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NOTES

ON

PREPARING STORES

FOR THE

UNITED STATES ARMY:

ALSO

ON THE CARE OF THE SAME, ETC.

(DESIGNED FOR THE USE OF THOSE INTERESTED.)

BY C. L. KILBURN,

Commissary of Subsistence, U. S. Army.

CINCINNATI, O.

BRADLEY & WEBB, STEAM PRINTERS AND STATIONERS, 1863.

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Entered according to Act of Congress, in the year 1863, by C. L. KILBURN,

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CONTENTS.



		~
1	Preface,	5
2	Pork,	7
3	Bacon,	14
4	Salt Beef,	16
5	Fresh Beef,	18
6	Flour,	20
7	Hard Bread,	22
8	Corn Meal,	23
9	Beans,	24
10	Rice	25
11	Hominy,	26
12	Coffee	27
13	Tea.	28
14	Sugar.	31
15	Vinegar.	32
16	Candles	.33
17	Soap	34
18	Solt	.35
10	Trigh Potatoes	.37
19	Molocson	.37
20	Dried Fruit	37
41	Mula Packing	.38
44	General Bomerks	42
20	Table Showing the Weight and Bulk of One Thou	
24	and Dations	45
07	Sauu Ivalions,	46
25	Form for Requisitions,	48
-26		



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PREFACE.

SEEKING, as I do, only the good of the service, an apology seems unnecessary for such a work as this; it speaks for itself. Many thousands of dollars may annually be saved the Government by use of means now neglected. In some instances, losses occur from indifference; in others, from want of knowledge. This pamphlet is designed to correct, in part, the last. The experience of the officer is, after all, of much the greatest importance; but many of our young officers are placed at once, on commissary duty, on joining their Regiments.

Should any of the ideas contained herein, be of any practical benefit to them, or to merchants who are preparing stores for the army, my object will be accomplished.

Should errors be discovered by any brother officer, soldier, pork or bacon packer, drover, butcher, grocer or citizen, I will be obliged if they will please write me, pointing out the same, as well as giving me any additional information, in order that I may use the reports in some other probable edition. I expect no remuneration whatever for my labor—my only wish and aim is to add my mite in aid of our Government, which has risen in its majesty to trample under foot the traitors who have dared to assail its integrity and honor.

Short extracts have been made from pamphlets of McQueen, Saint Louis, and McHenry, Liverpool, England; and my thanks are due and hereby tendered to many merchants, packers, and others, who have aided me. My thanks are particularly due to Captain Brigham, C. S. Volunteer service, for valuable information and aid.

The illustrations are mostly drawn by Captain Abert, U.S.A.

С. L. К.





PORK.

Mess pork is composed of the *sides* of good corn-fatted hogs (cut as per diagram) into strips of about six inches wide. Twenty, or the pieces of five sides, viz: 5 shoulder, 10 middle and 5 flank cuts make a barrel, containing 200 pounds nett of pork, 50 pounds T. I. or other *good* salt, in large dry crystals, to be used in packing, and the barrel filled with pure, clear brine, made of pure salt, and full coopered. No. 9 cuts, as per figure above, are usually thrown into Lard.

When the hogs are very heavy, eighteen, or even sixteen pieces, will be enough; if eighteen, in the following proportions:

9 middle, 5 shoulder, 4 flank;

Or,

9 middle, 4 shoulder, 5 flank.

If sixteen, the pieces are:

8 middle, 4 shoulder, 4 flank.

When pork runs to 16 pieces, it is called "Extra Heavy;" to 18, "Heavy."

In splitting the back-bone it should be carefully split through its centre line.

Corn-fed pork can be told from mast, slop, or still-fed pork, by its white, pearly appearance, and from its *retaining* the dent of the thumb or finger on pressure; mast fed, has a blue tinge, is spongy, and gives back, "squirms," on pressure. Turk's Island or Marsala salt is, no doubt, the best salt for pork; the first, to be clean, *dry* and well *crystalized*, and the latter to be *first quality*, in every respect.

Brine grows weak from year to year, but the large crystals of salt dissolve gradually, preserving thereby the strength of the brine and neutralizing a certain animal fluid, or juice, which for a long time continues to flow from barreled pork. Pork packed in cool weather, (200 pounds meat per barrel,) will gain by absorption of pickle from 15 to 20 pounds. In warm weather it looses a few pounds, per barrel, though it never falls completely back to its original weight. Pork should be packed in moderately cool weather, and the marrow of pork should never be frozen. (A packer who knows his business will understand this.) The strongest kind of brine should be used. made of clean, pure salt; it should be made of cold water; and a good way to make brine is by erecting a cask, vat, or tank, which, set up on end about two feet from the ground, or floor, place within the cask a false bottom perforated with augur holes, as thick as consistent with strength, about ten inches from the lower head. This false bottom may rest on blocks. Over this perforated false bottom lay several thicknesses of gunny sacks, cloth, or bags, then fill in the salt as deep as you please, and let the water in at the top. Filtering down through this body of salt, the water hecomes thoroughly impregnated and cleansed from all dirt and impurities, by the cloth, it is deposited between the two bottoms a clear, strong, white limpid pickle; from this it can be drawn by a cock, or if a large quantity is wanted, a hose may be attached and used to advantage, carrying the brine to reservoirs; thus saving time and waste of pickle. When brine is made in this way, you are in no danger of using weak brine through ignorance or carelessness, and a clean article is obtained, which will not discolor the pork by a deposit of sediment. For pork intended for warm climates, or long sea voyages, it is particularly essential to have the brine pure, and strong, to prevent souring on exposure to warm sun or ordinary summer heat. Even if a large amount of salt, in crystal, is packed with the meat, and it is all kept under cover, it will still sour if the brine was originally poor, The method of stirring the salt in water to make brine, is slovenly. The strength of brine is easily tested by glass vial, egg, pig's foot.

etc., and if sour, that is discovered by taste. Prime mess pork is made of small hogs, fine boned, well fattened, on corn ouly, and weighing from 130 to 170 pounds each, nett. It is made in two ways.

First, with hams in, or not, as may be preferred, (Getty's method.)

PARTS EXCLUDED.

The head, the fore leg, up to the breast or brisket, and close to the body of the hog, the hind leg, including the hock or gambrel joint, and the rump, if the hams are not cut up with the side.

WHAT CONSTITUTES A BARREL OF PRIME MESS PORK.

Fifty pieces of four pounds each, 23 pieces being side pieces, if the hams are cut up and put in, and not less than thirty side pieces if the hams are not in.

HOW TO CUT AND CURE.

After the hog has been split through the back, cut each side into two strips, longitudinally, pack the strips in large casks, or vats, and fill up with brine, having saltpetre added at the rate of one ounce to three gallons of brine; leave it in this brine from eight to ten days to extract the blood, and for the lean meat to take a pink color. When ready to be packed into barrels, have each strip carefully cleaned, using a knife and brush if necessary, then cut into fourpound pieces, as near as may be, mess as indicated, and pack neatly and compactly in layers, with sufficient salt to preserve it.

BARREL.

To be twenty-eight inches long, and seventeen and one-half inches over the end (when finished,) made of seasoned white oak, full bound with hickory or white oak hoops, and one iron hoop (one inch wide) on each end.

THEORY OF MESSING.

Hogs averaging say 145 pounds each, will cut up in messing about as follows: when the side including the ham is cut up, there will be 23 and possibly 24 pieces of side meat, and 8 pieces of ham and saddle, and 18 to 19 pieces of shoulders and neck to the barrel; excluding the hams, the number of side pieces will be increased to thirty-one or thirty-two. No more than six pieces of the leg part of the shoulder should be put in.

Second, without the hams. (Neffs method.)



- No. 1 is the first cut and takes off the head.
- No. 2 is the second cut and takes off the hams, or saddle.
- No. 3 splits the hog, from 1 to 2, through the centre of the backbone.
- No. 4 cuts off the fore leg, close to the shoulder or body of the hog.
- No. 5 cuts the shoulder from the side, and should be close to the knuckle of the leg, thus the cleaver misses the bone of the shoulder-blade, but leaves a small piece of the gristle of the shoulder-blade in the side.

Now the shoulder and side are ready to be cut into their respective pieces, of four pounds each.

SHOULDER.



- No. 1 shows where the leg is cut off.
- No. 2 divides the shoulder into two pieces.
- No. 3 divides the neck cut of the shoulder into two pieces.
- Nos. 4 and 5 divide the heavy side of the shoulder into three pieces.



No. 1 divides the side into two pieces, the belly piece and heavy upper or back piece.

- Nos. 2 and 3 divide the flank or belly-piece into three pieces, from 7 to $7\frac{1}{2}$ to 8 inches each.
- Nos. 4, 5, and 6, divide the upper or back piece into four pieces from 5, 5½, 6 to 6½ inches each.

