THE MANUFACTURE AND CONSUMPTION OF CHEESE.

By Henry E. Alvord, M. S., C. E.,

GROWTH OF THE INDUSTRY.

Cheese making is not a conspicuous industry in the United States, yet it is a considerable one, cheese being an important article of trade, domestic and foreign. In the early part of the present century, cheese was the principal product on many dairy farms in the Eastern and Middle States. It accumulated on the farms and was moved to market only once or twice a year, then creating quite a stir in certain centers of traffic. Exports of cheese from America began more than a hundred years ago, and in the year 1800 the quantity had reached nearly a million pounds. Production and export then grew quite steadily, both increasing rapidly at times, until about fifteen years ago. The total cheese production of the country was reported for the census years of the last five decades as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1849</td>
<td>105,535,893</td>
</tr>
<tr>
<td>1859</td>
<td>108,663,927</td>
</tr>
<tr>
<td>1869</td>
<td>162,927,382</td>
</tr>
<tr>
<td>1879</td>
<td>243,157,850</td>
</tr>
<tr>
<td>1889</td>
<td>256,761,883</td>
</tr>
</tbody>
</table>

The relation of these figures is shown by the following diagram, where the entire surface of each rectangle represents the production of the year stated, and these surfaces compared indicate the increase from decade to decade:

Fig. 120.—Diagram showing increase in cheese production, 1849-1889.

This diagram also shows graphically the great change in the system of making cheese, which has taken place during the last half century. The shaded portion of each rectangle represents the cheese made in factories, and the unshaded part that which was made on farms.
Prior to 1850, practically all of the cheese of this country was made on the farms where the milk for it was produced; it was simply an article of domestic manufacture. About the year 1860 the cheese factory came into vogue as an improved and economical system for cheese making. Wherever the idea may have actually originated, it was first fixed upon the public mind and developed in the county of Oneida, New York. Once established, the advantages of the associated method became manifest, and the spread of the "American," or "factory," system was very rapid. So much so that in 1869, two-thirds of the cheese of the country was made in factories. The proportion of cheese now made on American farms is insignificant, compared with that made in factories.

At the present time it requires the entire milk of nearly 1,000,000 cows to make the cheese annually pressed in the United States. This is based upon an annual yield of about 2,800 pounds of milk from a cow, on an average, with a rate of 10 pounds of milk to a pound of cheese. At 9 to 10 cents per pound, the average value of cheese per cow is not over $27 per annum (a little more than the value of the average cow), and the total product of the country is worth from $24,000,000 to $25,000,000. These figures are only approximately correct. To the annual cheese product of the United States, 260,000,000 pounds, may be added 9,000,000 pounds of imported cheese, and 76,000,000 pounds being exported, leaves something less than 200,000,000 pounds yearly consumed by the people of this country. The rate of consumption here is therefore about 3 pounds of cheese per capita of the entire population. In some districts where the supply is abundant and of good quality, there is reason to believe that the maximum rate of cheese consumption for well-to-do communities is 7 to 9 pounds per annum, or about 40 pounds for the family of average size.

Nine-tenths of the cheese produced in this country is made in the States of New York, Wisconsin, Ohio, Illinois, Vermont, Iowa, Pennsylvania, and Michigan. These rank as to production in the order named, and no other State produces over 5,000,000 pounds a year. The last four States named produce 5,000,000 to 6,000,000 pounds each, and the others from 10,000,000, for Illinois, up to 124,000,000, for New York. The New York product alone is almost one-half, and this State and Wisconsin together make over two-thirds, of the total of the country. There have been a good many changes in relative production in recent years, Ohio, Illinois, and Pennsylvania having decreased their annual cheese product from one-third to one-half since the census of 1880.

For a long time New York State cheese held first place in reputation and market prices, but Wisconsin rose to an equal position in 1878, and maintained it, excepting for a few years, when the manufacture of imitation or lard cheese in this State was so largely carried
on as to greatly injure this reputation. State law having prohibited this industry, Wisconsin factory cheese is now regaining its former standing. These two States have such a preponderating influence that they give character to the entire cheese output of the country.

MANUFACTURE AND COMPOSITION OF CHEESE.

In America cheese is made of different sizes and shapes, and is of numerous kinds. A number of the varieties commonly associated by name with foreign countries are imitated with more or less success. The great bulk of the American output, however, is of the familiar round form, 14 to 16 inches in diameter and from 4 to 12 inches thick, ranging in weight from 30 to 80 pounds, with an average of about 60 pounds, and of the same texture and appearance throughout. This form takes the name of Cheddar, from a parish of that name in Somerset County, England, long famous for producing cheese of the same general character and style, and made in substantially the same way.

Cheese may be made from sweet or sour milk. The milk may be in its natural condition or skimmed fully or in part, or it may be enriched by the addition of cream in excess of that belonging to it. The different varieties of cheese depend upon the character and condition of the milk used, upon seasoning, upon peculiarities in the different processes of manufacture, and especially upon the conditions and treatment incident to the curing or ripening.

The first step in cheese making is to bring the milk into the form of curd. This may be done by allowing it to sour in a natural way. But in most cases cheese is made from sweet milk and curdled with rennet, a ferment obtained principally from the stomachs of calves. If the curdling or coagulation takes place before cream has separated, nearly all the fat of the milk and some of the milk sugar is held in the curd. About two-thirds of the water of the milk, the greater part of its sugar, a considerable part of the ash, and the small quantity of albumen present form whey, which is the only refuse produced in cheese making. Some milk fat may also escape in the whey, but this depends upon the skill of the maker.

The component parts of cheese, as well as of milk, are water, casein, fat, sugar, and ash or mineral matter. These parts differ much in proportion in the various kinds of cheese. Numerous analyses made, principally by English chemists, give the average composition of several well-known varieties of cheese as stated in the table following. The composition of milk is included for the purpose of comparison.

