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Article Summary: Fort Laramie's officers knew that scurvy was a major source of illness and death among their soldiers. They were aware that fresh vegetables produced locally were needed, but they did not succeed in having them cultivated on the post.

Cataloging Information:

Names: Winslow F Sanderson, Samuel P Moore, Stewart Van Vliet, John S Hamilton, William Hoffman, R C Wood, [Surgeon] Johns, W Scott Ketcham

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Photographs / Images: sketch of Fort Laramie about 1853 by Frederick Hawkins Piercy; Civil War image of distribution of meat and bread ration to company messes; "Utah Invaders, 1857-8" and "On the Plains, 1854-6," illustrations reprinted from Theophilus F Rodenbaugh, *From Everglade to Cañon with the Second Dragoons (Second United States Cavalry)*, 1875; "An Army Train Crossing the Plains," *Harper's Weekly*, April 24, 1858; 1874 plat of Fort Laramie showing the post garden

No Small Potatoes

Problems of Food and Health

at Fort Laramie, 1849–1859

By John D. McDermott

Soldiers who served at Fort Laramie during its early years took a risk. The frontier post was not a particularly healthy place to live, especially during winter, when sickness spread and scurvy had its way. Poor diet was one cause of illness and death, and until the army acquired and disseminated knowledge concerning it, Fort Laramie soldiers weakened and perished amid relative plenty.

The problem was not that the United States Army had skimpy rations. At the time of the establishment of Fort Laramie in 1849, the daily ration of meat for a soldier was twelve ounces of pork or bacon or twenty ounces of fresh or salted beef. Regulations also entitled him to eighteen ounces of soft bread or flour or one pound of hard bread or twenty ounces

of cornmeal. For every one hundred men, the command received two quarts of peas and beans or ten pounds of rice, and six pounds of coffee.¹

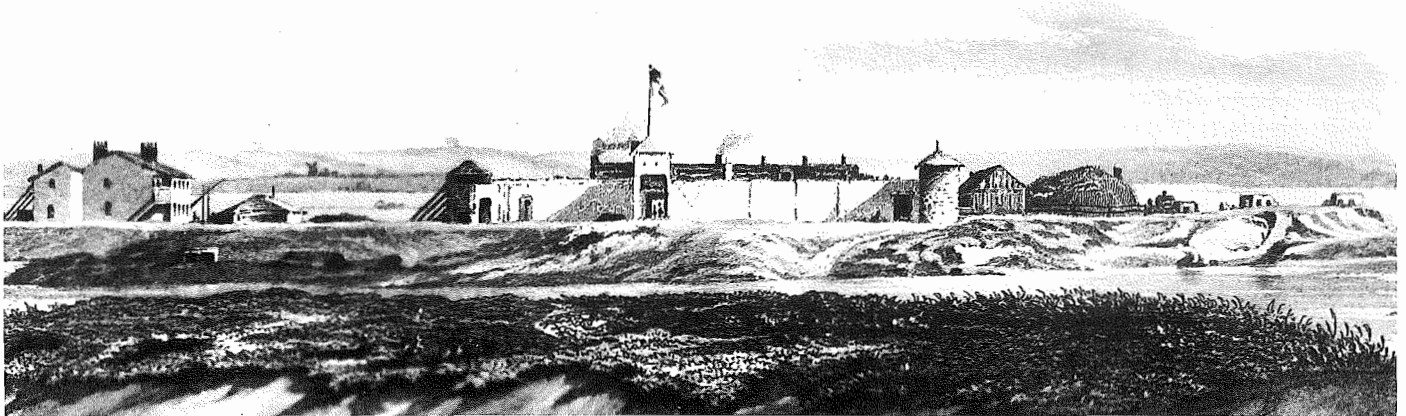
While it was true that in the beginning the army supplied Fort Laramie from Fort Leavenworth, Kansas, some 646 miles distant, and that climatic conditions occasionally made shipments late, troops could depend upon the eventual arrival of wagon trains during seasonable months. A check of the records of the post commissary for the 1850s shows that Fort Laramie had sufficient quantities of most items throughout the year. For example, Post Commissary of Subsistence John L. Grattan reported the variety of stores on hand during the early part of 1854, when most shortages might be expected (Table 1).²

Most of the year, troops also had an auxiliary supply of food available from the post sutler, and those with money could complement or supplement ra-

tions from his shelves. During summer months, the sutler had other buyers—hungry emigrants passing through on the way to Oregon, Utah, and California. At other periods there were Indians anxious to trade skins and furs for such items as sugar and coffee, but the only steady customer was the Fort Laramie soldier, who initially had no other choice and who, in good times or bad, had an unvarying cash income.³

The Post Council of Administration, consisting of the commanding officer of the post and up to three officers, watched over the sutler's operations and, among other things, prescribed the kind and quantity of groceries he had to have available for purchase by officers and men. There were times, however, when the Congress gave the instructions. For example, on March 19, 1862, Congress ordered sutlers to stock the following foods for volunteer officers and men: apples, dried apples, oranges, figs,

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Frederick Hawkins Piercy made this sketch of Fort Laramie about 1853, during a journey to Salt Lake City. NSHS-L323-6