Thus you have the shoulder cut into five pieces, and the side into seven pieces of a hog that will weigh about 170 pounds nett. One

of the most difficult parts of making P. M. P. is in getting the cuts uniform, and to weigh four pounds each piece. This requires great judgment and skill on the part of the man who cuts the last cuts, and great assistance may be given him by having a person to weigh the pieces and call the weight; thus he will know how many cuts to make. The shoulder and side cuts should be kept separate, and packed in hogsheads, or vats, to draw the blood and strike the color. After laying in pickle eight or ten days, it should be selected and packed in barrels, 30 pieces side cuts and 20 shoulder cuts per barrelwith 50 pounds T. I. salt, of dry, hard, well-drained crystal.

Both these methods have their friends, though, in my opinion, the method of packing P. M. P., according to the last method described, and without the hams, is *decidedly* the best, as the hams, if cured as pork, are hard, dry, and tasteless, and by first cutting in longitudinal strips the final four pound pieces near the neck are small and irregular.

The following circular, relating to P. M. P., was published in the Cincinnati papers in September, 1862.

CIRCULAR.

Office Commissary General of Subsistence, Washington city, Sept. 17, 1862.

Lt. Col. A. B. EATON, A. C. G. S., New York City:

COLONEL: Prime Mess Pork is in great request with the Army, and encouragement should be given to packers of Pork to put up a considerable portion in that form.

Very respectfully, your most ob't serv't, (Signed,) J. P. TAYLOR, C. G. Sub.

PRIME MESS PORK has met with so much favor in the Army, that, if to be found in the market, made from strictly corn-fattened hogs, of light weight (not to exceed one hundred and seventy pounds as a maximum,) and CUT, CURED AND PACKED, IN ALL RESPECTS, AS REQUIRED FOR THE ENGLISH MARKET, there is no doubt but a considerable portion of the Pork purchased for the Army would be taken in Prime Mess.

(Signed,)

A. B. EATON, Lt. Col. and A. C. G. S.

OFFICE OF Ass'T Com'Y GEN'L SUBSISTENCE NEW YORK, Sept. 19th, 1862. Rump pork is usually nearly all lean, but sometimes it is quite fat. Indeed, when cut of proper sized pieces and not trimmed at the sides, it is uniformly fat if the hogs are of good size and fat. This grade of pork is generally sold so much lower in price, that packers are tempted to trim the sides of the fat and render the trimmings into lard, which gives better returns.

For caution in regard to "back strapping," see Bacon, page 15.

Pork should be rolled monthly and never be exposed to a hot sun Heat opens the cells of the Pork, and permits the escape of the absorbed brine, and when this is the case the pork will not afterwards keep. For the same reason, pork should not be shipped on deck; if so shipped and afterwards found to be rusty, no reclamation could. with complete show of justice, be claimed or allowed. Saltpetre is frequently contained in pork brine, giving the meat a red tinge, (rendering it less saleable sometimes,) but not injuring it. Bloody brine in pork or beef is more apt to sour than clear, particularly in a warm climate. To re-pack pork, take it all out of the barrel, pour out all the brine and salt, rinse and cooper the barrel. In some instances it will repay to scrape or shave off the discolored parts. Then re-weigh and re-pack the pork in layers, covering each layer with coarse, pure salt, about one-third of an inch thick. (See article on salt.) Then head up; place the barrel on its chimes, bore a hole in the head and with a funnel replace the brine. As a general rule, it is best not to use the old brine; if sour, and you are still obliged to use it, boil, skim, and cool, running it through the cask as described for making brine; but if you can get the salt, it is best in all cases to use new brine. In beef it is different.

Many of the pork houses of Cincinnati, Ohio, are models. The hogs being driven into a pen, knocked down, stuck (the blood saved,) they are passed then through the scalding vat, raised up and thrown by levers on a platform, and passing through the hands of scrapers they are carried and hooked on a revolving wheel, where they are gutted, and thence carried to the cooling room, and thence to the block. A perfect system is required, and a visit to a first class pork house, in scason, will amply repay one for all his trouble. No useful part of the hog is thrown away.

BACON.

The quality of bacon is ascertained in the same way as pork. Mast fed bacon is sweeter to the taste and is sometimes preferred. The loss in weight is much greater from month to month with mast fed than with pure corn fed. Bacon is packed sometimes for the use of the army in charcoal and sometimes in fine salt. The boxes used are about 231 inches long, 22 inches wide, and 20 inches high. They are made of seasoned timber and tongued and grooved. The bacon is packed on its edge, being first wrapped in strong manilla paper, and charcoal or fine salt filled in around it. The box is then strapped at the ends and in the middle with either iron or wood. If packed in tight spirit barrels, wrapped first in muslin and treated in this way it will stand almost any climate, or long voyage. A very excellent way, though costly, to pack bacon sides, is to sack in coarse muslin and then box, or place in tight barrels, without pressure; where economy of weight is very important, it may be packed in double sacks, (inside muslin, outside gunny or strong osnaburg), care being taken that the bacon is perfectly dry. Mast fed bacon cannot be packed to advantage in this way. Hams and shoulders pack best in round packages, sides in square packages. In all cases, whether in hogsheads, barrels or boxes, bacon sides or hams should never be crowded or forced into their place. They should be carefully laid where they belong. I have seen them pressed in by machinery, filling the interstices with liquid grease.

Hams, when to be used in winter, or for say six months in the year, I have found to keep well when simply packed in tight tierces or whisky barrels, and I have been accustomed to exclude very large hams as more likely to be imperfectly cured, especially about the bone, and not keeping as well as the medium sized ham of 14 to 17 lbs. weight. The safest mode of packing has been found, however, to be to cover each ham with thin muslin, (cotton cloth), packing in tight tierces or spirit barrels, filling the interstices with fine dry salt. Packed in this mode, hams have stood the voyage to California and East Indies admirably well. The sugar or molasses light cured ham, which is most palatable, I think should always be treated in this way at any season, when to be subjected to the exposure of a campaign. The plain salted ham does not require as careful or costly treatment in the packing as this light salted sweet cured meat, on the other hand it is much less acceptable.

Bacon sides should be cut square or nearly so, and no trimming, particularly "back strapping" in ribbed sides, allowed. By this last phrase is meant cutting off wedge-shaped strips, for lard, parallel to and above back bone, thus leaving less proportion of meat. In shoulders and hams the shanks should be cut close, and according to mercantile rules. Bacon should be stored in a cool dark room, and should there be occasion to re-pack in summer, a constant smoke should be kept up, to keep off flies and thus prevent worms, (maggots.) When bacon is to be kept on hand at a post, it should be taken out of the packages and hung up, if possible, in some cool dry place. This is particularly necessary with hams in summer. By following this course, you not only preserve your meats, but improve their flavor. Be particularly careful of flies. Soldiers generally prefer clear ribbed sides, with the backbone taken out at the block, or even ribbed sides, to clear. With ribbed sides, look carefully to quality in inspection, particularly in the summer and fall of the year. Sometimes wormy ribbed sides are cleared, a close inspection will then be required to discover quality of meat. Even wormy hams are sometimes taken, the worms driven in, and partially if not wholly killed by wash and pickle, and then palmed off on the uninitiated as sound. Careful or even casual examination, will develop and expose this kind of fraud. This kind of bacon will rapidly decompose at about the end of four weeks. Bacon should always be smoked in cool weather; if smoked in warm weather, the cells are opened permanently, and it will run and continue to run, until it becomes too thin to be merchantable. Clear sides are not so apt to damage as ribbed sides, as the latter cannot be so thoroughly smoked and cured as the clear. In the fall and winter, the "first smokings" are not so reliable as those smoked afterwards, the merchant being naturally desirous of getting his meats to market as soon as possible, and to get them out of his way: hence it is not expected that he will do full justice to his first lots.

Medium sides, it is thought, are the best for army use. Bacon packed in salt, and in actual contact with it, will bleach; this does not injure its quality, but no doubt it partially destroys its capacity to resist decay, given by smoke. Reject all bacon made from summer saved bulked meat. There are three classes of long sides: 1st. Cut from head to ham, shoulder blade and all other bone out, called long boneless middles or clear middles. 2d. Cut from head to ham, with backbone and shoulder-rib, blade, and leg out, called long bone middles. 3d. Cut from head to ham, with shoulder-rib and backbone out, leg cut off close to brisket, leaving shoulder blade in, called Cumberland cut.

Old hams are often condemned for slight sourness about the bone, when the meat is yet perfectly sound. The skinning or soaking of the ham in pure water, and the careful removal of the whole bone before cooking, would be the means of saving large quantities of hams which with ordinary treatment would be condemned.

Large hams are best to broil. In purchasing hams wrapped in paper, be careful to have such extra heavy tare deducted. Packages containing well protected canvassed hams may sometimes be bored with advantage in warm climates; if the hams, however, are not canvassed it should not be done; and in *no* instance will it answer to bore the packages of bacon sides or shoulders.

SALT BEEF

Is only good when new; after a year it becomes dry and tough, particularly if made of ordinary cattle.