It is thus seen that cheese contains practically all of the casein of the milk from which it is made; and it is shown that good cheese may be roughly stated to be one-third water, one-third fat, and one-third casein, sugar, and ash (together). It is therefore a strong nitrogenous or flesh-forming food, and as a food too concentrated to be eaten by itself in quantity.
Composition of varieties of cheese.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Water</th>
<th>Casein</th>
<th>Fat</th>
<th>Milk sugar</th>
<th>Ash</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per cent.</td>
<td>Per cent.</td>
<td>Per cent.</td>
<td>Per cent.</td>
<td>Per cent.</td>
</tr>
<tr>
<td>Milk</td>
<td>87.00</td>
<td>3.40</td>
<td>4.00</td>
<td>4.90</td>
<td>0.70</td>
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<tr>
<td>American full cream—Cheddar</td>
<td>38.00</td>
<td>25.35</td>
<td>30.25</td>
<td>1.49</td>
<td>4.97</td>
</tr>
<tr>
<td>English Cheddar</td>
<td>35.41</td>
<td>27.61</td>
<td>31.03</td>
<td>2.00</td>
<td>3.95</td>
</tr>
<tr>
<td>Stilton</td>
<td>30.35</td>
<td>28.85</td>
<td>35.39</td>
<td>1.59</td>
<td>3.82</td>
</tr>
<tr>
<td>Edam</td>
<td>36.23</td>
<td>24.06</td>
<td>30.26</td>
<td>4.50</td>
<td>4.90</td>
</tr>
<tr>
<td>Neufchâtel</td>
<td>44.47</td>
<td>14.60</td>
<td>33.70</td>
<td>4.24</td>
<td>2.99</td>
</tr>
<tr>
<td>Roquefort</td>
<td>31.29</td>
<td>27.63</td>
<td>33.16</td>
<td>2.00</td>
<td>6.01</td>
</tr>
<tr>
<td>Gruyère</td>
<td>34.87</td>
<td>25.87</td>
<td>29.91</td>
<td>5.51</td>
<td>3.84</td>
</tr>
<tr>
<td>Parmesan</td>
<td>31.34</td>
<td>41.99</td>
<td>19.22</td>
<td>1.20</td>
<td>6.25</td>
</tr>
</tbody>
</table>

As an article to be included and liberally used in a regular diet, cheese has been found to be very wholesome and very economical. It is worthy of note that statistics of the diet of public institutions show that in those which are in charge of physicians, like asylums and hospitals, the consumption of cheese per capita is large. In many cases the rate is twice as much as in other institutions and with people in general. This is an emphatic and practical testimonial to the value of cheese as food on the part of numerous members of the medical profession.

INCREASING THE CONSUMPTION OF CHEESE.

The value of cheese as an article of food has long been recognized, and it deserves a much more prominent place among household supplies in this country than it has ever received. It has been said that "Americans taste cheese, while Europeans eat it." In Great Britain and most of the countries of Europe cheese is one of the chief articles of diet, replacing butchers' meats to a considerable extent with large classes of the people. This substitution is found to be very economical and satisfactory to the consumers. In these foreign countries the consumption of cheese per capita is several times as large as in the United States.

This low rate of cheese consumption in this country can be explained in part, undoubtedly, by the general supply of meats at comparatively low prices, and the fact that it has not been regarded as necessary to select foods so that every dollar expended would purchase the greatest possible amount of nutritive material. Information concerning the relative value of various articles of food has not been general. The subject of human nutrition has received much attention within the last few years, however; facts are rapidly accumulating and are being widely diffused. This movement is very certain to lead to a better recognition of the food value of cheese and its comparative cheapness, and to a consequent increase in its use.

It seems clear that a taste for cheese has never been generally acquired in this country. In those families where it is liked, it is
ordinarily used in small quantity as a side dish or relish, and at usual retail prices it is regarded as expensive. Further, when a pound or two is cut from a cheese of the common form and size, a very large cut surface is exposed to the air, and, as it is seldom that special attention is given to keeping it fresh and moist, the piece of cheese soon dries out, loses flavor, hardens, and becomes unpalatable. Again, if one forms a fondness for a particular consistency, stage of ripeness, and flavor in cheese, it is often found difficult to get just the article desired when more is wanted. There are other minor reasons connected with the retail trade in cheese, as commonly conducted, and with the way in which the article is treated in the household, which tend to dissatisfaction on the part of the seller and buyer, and prevent increase in the traffic and in consumption.

It is useless to argue that when compared with meat and many other articles as to actual food value, cheese is rarely retailed at excessive rates. It still remains a fact that the retail price of cheese is usually considerably more than is justified by the wholesale price when compared with articles which can be similarly transported and have similar keeping qualities. There seems to be no good reason why cheese which sells at wholesale at 8 to 10 cents per pound should be retailed at 15 to 17 cents, and often at 20. The usual margin between the wholesale and retail price of cheese is far too great, and yet the net profits of the retail dealer are not unreasonable. When kept by the general grocer, he will insist that there is very little profit in cheese, and proves his claim by showing no inclination to specially increase his sales of the article. When a large cheese is cut, sales must be active to prevent drying and other deterioration which results in loss. Altogether, prevailing conditions do not favor an increasing retail trade in cheese of regulation form, conducted in the ordinary way.

Manufacturers and merchants should unite in efforts to "tickle the palate" of the consumer, and increase the sale and use of cheese. A very few pounds more consumed by every family every year would give a wonderful impetus to the business, and be a boon to dairy interests in general. There are advantages in the manufacture and transportation of large-sized cheeses, and they are well suited to the export trade as it now exists, or to what there is left of it; but a cheese of 40 pounds and over is not well adapted to the greater part of the retail trade. The ideal cheese for retailer and consumer is one ranging from 4 to 12 or possibly 15 pounds in weight, which is suitable for family use, to be sold uncut. Difficulties have been encountered in making small cheeses of the standard type which would keep well. When the exterior surface bears too large a proportion to the bulk, they dry out easily. These objections have been gradually overcome, however, and as good a cheese, of as good keeping quality, can now be made of 15 pounds' weight as of 60 pounds. Small sizes encourage customers to buy, if the quality is maintained, and they
can be used up in the family while still good. Retailers delight in a cheese that can be sold "in the original package," and can well afford to reduce the price in such cases. But now, as for years past, these small cheeses of domestic manufacture are so scarce in the markets as to command a premium, and actually sell for more than those of standard size, although the loss to the retailer from handling is less. This is not because of higher quality, but because they are "so handy." The "Young America," of 7 to 12 pounds, should be multiplied till all can have them. Cheese of the standard American factory, or Cheddar, character, but smaller in size, should be more generally introduced. Even if made so large as to necessitate cutting, the size can well be reduced to from 15 to 25 pounds to the great advantage of a large part of the retail trade. This is shown by the popularity of the "Ponys," "Picnics," "Little Favorites," and others of this character. Such cheeses can be disposed of whole, or sold off quickly after being cut, avoiding the common loss. Several instances might be mentioned of factories which have for years made a specialty of cheese of the standard kind, but of small sizes, and which have secured special prices by the operation. It seems strange that these examples are not followed until in all our American markets small cheeses, in sizes to suit the wants of purchasers, are as common as assorted sizes of shoes. This being done, merchants will be found ready to retail cheese at an advance of 15 or 20 per cent upon the wholesale price. There can be little doubt that good, full-cream factory cheese, retailing at 12 or 13 cents, in packages of convenient size, would result in a very material increase in the aggregate consumption of this article.