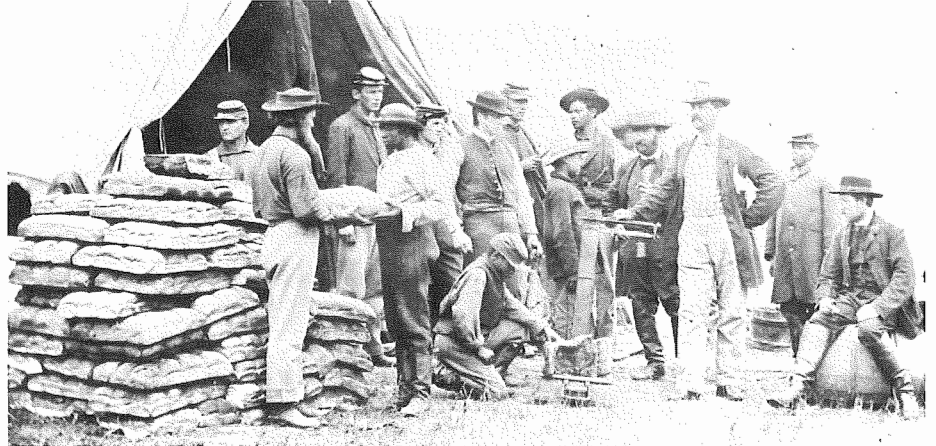
Food and Health at Fort Laramie, 1849–1859

lemons, butter, cheese, milk, syrup, molasses, raisins, and crackers. Companies might also purchase food with their own funds. One source of money was the Post Fund, established by a tax on the sutler (ten cents a man in 1863) and from a saving of the flour ration by baking the soldiers' bread at the post bakery. While the Post Fund was for special purposes prescribed in the Army Regulations (for expenses of the bakery, support of a band, operation of the post school for soldiers' children, and formation of a library), monies from it could be donated to the Company Fund, which could be used for general purposes—"for the benefit of the enlisted men of the company"—and, consequently, for the purchase of vegetables or scarce foods.⁴

If these sources proved insufficient, the Fort Laramie soldier might be able to secure fish and meat with rod and rifle, and undoubtedly did so, although, as one might expect, references to hunting and fishing are rare in official records. Not until the 1880s did the army encourage hunting by enlisted men as a means for recreation, and as a probable aid to marksmanship.⁵

Finally, troops could attempt to grow food, and gardening proved to be crucial to health and survival. As it turned out, men usually had enough to eat, but quality was not always the best, and lack of certain kinds of food led to debility, disease, and death. While the Fort Laramie soldier usually consumed plenty of preserved foods, occasionally he did not have fresh fruits and vegetables, nor did he possess the knowledge or technology necessary to keep himself abundantly supplied with other edibles containing vital ingredients found in produce.

The first occupants of Fort Laramie were optimistic about their ability to provide for many needs. In July 1849 Deputy Quartermaster Aeneas Mackay reported that the site for the post was better suited than had been anticipated, and stated that in comparison with Fort Kearny, "it goes far beyond it in respect



Distribution of the meat and bread ration to company messes at Fort Laramie in the 1850s probably resembled the procedure shown in this Civil War image. The meat was rationed by weight. Massachusetts Commandery, Military Order of the Loyal Legion and the U.S. Army Military History Institute

Table 1

	January 1854	May 1854
Pork	2 bbls. (59 lbs.)	None
Fresh Beef	40 cattle (21,600 lbs.)	34 cattle (17,980 lbs.)
Salt Beef	None	None
Bacon	10,484 lbs.	7,930 lbs.
Flour	187 bbls. and 53 lbs.	127 bbls. and 14 lbs.
Hard Bread	2,365 lbs.	945 lbs.
Corn Meal	None	None
Rice	2,595 lbs.	1,843 lbs.
Beans	29 bu.	18 bu. and 11 qts.
Whiskey	157 gal. and 24 gills	123 gal. and 24 gills
Salt	172 bu. and 10 qt.	Undetermined
Vinegar	273 gal. and 24 gills	164 gal. and 24 gills
Coffee	2,929 lbs.	2,410 lbs.
Sugar	7,590 lbs.	6,598 lbs.
Molasses	414 ¼ gal.	365 gal.
Lg. Apples	164 bu.	143 bu.
Sm. Apples	1,001 lbs.	951 lbs.
Lard	156 lbs.	Undetermined
Bacon Hams	2,308	7,930 lbs.

to almost every requisite." According to Mackay, abundant firewood existed along banks of the Platte, "both dry and growing," and water from the Laramie River was excellent and used for everything. He reported the bottom lands were rich in grass, and he was confident animals could be herded and fed in season and hay procured in quantity for winter. Mackay noted that during the

past six weeks, about a third of the garrison had been engaged in haying and had harvested about sixty tons. Finally, he reported that Maj. Winslow F. Sanderson, the commanding officer of the post, whom he described as "persevering and discreet," might fail in cultivation of corn but expected to produce enough oats and barley to sustain all animals required at the post throughout the

year without expense to the government.⁶

The exact place of farming during 1849 is not known, but it may be surmised that Sanderson chose a spot seven miles north and seven miles northeast of the post, for this was the location mentioned by emigrant diarists in 1850, and there are many references during the next decades to the site, which came to be known as "the Government Farm."⁷

While horses and cattle apparently fared well in 1849, soldiers experienced shortages. The first complaint of record about food at Fort Laramie came from Post Commissary of Subsistence Thomas G. Rhett. In a letter to the commissary general dated October 30, 1849, Rhett declared that the supply of brown sugar was of inferior quality and permeated with impurities, including "motes, particles of dirt, chips, and dead insects." He further complained that "not a particle" of crushed white sugar had been sent to the post for use of officers and sourly observed that "it cannot escape your notice how much would be the saving in waste, and cost of transportation if only this quality of sugar were sent for issue."⁸

While absence of a satisfactory supply of sugar was an irritation, lack of a sufficient supply of fresh fruits and vegetables during the winter of 1849 was a threat to life. As a result, scurvy affected many of the post's inhabitants.