In St. Louis, Cincinnati, New York, and Boston, mess beef, to pass inspection, should be packed from well-fattened cattle, weighing each about six hundred pounds nett, as one ox independent of the rounds and parts excluded should make two barrels of beef. A barrel of mess beef is composed of six coarse pieces, (the shoulder of mutton making two pieces,) and the balance of first quality pieces; or an equal proportion of fore and hind-quarter cuts, excluding in the forequarter the neck, shoulder clod, and shin, and in the hind-quarter the shin. For the navy, the shoulder of mutton is excluded, and th^e end of the sticking piece.

In New Orleans, one barrel mess beef contains 3 sirloin pieces, 3 standing rib pieces, 2 rump pieces, 1 round piece, and the balance briskets and plates.

In New Orleans beef cuts up as per diagram, page 15.

16





The letters M and P indicate, in this cut, what parts are used for mess and prime beef. If the briskets, plates, and flank alone be used, it makes Family Beef. The flank, however, is only allowed in F. B. if of fat cattle.

Beef should be cut as square and smooth and as near 8 pounds, each piece, as possible.

The number of cuts will depend on the weight and size of the cattle. In the plate showing the

method of cutting the beef, in New Orleans, the cuts are supposed to be on the back-bone, from six to six and one half inches.

After cutting, instead of packing in barrels from the block, it is much preferable to pack in casks, with a little fine salt between each layer, with about four ounces of saltpetre to every 200 pounds of beef. Fill up the cask with brine, and let it remain three or four days, or until all the blood is completely purged out. When taken out to pack, allow the pickle to drain off before weighing; 204 pounds to a barrel will then be enough; but if packed from the block (a bad method) 208 pounds will be necessary to allow for shrinkage. If packed from the block the bloody brine should be drawn off five or six days after packing and the barrels filled again with good, clean, strong, pure brine. In packing, place the pieces on their edges, with salt between each layer, and finish with nice, smooth, first quality pieces, (plates and briskets, standing rib, or rump,) with good capping of salt. Saltpetre should not be used in any except the first brine. For re-packing beef, if the old brine is sound, sweet, and free from bloody matter, it is best to use all, or at least the greater part of it. For testing the strength and quality of the brine, use an egg, etc., as in pork.

There is a great variety in the quality of mess beef, as sold in market, arising from the difference in the age, weight, and kind of cattle slaughtered. With pork, it is different, as hogs are more uniform in size and weight.

For immediate issues to troops, corned beef answers exceedingly well, and is generally preferred by them. In large cities it can be procured, though the cuts are usually irregular, and coarse pieces are frequently mixed with the lots by butcher's having stalls in market.

It is very important that beef, as well as pork, should not be exposed to a summer sun. Oak barrels are much the best for beef, though white-ash are sweeter, and make nearly as strong a package as oak.

FRESH BEEF.

Contracts for fresh beef should require steers, (not bulls, stags, heifers, or cows,) and over four years of age, weighing ordinarily 500 pounds each, nett. Fat heifers might be received, as beef from animals of that kind is first quality, but the best way is to take only steers. In time of war, the right should be reserved to the Government to slaughter, and use for the troops all captured cattle. Old fat cattle are preferable to young fat cattle, the beef from the first kind of animals being more healthy for troops.

Great care should be exercised in the management and killing of beef cattle on a march, or after a drive. When possible, the cattle should not be killed until they have rested and cooled after driving. After being slaughtered, the beef should hang for at least 12 hours. It is then more tender and healthier, and the shrinkage (which is usually 2 per cent.) will have taken effect before issue. In taking Northern cattle to a warm climate, great attention should be paid to their care, as they are liable to a "flux," which soon kills them; of course, if killed in this diseased condition the beef is *infamous*.

Contractors frequently include the necks and shanks in their deliveries, though those parts may be *expressly forbidden* as a part of the beef to be received by the written contracts.

Some fixed rule should be adopted by authority for cutting off the neck and shank, as contractors differ in regard to the exact line where the division should be made.

The "fifth quarter," hides, tallow, horns, &c., should be carefully cared for, by salting the hides and hanging them up in a dry, cool airy place, under roof; (where there is danger of flies, the whole tail should be cut off from the hide.) These hides should be sent to market, with all the rendered tallow, &c., and if on account of the Government, the returns *honestly* taken up and accounted for in the monthly papers.

In receiving cattle on the hoof by the pound gross, they should be weighed on scales whenever practicable. To prevent frauds by "salting," they should be kept in a dry pasture for eight or ten hours. and without other food than short grass, and without water, before weighing. If "salted," they fill themselves with water, and weigh (if promptly weighed) from 60 to 70 lbs. more in that condition. The only safe course is to require the contractor to rest his cattle some five or six days after arrival, and before delivery to the Government. This is particularly necessary if the cattle have been brought on by cars. by which method of transportation they frequently become feverish and tired, and if offered food, &c. then, they will refuse it. but when rested, at the end of one or two days they will fill up astonishingly. Justice to all parties, therefore, demands delay until the animals are healthy and in normal condition. All rough coated cattle, and ragged cattle, should be rejected. As a general rule, it is best for army purposes to contract for nett fresh beef delivered at the camps, as then it is the interest of the contractor to keep such cattle as he may drive with the army in as good condition as possible, though in many cases it is an advantage to have contracts for cattle on the hoof.

More attention should be given by regimental, and particularly company officers, in regard to the quality of the beef furnished to their men by the contractors; and though it is easily obtained, they rarely get the quality of beef contracted for. Copies of the contract can always be obtained, and thus the contractor promptly checked, if the officer is not too indifferent to his duty. Care should also be taken by all officers not to change the diet of the troops too suddenly from sait to fresh beef, producing as it does sometimes diseases of the bowels.

FLOUR.

High ground flour keeps the best. It should be made from strictly sound winter wheat, raised in a warm climate. This is possibly to be accounted for on the supposition that the grain becomes more thoroughly matured in a warm climate, and has less inherent moisture when cut. By the phrase, "high ground," is meant ground coarse, without destroying the life of the flour.

The warmer the locality in which the grain is grown the drier the wheat—a quality absolutely essential to make a good keeping flour. Thus Georgia, the Carolinas, (where there are some splendid wheat regions,) Virginia, and Tennessee, furnish the best wheat for well keeping flour, and in the order named. At present, our best keeping flour is obtained from Southern Illinois and Missouri. The Gallego and Haxall flour, made in Richmond, Virginia, was some years since largely used in the Army for distant points and with great advantage. Valparaiso or Chili flour, keeps well and has been used largely in California.

The different grades of flour can be told on examination by the eye and touch. Flour should be free from dark specks, arising from cockle, a black round seed, and from imperfect grinding, and imperfect bolting, of good strong body, and clear color. A blue tinge shows the presence of smut. The specks from cockle, mustard seed, bran, etc., are easily seen on white paper, pressing the flour into a flat, smooth surface, and carrying it to a strong sun-light. A gritty feeling between the thumb and finger indicates strength, or body. A soft, weak-bodied flour has a pearly, soap-stone feel. The surest test however, if time and opportunity permit, is, to bake some of the flour into bread; this is, in fact, the only sure way to detect grown or Spring wheat.

As an additional test for strength and color, make a dough of a small handful with clean water of ordinary temperature. If this ball "crusts," on leaving it exposed to the air, for twelve or fifteen minutes, and gives you a tough, tenacious dough, it is good, strong flour. particularly if you can stretch this dough into a thin, semi-transparent veil, the thinner the better. If this dough does not "crust." or veil, the flour is not good. For color, let this ball remain thirty minutes, and then examine. A strong flour will not only keep best. but it will make more bread to the barrel. One hundred and ninetysix pounds of flour should make two hundred and seventy-five pounds of soft bread, or one hundred and seventy pounds of pilot bread. Flour, to keep well, should not leave a lump, on working it between the thumb and finger. If you can raise this lump, the flour is damp and will not keep. Flour, after cooling, should be tightly packed by screw or steam power, thereby excluding the air, making as near as possible a solid package; the harder it is packed the better for keeping and stowing in the holds of ships. Loose packed flour, on these two accounts, should be avoided. The best loaf, or hard bread. is generally made by mixing three or four different grades of flour, and of different brands.

Grown wheat is very objectionable-making "running" dough and "clammy" bread. Alcohol will only partially correct its bad properties. A Spring wheat, known as the Canada club, a short. plump grain, makes a very strong flour, popular with bakers, and mixed in equal proportions with winter wheat flour, makes excellent bread, and a large quantity of it per barrel. Sour flour should not, of course, ever be purchased for shipment, though it can frequently be used by bakers to great advantage by mixing with sound. sweet flour, of a different brand. It can be told by having a sharp. acid taste; and, if musty, by smell. No doubt, in many instances, flour is condemned and sold by "boards of survey," which, by being mixed with sweet and fresh flour, would have made the best of bread. Flour is also sometimes condemned by "boards of survey," where only the outer part is wet by immersion, exposure to weather in transportation, or by laying on wet floors. This outer portion, or crust, may be worthless, whilst the bulk of the flour inside is sound and sweet. Even in case of absolute immersion, it will take about twelve hours for water to penetrate to the depth of say two inches.