Superior quality is, of course, an absolute necessity. Our people, as a rule, are more particular about the quality of what they buy for their tables than about the price. For activity in trade and increased use of cheese in this country, the makers must be skilled and careful, and must produce straight, honest goods, of whole milk of good quality, giving a cheese uniform in character and up to the standard which has been found attainable in our best cheese-making sections for many years. The Southern States have always been large buyers of cheese. There have lately come from that section numerous complaints of losses sustained by merchants and consumers by having large lots of adulterated or "filled" cheese palmed off upon unsuspecting buyers. These goods are put up attractively, in various sizes, are bright in appearance, and the quality when fresh is such that it is very difficult to detect them. Being offered at a few cents below the ruling market price for standard goods, they present to retailers the temptation of large profits. But they soon deteriorate, and dealers and consumers, who have paid from 12 to 16 cents, or more, for the stuff, become disgusted and, being unable to protect themselves against like imposition again, decide not to risk further loss of money.
on such food, and discontinue the purchase of cheese. A marked
increase in consumption has resulted, and merchants at the principal
distributing points note a decided falling off in orders from the South.

This adulterated cheese, in which the natural fat of milk is replaced
by some cheaper fat, usually lard, is often fraudulently branded
"New York State Full Cream," "Herkimer County Fancy," or "Extra
Wisconsin Factory." The deception is sometimes but slightly veiled
by a "Beaver State" brand, to take the place of "Badger State,"
the stencil trade-mark representing something which may be a hybrid
of these two animals. Vigorous measures are necessary to put a stop
to the disastrous effects of these frauds upon home consumption and
domestic trade.

For the present, the only safe plan is for merchants to buy only
such cheese as is plainly branded in accordance with State laws.
Every full-cream cheese from New York and Wisconsin is, or should
be, branded as such with an official stencil on the cheese itself, includ-
ing the number of the factory, which is registered, so that every
cheese can be traced to the place where made. In both those States
the manufacture and sale of adulterated or "imitation" cheese is pro-
hibited. In Ohio, Minnesota, and Colorado there are similar laws for
branding. If consumers would insist upon seeing the marks upon
the cheese they buy, and the boxes they come in, and buy only of
reputable merchants, and if the latter would take the same precau-
tions, good cheese could be secured with great certainty. If a case
of substitution of counterfeit goods occurred, it could, upon detection,
be traced back to the party responsible for the fraud, and damages
could probably be recovered.

Variety is another very important consideration. By variation in
the general cheese-making process, milk can be converted into forms
differing greatly in appearance, general character and flavor—and
smell also. Cheese can be made to suit all tastes, at least all cheese
tastes. Merchants and manufacturers in this country do not avail
themselves as they should of the opportunities in this direction. It
is true that a considerable number of different varieties of cheese are
imported from foreign countries, but in very inconsiderable quantity.
Several of the favorite imported varieties are now imitated in this coun-
try, with varying success, but not in large quantity. The great mass
of American cheese is of a single type. If it be assumed that all of
the 9,000,000 pounds of cheese which constitute our average annual
importation is in the form of foreign varieties, and that half as much
more, of similar kinds, is made in the United States, this would con-
stitute but 5 per cent of the yearly cheese supply of the country. Yet
variety in forms and kinds of cheese is happily on the increase in
America. For more than fifty years the small, somewhat dry and
hard-rinded cheese in the favorite pineapple form has been success-
fully made in Connecticut and other places, as well as imported from
England. Another variation from the ordinary style, even older than this, is made by an admixture of the leaves of sage.

The bright red, spherical Edam, from Holland, is a dry and hard-shelled kind, which is very popular on account of its flavor, and also because of its convenient family size. This variety is made well in Wisconsin. The big cart-wheel Gruyère, with its sallow complexion and peculiar gas holes, is also imitated in Wisconsin, but not so successfully. The genuine must be a general favorite, for fully half of all our cheese imports are from Switzerland, nearly all being this "schweitzer-käse." This kind of cheese is also to be found in the more convenient form of large bars, weighing about 20 pounds each.

Two varieties which may be called especially aristocratic are the rich English Stilton and the French Roquefort, with its characteristic blue mold. These are quite expensive and all imported, although efforts have been lately made to produce "American Stiltons." Some years ago a factory in Maine, which handled only milk from Jersey cows, turned out a cheese at certain seasons which good judges pronounced to be equal to a genuine Stilton. The Parmesan is brought from Italy in large quantities, forming nearly one-fourth of our cheese imports. Our people are not likely to imitate that variety very soon if it should require here, as in its native land, at least three years in the curing. Limburger comes from the Netherlands, standing next to the Parmesan in quantity imported. A very good article under this name is made in numerous places in this country, and a form of lard-cheese substitute is also largely sold in the West. Sapsago, or, more correctly, Schabzieger, is imported to a limited extent. The rich, soft, highly odorous cheeses, in flat, round, and brick forms, from France and Italy, like the Brie and D'Isigny, are well made in New York and Pennsylvania, and also imported. The delicate little Camemberts, soft, white, with blue penciling, and sometimes reddish on the outside, are nearly all imported. The much plainer form of curd, fresh made and sold cheaply in nearly all our markets, in little cylinders wrapped in tin foil, under the name of Neufchâtel, has been made in large and steadily increasing quantities for fifteen years or more in New York and Pennsylvania. The same localities place in market a soft, fresh curd, much enriched, which is called cream cheese.

