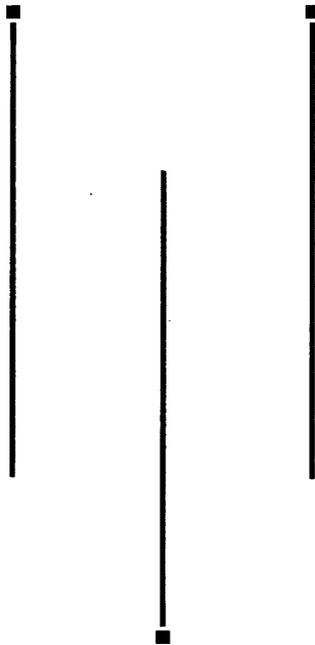
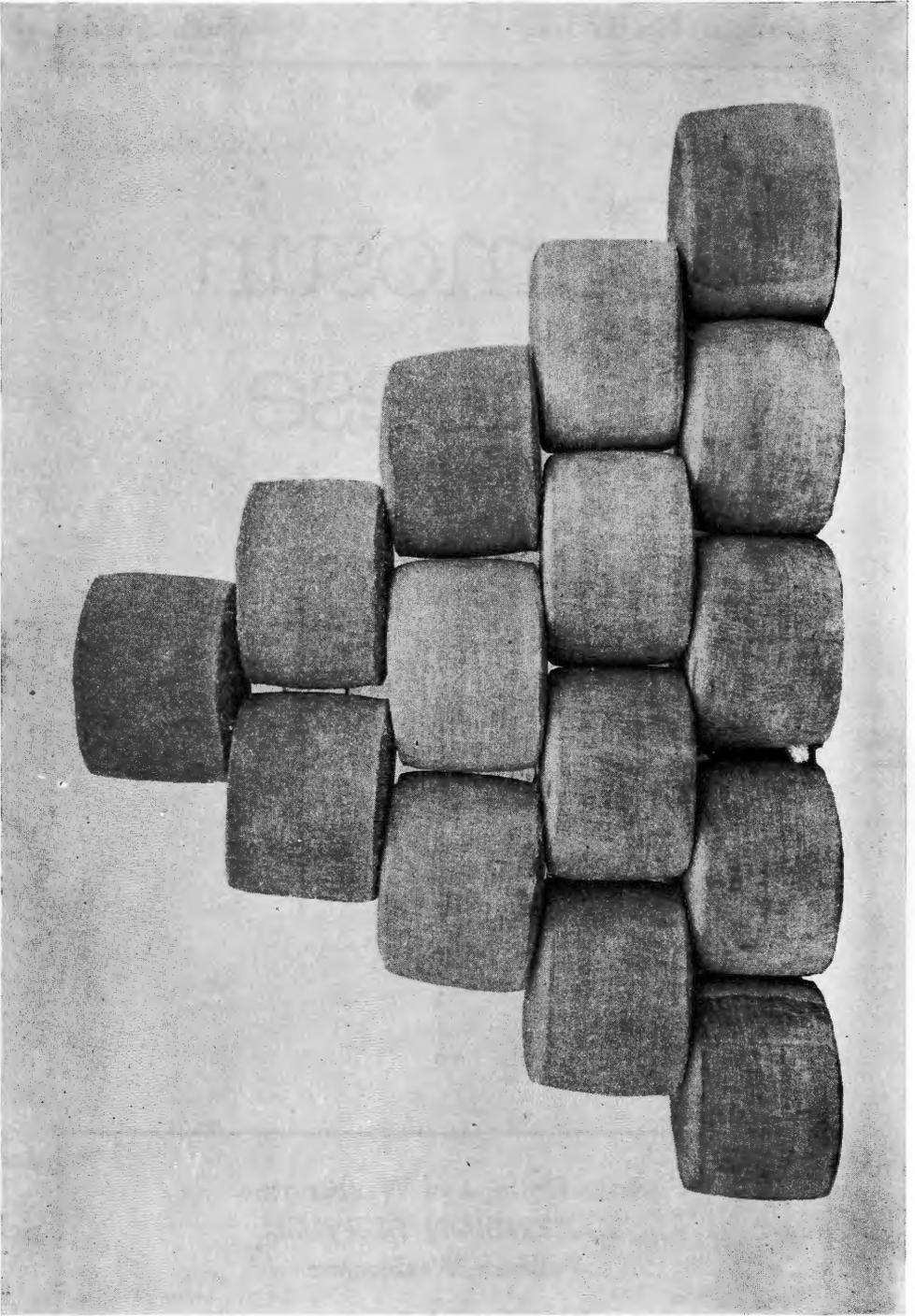


# Camosun Cheese



State College of Washington  
EXTENSION SERVICE  
Pullman, Washington



A Pyramid of Camosun Cheese.