This penetrated flour forms a crust near the wood, protecting the interior flour. The depth of penetration depends somewhat on the hardness with which the flour is packed and coopered. For soft bread, the drier the grain from which the flour is made the more water it will absorb, and the more bread will it make to the barrel. A gain is sometimes made of ten per cent. in favor of Southern wheat over New York, Canada, or Michigan. Flour is frequently now packed by the miller, short of its proper weight—196 pounds.

Flour should be stored never more than five tiers high, in a large, dry, well-ventilated, cool room. For obvious reasons the second and third stories are best, unless it is to go out again very soon; if such should be the case, it might be best to save handling and broken packages, to store on lower floor. Flour barrels should be *full* head lined, and the staves thick and strong, the heads fitting closely in the grooves; twelve good half round (not flat) hoops of hickory, and the whole barrel complete, should weigh about twenty-three pounds, fully seasoned. The inspection holes should be plugged and then capped. The length of the chimes should be about three-fourths the width of the last hoop. The terms "Family," "Extra," "Fancy," "Extra Superfine," "Superfine," "Middlings," (coarse and fine,) etc., are now so much perverted and changed, in the different markets of the United States, that no fixed general rule can be given so as to classify or explain them, to suit the different localities.

HARD BREAD

Should be made of best quality of superfine, or what is usually known as extra superfine flour, or better of extra and extra superfine, (half and half.) Hard bread should be white, crisp, light, and exhibit a flaky appearance when broken. If tough, solid and compact, it is evident the fault is either in the stock, manufacture, or baking; it should not present the appearance of dried paste. If tough and pasty, it is probably manufactured from grown wheat, or spring wheat of an inferior kind. In all cases, it should be thoroughly cooled and dried before packing. Kiln drying, where practicable, for long voyages, is particularly desirable; but if *really* and *thoroughly* dried *in the oven*, it will keep just as well, and its flavor is not destroyed. To make good hard bread, it is essential to employ steam. The dough should be mixed as dry as possible; this is in fact very essential, and too much stress cannot be placed on it. Good stock. dry mixed, and thoroughly baked, (not "dried" or "scalded,") will necessarily give good hard bread. If salt is to be used, it should be mixed with the water used to mix the dough. Both salt and water should be clean. Bread put up with the preceding requirements should keep a year; but, as a usual thing, our best bread as now made for army use, will keep but about three months. Good bread, packed closely and compactly, should not nett per barrel more than 70 or 80 pounds: should it be heavier than 80 it indicates too much moisture. The thickness of the biscuit is important; it should not be so thick as to prevent proper drying, or so thin as to crumble in transportation. The quality of stock used for hard bread can be partially told by rules mentioned in the article "Flour," as far as they apply. The cupidity of the contracting baker induces him to pack his bread as soon as it comes from the oven, and before the moisture has been completely expelled by drying. Bread of this kind hangs on breaking; it will also be soft to the pressure of the finger nail when broken, when it should be crisp and brittle.

The packages should be thoroughly seasoned, (of wood imparting no taste or odor to the bread,) and reasonably tight. The usual method now adopted is to pack in 50 pounds nett, basswood boxes, (sides, top and bottom $\frac{1}{2}$ inch, ends $\frac{5}{8}$ of an inch,) and of dimensions corresponding with the cutters used, and strapped at each end with light iron or wood. The bread should be packed on its edge compactly, so as not to shake.

CORN MEAL

Should be fresh ground, as it soon sours. Usually it is best to contract for it bolted. The northern, New York, Pennsylvania, and New England yellow corn, (Dutton corn, for instance,) makes the best meal, the Western and Southwestern corn making coarse and tasteless meal.

BEANS

Should always be purchased of the previous years' crop. If they are old they require a long soaking before boiling. New beans can generally be told by their being soft when bitten through. This is not, by any means, a sure test, for they may be damp, and if so, they will not keep. They keep best in bulk, in a large, cool, dry room, second or third story, and well protected from rain. The tendency of new beans, of course, is to be damp, and if barreled they are likely to become musty. It is only about the first of November that I can safely take in new beans, unless for immediate consumption. Beans should be regular in size, and the best kind is what is known by the name of the "Army Bean," a small, white variety of white skin and fine quality. The size of the bean is not so important as it is that they should be of uniform size, in the same lot. I always reject those not uniform in size, as they do not cook evenly. So much is this considered now, that sizeing machines are used, having sieves of different meshes, through which the beans are passed with great rapidity and trifling expense; barrels being placed around to receive each its appropriate size. A suction fan machine is used in Cincinnati, Ohio, by which all unsound beans are separated, for triffing cost, from the sound and good beans, and connected with the sizeing sieves. Beans are sold, in different localities, at 60, 62 and 64 pounds to the bushel, but generally at 62 pounds. The Mexican dish, "Frijoles," is made of red beans partially boiled and then fried. To make bean soup the beans should generally be soaked over night, which takes out an otherwise strong taste. They are then put on the fire, covered with water enough to allow for swelling; when boiling, drain off this water; fill, and set back; this time with a small piece of pork, (one pound of pork to four quarts of beans.) If more pork is used care must be taken by parboiling the pork that the soup is not too salt. Let this boil until the beans are thoroughly done and boiled to pieces, care being taken to add only water enough from time to time, to keep the soup of proper and agreeable thickness; usually four hours boiling will be enough.

Beans should not be kept on hand in large quantities, as they are very apt to become damaged. For ship use beans are sometimes kiln-dried, and when so prepared they no doubt will keep sound for years—they are only more difficult to cook. Beans should always be bought by dry measure, and not by weight. There is frequently a loss in beans by shrinking, not only in weight but also in measure. Beans should be taken out of the barrels occasionally and dried, particularly if they are musty, damp, mouldy, wormy or weevily, though, as before stated, it is best to keep them in bulk if possible.

RICE

Should not be kept over Summer in large quantities if it can be avoided. Until last year, (1862,) the East India, Patna and Rangoon rices have not been thoroughly known in market, relying, as the United States has, mostly on Carolina rice. Weevils will not generate in rice while in " paddy," being, as it were, hermetically sealed in the husk, but they generate in the kernel after beating, and though they do not really injure the rice, except in color, and rendering it floury, yet the sooner it is disposed of the better, after they once make their appearance. The same conditions which operate to give the worm life, will generally continue in the package of rice. The weevil is first a white worm, but as it matures, turns into a black bug, and having consumed its parent kernel, attacks the rest. Their ravages may be checked, and they driven off, by exposing the rice to the sun, on paulins, stirring it frequently so as to expose all parts. Louisiana "Creole" rice, is a soft though rather good cooking rice, and known but little beyond its locality; its berry is broken, and it has not so good an appearance as the Carolina, but cooking proves it to be nearly as valuable as any. The Patna rice is a long, apparently shrivelled grain, particularly when compared with the Rangoon, which is generally a plump grain, frequently quite white and pearly. A good keeping rice should be firm, semi-transparent grain, and not broken. It is supposed, as a general rule, that Patna rice will keep better than Rangoon, though further trials are required before a conclusion can be safely arrived at. Some of the kinds of rice from the East Indies are very superior, such as Batavia Patna, or table rice, as it is called, Rangoon, Akyah and Siam; their value is about in the order above given, the first named being best.

25

Many think the two first named superior to Carolina. Rice constitutes almost the entire subsistence of a large portion of the population of the world. Millions in India subsist upon it; and when it is considered how cheaply it is procured in India, (the Akyah, for many years, not costing more than $\frac{2}{3}$ of a cent per pound on shipboard,) we have the secret of cheap production in the East, and the degeneracy of races who can command no more varied sustenance.

Worms and weevils sometimes make their appearance in badlypacked Carolina rice, as soon as two weeks after it is out of the mills. Rice should always be as fresh as possible and should be packed in good stout oak barrels, well coopered, and if there be danger of weevils from length of time, etc., it should be packed in double gunny sacks, with free circulation of air, with a view to prevent heating, which is the cause of weevils. Rice or flour should never be shipped on the same vessel, as corn or oats, on account of great danger of receiving weevils from those grains. Rice is usually tared at 10 per cent. in casks; a liberal allowance, particularly if scaleage is also granted. Rice is very susceptible of damage by moisture, and therefore should be well packed and coopered, and also well protected in store.

HOMINY.

May be either coarse or fine. Fine hominy is usually better known as No. 4, or Grits. Hominy can be made by hulling first and then screening; or by a dry process, the corn can be cracked, and then screened. The first method gives really, hominy; the other, cracked corn, though *real* cracked corn is manufactured on burr mill-stones only.

If well separated from chits and bran, I prefer the dry process on account of the hominy keeping better. To make grits properly, the large hulled hominy is ground, bolted, and screened; but the dry process is also followed with success, the corn being cracked much finer and then screened with finer sieves, making with yellow corn what is known in the Northern and Eastern States as "Samp."

COFFEE.