This by no means exhausts the list of varieties which can now be found in all good markets in this country, although most of the favorites have been named. The standard American Factory, or Cheddar, cheese also appears in several more or less disguised and fancy forms, some quite attractive. The Canadian and American "Clubhouse" cheese, "Meadow Sweet," "Saratoga," and "Delicatesse," sold in 1 and 2 pound jars and in smaller packages neatly prepared, are simply good selections of common factory make, taken at a stage of ripeness, mild or strong, to suit the taste, then worked over, pressed into suitable packages, and sufficiently enriched to make a uniform
smoothness. Flavor is increased in some instances by adding a little wine or brandy. "Cheese Food" is also standard cheese into which has been incorporated the natural whey reduced to a sirup; this gives a sweet taste to the cheese, which some like, and restores the original equilibrium of the milk components. All of these rich and fancy forms of cheese must be recognized as relishes, to be used in small quantity, rather than as a substitute for other food.

Variety in form and flavor should be encouraged as likely to please a greater variety of tastes and increase its consumption. Dealers and consumers should cooperate in extending the trade in "fancy" cheese. Dealers can create a demand by increased variety and display.

If buyers would take a little trouble to properly care for the cheese they purchase, it would keep better, there would be little loss, and housekeepers would be encouraged to use more. Retail merchants would do well to distribute simple directions to this end. Nearly all kinds of cheese while awaiting use in the household should be kept in a special vessel from which the air is excluded. A stone jar with a tight-fitting cover is a suitable receptacle. This should be placed in a storeroom or dry cellar where the temperature is constant at 50° to 60° F. The air must not be so free from moisture as to dry out and harden the cheese, nor so damp as to promote the growth of mold. Trial will easily determine a suitable place to keep the jar, which should be thoroughly scalded and well aired after being emptied of one lot of cheese before another is put in. This should never be forgotten. There are some molds, or germs of ferment and decomposition, susceptible of growth in such a vessel if too long neglected, which might prove dangerous. In case a large cheese is bought for family use, instead of cutting off a little at a time, constantly leaving considerable surfaces to dry, enough should be removed to last two or three days, and the entire surface of the remainder should be rubbed with some heavy oil. A mixture of beeswax and salad oil, worked to the consistency of soft butter, has been recommended for this purpose. Epicures advise cutting cheeses like the Stilton and Young America across one end of the cylinder and keeping them with the cut surface downward in a soup plate filled with old ale. An Edam may be similarly cut and preserved. Cheeses of the shapes last mentioned may be cut directly in two, and then used from the cut surfaces, leaving these smooth, so they will fit closely together; the air may thus be largely excluded and rapid drying prevented. If cheese in large pieces or fragments becomes dry and hard, it should not be rejected, but used for cooking purposes, either grated or melted. For such purposes none is better than the common American factory cheese.

**EXPORT TRADE IN CHEESE.**

Important as are the home markets and increase in domestic consumption to the cheese interests of the United States, the foreign markets, and especially the British market, are even more so.
twenty years, more than half the season's cheese product of this country has been taken to meet foreign demands. Recently this export trade has fallen off to less than one-fourth of the total output. This is a very serious matter, requiring examination and explanation.

From the beginning of the century, exports of cheese from this country increased, year after year, with no fluctuation of consequence, until the maximum of 148,000,000 pounds was reached in 1881. Great Britain took nearly all of these exports, and, as the trade grew, branches of large Liverpool houses dealing in cheese were established in New York. At one time there were forty foreign cheese buyers located in that city. During this period of increasing trade the quality of the goods steadily improved, until cheese from "the States" stood at the head in English markets for imported products. From 1870 until 1882 the export price of our cheese at New York averaged about 12 cents per pound. Canada was also a very good customer for the cheese made by her southern neighbors. Comparatively little cheese was made in Canada, and under the freedom from commercial restrictions which prevailed for ten years prior to 1865 the United States found a good market for 500,000 to 2,000,000 pounds of cheese per year north of the St. Lawrence and the Lakes.

The past fifteen years have brought great changes in these conditions and relations, all detrimental to the cheese interests of the United States. The Canada market (for consumption) has been entirely lost, and exports to Great Britain have decreased to little more than one-third of the high-water mark. English buyers residing in New York have almost disappeared. Accompanying this loss of trade has been a disproportionate reduction in prices, owing to a lowering of quality and consequent loss of reputation. Meanwhile, Canada appears to have gained what the United States has lost. Her cheese exports, which amounted to nothing prior to 1865, have grown continuously, until they greatly exceed those of this country, and Canadian cheese now sells in the London market at a higher price than that from the United States. One effect of this condition has been to cause more than 10,000,000 pounds of cheese per year to be shipped across the border, particularly from Wisconsin and New York, to be reexported from Canada under cover of the superior reputation of Canadian cheese. This is humiliating. In a brief discussion of this subject in the current Annual Report of the Secretary of Agriculture of the United States (p. 29 of this volume) this statement is made:

During the first eight months of last year (1894), Canada and the United States stood side by side in supplying the English market with cheese; but, whereas Canada has this year not only held her own but made a slight gain, shipments from the United States have fallen off 117,000 hundredweight, an amount about corresponding to the increased shipments of Australasia and Canada, and to the falling off in the total imports into Great Britain. In fact, every country shipping cheese to Great Britain has this year enlarged its trade with that country except the United States, which has lost over 21 per cent of its last year's business.
The statistics which show this deplorable condition of affairs are given in the table below, and the same facts are presented in graphic form by the diagram which follows. Temporary variations in markets make it often misleading to compare the figures for single years, and therefore averages are also used for several consecutive five-year periods.

**Exports of cheese from the United States and Canada for single years and yearly averages for five-year periods.**

<table>
<thead>
<tr>
<th>Periods</th>
<th>United States</th>
<th>Canada</th>
<th>Periods</th>
<th>United States</th>
<th>Canada</th>
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<tr>
<td></td>
<td>Pounds</td>
<td></td>
<td>1851-1855</td>
<td>Pounds</td>
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<tr>
<td>1850</td>
<td>10,361,189</td>
<td>17,100</td>
<td>1886-1890</td>
<td>88,203,513</td>
<td>133,737,123</td>
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<td>1860</td>
<td>15,015,799</td>
<td>124,230</td>
<td>1881-1885</td>
<td>118,813,685</td>
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<td>1861-1865</td>
<td>35,081,855</td>
<td>473,550</td>
<td>1886-1890</td>
<td>88,203,513</td>
<td>133,737,123</td>
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<td>1866-1870</td>
<td>47,423,602</td>
<td>3,750,224</td>
<td>1891-1895</td>
<td>75,977,115</td>
<td>131,679,207</td>
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<td>1871-1875</td>
<td>90,888,546</td>
<td>20,114,561</td>
<td>1893</td>
<td>81,350,923</td>
<td>133,946,365</td>
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<td>1876-1880</td>
<td>113,000,609</td>
<td>40,676,856</td>
<td>1894</td>
<td>78,852,134</td>
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<td></td>
<td>1895</td>
<td>60,448,421</td>
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</table>

**Fig. 121.—Diagram showing exports of cheese from the United States and Canada.**
The figures in the table do not include the cheese received in Canada from the United States and reexported. The growth of the Canada cheese trade, almost exclusively with Great Britain, is enormous. Since 1860, the increase in quantity is a thousandfold. Then Canada exported less than one-hundredth part of the quantity sent from the United States. Now the cheese export of the former is more than double that of the latter in quantity and nearly 10 per cent greater in value per pound.