# CAMOSUN CHEESE

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## Introduction

The manufacture of cheese on the farm throughout the United States has become largely a lost art due to factory cheese making. However, at this time, when incomes are reduced and milk prices low, many farmers feel they would like to make some of their surplus milk into cheese for home use. In order to make cheese on the farm suitable for either local marketing or home use, a method as simple as possible and inexpensive utensils must be employed. The entire process should require a minimum of time. It is for the purpose of supplying such a cheese that this bulletin is written.

The reason for not recommending American Cheddar cheese for farm manufacture is due to the required acid control throughout the manufacturing process. This necessitates considerable training and extra apparatus. Further, Cheddar cheese has a more or less accepted standard of quality which is not attained without considerable practice.

Camosun cheese belongs to the type of cheese similar to the Gouda of Holland and the Jack cheese of California. These have little or no acid developed until the curd is in the cheese molds and being pressed. The whey or moisture is chiefly expelled due to the fineness of the cut and the temperature of scald. The brine salting after the lactic acid has been formed further reduces the moisture so that the resulting cheese contains about the same moisture as a Cheddar. The ripening can be carried to as full a cheese flavor, but the texture is more open and quite different from a Cheddar.

## Apparatus

To assist those who are contemplating Camosun cheese making, two sets of apparatus are listed:

1. A set of regular utensils suitable for a farmer who wishes to make cheese daily for a considerable time.
2. An improvised set of utensils costing little, being chiefly borrowed from the kitchen.

### Regular Utensils (Figures 1 and 2)

Boiler capable of heating, say, 10 gallons of water and suitable for a farmer producing a maximum of 25 gallons of milk daily; (1) cheese-vat of suitable capacity, preferably with a water-jacket on the outside to facilitate the cooking or scalding of the curd; (2) strainer to be used when running off the whey; (3) drainage-rack made of  $1\frac{1}{4}$ -inch wood slats with  $\frac{1}{2}$ -inch intervals which will either fit across the vat or lengthwise in the vat; (4) movable sides of wood 6 to 8 inches high to fit over the rack; (5)  $\frac{1}{2}$ -inch