Rio coffee is almost always used in the army. It should be regular in grain, bright color, not wanting in strength. New Rio coffee is apt to be rank and strong. All coffee improves in flavor by age, possibly excepting the lowland Rio, (which bleaches by age.) It is never so strong as the upland Rio, which continues green for six months or a year. Upland is therefore the best. It can be distinguished, from its being less regular than lowland, in its being heavier, and if old, by its color. Porto Rico coffee is a better coffee than Rio. Maracaibo coffee is a still better grade, approaching Mocha. Coffee for army use should be of small grain, as soldiers are not apt to parch their coffee sufficiently. A small and regular grain is more easily parched through than a larger one. Deception is sometimes accomplished by soaking Rio coffee, which brings it near the size of Java, and then smoking it, to give it color; it is then sold for Java!! Coffee prepared in this way can be distinguished by the smoky smell, and by being soft on biting it. Mocha coffee is of a small and irregular grain; it is a very strong coffee, and is perhaps more economical for sales to officers than Java. Java being a Dutch possession, Holland is the headquarters for Government Java coffee, as it is also for the manufacture of spurious Java.

Porto Rico coffee, usually green in color, is little used in this country.

The Mexican coffee is a small, rather regular grain, and is usually of about the same value as the Maracaibo coffee.

The India coffees are all excellent, Mocha, Java, Sumatra and Ceylon, and valuable in the order named. For officers use these might be purchased, but for the army it must be Rio or St. Domingo, or both.

Cape coffee is from the Islands. It is a large grain, similar in appearance to Java, not so brown and lighter, greenish yellow. It roasts well and makes good coffee if properly parched. In appearance it is not so desirable. Its mercantile value is usually from one half to one cent per pound below Rio. Green, it has a peculiar aromatic smell. Coffee should always be bought for army use with actual tare. Mercantile rules usually allow but part tare, one and two per cent., and sometimes none. An express agreement should therefore be had on purchase.

For cooling coffee after roasting no water should be allowed to be sprinkled over it; an increase of weight takes place by absorption of water, in some cases of two per cent. In addition to which the aroma and flavor of the coffee is at least partially destroyed, two grand objections, resulting in fraud.

There are honest roasters and grinders, but with the present high prices the temptation to adulterate on the part of those doing the work for the Government is very great. A cheat of four or five per cent. would be profitable, and I am sorry to say the party doing so may find others to justify him in his rascality, for two reasons: first, that it is Government; second, a more reasonable one, that adulteration improves the coffee. In England and France the use of chickory is almost universal, families buying it as they do their coffee, and making their own mixture.

The Southern and Western States use generally Rio coffee, whilst the Northern and Eastern States consume mostly the St. Domingo, which is not so strong and is of milder flavor. A mixture of the two is desirable. For the last year Rio has been almost the only kind obtainable, and though the St. Domingo is unsightly it has borne the highest price.

Coffee should not be stored on ship in contact with pepper or tobacco; either will injure the flavor, particularly pepper.

TEA.

Here it requires a professional taster to decide, nevertheless a few general rules may not be amiss. A good "true" black tea, Oolong or Souchong, will emit a pleasant *tea* smell on blowing, will chew pleasant, strong, and green, and has good leaf. Good "true" green tea is more difficult to describe. It has a pleasant odor, chews pleasant, strong, and green, not streaky or red. Drawing is, however, the best test, when the full odor of the tea can be discovered—strength, size, and kind of leaf, if mixed, &c., &c. To get good tea, proceed as follows: Advertise for "true" teas, (the trade knows what is meant,) take the samples offered and place them in papers numbered from 1 up, or lettered from A down, keeping for your guide a private memoranda by which to know them. These samples give to a professional taster, who weighs accurately a certain quantity of each, draws them in china cups, makes a catalogue, marking against each a number or letter to indicate its characteristics and value, and whether a true or mixed with Ankai tea, and gives you the result. When you are obliged to test tea yourself, weigh out an amount per cup equal in weight to a five-cent piece, place the samples in different cups, pour on *boiling* water, at the same time cover, and at the end of five minutes remove the covers, and taste, &c. No milk or sugar should be used.

The following notes on the selection of Teas, for the U. S. Army contain so much useful information, that I insert them entire:

"The kinds of Tea proper for Army use are *Oolong* and *Souchong*, among the Black Teas, and of the strictly Green Teas, *Hyson* and *Young Hyson* are preferable to *Gunpowder* and *Imperial*, being commonly cheaper, for the same quality. The finer grades of *Natural Leaf Japan Tea*, having no artificial coloring, are undoubtedly a more wholesome article than the Chinese Green Teas, which are always colored with Prussian Blue or Indigo, Turmeric and China Clay, or Sulphate of Lime.

"Tea is examined by inspecting the leaves to see if they are very "dusty," or badly broken, or mixed with leaves of other plants, and by breathing upon a little in the hand, and noticing the odor given off. Good tea should always readily exhale a rich fragrance. A sample should always be "drawn," by putting in a *this* teacup a small quantity of the leaves, (say the weight of a five cent piece, 19 2-10 grains.) and pouring on BOILING water. Let it stand covered, if possible, five minutes, and then notice the color and taste of the infusion, and the color and form, etc., of the leaves. By drawing several samples at once, even an inexperienced person can soon learn to discriminate quite closely. By pouring a second cupful of water on the same leaves, one can judge of the comparative strength of the samples.

"Oolong tea is coarse in the dried leaf, loosely wrapped, and of a dark brown color, sometimes verging toward olive. Where there are many large, light-colored, or heavy, shining leaves, the tea is not so good as where the leaves are more uniform, darkcolored and more closely wrapped. The fragrance reminds one of new hay, but is stronger and spicier. The infusion is light brown in color, and should be perfectly clear. The flavor is to be noticed most carefully, as the most fragrant tea is not always the best in the cup. The leaves of the best Oolong, when drawn, are often quite green and tinged with bright reddish brown at the edges. Oolong is the best tea for general Army use; it is more astringent than Souchong, and has a greater effect on the nerves, etc., and it is less stimulating than Green Tea.

"Souchong is a milder kind of tea, and is used chiefly in the cities under the name of "English Breakfast Tea;" the better grades of it are very rich in flavor, and are perhaps the best for use in hospitals. The leaves are dark brown, almost black, commoniy more uniform than Oolong, smaller, and a little more closely wrapped. The infusion is much darker than that of Oolong, and the flavor as well as the fragrance is very different. Much care is needed in selecting Sonchong, as a poor Souchong is a very poor kind of tea.

"Green tea has a light blueish green color, is closely rolled, and is much heavier than other tea. It should never contain any stems, or agglutinated masses, (Lie tea,) and should be nearly free from dust or comminuted fragments. Hyson and Young Hyson have a somewhat elongated leaf, the latter much the smaller, while Imperial and Gunpowder have the leaves rolled more globularly, Imperial having rather larger leaves than Gunpowder. The color, as stated, page 29, is artificial; it may be rubbed off by the hands; it may be seen in minute particles by a microscope of moderate power, and is visible, as a dust, when the leaves are stirred, or poured into a paper. The infusion is very light colored, the lighter color indicating a finer quality of tea.

"Japan Green Tea, being of natural color, is a better tea when it can be procured of a good quality. It is new in this country, but appears destined to meet with much favor. The leaves are olive-colored, wrapped rather than rolled, and look more like Oolong than like Hyson. It draws very like Green tea, and may well be substituted for it.

"A chest of Souchong tea holds about eighty pounds, and a half chest forty pounds. A half chest of Oolong holds about thirty-eight pounds, and a chest of Green tea about fifty-eight.

"The Cargo,mark, as "Don Quixoto," "Argonaut," "Flying Fish," etc., is the name of the vessel bringing the tes, and the Chop-mark is the number of each "chop" or separate lot of tes in the cargo. The chests of one chop should contain the same quality of tes, though there may be many kinds in one cargo. The adjectives "Fine," "Choicest," "Curious," etc., have ceased to indicate the grades of tea.

"Ankai is a poor kind of Oolong, with many heavy, shining leaves, and little or no fragrance; it is often mixed with various leaves.

"Ning-Yong is the common kind of Oolong.

" Oolong is properly the young and delicate leaves only, but the name is now constantly used to include teas made of elder leaves also.

"Bohea is the finest kind of Souchong, rarely seen here; the name is often put on chests of inferior tea through fraud or burlesque.

"Congou is a black tea, like Souchong, but much inferior to good Souchong, of heavier leaf, often reddish in color. Much Congou is sold under the name of Souchong.

"Powchong is any tea in papers, the papers packed in chests.

"Pekce, Caper and Chulan, are all scented teas, those that are good being very scarce.

"Twankay and Hyson Skin are common and inferior Green teas.

"Moyune is a word descriptive of Green teas, having reference to the flavor.

D. C. E."

SUGAR.

A rich, strong, dry, clean sugar is best. The grain should be lively and bright, angular and firm not flat, and of good size. The coffee sugars made by the refiners are generally best for the army, because they are perfectly clean; they are not as strong, however, in sweetening qualities as New Orleans or Cuba sugar. Melado or molasses sugar, a refined sugar, has *no* strength, has fine grain and resembles sand more than sugar. It has large black lumps in it sometimes the size of marbles.

