boxes Golden Russets (" 8) 56 bxs.
20 boxes Ladies Sweeting (" 9) 60¢
15 boxes White Winter Pearmain (" G)
Sea Calm. Light N.W. Wind in PM.
- December 9th--"Terrific wind from the NE last night and this morning. In night the wind blew down the chute, fences all around, gates, blue gum limbs, tore shingles off roofs, stove the blacksmith shop in, blew down the weather vane, and sign off store. Broke windows and shook down the apples in OLD ORCHARD....wind lifted the planks (3" thick & 24' long) off the platform at chute, and would pick the water up and carry it in sheets. I think this was the hardest wind I ever experienced"....
- December 10th--"George and I went to OLD ORCHARD and picked up apples. About 125 boxes on the ground. Paper says the wind attained the velocity of 96 mi. per hour at Point Reyes during the N. Easter....."

"ALL ABOUT APPLES"
(continued)

- 1898 December 13th--George and Carlos went to the OLD ORCHARD and packed 20 boxes of apples in the AM
- December 24th--"Hauled apple boxes from wharf to apple house in the AM and started harrowing in the 'new' orchard, with Daisy and Dixie".....
- December 17th--"Packed apples for the house in the city 4 half barrels and 4 cracker and macaroni boxes...."
- December 18th--Carlos and George and Martin went to the 'new' orchard, in the PM and counted the remaining trees and found there were 463 left....
- We ship to R. & H on the next steamer -
- | | | |
|-------------------------------|------------|------------|
| 5 boxes Banana Apples | (Marked 2) | 3 bxs. |
| 3 boxes Virginia Greenings | (" 3) | 50¢ |
| 1 box Northern Spy | (" 4) | 7 bxs. 60¢ |
| 2 boxes Bellflowers | (" 5) | 1 bx. 65¢ |
| 2 boxes White Winter Pearmain | (" 6) | 1 bx. 75¢ |
| 1 box Gloria Mundi | (" 7) | 3 bxs. 80¢ |
| 1 box Baldwin | (" 8) | |
- These apples make a total shipped for season to market of 481 boxes.

END OF 1898

- 1899 July 29th--"First apples of the season shipped by A. Gotzsch" (former owner of present Rosson property)
- August 16th--Carlos and Mr. Daly (the ranch foreman) went to the 'new' orchard and packed 15 boxes Gravensteins.
- August 18th--"Laura, Rosa, Daly and I went to the 'new' orchard and packed 4 boxes of apples"
- August 25th--"Heavy NW wind today. Picked apples for the house."
- September 16th--"Mary C dispatched and sailed at 12:05 PM. Wind and sea calm. 105 boxes of apples down."
- September 18th--"Rigged a frame to load apples on steamer...."
- September 26th--"Made a frame to load apples...."
- October 4th--"Made a frame to load apples..."
- October 6th--Walker (the new ranch foreman) George and Carlos went to the 'new' orchard and packed 26 boxes of apples. "There are now about 300 boxes ready to be picked".....
- October 9th--"Walker, George and I went to the 'new' orchard and turned the hogs out. Picked apples and piled them on the ground as they are falling badly."
- October 10th--"...Picked apples today...."
- October 11th--"Picked apples in the AM and packed them in the PM. 19 boxes"
- October 12th--"Rained last night and this AM. Walker, Sade (Ceda) George and I packed 29 boxes apples"

"ALL ABOUT APPLES"
(continued)

- 1899 October 13th--"Walker, George and I packed 26 boxes in AM. Apples are falling."
October 16th--"Picked apples and tied rags on young trees as rabbits are eating them."
- November 6th--"In PM, George 2 dairymen and I went to 'new' orchard and packed 25 boxes of apples. SE wind today"
November 7th--"George, Walker, 3 dairymen and I went to 'new' orchard and packed 75 boxes of apples."
November 10th--"Straightened up rail fence to OLD ORCHARD..."
November 20th--"Picked apples today for the house and to ship."
November 22-23-24th--"Hauled apples from the 'new' orchard to saloon where we are storing them"
- December 4th & 5th--Carlos, George, Walker and 3 dairymen went to the 'new' orchard and packed 23 boxes one day and 31 boxes the next day.
December 6th--"Walker, Will (Stevenson) and I went to the 'new' orchard and packed 9 boxes of apples in the AM. In the PM packed 25 boxes at the saloon."
December 7th--the same three persons, plus George packed 54 boxes of apples at the saloon.
December 8th--same group packed another 54 boxes, plus 8 packed previously "makes 207 which we ship on the 'Mary C' this trip"
December 9th--"Mary C sailed about 2:40 PM for Bodega with light NW wind and good sized swell. Had 266 boxes apples"
December 12th--"Finished packing apples today, filling 66 boxes today and yesterday. This makes a total of 492 boxes shipped to market this season."