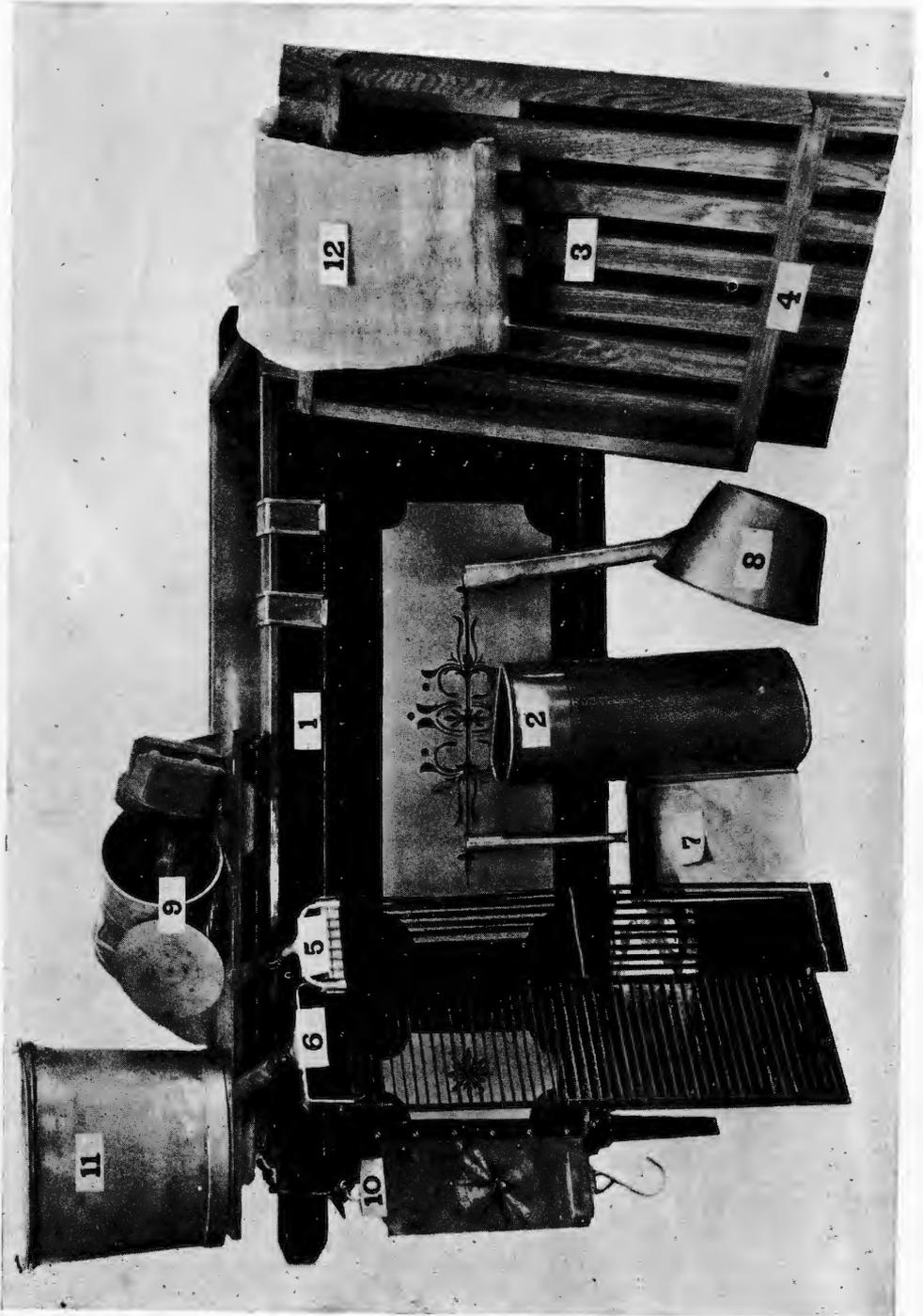


Figure 1.