For distant posts, wagon transportation, it is of great importance that the sugar be very dry, as the constant jarring liberates the moisture and molasses of the crystals, and thus what may have been once a tolerably dry sugar becomes a semi-fluid mass.

The Dutch standard of sugar is now becoming more completely recognized in our country. This standard is formed by a Board of Trade or Commission at Amsterdam, who select carefully about every five years samples of sugar, which they place in strong small vials sealed, which are numbered. These vials are distributed over the world. They are kept in a close case, and exposed to the light as little as possible, to prevent bleaching. By reference to these samples, the merchant can order, compare prices, or sell knowingly. No. 12 Dutch standard is adopted for the navy. A *Cuba* sugar, 12 to 15 D. S., will answer very well for the army.

The difference between the Muscovado and Clayed sugar, consists in its treatment after the boiling and purifying processes in the kettles, or pans. The Muscovado being put in hogsheads standing on the head (bored with holes) over cisterns, into which the molasses is drained, the sugar improving in color and quality as the drainage is allowed to continue. For clayed sugar, the same material would be put in earthen pots, shape, inverted cone, with a hole for the drainage of molasses at the smaller end. After the draining has continued for some time, a layer of wet clay is put over the surface of the sugar (larger end of the pot) the moisture of which percolating through the sugar, slowly, (for the clay has the effect of excluding the air and making the operation to be continued almost in a vacuum,) with a very powerful purifying effect. The operation being completed, the sugars are put in boxes and do not after drain, but continue always dry. The molasses obtained by this claying process is much inferior to the Muscovado molasses, is thinner, having less saccharine matter, and is called "Clayed Molasses," selling at lower prices than Muscovado molasses. Thus Muscovado sugar loses much of its strength which enriches the Muscovado molasses, while the clayed sugar is purified more thoroughly with the retention of its strength, or saccharine property, and yielding a thinner and poorer molasses. Refiners always pay a higher price for the clayed sugar for its strength. Confectioners always purchase the clayed sugars, for the same reason. Our New England housewives understand these things, and hence the great bulk of the sugars consumed in that region, are the Cuba Clayed Box Sugars. As the saying is, "they go farther," and in the season of preserving fruits, the consumption of this sugar is greatly increased.

Loaf sugar is best for sales to officers, on account of its not being so liable to become dusty at the posts or on the road as crushed, and it is placed in boxes more compactly. Crushed is apt to absorb moisture and crumble, loaf will not, as it is better protected by the paper in which it is wrapped. Care should be taken to obtain the actual tare in all cases, when loaf sugar is purchased, the paper being generally included in the weight of the sugar.

VINEGAR.

[The parts of this article in quotation marks are selected from Wood & Bache.]

Cider vinegar, if pure, improves in strength with age; it is not generally strong enough when first purchased. Whisky vinegar and cider vinegar are nearly the only vinegars fit for army use, all others being more or less detrimental to health, or liable to some other objection. Cider vinegar can be told only by its sour taste and smell. Whisky vinegar, if properly made, is composed of whisky, sugar, malt, and water, all harmless materials, and the best pickle manufacturers use no other kind. Cider vinegar does not preserve pickles well, and they require frequent scalding. Whisky vinegar, as made, is colorless as water, and nine-tenths of the so-called white wine vin-

egar is simply whisky vinegar. To imitate the color of cider vinegar burnt sugar is used.

"In different countries different liquors are used for conversion into vinegar. In France and other wine countries wine is employed. In Britain infusion of malt, and in the United States for the most part cider and whisky."

Vinegar should be free from all foreign acids and injurious substances, of uniform strength in the lot purchased; and for whisky vinegar taking 28 to 29 grains bi-carbonate of soda to neutralize one fluid ounce. Cider vinegar should also be of about the same strength.

"It should be devoid of free sulphuric acid, as shown by yielding no precipitate when boiled with a solution of chloride of calcium."

As a farther and complete test for free or combined sulphuric acid or sulphates, saturate the vinegar with carbonate of potassa or soda, any lime in solution will then be precipitated as a carbonate. Filter the vinegar, and add a small quantity of pure nitric or muriatic acid, sufficient to make it slightly sour, then add the chloride or nitrate of baryta, and if any sulphuric acid is present a white precipitate of sulphate of baryta is formed.

"The acrid substances usually introduced into vinegar are red pepper, long pepper, pellitory, grains of paradise, and mustard seed. These may be detected by evaporation to an extract, which will have an acrid biting taste if any of these substances be present."

Vinegar which is to be kept some time should be packed in iron bound kegs, painted. If the hoops are of wood they soon decay, becoming wormy also, and if the kegs are painted the evaporation is not so great, and worm holes of small, almost imperceptible size, are filled. Paint should be placed on the kegs under the hoops. For immediate use, ordinary barrels instead of iron bound kegs answer every purpose.

CANDLES.

Tallow candles are only fit for cold climates. In market, there is frequently a great difference between the star or adamantine candles. They should be clear in color, (not mottled from imperfect manufacture,) dry, hard, of crystalline texture and good-sized wick.

33

For Army use they should weigh 6 to 16 ounces, or 12 to 16 ounces. A short weight candle, 6 to 14 ounces, is frequently bought and issued, resulting in either a loss to the Government, or the soldier, or both. Should it not be possible to obtain the full weight candle, 6 to 16 ounces, the 40 pound box. (as marked.) of the short weight, 6 to 14 ounces, making really 35 pounds per box, may be received. By a short calculation it will be seen there is short in a 40 pound box of 14 ounce candles, just 80 ounces, equal to five pounds. The best way is, however, never to receive candles of this kind, but require full weight candles. Should there be reason to suspect short weight, either from size or on account of the paper used in packing, all the candles in the box should be taken out and carefully weighed, and box re-marked. There is often great difference in the weight as marked on the boxes, and the actual weight of the candles, and this difference, as before intimated, is usually five pounds per box. Some candles, however, run as low as 6 to 13 ounces, and even sometimes as low as 6 to 12 ounces. Generally, candles of this kind are branded with fictitious names.

Tallow is frequently mixed with sperm and star candles, which can be detected by the smell and by breaking off a small portion and crushing it with the thumb and fore-finger. If a greasy feeling is left, you can rely on the candles not being pure. Real sperm is nearly dry. Care should be extended to the size and kind of wick, a large wick exhausting the candles more rapidly, giving, however, a better light. The wick should be of sufficient size to absorb and carry up the melted material, preventing cupping and consequent slopping, and not twisted too hard. If a small proportion of an order, for army use, should be composed of candles in cartoon boxes, for sale to officers, considerable convenience would result to those interested. For posts in tropical climates, the hardest kind of adamantine candles should be selected.

SOAP.

The older Soap is the better, if originally of good quality. A large proportion of the soap now in Eastern markets is made of inferior articles, such as fish-oil, skimmings of lard, and other kinds of

34

grease. Bad soap can be told by the smell. The worst kind for soldiers use is that which leaves a sticky feeling to the hand after washing, arising from excess of rosin. In the poorer qualities of soap, the loss in weight by age is much the greatest, and no doubt the most economical soap in the end is that which is, as a rule, the highest in price. The best soap is composed of tallow, or lard, rosin and soda. Soap is now largely adulterated with silica, a liquified quartz; it can be used, when done with skill, adding nothing to the value of soap, but largely to the weight. Prime soap should have 65 to 70 per cent. of fatty matter. (Tallow is the best.) It is made with not more than 50 per cent. of fatty matter, by use of this liquified quartz, or silica, and is dry, hard, and handsome. . So much skill and science is brought to bear upon the manufacture. that chemical analysis is about the only mode of judging of quality. Where rosin is used, it is mostly as an adulterater, though no doubt it assists greatly as a cleansing ingredient. At present prices of material, a first quality soap is made mostly of red oil, obtained in the manufacture of star candles. Soap should be hard and dry, though that is not full proof of quality, as dry and hard soap may still lack strength.

SALT.

Fine Liverpool Salt is generally purchased, though a coarse quality for cooking, is just as good. Salt loses in weight in store, by evaporation. It should be purchased in measured bushels, and a requisition should be composed partly of fine table salt, in small sacks, for officers use, made from Rock salt, ground. The following communication, from a well-known Salt house, containing so much useful informatiou, I insert it entire.

> BOSTON, January 8, 1862, 49 Long Wharf.