Another quotation from the report of the Secretary of Agriculture is applicable here:

No one can peruse the above facts and figures without arriving at the conclusion that unless our shippers of cheese pursue a very different course, the history of our foreign trade in that product will speedily fall, in the face of active, intelligent, and honest competition from all parts of the world, to the level now occupied by American butter. We have here a graphic illustration of the disastrous effects in all trade of disregarding the tastes of consumers and of acquiring a bad reputation.

Chief among the causes of the unfortunate condition of the foreign cheese trade of the United States are these: (1) Restrictions placed upon the freedom of trade between the United States and Canada; (2) the energy and success of the Canadian Government in developing and improving the production of cheese in the Dominion; (3) the short-sighted policy of cheese makers in the United States in turning out so many poor goods and ignoring the tastes and demands of foreign customers; (4) the exportation of so much low-grade cheese, or "skims," and of adulterated goods or "filled cheese" in defiance of the requirements of British markets and the consequent degradation of a well-earned reputation. These leading causes of existing conditions may be briefly reviewed.

STATISTICS OF DAIRY INTERESTS OF CANADA.

During the first six decades of the present century the dairy interests of Canada were undeveloped, production amounted to little, and exports were insignificant, only reaching 100,000 pounds of cheese in 1860. Under the operation of the reciprocity treaty of 1854, the United States supplied Canada for ten or twelve years with a large part of the cheese consumed, amounting to some millions of pounds a year, as already stated. Canada was one of our good markets for cheese. The interruption of those advantageous trade relations closed those markets to us and gave a great incentive to dairying in Canada. This was the beginning of the rivalry in foreign trade on the part of Canada which is now causing the cheese interests of this country so much trouble. In a report of the Montreal Board of Trade, dated April 9, 1868, occurs this passage:

The repeal of the treaty has stimulated the erection of cheese factories, which are shutting out the products of foreign dairies from the Canadian market and enabling the dairymen of Canada to compete successfully with their American neighbors in sending supplies to the British market.
In 1865 there were less than a dozen cheese factories in all Canada. During the year 1866, 60 factories were opened, and the number trebled in two years. In 1871 the number reported was 353, in 1881 it was 709, and in 1891, the latest report, 1,565 factories were in operation. For fifteen or twenty years, the Canadian Government has made strenuous efforts to develop the dairy interests; grants have been made to associations of dairymen, institutes and local schools have been supported, and an executive department of the Dominion established, with branches in the different Provinces, under which dairy literature is widely distributed and skilled instructors sent from factory to factory teaching the most approved methods of making cheese. One result is seen in the great increase in cheese production—23,000,000 pounds in 1871, 61,000,000 in 1881, 109,000,000 in 1891, and now, by estimate, 160,000,000 pounds a year—and quality accompanies quantity. Canada prohibits by law the manufacture of skim cheese and of filled cheese, and there are no indications of effort on the part of makers or merchants to evade or violate these laws. Government and people have united in the improvement of processes and products, and in studying the tastes of their customers and satisfying them. The result has been to establish a reputation which places Canadian cheese at the head of the foreign markets. The very best cheese from the United States now sells more readily in London if bearing a Canadian brand than under the names which, but a few years ago, were accepted as a guarantee of all that was honest and best in cheese. From this plain statement of facts, dairymen, cheese makers, tradesmen, and exporters in the United States may find useful material for burnishing a sadly tarnished reputation, a matter which needs immediate attention.

THE MANUFACTURE OF SKIM CHEESE IN AMERICA.

It is impossible to determine exactly how and when some American factories, organized and established with the sole idea of making whole-milk cheese, began to manufacture skim cheese, and to add butter making to their other work. It seems, however, to have resulted gradually, from a combination of natural and economic causes, beginning very soon after the factories became numerous. Thus, late in the season, when milk diminished in quantity, grew richer, and kept longer, patrons at a distance from a factory would deliver only every other day, and the cream having separated on the earlier messes, they would remove it, to make butter for home use, and so send to the factory milk with but a half or a third of its cream; yet the factory cheese made from this milk would be apparently equal in quality to the average of the season. Again, factories receiving a part of their milk in the evening, and failing to prevent a separation at night, would try removing and churning the cream of that part, and still make good cheese. There were good cheese makers who noticed a
large percentage of butter in the whey, and they claimed that this might be saved by taking more or less cream from the milk for butter, before making into cheese, and without detriment to the latter product. Frugal factory managers, too, discovered that they could turn out as many or more pounds of both butter and cheese, from a given quantity of milk, as of cheese alone, and could sell the double product for more than the single one. Facts like these, and the results of such experiments, were soon heard in meetings of dairymen, and became arguments for more or less skimming.

Prof. X. A. Willard, of Little Falls, N. Y., the most active and prominent exponent of American cheese-factory practice in the early years of the system, favored skimming within bounds.

Prof. L. B. Arnold, of Rochester, was the closest student of the dairy and of improvements in cheese making of his time. He did not believe that the usual loss of butter fat in the whey was necessary. He regarded no natural milk too rich for good cheese, and he did not directly advocate skimming.

In an article on American dairying, the present writer said, when referring to this subject, in 1880:

With such teachers and teaching, and with the balance sheets of factories adopting this advice showing better returns than those adhering to their whole-milk principles, it is not surprising that skimming became common; factories produced more or less butter, and changed their plans accordingly. From the outset, however, there were stout opponents to all skimming in connection with cheese manufacture, conspicuous among them being makers whose "marks" had won a high reputation, and merchants who prided themselves on keeping a high standard in the markets.