Scurvy developed slowly and sometimes resulted in agonizing death, and it was a disease with which the army had had tragic experience, particularly at Cantonment Missouri (north of present-day Omaha) during the winter of 1819–20, where over half of the garrison of eight hundred men died.⁹ Nor was the outbreak foreign to the Rocky Mountain frontier. Emigrants suffered from scurvy during the summers of 1848 and 1849, and several overland parties were nearly destroyed by it.¹⁰

Descriptions of the symptoms of the disease and its effects are common in literature of the period, but none is more graphic than that penned by Post Surgeon Samuel P. Moore of Fort

Laramie early in 1850:

The scurvy has increased to a much greater degree than was anticipated. Thirteen of the cases were very severe, attended by great lassitude; stiffness of the knees and feet; respiration difficulty upon the slightest exertion; the countenance exhibiting a pale, sallow, and bloated appearance; maculae first on the legs, then thighs and arms; oedematous swelling of the legs, and extensive anasarcaous effusions; the gums spongy and tender, and apt to bleed on the slightest touch; the urine turbid and dark colored; the muscular power much prostrated; the blood dissolved. Unduration of the muscle and severe pain in thighs, backs, and knees, were frequent. In some cases, pain in the intestines, and constipation; extensive subcuticular extravasations of blood of the extremities and other parts of the body; passive hemorrhages from the gums and nose, the gums separating from the teeth, and the teeth becoming loose in their sockets. In the fatal cases extreme prostration occurred, with anxious and oppressed respiration, dysenteric discharges, and convulsions.¹¹

Today, we know that lack of Vitamin C over a five-month period will cause scurvy, but physicians of that earlier day did not possess such knowledge. Nevertheless, even in the seventeenth century, authorities were aware of the value of citrus fruits as antiscorbutics, and, in the late eighteenth century the British navy began administering lime juice to its sailors, who soon became known as "limeys."¹²

It was also known that fresh vegetables helped to prevent scurvy, but, although possessed with the knowledge, the army did not exercise the leadership it might have in protecting soldiers from the disease. For example, the official army ration did not include fresh fruits or vegetables. Companies were expected to provide these foods by not drawing full rations and using money credited them by the commissary of subsistence to purchase them. While the system might function well in settled areas, it was not successful in the West, where local sources of commercial supply were nonexistent, winters severe, transportation routes primitive, and shipments uncertain. Furthermore, fresh

meat was optional, which meant that although military authorities knew from past experience it was unwise, they condoned supporting troops on salt-preserved foods for long periods of time.¹³ Lack of variety and dietary deficiencies inherent in the army ration, which changed only slightly in a century, prompted one historian to characterize the issue as "unbalanced, boring, and even dangerous to the health of the troops."¹⁴

While scurvy resulted in the death of only two Fort Laramie soldiers during the winter of 1849–50, a fifth of the garrison became so incapacitated the men needed crutches for mobility. Surgeon Moore believed that habitual use of salt and "unwholesome" food, accompanied by fatiguing labor, were precipitating causes of the disease. Moore gave victims "fresh animal food" and vegetable acid drinks and administered a potion of nitrate of potash dissolved in vinegar, which had been highly recommended as a cure. Finally, upon Moore's recommendation, the commanding officer obtained wild onions and watercress from the Sioux, and the number of cases decreased. By spring 1850, a large number of men still remained on the disabled list, some of whom obtained furloughs, while the rest returned to Fort Leavenworth for hospitalization.¹⁵

Authorities began early in 1850 to take steps to avoid reoccurrence of scurvy. On April 1 Post Surgeon Moore requested a supply of antiscorbutics from St. Louis, warning that if the garrison failed to raise vegetables—"and there is every probability of our doing so"—many deaths would occur.¹⁶ A week later, Post Quartermaster Stewart Van Vliet reported that arrangements had been made to begin farming. Soldiers had prepared ten acres, and Van Vliet intended to sow as much seed corn, oats, and barley as his means would allow.¹⁷

Apparently, as Surgeon Moore predicted, efforts were less than successful, because War Department records for 1850 show that the army paid \$34.24 per

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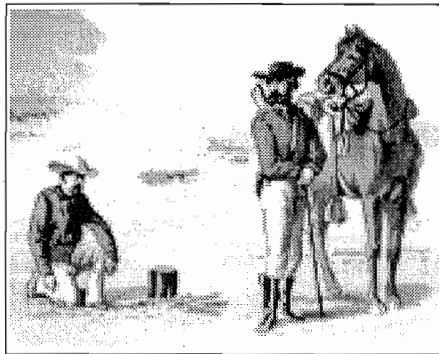
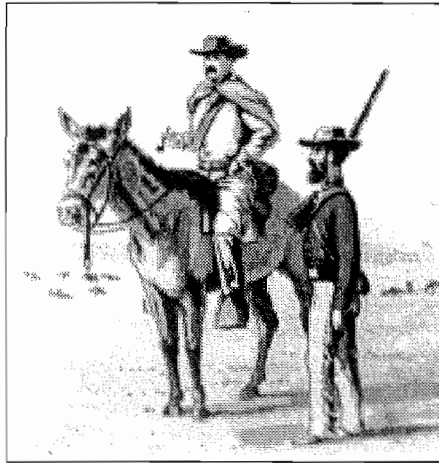
horse for forage at Fort Laramie, the highest amount spent at any military post.¹⁸ Near the end of July, Van Vliet sent an agent to Taos, New Mexico, to find ten or twelve Mexican laborers to farm and tend stock. Van Vliet believed irrigation was the only way of assuring a crop and wanted experienced hands.¹⁹

In 1850 the post also had an adequate supply of meat. On June 15 one traveler saw a large herd of army cattle grazing near the Government Farm.²⁰ In December, post commander W. Scott Ketcham reported large quantities of pork and bacon at the post, noting that the former had been rebrined and the latter cleaned and hung from rafters to increase palatability and longevity.²¹

Apparently, the post trader did a booming business selling goods to emigrants during the early summer of 1850. A correspondent for the *Daily Missouri Republican* wrote on June 20 that prices at Fort Laramie and other road establishments were \$15 to \$20 for good brandy, \$10 to \$12 for a gallon of whiskey, and \$.30 to \$.40 for a pound of sugar or coffee. Breadstuffs were double the price found in the States, but bacon was less expensive than in the settlements.²² Either the trader did not stock enough supplies or prices were too high, for on July 7 Quartermaster Van Vliet wrote that about one-sixth of the emigrants did not have enough food to make it to Oregon and California. Van Vliet believed many of them would perish unless they found sources farther up the road.²³ Inability of emigrants to carry or obtain enough food led to the practice of selling staples from the post commissary, complicating the problem of subsistence for troops.