MESSRS. HART, BALDWIN & BOTUME:

Gentlemen: Referring to a conversation with your senior, a few days since, in regard to the best kind of salt for packing beef and pork, I beg to say, that in my judgment, Turk's Island Salt, that is well made, and has been out of the pans, or vats, a sufficient length of time to have the crystalization consolidated and well formed, and have the bitter water drain from the salt, is as good, and perhaps would have the

35

preference for packing pork. But, a great fault with Turk's Island Salt is, that it is often brought to market before it is properly crystalized, or the bitter water drained from it, leaving the kernels soft and unsubstantial, and, consequently, it dissolves too quickly, when used in packing pork, to keep the pork hard or the pickle sweet. A very strong brine is not sufficient to keep pork sweet for any great length of time, but it is necessary to have salt of a sufficiently hard crystalization, that it will not all dissolve quickly, but a part of it remain in kernel between the layers of pork, to dissolve a certain animal fluid, or juice, that, for a great length of time continues to flow from the pork. It is also necessary that salt should remain undissolved in the pickle to keep that fluid sweet. When the best quality of Turk's Island salt cannot be had, such as I have described above, then I should recommend first quality Marsala salt to be used in its stead, for packing pork. In truth, I have my doubts, but that the Marsala salt is nearly equal to the Turk's Island salt for packing pork, and I am convinced it is quite equal, except the Turk's Island salt be of very superior quality. For packing BEEF, I should much prefer the Marsala salt, as it does not make the beef so hard and cures it better, either for immediate use, or for keeping it good and sound for a long time. A bushel of Marsala salt weighs about the same as a bushel of Turk's Island salt, from 72 to 74 pounds per bushel, while by analyzation, I have demonstrated that there is more pure salt in a weighed pound of Marsala salt, than there is in a weighed pound of Turk's Island salt, as each are imported. Showing that, of the two salts, Marsala is the most free from impurities, or foreign substance. Turk's Island salt is generally preferred for packing pork, for the reason that it is generally better known than the Marsala, among the packers, who frequently argue that as that kind is generally known and recognized, if they pack with it no fault can be found ; and, if they should use a kind of salt, not so well known, and even of superior quality fault might be found with them, and they therefore content themselves by following the old custom, at the risk of it being a bad one. Since I have been in business, the United States Government would have no provisions unless they were packed with either Turk's Island or Saint Ube's salt. Now, there is but very little of the latter kind of salt imported into our market, as it is among the most impure salt that is brought here, and costs higher to import than any other salt.

In my judgment, it is as necessary to have a competent person to select salt, suitable to cure either beef or pork, as it is to have an inspector of beef, pork, or fish. The one is nearly as indispensably necessary as the other.

If, in these hurriedly written pages, I have not given to you the information you desire, I will endeavor to do so more clearly, and more in detail, if you will make known to me, precisely what points, or in what other *particulars* you desire information.

I remain, Very Respectfully,

Your Obedient Servant,

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J. 0.

FOR THE UNITED STATES ARMY.

IRISH POTATOES

Are the best anti-scorbutics. For shipping in summer, cut or bore holes in the barrels. There is as much difference in Irish potatoes as in apples. The white Neshannock potatoe is universally known in the United States as one of the best for fall and winter use, though they do not keep so well as some other coarser kinds. Pink-eyed potatoes, so called, keep altogether the best. They are a very *hard*, *sound* potatoe. Many other varieties are better for ordinary consumption, but none keep as well.

MOLASSES.

Re-boiled Louisiana molasses should be purchased on account of keeping better. If, however, the order is for immediate use, the molasses may be of the ordinary kind, though boiling always improves the quality, by rendering the molasses heavier, and as the kettles are skimmed all impurities are removed; its flavor, however, is not improved by re-boiling. There are many different grades of syrup and molasses. Stewart's Golden Syrup has the preference. Sugar-house molasses (from refineries) is the best kind of molasses. The best qualities of syrup from the refineries are least liable to turn sour.

DRIED FRUIT.

Dried fruits keep best in dark, dry, cool places. Sun-dried fruit is much the best. In packing dried apples leave the threads in. Dried fruit, if screw packed in spirit or whisky barrels, adding one quart alcohol to each barrel, will keep bright and clear of insects a long time. Even when packed in ordinary flour barrels, the addition of the alcohol will be found most advantageous.

The desiccated preparations of Chollet of all kinds are excellent, though our army has taken scarcely any other kind than the mixed vegetables and potatoes. We have in our own country, the American Manufacturing Company, and one other, I believe, who give as good desiccated vegetables as any in the world.

NOTES ON PREPARING STORES

MULE PACKING.

The saddle should be made without iron or tacks, and in the following manner: Two oblong half-inch basswood or pine boards, 15 inches by six, with rounded edges and rounded corners, are tied to two sets cross pieces, say 1¹/₂ by 1¹/₂ inches, made of tough hickory, thus,

SKETCH OF PACK SADDLE, WITH THE FORWARD CROSS PIECES REPRE-SENTED ALREADY TIED WITH GREEN HIDE.



the joint being a mutual halving, and lower ends of pieces bevelled so as to throw out the bottoms of boards to fit the animal's back. A stout belly band, wide and soft, rolled with gunny sacking or other coarse cloth, and a rolled crupper, are required; no breast strap is wanted; the inside of the oblong pieces of basswood are padded with sheepskin tanned with wool on, extending say six inches beyond the boards on each side and ends. A pack saddle tied together in this way, can be repaired at any moment and any place. The halved joints are both tied, not riveted; the two thin boards are brought high enough on the inside and upper edges, to protect the backbone of the animal from the load, say two inches apart.

The "wanty" or packing rope is made of about one-third inch diameter rope, fastened to a well rolled or soft girth, having near the exreme end of the girth a wooden or an iron hook.

SKETCH OF "WANTY" OR PACKING ROPE.



The packages should be if possible in double strong sacks, weighing nearly if not equal gross, say sixty pounds each; two-thirds of them should be hung together, so as to throw over the pack saddle after the animal is saddled. A third package (a box makes a very good third package) is then placed on top and in center. Packer No. 1 then takes the packing rope, or wanty rope, and with a sling under the animal's belly passes the hook to Packer No. 2, who stoops and takes it up. Packer No. 1 then takes the packing rope and with both hands lays it straight across the load parallel with line from mule's head to tail; he then takes a bight of the rope about five feet from the girth, and throws it doubled across the rope as laid on the load. Packer No. 2 seizes the bight and hooks it. No. 1 then draws on the running part of the rope as tightly as possible, assisted by No. 2, who gives him the slack. No. 1 then passes the rope under the left hand lower corner of the load, continuing it under the near side of pack, over or outside of the wanty rope, and thence under the right hand lower corner. No. 2 then receives the wanty rope as first laid, and (No. 1 holding down right hand lower corner,) No. 2 draws hard; he then, still holding the rope, passes back, (No. 1 holding down on the left hand lower corner,) and hauls on the rope until the doubled portion in the center of the pack is partially off the

load, causing the doubled rope to form an obtuse angle. He then quickly passes it under his side of the load from rear to front, *outside* of the wanty rope and up in front, and passes it under the ropes on the top of the load through the angle formed by hauling the top cords "partially off the pack" to No. 1, who receives it, and hauls hard on it, (No. 2 holding down on his left hand lower corner,) and then passing it again under the load and outside the wanty rope on his side under the right hand lower corner, and thence to the top of the pack, where it is tied. Or the end may be tied as represented, and not continued under the right hand lower corner to the top of pack.

VIEW OF NEAR AND REAR SIDE OF PACK, WITH WANTY ROPK AS TIED, (WITHOUT SADDLE.)



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40



VIEW OF OFF SIDE OF PACK, AND WANTY ROPE AS TIED, (WITH-OUT SADDLE.)

This is the^{*}Mexican method of packing, though they use a heavy cumbrous saddle, (an "apparahoe.")

The saddle described is a Rocky Mountain pattern; the saddles issued by the Quartermaster's Department are too long for any known animal. The party I was with in the Rocky Mountains and California for nearly a year, threw these Quartermaster's saddles away; at 'any rate they disappeared, and we obtained the usual Rocky Mountain saddle.

GENERAL REMARKS.

In every case supplies should be packed in the strongest manner. the articles in the packages being so placed as not to shake. The packages should be small and marked with stencil plates with the kind of contents, the name and address of the contractors, gross, tare and nett weights, with other directions, such as to insure their correct delivery. Cooperage is always an economical item of expenditure. Boxes should be strapped with either wood or iron. (in the field possibly with wood, as hatchets can then be used to open.) If they are to be transported to any distant post, particularly by wagons. Hickory hoops and straps are better than oak or ash. Commissary duty requires constant daily care. Coupled with frequent inspections, inventories should be taken at the end of every month, (the officer taking them himself,) of all the stores and property. These inventories should be filed away for reference. If at any time you find on hand damaged stores, the greatest care should always be taken, at once, to separate them from the sound. This is particularly the case with Bacon, Hams, Flour, Hard Bread, Beans, and Rice, when they contain worms or weevils. If no separation is made these pests will invade your good stores, and thus from a want of a little timely caution, all the stores on hand may become unfit for issue. Too great care cannot be taken in this respect, and a frequent (say weekly) close inspection should be made by every officer, who has stores, to guard against their damage. Damaged stores never become any better, they are frequently in the way, and for these reasons they should be disposed of as soon as the interests of the service will permit. Holes bored in boxes or barrels are objectionable, as mice, roaches, etc., get in and injure the contents. In purchasing hams, be careful to get actual tare, not only in the casks, but have the weight of the paper, in which the hams are wrapped, allowed. The weight of paper for one ham, frequently is equal to one-fifth of a pound, and the total weight of paper in a large lot, would thus be considerable. In case you have occasion to boil meat, as pork, to ascertain its loss, begin the boiling in hot water, not cold, the hot water causes the albumen of the meat to become dense, and the juices of the meat are not driven off. In making soup the soldier should be directed to follow the reverse. Where contracts, or purchases, or agreements for rations, are to be made, the advertisement should rigidly require samples, except meats. These samples and the meat should be carefully examined before the awards are made, and if for permanent posts, and the contracts are for delivery there, the receiving Commissary should be given one-half the samples in order that he may be able to compare them with the goods received, from time to time. Papers, abstracts, etc., should as far as possible be kept up to date; vouchers endorsed and filed as they come in, and the day of receipt on every paper received in the office should be carefully placed on it. A daily record, or copy of letters, by means of letter press, should be kept. In default of all this, at the end of the month a huge pile of ill-assorted papers confront the officer. A courteous, kind, and just demeanor, is at all times compatible with strict discharge of duty. Answer all demands at once, and dont delay any business for future action, which can just as well be done at the time it first comes up. Packages should be carefully opened, and after the contents are issued, the packages should, if barrels, be headed up, if boxes the covers should be nailed on again, and all then placed away in tiers, for either future use or sale; they are worth something, though it seems such is not generally believed to be true.