The American Dairymen's Association, after long consideration and full discussion of the subject, adopted ringing resolutions declaring against all skimming and in favor of maintaining the full-cream standard for American cheese.

But selfish motives have caused skimming to continue, and there has been little serious effort to stop the practice. For years the markets have been accustomed to skim cheese, to half skims, and to cheese resulting from skimming in all degrees. The State of Ohio has recognized the practice in law and attempted to grade the products. This cheese has found its place in the home trade and has entered into our exports. There is just about the same proportion of skims and part skims in the market the present year that there has been in years past.

Two very unfortunate features are associated with American skim cheese: First, unlike the ripe and finely flavored Parmesan, our skims are mostly flat in flavor, hard and horny, so much so as to be familiarly known as "white oak" cheese; second, the better class of part skims have been unscrupulously sold while at their best for the genuine full-cream article. The general reputation of American cheese at home and abroad has necessarily suffered in consequence.
It can not be denied that skim cheese is a legitimate food product, and if well made it is highly nutritious. There may always be room for more or less of it in the market, but it should always be plainly marked, sold for exactly what it is, and at prices suited to its kind.

OLEOMARGARINE CHEESE.

"Filled cheese," which is regarded as having so injuriously affected the cheese interests of this country within very recent years, and especially our foreign trade, is by no means a new article, although this is a comparatively new name. Very soon after oleomargarine began to disturb the makers, merchants, and consumers of butter in America, oleo oil came into use in the manufacture of cheese. Combining this oil with skimmed milk, as an emulsion, it was found that an article could be made having, when fresh, the appearance of a good, rich cheese. Patents were issued upon the process and mixing machinery about the year 1871, and the making of "oleomargarine cheese" was begun at Ridge Mills, near Rome, N. Y. One of the oldest and most reputable dairy-apparatus establishments in the country secured control of the special machinery required, advertised it extensively, and a good many factories were fitted up to produce the new cheese. The same firm still controls the patents.

In writing upon the subject in 1881, Prof. J. P. Sheldon, one of the first dairy authorities of England, expressed these views:

There has been much discussion and controversy on the other side of the Atlantic as to the merits of oleomargarine cheese. It has its friends and its enemies. It has been vigorously attacked and vigorously defended, and now awaits the decision of that final court of appeals in such cases, public opinion. Controversy seems to be useless. This kind of cheese appears to be a perfectly wholesome article of food, and, so long as it is honestly made and as honestly sold, it is a legitimate addition to our food supply that may justly claim to stand or fall on its merits; but if it comes to be palmed off on the public as pure-milk (full-cream) cheese, it at once forfeits its claim to be treated with fair play.

The forfeiture thus suggested has certainly been made. As already stated, this oleo cheese, lard cheese, or filled cheese, comes into market under every name except its own. Its true character and proper designation are recognized only while in the hands of the manufacturers' agents, and when it moves from the principal distributing point the various brands upon it give ample evidence of the intent to deceive and defraud. The appeal to public opinion has been made, and the response is emphatic. Reputable merchants and exporters generally refuse to handle the article. New York and Wisconsin absolutely prohibit its manufacture and sale. Other States have followed and are following in the same course, or at least establishing restrictions and providing for identifying marks. The only legislative contests in which filled cheese triumphed were in Indiana and Illinois. Chicago has become the chief depot and distributing point for this commodity. Even "filled" Limburger and "brick" cheese of American manufacture can now be found in that market.
The materials from which this cheese is made are very cheap. Its base is skim milk, which is so abundant in the creamery districts as to be a waste product, with hardly any value, being, unfortunately, neglected by farmers, who fail to appreciate its real worth. The fats added may be oleo oil, or neutral lard, or butter of lowest grade which has been put through questionable processes for renovation. Still cheaper fats may be used. It is claimed that the cheese can be placed in market at a cost of 4 or 5 cents per pound. In large lots it is freely offered at three-fourths the price of first-class cheese, or less, and yields a large profit at this rate. Like the butter substitutes and imitations, the manufacture of filled cheese has greatly improved. A good grade of neutral lard is generally used, and the product now comes into market appearing so fine in quality and with so clean a taste as to be very deceptive and hard to detect by ordinary sampling. But there is an absence of flavor or aroma, and its quality is short lived.

Although not made in very large quantity (probably 500 to 600 tons per month), there is yet enough of this adulterated cheese, and enough unscrupulous dealers to push it in all directions for the sake of the unusual profits, to badly demoralize trade in honest goods and greatly impair the reputation of American factory-made cheese, both at home and abroad. The evil effects upon domestic trade have been noted. The recent rapid decrease in exports is largely attributable to loss of confidence resulting from its sale abroad under false colors. The fraudulent article, as now made and handled, is a serious menace to all honest cheese, and the vigorous warfare against it in England and Canada and the rising tide of popular disapproval in the United States are fully justified.

WAYS TO IMPROVE THE TRADE IN CHEESE.

The suggestions made in previous pages, with a view to increasing home consumption, are of minor importance when compared with the need of general improvement in domestic trade and the export of American cheese. Such improvement seems to depend mainly upon two conditions: First, quality; a higher standard must be set for our cheese and strenuous efforts made to induce all makers to attain to it, thus raising the average quality and securing reputation. Second, prevention of fraud; effective measures are necessary to restore confidence, so that all buyers may get with certainty what they want and pay for.

All interests centering in cheese production demand superiority of quality and economy in production. Factory managers and cheese makers need to have the lesson impressed upon them that in honest markets the best goods are the easiest sold and the most profitable. They must be constantly on the watch for improvements and economies in manufacture. The wants of special markets and the fancies of buyers must be studied and satisfied. The British market, still
our largest customer, continues to want a large cheese, rich, well
cured, and firm in texture. The demand of the home market is not
so fixed but the general preference is for a smaller cheese, compara-
tively new, mild and rich, of medium texture and color. Following
the example of Canada, the leading cheese-making States may well
employ expert itinerant instructors to work at farmers’ institutes, at
dairy conferences, and in the factories themselves. This has already
been done in New York, with satisfactory results. The dairy schools
established in several States are doing excellent work, and the influ-
ence of their graduates is showing itself in the dairy community at
large. To these schools especially is due the credit of demonstrating
the fallacy of the old idea, responsible for so much unfortunate skim-
ing, that considerable butter fat was necessarily lost in the process
of making cheese. Instead, the principle has been established that
no milk is too good for good cheese, none too rich for rich cheese.