The most serious health problem during 1850 was an epidemic of cholera, raging among emigrants during late spring and summer. On June 21 the first Fort Laramie soldier contracted the disease, and by the end of July the post surgeon was caring for thirty victims, twenty-one of whom were recruits who had contracted cholera on the trail.²⁴ While it is probable that scurvy again

made its appearance during the winter of 1850–51, the disease is not mentioned in post records. Post cattle and horse herds made it through winter in good shape, but time nearly ran out as forage had disappeared by March 20.²⁵



"Utah Invaders, 1857–8" (top), and "On the Plains, 1854–6." From Theophilus F. Rodenbaugh, *From Everglade to Cañon with the Second Dragoons (Second United States Cavalry)* (New York: D. Van Nostrand, 1875)

Spring of 1851 found Fort Laramie soldiers at work on their vegetable garden. If they needed stimulus, they had it in the form of an order from the secretary of war, directing all frontier posts to plant vegetable gardens.²⁶ While there is no record of the results at Fort Laramie, the War Department reported in 1852 that, generally, the experiment in self-support had proved a costly failure.²⁷

Eighteen fifty-one marked publication of a health guide for use of the mili-

tary by an ex-army surgeon, John S. Hamilton, entitled *The Army, Navy, and Militia Volunteer Guide to Health, Valor and Victory, With Full Instructions and Advice on How to Attain Them*. While privately printed by the author, the manual was widely distributed, and it is likely that someone at Fort Laramie received a copy. The manual gives insights into medical, dietary, and sanitary knowledge of the period.

In his role as dietitian, Hamilton devoted most space to selection of foods for those suffering from some abnormality. For example, he cautioned those "who abound with blood" to be "abstemious in the use of everything that is high nourishing, such as fat meat, rich wines, strong beer, &c.," and advised corpulent men to eat radishes, garlic, and spices because they promoted perspiration. For those suffering from scurvy, Hamilton recommended against indulgence in animal food. The only general dietary advice was to be moderate in food and drink. Finally, Hamilton drew special attention to what he believed to be a relationship between uniforms and health, stating:

The shape of men are often attempted to be improved by the make of their uniform; attempts of this nature are highly pernicious to health and activity. The most destructive of them is that squeezing the stomach and bowels into as narrow a compass as possible, to procure what is called a fine shape. By such practice the action of the stomach and bowels, the motion of the heart and lungs, and many of the vital functions are obstructed, which often produces very bad consequences.²⁸

In 1852 the army was prepared to deal with subsistence for emigrants, stocking large quantities of stores at Forts Kearny, Laramie, and Bridger, and at Salt Lake.²⁹ At Fort Laramie, Ketcham reported that "Flour could be had for 10½ cents cwt., hams and bacon at 15 cents, dried fruit 12½ cents per bushel." According to one emigrant, the army sold the supplies "at cost and carriage."³⁰ The sutler, of course, and other traders along the Platte had supplies for sale, but diarists noted that prices were



"An Army Train Crossing the Plains," *Harper's Weekly*, April 24, 1858. Although this particular caravan was destined for Utah during the "Mormon War," the troops at Fort Laramie depended on similar transport for much of their foodstuffs.

high, including apples at \$12 a bushel and vinegar at \$2 per gallon.³¹ To encourage soldiers and their families to provide some of their own food, the commanding officer of Fort Laramie permitted them to keep milk cows for private use and allowed them to send animals to the public herd, where they were tended at no cost.³² While cholera was prevalent among emigrants in 1852, and the hospital was full at times with civilians, not a single soldier contracted the disease.³³

Records do not yield much information concerning food and health at Fort Laramie during the next two years. In 1853 the post commander was intent upon raising vegetables, because he ordered an officer leaving for Fort Leavenworth to bring back seed.³⁴ According to the *Missouri Republican*, at least the onion crop for that year was ample. In July commissary stores ran low, and one emigrant gloomily re-

ported that he had to be content with purchase of two barrels of musty pickled pork, three sacks of flour, and one sack of beans. In 1854 emigrant Edwin Bird wrote in his diary that soldiers at Fort Laramie were "trying to grow a few vegetables, but so far without success." By the end of the summer, troops were short of supplies again, and one traveler complained that soldiers would not sell flour under \$20 per one-hundred-pound bag.³⁵ In any event, the buying power of enlisted men for food supplements and other items increased substantially in 1854. On August 4 Congress raised soldiers' pay by \$4 a month. Additionally, for the first time, the Congress based pay on length of service, authorizing a \$2 increase for men serving their second enlistment and \$1 for each subsequent tour of duty.³⁶

In 1855 Fort Laramie had difficulties with the food supply. First, the ability of officers and men to compensate for

shortages through purchase from the sutler was not as great as it should have been. The reason was that the troops were not paid on time. In fact, in September 1855, part of the command had not been paid for six months and the rest for eight. Finally, the sutler agreed to advance credit so that men might purchase "absolute necessities."³⁷ Troops did, however, receive pay before the year's end, and one traveler, Englishman William Chandler, happened to visit the sutler's store shortly afterwards and penned this description:

There is a very good store here, but prices, of course, are high; whiskey could not be obtained without a written order from the Governor, though many soldiers having just received pay, tried hard by sending civilians, protesting it was only for themselves. Soldier coats cost \$12; lemon syrup .75 a pint bottle; preserved peaches \$4 a quart. Some of our men indulged in these and other luxuries, besides wholesale in woolen shirts, etc., and tobacco. One or two bought first rate buffalo robes for \$5

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each. . . . I bought very little; only three boxes of yeast powder (at .30 each) to improve our bread, as saleratus is poor stuff, and a good-sized loaf of bread for myself from the bakery.³⁸