END OF 1899

- 1900 July 1--"Strong NW wind. In the PM went to Sea View orchard and got apples"
- August 22nd--Carlos and 4 sisters (Lucy, Emma, Laura, Ceda) went to the OLD ORCHARD and packed 7 boxes of Gravenstein apples.
August 23rd--"Brisk NW wind. Lucy and I went to the 'new' orchard and packed 4 boxes of Gravensteins. Most of them have fallen."
- September 17th--"Brisk NW wind today. Hauled up apple boxes from the wharf. We got 500 up on "Mary C" last trip."
September 19th--"George, Walker and I went to Sea View orchard and packed 30 boxes of apples."
September 20th--Same three persons plus sister Laura went to the Sea View orchard and packed 35 boxes apples.

"ALL ABOUT APPLES"
(continued)

- 1900 October 5th--"Walker, 2 dairymen and I went to OLD ORCHARD and packed 44 boxes of apples....on last trip of "Mary C" shipped 54 boxes apples picked by Walker and Dairymen at Sea View orchard."
- October 10th--"George, 3 dairymen and I went to 'new' orchard and packed 34 boxes of apples..."
- October 11th--"George, 1 dairyman and I went to 'new' orchard and packed 31 boxes of apples..."
- October 12th--"George, 4 dairymen and I went to 'new' orchard and packed 66 boxes of apples..."
- October 13th--"Mary C...dispatched and sailed for Bodega at 3:45 pm 300 boxes of apples down and 325 sacks of moss"
- October 15th--"George, Walker, 3 dairymen and I went to the 'new' orchard and packed 61 boxes of apples."
- October 16th--"George, Walker, 2 dairymen and I went to the 'new' orchard and packed 43 boxes of apples."
- October 17th--"George, Walker, 4 dairymen and I went to the 'new' orchard and packed 45 boxes of apples."
- October 23rd--"in the PM, George, 4 dairymen and I went to the 'new' orchard and packed 19 boxes apples. Caught some wild hogs at orchard...."
- October 24th--"in the AM, George, 3 dairymen and I went to the 'new' orchard and packed 23 boxes apples. In the PM picked apples for the house...."
- October 25th--"George, dairymen and I went to 'new' orchard and picked apples for the house. Brisk NW wind."
- October 26th--"George, dairymen and I went to 'new' orchard and picked apples for the house. In the PM packed 6 boxes in the OLD ORCHARD...."
- October 29th--"in PM, with 4 dairymen, went to OLD ORCHARD and packed 21 boxes apples..."
- October 30th--"George, dairymen and I went to OLD ORCHARD and packed 34 boxes of apples. Rain in the afternoon...."
- November--the activity in the orchard this month, and into the month of December, is centered on plowing, harrowing and seeding the 'new' orchard (they also plowed, harrowed and seeded the "dairy field" where hay was raised). There is no record of plowing in the OLD ORCHARD, although they did harvest a crop of "volunteer hay" from that orchard each year.
- December--the first week of this month was devoted to harrowing in the 'new' orchard. Both George and Carlos worked at this and they were able to complete about 6 acres per day. This job was completed on December 7th (they were also seeding, at the same time...the orchard comprised about 35 to 40 acres).

Figure 6. Fort Ross Orchard Map and Key by Mel Badger

1917
No. 100
100
100

FORT ROSS ORCHARD KEY

AREA I	25. Apple	49. Olive	70. Plum
	26. Prune	50. Apple	71. Prunus
1. Plum	27A.	51A.	72. Cherry
2. Apple	27. Apple	51. Prunus	73. Prunus
3. Plum (down)	28. Unidentified	52. Olive	74. Plum
4. Pear	29. Unidentified	53. Olive	75. Prunus
5. Apple	30. Unidentified	54. Olive	76. Walnut
6. Pear	31. Unidentified	55. Prunus	77. Prunus
7. Apple	32. Prunus	56. Prunus	78. Prunus
8. Pear	33. Apple	57. Pear	79. Plum
9. Pear	34. Pear	58. Pear	80. Prunus
10. Pear	35. Plum	59. Plum	81. Plum
11. Apple (down)	36. Pear	60. Plum	82. Prunus
12. Pear	37. Pear		83. Cherry
13. Apple	38. Pear	AREA II	84. Prunus
14. Prune	39. Pear		85. Plum
15. Prune	40. Pear	61. Plum	86. Plum
16. Prune	41. Pear	62. Plum	87. Apple
17. Pear	42. Pear	63. Plum	88. Apple
18. Apple	43. Pear	64. Prunus	89. Prunus
19. Apple	44. Plum	65. Plum	90. Prunus
20. Apple	45. Plum	66. Plum	91. Prunus
21. Plum	46. Pear	67. Plum	92. Plum
22. Pear	47. Pear	68. Plum	
24. Prunus	48. Apple	69. Plum	

Figure 7. List of Contacts and Addresses

LIST OF CONTACTS AND ADDRESSES

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Figure 8. Tagging Materials and Preliminary Map



Figure 9. Photograph of Tree with Tag



Figure 10. Photograph of Trees Numbered 7 and 10



Figure 11. Photograph of Tree Number 22



Figure 12. Photograph of Tree Number 24



Figure 13. Photograph of Trees Numbered 30, 31, 32, 33, and 34



Figure 14. Photograph of Tree Number 44



Figure 15. Photograph of Tree Number 102



Figure 16. Photograph of Tree Number 105