This principle was admirably shown by an exhibit from the dairy
school of the University of Wisconsin at the Columbian Exposition.
Six cheeses were placed side by side which had an interesting origin,
and constituted a valuable object lesson. The dairy pupils at Madiso-
son, as an application of the principles they had been taught, divided
a large quantity of milk of uniform quality into six parts. Then, by
different degrees of cream separation, the percentage of fat in the
milk of each lot was fixed exactly as desired. Almost all the fat
was taken from lot 0 (see fig. 122), and a good deal was added to lot 5.
Just 300 pounds of milk was weighed from each lot, the six having
these percentages of fat, respectively, 0.2, 1.3, 2, 3, 4, and 4.9 per
cent. The numbers given to designate these lots of milk and the
cheeses resulting, 0 to 5, thus indicate the nearest percentage of fat
in the milk expressed by a whole number; reasons for numbering
thus will presently appear. These lots of milk were made into six
cheeses, without appreciable loss except pure whey. All were pressed
in 10-inch hoops, so the only difference in size was in the thickness.
The cheeses were weighed green on April 17, 1893, when taken from
the press, and the cured weights were recorded June 26, when they
were sent to Chicago. Weights and other figures are given in the
following table:

### Influence of fat upon yield of cheese.

<table>
<thead>
<tr>
<th>Number or lot</th>
<th>Pounds of milk used</th>
<th>Per cent of fat in milk</th>
<th>Weight of cheese, in pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>300</td>
<td>0.2</td>
<td>18.4 13.0</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>1.3</td>
<td>22.4 19.0</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>2.0</td>
<td>24.0 21.5</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>3.0</td>
<td>27.0 25.0</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>4.0</td>
<td>29.0 27.0</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>4.9</td>
<td>31.9 30.0</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
These figures are very suggestive. The richer the milk, the greater the quantity of cheese, green or cured, from a fixed weight of milk. Without regard to quality, the best milk made more than twice as much cured cheese as the skim milk, and the richest cheese lost the least in curing—very much less than those partly skimmed.

As exhibited these cheeses looked like this:

![Diagram showing influence of fat upon yield of cheese.](image)

The contrast was marked and the lesson conclusive. The richer cheeses had more bulk to the pound than the poorer ones; hence No. 3 was fully twice as thick as No. 0, and No. 5 still thicker in proportion to weight. Before being cut and tested, it was plain that the one containing the most milk fat was much the best cheese. The market sequel or financial result in this case is noteworthy. Exact duplicates of these cheeses, upon being sold, gave these results, in part: No. 0 sold for 5 cents a pound, or 65 cents, being really more than usual market rate for such thoroughly skimmed cheese. No. 3, at 9 cents, brought $2.25; No. 4, at 10 cents, $2.70; and No. 5 sold easily at 12 cents, because of its extra quality, bringing $3.60. All these were wholesale prices. Now, if the fat in Nos. 3, 4, and 5, in excess of that in No. 0, had been made into creamery butter, without loss, the respective quantities would have been $\frac{3}{4}$, $\frac{4}{4}$, and $\frac{5}{4}$ pounds (very nearly), which, at 25 cents per pound, would have brought $0.88, $1.13$, and $1.38$. Add to these amounts for butter, the worth of the skim cheese, No. 0, and the gross receipts from the lots of milk, 3, 4, and 5, made into skim cheese and butter, would have been $1.53, $1.78$, and $2.03$, as against $2.25, $2.70$, and $3.60$ from the same lots of milk, unskimmed, made into good cheese. The profit is largely in favor of the cheese in every case, and the richer the milk the larger this profit. Manifestly “it did not pay” to skim in any of these cases, and it rarely does pay, even if good cheese is made. No more conclusive argument could be presented than by the facts and figures in this case to prove that no natural milk is too rich to make cheese with success and profit.

A series of instructive cheese experiments at the Iowa Agricultural Experiment Station bears upon this same question. Cheese was made there from milk ranging in fat content from 1.75 per cent, by 15 gradations, up to 8.4 per cent. It was found that the richer the
milk the fewer pounds it required to make a pound of cheese, and the per cent of loss in the making of the original fat in the milk, always small, was no more with milk of the extreme richness stated than with standard milk and skimmed milk. Similar results have been obtained in Vermont, New York, and Minnesota.

Cumulative evidence is unnecessary. These important truths are established, namely: The best milk makes the best cheese, and the most of it; the milk which is most profitable for butter is also the most profitable for cheese; the best butter cow is the best cheese cow.

Other things being equal, a cheese containing a large percentage of fat is better, because, first, of finer flavor and taste; second, of its better consistency; third, of its improved aroma; fourth, of its increased digestibility; fifth, of its more perfectly answering the requirements of a complete food or “balanced ration.”

NECESSITY OF CLASSIFYING AND BRANDING CHEESE.

Something should be done to abate the evils resulting from promiscuous skimming. As now made and sold, the partly skimmed cheese is generally deceptive and bound to make trouble, more so than the full skims. The legitimate demand for these low grades of cheese is limited, and the main reason for their manufacture is the utilization of skim milk. There are vast quantities of skim milk, fully skimmed, which are too valuable to waste. This should all be used as food by man or beast. If some of it must be preserved and made into cheese, the nature of the product should be in some way clearly indicated upon the article itself. “Full skims” generally show plainly enough what they are, but as to “part skims,” the degree of skimming varies so much that it is hard to draw the line between these and some cheese made from whole milk. Pure milk differs so much in fat that unless a definite standard be fixed for “full-cream” cheese, lots entitled to this designation may actually differ as much in fat content as some full creams do from “half skims.” A graded system of classification and branding should be adopted which will show, approximately, the composition, and hence the grade, by the marking. The simplest and most effective regulation for skim cheese is the Wisconsin law:

Any skimmed-milk cheese, or cheese manufactured from milk from which any of the fat originally contained therein has been removed, except such cheese is 10 inches in diameter and 9 inches in height, is prohibited in the State, for manufacture, purchase, sale, or transportation. (Sec. 2, chap. 30, Laws of 1895.)

This is a drastic measure, but in many respects is much better than any branding.