In 1855 the post also had trouble finding enough forage for the horse and cattle herds. Fortunately, a change in plans for an expedition against the Sioux left Fort Laramie with a large corn supply, which the post commander requested for use of company horses.³⁹ At least two other herds of beef cattle, one owned by the sutler and the other by trader Geminien P. Beauvais, competed for available grass, but at the same time represented an additional meat supply if needed.⁴⁰

As before, however, it was lack of fresh vegetables that created the most serious problem. The Post Council of Administration funded purchase of potatoes for seed in 1855, and apparently troops were able to raise some.⁴¹ However, the men quickly consumed the supply, and the expected late fall shipment did not arrive. Some of the potatoes were frozen en route to Fort Kearny, and officials felt that the remainder would suffer the same fate if the ox train continued on to Fort Laramie. Consequently, they impounded the shipment and the contractor, bereft of a large part of his cargo, refused to transport the rest. Thus, Fort Laramie was not only deprived of potatoes, but of a number of other stores as well.⁴²

Without antiscorbutics, the garrison experienced an outbreak of scurvy during the winter of 1855–56. In March Maj. William Hoffman reported that Fort Laramie companies averaged only fifty men for regular duty because of sickness and hospital details to care for the afflicted.⁴³ On the twenty-first, Hoffman ordered six wagons to Fort Kearny to get the impounded potatoes, noting even that quantity would be insufficient for his needs.⁴⁴ Of the thousand bushels originally intended for Fort Laramie, two hundred finally reached the post in a wilted state, "just on the verge of decay."⁴⁵

Bad luck continued to plague gardeners during the summer of 1856.

Major Hoffman reported on August 10 that some plots had been almost destroyed by grasshoppers, and although the field of potatoes was doing nicely, the yield would be small because of the bad quality of the seed. Hoffman requested only the best quality potatoes be sent from Fort Leavenworth in the fall, and suggested packing them in hay to prevent freezing. He noted rations were scanty, and troops purchased all the bread that could be spared from the bakehouse.⁴⁶ The men, however, had limited purchasing power, for in 1856 they experienced another eight-month delay in receiving pay and the sutler again advanced credit, which by May amounted to \$1,500.⁴⁷

Despite setbacks, 1856 proved to be a significant year at Fort Laramie. Presumably because of difficulty in stocking vegetables, the post became an experimental station for testing a new product marketed by Chollet & Company.⁴⁸ Known as "desiccated" vegetables, the innovation held the promise of relief from the ravages of scurvy in remote areas.

One army study explained, "As desiccated vegetables, the water is in large part removed, the bulk correspondingly reduced, and the liability to injury from variations of heat and atmospheric moisture overcome." According to the study, vegetables were "thoroughly cleaned, sliced, dried in a current of heated air, weighed, seasoned, and pressed with a hydraulic press into compact forms, sealed in tin cases and enclosed in wooden boxes."⁴⁹ A block of the concentrate one foot square and two inches thick weighed seven pounds and contained vegetables for a single ration for 112 men. Among those vegetables eventually available in desiccated form were potatoes, cabbage, turnips, carrots, parsnips, beets, tomatoes, onions, peas, beans, lentils, celery, and green peppers.

The concentrate had amazing regenerative powers, and more than one novice found that soaking a generous piece in water made a greater quantity of the vegetable than he wanted.⁵⁰ This charac-

teristic led to a story of a soldier eating his ration raw and nearly dying from the swelling after taking a drink of water.

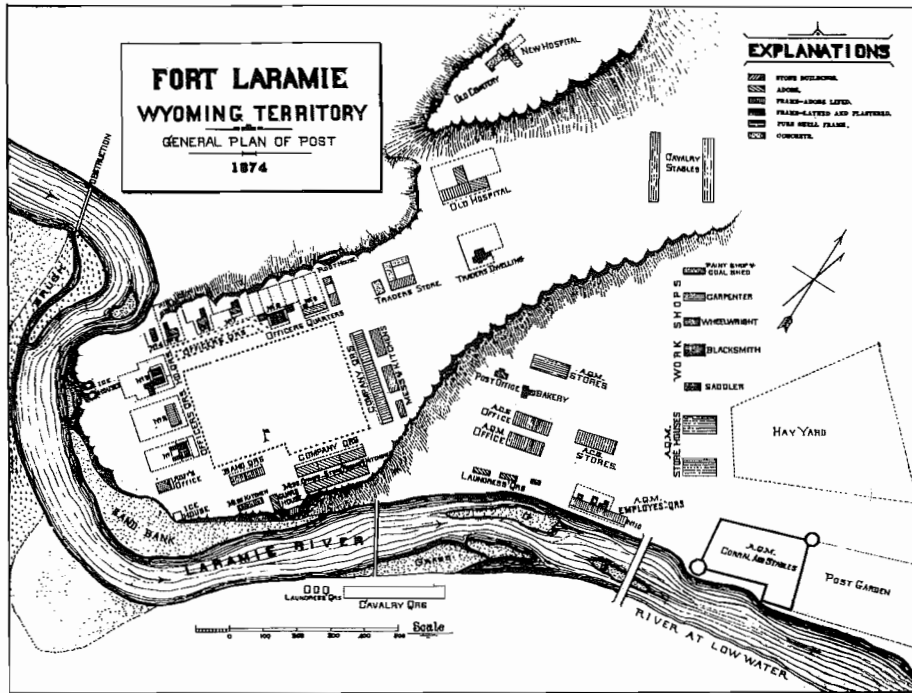
During the Civil War, soldiers commonly referred to the mixed product as "desecrated vegetables" or "baled hay." One Union officer, who undesiccated his potatoes, described the result as "a dirty brook with all the dead leaves floating around promiscuously." Cooks achieved best results by making soup of the vegetables, improving the taste by adding meat.⁵¹ As a result of testing at Fort Laramie and elsewhere, the commissary general of subsistence in 1858 recommended that desiccated potatoes and mixed vegetables be introduced as part of the ration, to be issued twice per week in lieu of beans and rice.⁵²