I have, in Florida, derived great benefit from a small Pocket Field Ration Table, of this kind, viz:

	/Pork	₁—ł	gives	number	r of po	ounds.
	Beef	+ł	Ŭ"	"	_	4
1	Bacon	—j	"	"	6	4
1	Flour	+	"	"	"	
	Hard Bread	∔ů	"	"		6
	Soft "		"	"	6	f
	Meal	Ļ	"	"	"	(
	Beans or peas	×`	8-10	gives nu	mber	of quarts.
	Rice or hominy	÷.	10	- "	"	pounds.
Take whole	Coffee, green	÷	10	"	"	- "
number of ra- \langle	" roasted }	×8	÷100	"	"	u
	Tea	+3	<u>-100</u>	"	"	"
	Sugar	÷.	<u>-10</u>	"	"	"
	Vinegar	أف	vio	"	"	gallons.
	Candles star	+1	-100	"	"	pounds.
	Soan		÷100	"	"	
	Salt	$\mathbf{\hat{x}}_{2}$	÷100	"	"	quarts.
l l	Potatoes	$-\frac{3}{7}$		"	ĸ	pounds.
	Molasses	l÷,	2 75	"	"	quarts.

FIELD RATION TABLE.



For warehouses, I like Fairbank's Scales,

with either one lever (as above) or two. For field purposes, Howe's Patent Folding Scale, is far the best yet invented.

The subjects of Meat Biscuit, Pinola, (Cole Flour,) Pemican, Farina, Cooking by means of Steam Pipes extending into barrels and hogsheads or tanks, Commissary Property, etc., form items which may possibly, at some future time, be included in a more extended work of this kind.

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Table showing the weight and bulk of One Thousand Rations.

ONE THOUSAND RATIONS.	NET Weight.	Gross Weight.	BULK IN BARRELS.	Remarks
	Lbs.	Lbs.		
Pork	750	1.253	4.6	
Bacon Sides Shoulders and		-,	1.0	
Hams	750	883	4 5333	
Salt Beef	1 250	2.239	7,6666	
Flour	1 375	1.507	7 0153	I
Hard Bread, in barrels	1,000	1,211	11,1111	
Hard Bread, in boxes	1,000	1.262	9.6	
Beans and Peas	150	162	.6666	
Rice and Hominy	100	108	.5188	
Coffee. green	100	122	.6453	ļ
Coffee, roasted	80	108	.8326	
Coffee, roasted and ground.	80	102	.7592	
Теа	15	19	.16	
Sugar.	150	161	.6	
Vinegar,	80	97	.4121	
Candles, Adamantine,	121	16차	.0888	
Soap	40	44	.14	
Salt,	371	401	.1402	
Desicated Potatoes,	934	1163	.7708	
Desicated Mixed Veg'bles,	62	75	.4342	
Whiskey,	771	91	.4033	
Molasses,	32	341	.1133	
Potatoes,	428 4-7	475 4-7	2.5176	
* 1,000 Complete Rations,	3,157.15	4,012.15	19.4643	
†1 Complete Ration,	3,1571	4.0121		
‡1,000 Complete Rations,	2,541.08	3,414.08	18.2391	
1,000 Complete Rations,	2,916.08	3,659.08	15.6543	

*1/2 Pork; 1/4 Salt Beef; 1/4 Bacon; 1/2 Flour; 1/2 Bread in boxes; Beans or Peas, Rice or Hominy.

†34 Roasted and ground Coffee; 34 Tea; Sugar; Vinegar; Adamantine Candles; Soap; Salt; Molasses; Potatoes.

1 ½ Pork; ¼ Salt Beef; ¼ Bacon; Bread in boxes; Beans or Peas; Rice or Hominy; ¾ roasted and ground Coffee; ¼ Tea; Sugar; Vinegar; Adamantine Candles; Soap; Salt; Molasses.

1 ½ Pork; ¼ Salt Beef; ¼ Bacon; Flour; Beans or Peas; Rice or Hominy; ¾ roasted and ground Coffee; ¼ Tea; Sugar; Vinegar; Adamantine Candles; Soap; Salt; Molasses.

Post or Station.	No. Non-Com. Off. and Sold.	No. of Q. M. Employees.	Total.	Number of Days.	Total number of rations.	Pork or Bacon.	Flour.	Hard Bread.	Beans or Hominy.
Camp Gauley,			20,000	31	620,000	465,000		629,000	310,000
" Warren, at Charleston			2.000	31	62,000	31.000	20,666	31,000	31.000
Camp R'd Hou.			_,	01		,,		, , , , , , , , , , , , , , , , , , , ,	,
at Winfield,	940	4	944	31	29,264	14,632	5,252	29,264	14,632
Virginia	980	4	984	32	30,504	15,252	23,250	15,252	15.252
Credo, Va			1,500	31	46,500	23,250	31,000	23,250	23,250
Gallipolis, O., For sales to			1,000	31	31,000	15,500	5,000		15,500
Contingenc's.				31	10,000	5,000		5,000	5,000
Extra issue,						•••••			
Total No. of rat	ions	s re	equired	·	829,268	569,634	95,168	723,766	414,634
						Lbs.	Bbls.	Lbs.	Bush.
Quantity in bul	k re	qu	ired,			427,225	668	723,766	1,040
Probable quant	hand,.	None.	700	None.	None.				
Quantity to be	supj	pli	ed,			427,225	None.	723,766	1,040

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Nore.-The letter transmitting this requisition should state the date when the stores should arrive at their destination.

troops and Employees of the United States, at----in

NUMBI							
Rice.	Coffee.	Sugar.	Vinegar.	Candles.	Soap.	Salt.	Remarks.
310,632	310,000	620,000	620,000	620,000	620,000	620,000	7th O.; 8th Va.
31,000	46,500	62,000	62,000	62,000	62,000	62,000	34th Ohio.
14,000	21,948	29,264	29,264	29,264	29,264	29,264	4th Virginia.
15,252 23,250 15,500	22,878 34,875 23,250	30,504 46,500 31,000	30,504 46,500 31,000	30,504 46,500 31,000	30,504 46,500 31,000	30,504 46,500 31,000	5th " 41st O. Sec. Ar.
5,000	7,500	10,000	10,000	10,000 12,000	10,000	10,000	
414,634	466,951	829,268	829,268	841,268	829,268	829,268	
Lbs.	Lbs.	Lbs.	Galls.	Lbs.	Lbs.	Bush.	
41,463	46,695	124,390	8,292	10,515	33,170	518	
None.	None.	None.	10,000	None.	None.	None.	
41,463	46,695	124,390	None.	10,515	33,170		

Capt. and C. S.

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47

No. of Wagon.	NAME OF TEAMSTER.	Contents.	NETT Weight, &c.	
		Tierces, Bacon,	lbs.	
		Boxes Hard Bread,	"	
		Barrels Sugar,	lbs.	
		Sacks, Coffee (roasted,)	"	
		Boxes, Hard Bread,	"	
		Tierces, Bacon,	lbs	
		Barrels, Salt,	"	
		Barrels, Vinegar.	"	
		Boxes, Hard Bread,	"	
		Barrels, Beans,	bush.	
		Barrels, Rice,	lbs.	
		Barrels, Sugar,	**	
		Half Chests Tea.	u	
		Boxes, Candles,	"	
		Boxes, Soap.	"	
		Boxes, Hard Bread,	£1	
		Tierces, Bacon,	lbs	
		Sacks, Coffee (roasted,)	"	
		Barrels, Sugar,		
		Boxes, Hard Bread,	"	

Form for Wagonmaster's use:

TOTAL QUANTITY.

Pounds Bacon, Pounds Hard Bread, Bushels Beans, Pounds Rice, Pounds Coffee (roasted,) Pounds Tea, (Signed,) Pounds Sugar, Gallons Vinegar, Pounds Candles, Pounds Soap, Bushels Salt, Gallons Molasses.

Capt. & C. S.









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