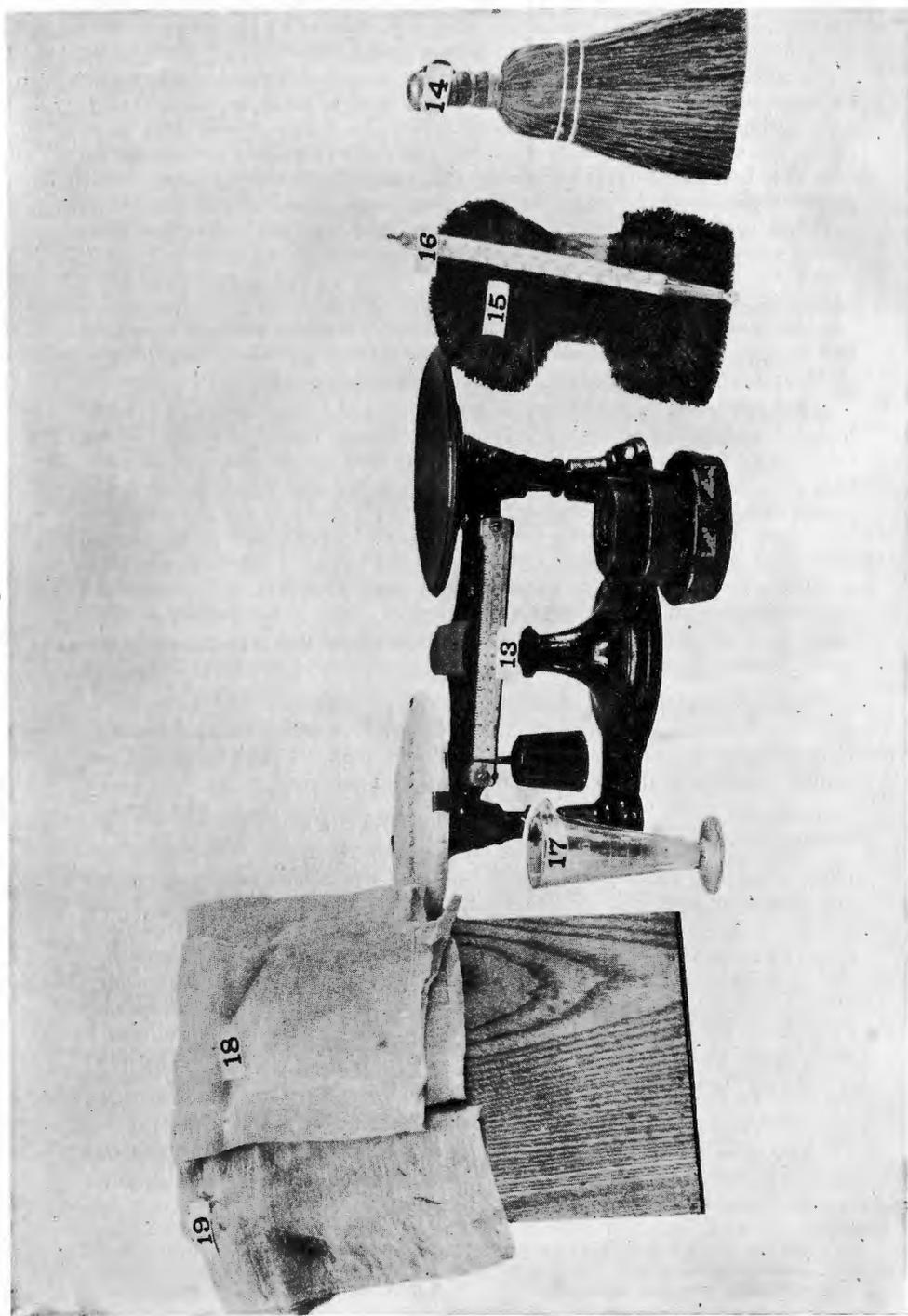


Figure 2.

American curd-knives, vertical; (6)  $\frac{1}{2}$ -inch American curd-knives, horizontal; (7) curd-ladle or scoop; (8) dipper with handle of medium length; (9) cheese-molds and followers to take one day's make (size, diameter at top, 6 inches; diameter at bottom  $5\frac{7}{8}$  inches; height, 7 inches); (the regular Cheddar brick mold can often be obtained and is quite as satisfactory); (10) spring-scales to weigh to 60 pounds; (11) 4-gallon pail; (12) large coarse linen cheese-cloth to fit over the curd-rack; (13) small scale to weigh salt; (14) curd-brush; (15) vat-brush; (16) dairy thermometer; (17) 1-ounce measure graduated in drams; (18) coarse linen cheese-cloths (2 x 2 ft.); (19) fine cotton cloths (2 x 2 ft.); one or more 4-gallon crocks for brine salting.

#### **Improvised Utensils\***

The amount of milk available may not in all cases warrant the installing of the equipment detailed above at the outset. It is possible to use improvised apparatus and with care attain considerable success.

The hot water required may be heated on the kitchen stove in a kettle or wash boiler, and an ordinary 10-gallon canning boiler or clean wooden tub may be improvised as a cheese-vat. The curd can be cut with an ordinary carving knife. Take a shallow pan with a few clean, well boiled sticks on the bottom. Place the drainage cloth over the pan and dip the curd into the cloth. This prevents the curd lying in the whey while being stirred. Scales for weighing are usually available in the house. It would be desirable to have a few cheese-molds made in every case. However, a 10-pound lard pail punched with holes from the inside will make a satisfactory cheese-mold, the follower being cut from a round block of wood.

#### **Supplies.**

Cotton cheese-cloth for bandaging; bottle of cheese color; bottle of rennet; small sack of dairy salt; flour for paste. A good standard make of rennet should be obtained either in the liquid or in the solid form, and directions supplied with it carefully read.

#### **Milk for Cheese.**

Good, clean sweet milk is the first essential for success. Care and cleanliness in milking and the use of pails and cans which have been well cleaned and sterilized with boiling water or steam is imperative. Thorough and quick cooling of all milk not being made into cheese within two or three hours after milking is necessary. Generally, it is best to make the milk into cheese daily, using the evening's and morning's milk mixed. In the winter, when the supply is low and thorough cooling is practiced, the cheese may be made every other day. When only the whole or part of one milking is being made into cheese, use the warm milk within an hour or two after milking as time is saved in reheating.

#### **Room for Making Cheese.**

The room for making cheese should be just comfortably warm and well ventilated. Where a farmer is not making sufficient cheese to warrant a special room the kitchen may be used instead.

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\* In actual practice, it has been found that (provided they have a good thermometer and reliable cheese rennet) most farms have available suitable equipment for making 5 to 10 pounds of cheese at a time.

### **Commencing the Making Process.**

The cold night's and warm morning's milk are strained into the cheese-vat or boiler, the quantity being determined by weight. (The vat may be graduated or a measuring stick may be used.)