The year 1857 appeared little different from its immediate predecessors: The commanding officer made an early plea for garden seeds and potatoes for planting, and a day later he complained to department headquarters that his men had not been paid for six months and the sutler was advancing credit.⁵³

The winter of 1857–58 was a long one for many Fort Laramie soldiers: Forty-two of them came down with scurvy and received hospital treatment. The following statistical table, which appeared in a general report on sickness and mortality in the army, shows the progression of cases:

		Cases	Strength of Command
1857	November	0	343
	December	2	329
1858	January	6	324
	February	13	318
	March	21	316

The forty-two cases of scurvy at Fort Laramie prompted an inquiry from Surgeon of the Army R. C. Wood. In his letter to Surgeon Johns, Wood noted that the Army of Utah, an expeditionary force of 1,800 men sent against the Mormons, had only seventeen cases of scurvy during the same period, and records showed that Fort Laramie had



The post garden was clearly identified on this 1874 plat of Fort Laramie. From U.S. Surgeon General's Office, *A Report on the Hygiene of the United States Army with Descriptions of Military Posts* (Washington, D.C.: GPO, 1875)

available to it 526 head of beef cattle, 7,138 rations of mixed desiccated vegetables, 8,706 rations of desiccated potatoes, and large quantities of dried apples, pickles, vinegar, sugar, and molasses. Why then, Wood wanted to know, did Fort Laramie have scurvy in the first place, and why in such a high ratio? Wood made his request in March 1859, and eight months later Post Surgeon Johns responded with a detailed report. In the meantime, Fort Laramie had experienced a full winter of scurvy and was in the midst of another.⁵⁴

The exact number of victims during the winter of 1858–59 is not known. By December Johns reported that the entire command was scorbutic and that he had ten fully developed cases. Johns attributed the outbreak to lack of potatoes, and criticized the commissary general of subsistence for not approving a request for a winter shipment to the post. Johns noted that, while the commissary department claimed that shipment at that time of year was impos-

sible, potatoes had been brought by wagon to the post to fill individual orders. In the beginning Johns recommended daily use of desiccated vegetables and an issue four times a week of pickles, dried apples, molasses, and vinegar. In December the commanding officer personally superintended an expedition to gather wild celery, discovered about twelve miles from the post.

For general treatment, Johns prescribed a concoction whose main ingredient was cactus juice "made by cutting leaves into slices after slightly cooking the outside by holding them for a brief period over fire and then steeping the pieces in water until a thick greenish-brown mucilaginous mixture is obtained." Stirred into whiskey, the drink was almost palatable. Johns noted that, not counting potatoes, no other remedy proved so effective. By March the command was much improved, and the commanding officer had been able to obtain six to eight barrels of watercress weekly.⁵⁵ However, no sooner had scurvy

disappeared than cholera stepped in. Fifteen men fell prey to the disease, and three cases ended in death.⁵⁶

In December 1859 Johns mailed his report on scurvy to the surgeon of the army, and it represented one of the most thorough analyses yet prepared. Johns began by discussing the prevalence of scurvy among soldiers, civilian quartermaster employees, and mountain men. The former had a much higher rate of infection, which Johns traced to working conditions. Regular army personnel led a much more monotonous life, according to Johns. For example, men on sentinel duty had to march a straight and narrow path, without varying to the right or left, "and thus, for two mortal hours, or any given more or less mortal time, according to the exigencies of the service or thermometer, the military pendulum vibrates his monotonous existence until twice-blessed 'relief' releases him from the effort to keep his falx cerebri in and parallel to the same plane of direction as that of his post." Johns further declared that even when left to himself, the soldier mostly experienced boredom:

Little temptation does he seem to feel to do aught but vegetable in his bunk; with some occasional spasmodic effort at football or other game—possibly to hunt or fish a little; when perhaps, there is additional inducement in the shape of a cask in the bushes somewhere near his garrison, hereby he superadds to any other bad physical and mental influences those derived from the depression attendant upon alcoholic stimulants most villainously adulterated.⁵⁷

Johns was convinced that mental monotony, "pendulistic" fatigue, and loss of sleep and exposure to the elements from night guard duty made the soldier highly susceptible to any disease—much more susceptible, for example, than quartermaster employees, who had varied duties and slept regularly. Johns ended his comparison of types by giving first prize to the mountain man; he led the most perfect life of the three. The surgeon's characterization was succinct and compelling:

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The mountain men have this favorable conjunction of circumstances. They live a free, open Indian life, crowded neither as to quarters nor as to communities. They have a sufficiently good diet apparently; also sufficiently mixed and varied. Their employments are such as not to fatigue them particularly, nor to expose them, except occasionally, to severe weather, for they love a lodge fire as much as an Indian, and when exposed they are well protected by clothing of furs, buckskins, blankets, or ready-made clothing.⁵⁸

Johns then turned to a discussion of the soldier's diet and its deficiencies. He labeled beef obtained from the post cattle herd as "tough," "stringy," and "indigestible," and characterized salt pork and beef ("salt junk") as having little value, being "employed as food upon much the same principle as that ascribed to alligators who swallow stones to appease the craving of an empty stomach." Johns also repeated the common knowledge that extended use of salt meat of any kind led to scurvy. Desiccated vegetables, in the surgeon's opinion, were next to useless as treatment. Their value, he noted, was as a preventative, and they should be issued daily in large quantities to be effective. Johns declared that citric acid had not the slightest value as an antiscorbutic. He based his opinion on personal observation, testifying that he had seen scurvy infect troops "amongst the lime groves of Fort Dallas, Florida, where the parade was covered with lemons, limes, and oranges." Finally, after dismissing potash, another popular remedy, as undependable, Johns launched into praise of fresh vegetable matter in its natural state, and acclaimed the potato in particular for its ability to withstand decay.