In regard to filled cheese, it is evident that some regulation will be demanded and obtained to at least prevent the perpetration of fraud wherever large cheese interests prevail. So long as any States permit unrestricted manufacture and sale, the evil will continue to threaten
the Southern trade, as already noted, and, indeed, the entire cheese trade. Hence the demand for national legislation.

The tendency to seek legislative relief upon all occasions of embarrassment is very unfortunate. A self-respecting people should exhaust all other means to help themselves. Calling upon the law-making powers should be the last resort. If it is found that nothing short of legislation by Congress will meet the case, then the mildest enactment that will effect the object is all that should be asked for. Prohibitory laws are repugnant to a large part of our people. They do not accord with accepted principles of individual and commercial freedom. There is no excuse for destroying the business of one set of men in order to improve that of another set. The claim that cheese producers must have their interests protected at all hazards is neither sound nor politic. "Live and let live" should be the motto for dairymen and all producers. The people who need most to have their rights and interests guarded are the merchants and the consumers. All they need is to be protected from imposition and fraud. Such regulation as will enforce honesty in trade and secure to everything its right name will answer the purpose.

All forms of cheese, full cream, skimmed, and filled, should be so made or marked as to insure their identity all the way from place of manufacture to the consumer of the smallest fraction. Methods of accomplishing this can not be determined without the fullest consideration of the subject. But certain points are plain. The branding and marking of packages and wrappings is not enough. Distinguishing marks should be placed upon the cheese itself. And far better than a simple stencil and easily obliterated bandage mark would be a sunken brand pressed into the top and bottom of every cheese, so that some of it would remain visible and serve for identification to the last pound of a cut cheese. This practical and effective method of marking is of Danish origin, having been successfully used there for years. The registry number of factory and brand, as now used in New York and other States, should be retained, so that every cheese can be identified and traced to the place of manufacture. "Lard cheese" is probably the best designation for the "filled" article, being short, distinct, and accurately descriptive. It will be hard to substitute anything for "full cream," as the brand for the genuine product, although "pure milk" would be more correct, and better for several reasons.

It would be manifestly unfair, however, as already shown, to brand all cheese alike and give it equal legal standing, as well as commercial, simply because made of pure, whole milk, regardless of the quality of the latter. In well-made cheese the fat content is manifestly the measure of quality, and this is determined by the percentage of fat in the milk. Modern methods make it an easy matter to test the milk and ascertain the percentage of contained fat. The cheese made from
any lot of milk should be branded so as to show, with approximate accuracy, the quality of the milk and hence the composition (and presumable quality) of the cheese. Such a system of branding pure, whole-milk (or "full-cream") cheese would be simple and practicable, and would result in grading the cheese product in such a way as to show at once its relative merits, proper making and curing being assumed. The grade brand should give by a single numeral the nearest whole number indicating the percentage of fat in the milk of the cheese vat, and this fact and grade should be guaranteed by the maker. The margin of one-half per cent variation, or a range of 1 per cent of fat, would be entirely safe for the manufacturer and close enough for the merchant and consumer. For full-cream cheese there would be but three grades, 3, 4, and 5, giving a range of $2\frac{1}{2}$ to $5\frac{1}{2}$ per cent of fat, which is all that is ever found in large quantities of pure milk.

Such a system of branding and grading being adopted, there could be no objection to extending it to skims and part skims, adding three more grades, 0, 1, and 2. The preceding illustration and table relating to the six cheeses of the Wisconsin Dairy School show how this plan would operate. It would be easy to add a grade or two, as 6 and 7, for cheese of extra quality, like the English Stilton, containing an added quantity of milk fat.

**LEGISLATIVE SAFEGUARDS.**

If it be found that national legislation is the only method of meeting what seem to be the necessities of the case, to stop fraud and enforce honesty and intelligent dealing in connection with this important food product, it is certainly to be hoped that the subterfuge of a "revenue measure" need not be resorted to again. Yet this also may be necessary. In that case the leaning toward class legislation should be minimized by making any tax incident to the law merely nominal, unless, indeed, lard cheese, or all cheese, be regarded as a proper subject for raising revenue. It is believed to be a question for fair consideration whether all concerned would not be materially benefited if all cheese and cheese substitutes were to be taxed at a very low rate, branded and stamped, made, graded, and sold under United States internal-revenue laws, comprising some such system as outlined above.

As previously indicated, existing State laws already guard the interests of careful buyers to a large extent, and "afford incidental protection" to manufacturers in the principal cheese-making States. All buyers, whether merchants or consumers, should acquaint themselves with the brands and marks legally provided for cheese made in New York, Wisconsin, Ohio, Minnesota, and Colorado. The laws of other States hardly meet the requirements of the situation. These brands are seldom if ever actually counterfeited, although closely imitated,
as already described. The cheese makers and merchants in the States which provide and adopt these safeguards are entitled to reap the advantages which discriminating buyers can give them. General attention to this matter on the part of buyers would be likely to cause other States to adopt laws of proved efficiency, and, what is equally important, to provide for their proper enforcement.

In this connection a proposition recently originated in Wisconsin for a system of State trade-marks for food products and merchandise, to be authorized, copyrighted, and guarded by laws of Congress applying to interstate commerce, is commended as worthy of consideration. This scheme appears to come nearer to reaching the root of the evil than any yet proposed, and, being general in its nature, avoids the strong objections to measures which are regarded as class legislation.

One other point needs mention. Statistics given in table and diagram show that Great Britain has lately been reducing her imports of cheese from Canada as well as from this country. It is probably true that, with the immense quantities of extremely cheap mutton lately sent to British markets from Australia, this meat has been to some extent substituted for cheese. Therefore it may well be doubting whether the consumption of cheese in Great Britain and the consequent import demand will hereafter materially increase. This being the case, new markets should be sought for cheese made in this country. Canada is already on the alert and doing something in this direction. The United States can not follow this example too soon.

Cheese making is the least among the different branches of dairying in this country, in geographical distribution and in volume and value of product. Yet it is of much importance to this entire industry. It furnishes the safest and most convenient method of disposing of all surplus milk, and therefore serves as a sort of safety valve to dairying as a whole. Consequently all are interested in helping to stimulate the cheese trade, both domestic and foreign. All possible steps should be taken to vary and improve the offerings in our own markets, so as to increase home consumption and to reestablish a national reputation for honest cheese of uniform and high quality, in order to enlarge and extend our foreign trade.