### **Starter.**

The cheese is often made without the use of a starter. Unless the milk is particularly clean there is always the possibility of developing an undesirable fermentation with the consequent spoiling of the cheese. Whenever it is possible, a good clean starter of lactic acid organisms should be used. Such starter is strained into the milk in the proportion of  $\frac{1}{2}$  to  $\frac{3}{4}$  pounds per 100 pounds of milk.

**Note:** Directions for making the starter are often furnished with the bottle of mother starter. However, should these not be available, methods for the preparation of starters may be found in any good book on cheese or butter making.

### **Heating to Renneting Temperature.**

The milk is heated to between 88 degrees and 90 degrees Fahrenheit. This is done by putting boiling water into the jacket of the vat or by standing the canning boiler used as a vat on the stove, stirring the milk from time to time in order to prevent the rising of the cream. When the boiler of milk is put directly on the stove, to prevent burning it should not be placed directly over the fire.

### **Color.**

Cheese color at the rate of 1 dram (i.e. 1 teaspoon) color to 40 pounds milk is now measured out, diluted to ten times its volume in water and added to the milk. The color must be well stirred to insure its being evenly distributed. Color affects only the appearance of the cheese and does not improve the quality or food value in the least. It can be left out if a white cheese is preferred.

### **Renneting.**

To coagulate the milk, rennet is used in the proportion of 1 dram (i.e. 1 teaspoon) of standard liquid rennet to 25 pounds of milk. As all rennets are not up to standard, the quantity required may not always be the same. A good rule in the making of the cheese here discussed is to add as much rennet as will coagulate to the right degree of firmness in from 30 to 35 minutes. The correct quantity of rennet having been measured out, it is diluted to ten times its volume in cold water. The milk in the vat at this stage should be at a temperature of 88 degrees to 90 degrees Fahrenheit. The rennet is added and well stirred for three minutes. From this time until coagulation begins it is desirable that the surface of the milk be gently agitated in order to prevent the rising of the cream. On the approach of coagulation the milk is observed to be thickening and bubbles produced by a gentle flicking of the finger do not break at once, but remain on the surface for a few seconds.

Great care should be taken not to stir the surface too much or a smooth coagulum will not be obtained. The vat is now covered with a cloth or board and left perfectly still for the milk to complete coagulation. The time required will be almost exactly twice as long as from the time of renneting to the first signs of coagulation.

### Cutting the Curd.

When the coagulum is firm and springy and will break over the finger with a clean fracture, it is ready to cut. The curd is cut into  $\frac{1}{2}$ -inch cubes. This is done by cutting first lengthwise with the vertical curd-knife and then across, following with the horizontal curd-knife either lengthwise or across. The main object is to cut the curd into even sized cubes and not have irregular pieces which would firm up unevenly. Though an even cut is desirable, quite uneven sized cubes cut with an ordinary carving knife will make good cheese.

### Stirring the Curd.

The curd must now be stirred by hand to keep each little piece separate, and as it is still soft this has to be done slowly at first to prevent further breaking. In about ten minutes the curd will be distinctly firmer. The curd sticking to the sides and bottom of the vat can then be cleaned off with the hand while still continuing to stir. Gradually the pieces of coagulum (or as they may now be termed, curds) are firming up and expelling the moisture or whey. The curds are by this time, say fifteen minutes, so firm that if stirring ceases they sink into the surrounding whey.

### Scalding or Cooking the Curd.

The objects of scalding, heating or cooking are: (1) To firm up the curd; (2) to expel the moisture gradually and uniformly.

Scalding is done by pouring boiling water into the jacket of the vat. During scalding, the curd must be stirred all the time so that the particles are kept separate and are not allowed to mat together. A floating thermometer is kept in the vat and the temperature of the whey and curd gradually raised to between 98 degrees and 104 degrees Fahrenheit. The final temperature is spoken of as "the scald." On account of the variations in milks used for cheese making, and taking into account the temperature of the surrounding atmosphere, the temperature of the scald has to be varied to some extent. It is desirable, however, when once the most satisfactory temperature has been arrived at, to keep as near to a standard and uniform scald as possible. A scald of 102 degrees Fahrenheit is usually found satisfactory during the winter months, and 2 degrees or 3 degrees Fahrenheit lower during the summer. Where a vat with a jacket is not used, whey free from curd is ladled out of the vat and heated up in a pan or pail on the stove to a temperature of 130 degrees Fahrenheit, the hot whey being gradually poured back so as to heat up the curd and whey to the above mentioned scalding temperature.