In absence of potatoes, Johns relied on cactus juice, watercress, and onions, when he could get them. Concluding his report, he addressed Surgeon Wood's pointed question about why men of the Utah Expedition suffered a much lower rate of infection than troops at Fort Laramie. Johns thought the difference was primarily mental. Troops headed for Utah had been in a state of "excited expectancy," alert to

the possibility of armed action, morale was high, and they went into winter quarters "in vigorous health from a wholesome march across the plains."⁵⁹

Johns's report, as curious and stilted as it was, contained good advice and interesting observations and was worthy of careful review and study by his superiors. Johns had a great deal of experience with scurvy, and he was getting more as he prepared his report. A significant but undetermined number of men in Companies D and F of the Second Dragoons were under treatment for scurvy, and Johns had inherited fourteen cases from units newly arrived from Cheyenne Pass (Camp Walbach) and Platte Bridge. Curiously, infantry companies stationed at the post were exempt. By the end of December, all cases were convalescing, having been treated with watercress, given as a salad at mealtimes, and a half-tumbler of cactus juice flavored with citric acid, sugar, and occasionally whiskey.⁶⁰

We know little concerning specific problems of food and health at Fort Laramie during the next few years. No references to scurvy are found in general records of the post—medical histories were not begun until 1868—but we may assume that disease continued to appear with some regularity because many conditions that helped to precipitate the disease remained unchanged.

In considering Fort Laramie's experience during the 1850s, some generalizations are possible. In the beginning ignorance of nutrition, embodied in the army ration, threatened the lives of Fort Laramie soldiers. It was possible to dine fairly sumptuously and yet not get enough Vitamin C to sustain health. In such isolated areas, keys to survival were fresh fruits and vegetables, and without dependable transportation to obtain these necessities from where they grew abundantly, Fort Laramie soldiers courted disaster. Road-closing blizzards and spring floods meant hardship and possible death. Hail, early frost, drought, and insect infestations—all common to the northern Plains—

doomed most local gardening efforts to failure. Not until the late 1860s did development of railroads and growth of settlements in southern Wyoming and northern Colorado ensure a relatively stable supply to meet most emergencies.

Knowledge of how to treat scurvy grew with experience, and new interest in maintaining health during the Civil War led to some useful studies that emphasized the importance of providing fresh produce to the troops. In later years the army stressed proper food preparation and encouraged availability of greater varieties of fresh edibles. The use of irrigation in later decades helped gardening efforts, but success remained limited.

Perhaps the most interesting fact of the story of food and health at Fort Laramie is that as early as 1850 the post surgeon and the post quartermaster had identified the two essential problems and recommended useful remedies. To prevent scurvy they needed fresh vegetables, and to have a good chance of producing them locally they needed irrigation. The failure to implement these recommendations suggests institutional indifference and ineptitude. Consequently, as a result of an unbalanced diet, Fort Laramie soldiers at mid-century could literally eat themselves to death, and some did.

Notes

¹ Everett N. Dick, *Vanguards of the Frontier* (New York: Appleton-Century, 1941), 79; Russell F. Weigley, *History of the United States Army* (New York: The Macmillan Company, 1967), 221n.

² Provision Books, Regulars, 1854–61, Records of the Office of Commissary General of Subsistence, Record Group 192, National Archives and Records Administration.

³ During the early 1850s the practice was to pay soldiers every two months if possible.

⁴ *Revised United States Army Regulations for 1861 with an Appendix Containing Changes and Laws Affecting Army Regulations and Articles of War to June 25, 1863* (Washington, D.C.: GPO, 1863), 34–36.

⁵ See James E. Potter, "Hunting in the Frontier Army," unpublished manuscript, Nebraska State Historical Society, Lincoln. Pvt. Hervey Johnson of the 11th Ohio Volunteer Cavalry, stationed at

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small outposts of Fort Laramie in the mid-1860s, frequently writes of hunting. See William D. Unrau, *Tending the Talking Wire: A Buck Private's View of Indian Country* (Salt Lake City: University of Utah Press, 1979).

⁶ Aeneas Mackay to Maj. Gen. Thomas Jesup, July 31, 1849, Consolidated Correspondence File for Fort Laramie, Records of the Quartermaster General, Record Group 92, National Archives and Records Administration (hereafter cited as Consolidated Correspondence File, RG92).

⁷ Diary of Byron McKinstry, cited in Merrill J. Mattes, *The Great Platte River Road: The Covered Wagon Mainline Via Fort Kearny to Fort Laramie* (Lincoln: Nebraska State Historical Society, 1969), 512; Franklin Langworthy, *Scenery of the Plains, Mountains, and Mines*, ed. Paul C. Phillips (Princeton, N.J.: 1932), 50.

⁸ Thomas G. Rhett to Gen. George Gibson, Oct. 30, 1849, Consolidated Correspondence File, RG92.

⁹ Roger L. Nichols, "Scurvy at Cantonment Missouri, 1819–1820," *Nebraska History* 49 (Winter 1969): 343.

¹⁰ U.S. Sanitary Commission, *Report to a Committee of the Associate Medical Member of the Sanitary Commission on the Subject of Scurvy with Special Reference to Practice in the Army and Navy* (Washington, D.C.: GPO, 1862), 4.

¹¹ Richard H. Coolidge, *Statistical Report on the Sickness and Mortality in the Army of the United States, Compiled from the Records of the Surgeon General's Office, Embracing a Period of Sixteen Years, from January 1839 to January 1855* (Washington, D.C.: GPO, 1856), 82. See also August Meyers, *Ten Years in the Ranks of the U.S. Army* (New York: The Stirling Press, 1914), 96.

¹² Capt. James Cook, for example, on a four-month voyage gave his men fruit juices and sauerkraut daily and suffered the loss of only one man. See Daniel Conner, "Captain James Cook and the Pacific Frontier," *The American West* 16 (Jan.–Feb. 1979): 79; Richard Harrison Shyrock, *Medicine and Society in America, 1660–1860* (Ithaca, N.Y.: Cornell University Press, 1962), 89; Edward S. Farrow, *Farrow's Military Encyclopedia: A Dictionary of Military Knowledge*, 2 vols. (New York: The Author, 1886), 2:36.