The scalding process should take about 15 to 20 minutes but if the milk is inclined to be too acid this should be hastened. Stirring is now continued for from thirty to forty minutes till the curd becomes firm enough to pitch or sink to the bottom of the vat. At this stage the curd is somewhat tough, sinks rapidly, and in stirring feels firm to the touch. If some curds are pressed together in the hand the mass holds together, but on shaking the pieces readily separate. At this stage the stirring is stopped and the curd is allowed to pitch.

Note: Mechanical stirring may be used provided the curd is hand stirred for the first ten minutes. A mechanical agitator should not be vigorous enough to break up the particles of curd.

### **Dipping or Running Off the Whey.**

Ten minutes after pitching, the whey is drained off through a strainer or coarse cloth and the curd scooped out onto the large coarse cloth covering the drainage rack. The curd is now stirred for five to ten minutes till fairly dry, to prevent matting together of the particles and to help drainage.

### **Molding the Cheese.**

Small coarse cloths are placed in the molds into which the curd is packed. If uniform cheeses are to be made the curd must be weighed into each mold. About 5 to 5¼ pounds is the right amount of curd for the round molds of the size specified in this bulletin. The standard Cheddar brick mold will take about 6½ pounds of curd.

### **Pressing.**

The followers are put in place and each cheese put under a pressure of 14 pounds. This is done by placing two bricks on the follower or by the use of a simple home-made lever-press (see Figure 3). In 15 minutes the cheeses are turned and put under a pressure of 21 pounds, the same coarse cloth being used. Forty-five minutes later the cheeses are again turned, put in fine cloths, and placed under a pressure of 28 pounds for four hours. If the standard Cheddar brick mold is used the commercial bandages supplied with these molds can be pressed on the cheese in place of the fine cloths. After this no more pressure is given, but the cheeses are turned, shaped up with a knife if necessary, and left in the cloths in the molds till next morning. The cheese should be kept in a warm room (i.e. about 60 degrees to 70 degrees Fahrenheit) during pressing. If they cool off quickly the curd will not be evenly compressed, the whey will not be uniformly expelled, and small holes will be left on the outside where the curd has not come together.

### **Bandaging.**

Next morning the cheeses are taken out of the molds and bandaged by pasting strips of cotton cheese cloth on the sides, and round pieces on each end. The bandage for the sides should extend over the ends about ¾ inch and be put on first, having them sufficiently long to go round the cheese and extend over 1 inch. The paste for bandaging is made with flour and boiling water.

### **Brine Salting.**

Brine salting has been found to give better results than dry salting. About 48 hours after the cheese has been made it is immersed in a 18 per cent brine (i.e. 18 pounds of salt to 82 pounds of clean cold water or in that proportion) for a period of 30 hours. This brine can be used for several lots of cheese but gradually becomes weak so more salt must be added. Do not use any old brine which has an off smell or is dirty.

### **Paraffining.**

When the cheeses are perfectly dry on the outside and ready to go to the ripening room they may with advantage be paraffined. This is done by dipping the cheese into hot melted paraffine for 5 to 6 seconds. The paraffine forms a coat on the outside which prevents loss of moisture. Mold growth on the outside of the cheese is prevented.

SIMPLE LEVER PRESS IN OPERATION



Figure 3.

### **Ripening Room.**

The ripening room should be fitted with convenient shelves, so that the cheese can be frequently turned. The temperature of the ripening room should be between 50 degrees and 60 degrees Fahrenheit. It should be fairly moist so that the cheeses do not dry out. An underground cellar is likely to be even in temperature, sufficiently moist, and usually available on the farm. Higher ripening temperatures are objectionable to all cheese. However, Camosun will withstand such temperatures better than many others. During ripening or maturing, the cheese should be turned daily for the first week. This may be extended to once every 3 or 4 days as the cheese becomes older.

### **Marketing.**

The cheese should be ripe in from one to three months, depending on the moisture in the cheese and the temperature of ripening. Excessive moisture and high temperature encourage quick ripening, but such conditions tend to increase the possibility of the development of an undesirable flavor. If cheeses are to be sold, they should reach the retail store a week before they are at their best. The cheese looks more attractive if the bandage is removed before sale, but this should not be done until the cheese is almost ready to eat. Where a trade can be developed and the cheeses are retailed without cutting, an individual cardboard package with a printed name on the lid will be found to attract customers and bring a better selling price.

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