¹³ Eben Norton Horsford, *The Army Ration: How to Diminish its Weight and Bulk, Secure Economy in its Administration, Avoid Waste, and Increase the Comfort, Efficiency, and Mobility of Troops* (New York: D. Van Nostrand, 1864), 7; Don Rickey, Jr., *Forty Miles a Day on Beans and Hay: The Enlisted Soldier Fighting the Indian Wars* (Norman: University of Oklahoma Press, 1963), 96–97.

¹⁴ Roger L. Nichols, "Soldiers as Farmers: Army Agriculturalists in the Missouri Valley, 1818–1827,"

Nebraska History 52 (Fall 1971): 242. See also Richard Dunlop, *Doctors of the American Frontier* (New York: Ballantine Books, 1975), 79–80.

¹⁵ Coolidge, *Statistical Report, 1839–55*, 82.

¹⁶ Ibid.

¹⁷ Stewart Van Vliet to Maj. Thomas Jesup, Apr. 9, 1850, Consolidated Correspondence File, RG92.

¹⁸ Senate Executive Document No. 1, 31st Cong., 2d Sess., *Report of the Secretary of War for 1850*, 2:110.

¹⁹ Van Vliet to Jesup, July 23, 1850, Consolidated Correspondence File, RG92.

²⁰ Langworthy, *Scenery of the Plains*, 50.

²¹ W. Scott Ketchum to Bvt. Maj. D. C. Buell, Dec. 23, 1850, Fort Laramie Letters Sent, Records of U.S. Army Commands, Record Group 98, National Archives and Records Administration (hereafter cited as Letters Sent, RG98).

²² Albert Watkins, ed., *Nebraska State Historical Society Publications* 10 (1922): 227.

²³ Van Vliet to Jesup, July 7, 1850, Consolidated Correspondence File, RG92.

²⁴ Coolidge, *Statistical Report, 1839–55*, 80.

²⁵ General Orders No. 18, Fort Laramie, Mar. 20, 1851, Records of United States Army Commands, Record Group 98, National Archives and Records Administration (hereafter cited as General Orders, RG98).

²⁶ Robert M. Utley, *Frontiersmen in Blue: The United States Army and the Indian, 1848–1865* (New York: Macmillan, 1967), 36–37.

²⁷ Senate Executive Document No. 1, 32nd Cong., 2d Sess., *Annual Report of the Secretary of War for 1852*, 2:4.

²⁸ John S. Hamilton, *The Army, Navy, and Militia Volunteer Guide to Health, Valour, and Victory, With Full Instructions and Advice on How to Attain Them* (n.p., 1851), 33.

²⁹ Watkins, *Publications*, 238.

³⁰ Mattes, *Great Platte River Road*, 25, 514–15.

³¹ Ibid.

³² General Orders No. 14, July 24, 1852, RG98.

³³ Coolidge, *Statistical Report, 1839–55*, 80.

³⁴ General Orders No. 4, Mar. 22, 1853, RG98.

³⁵ Mattes, *Great Platte River Road*, 26–27, 512.

³⁶ William A. Ganoe, *The History of the United States Army* (New York: D. Appleton-Century Co., 1932), 236.

³⁷ Maj. William Hoffman to Maj. O. F. Winship, Sept. 7, 1855, Letters Sent, RG98.

³⁸ Mattes, *Great Platte River Road*, 28.

³⁹ Hoffman to Winship, Nov. 8, 1855, Letters Sent, RG98.

⁴⁰ Hoffman to Messrs. Ward and Guerrier, Oct. 10, 1855, *ibid.*

⁴¹ General Orders No. 34, June 1, 1855, RG98.

⁴² Hoffman to Lt. J. L. Corley, Aug. 10, 1856, Letters Sent, RG98.

⁴³ Hoffman to Capt. A. Pleasonton, Mar. 7, 1856, *ibid.*

⁴⁴ Hoffman to Capt. Henry Wharton, Mar. 21, 1856, *ibid.*

⁴⁵ Hoffman to Corley, Aug. 10, 1856, *ibid.*

⁴⁶ *Ibid.*

⁴⁷ Hoffman to Pleasonton, May 8, 1856, *ibid.*

⁴⁸ General Orders No. 89, Nov. 7, 1856; House Executive Document No. 2, 34th Cong., 3d Sess., vol. 2, pt. 1, *Report of the Secretary of War for 1858*, 801.

⁴⁹ Horsford, *The Army Ration*, 11.

⁵⁰ Dick, *Vanguards*, 80.

⁵¹ Bell Irvin Wiley, *The Life of Billy Yank: The Common Soldier of the Union* (New York: Grosset and Dunlap, 1952), 242. Apparently the troops had trouble cooking the vegetables properly, but when they acquired the skill, some preferred them to fresh vegetables. See U.S. Sanitary Commission, *A Report to the Secretary of War of the Operation of the Sanitary Commission and Upon the Sanitary Condition of the Volunteer Army, Its Medical Staff, Hospital, and Hospital Supply* (Washington, D.C.: GPO, 1861), 29.

⁵² *Report of the Secretary of War for 1858*, 801.

⁵³ Hoffman to Maj. George Dean, Mar. 3 and 4, 1857, Letters Sent, RG98.

⁵⁴ Richard H. Coolidge, *Statistical Report on the Sickness and Mortality in the Army of the United States, Compiled from the Records of the Surgeon General's Office, Embracing a Period of Five Years from January 1855 to January 1860* (Washington, D.C.: GPO), 45, 47, 49.

⁵⁵ *Ibid.*, 45, 47.

⁵⁶ Report of H. S. Schell, 1868, Medical History of Fort Laramie, Records of the Office of the Surgeon General, Record Group 94, National Archives and Records Administration.

⁵⁷ Coolidge, *Statistical Report, 1855–60*, 52.

⁵⁸ *Ibid.*, 53.

⁵⁹ *Ibid.*, 55.

⁶⁰ *Ibid.*, 57.