

Livestock Marketing Methods  
in Denmark, Great Britain  
& Canada.

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## SUMMARY

### DANISH LIVESTOCK MARKETING PRACTICES

Denmark is about one-third the size of Iowa. Her agriculture is a small-scale, intensive business; Danish farms average only 40 acres in size. Denmark before the depression produced two-thirds as many hogs as Iowa, twice as many hogs per square mile.

Eighty-four percent of the hog slaughter in Denmark is conducted in cooperative packing plants or "bacon factories," as they are called. The average annual slaughter per plant in the cooperative plants is normally about 80,000 head, ranging from about 350,000 down to 17,000. (The largest plants in the United States slaughter about 1,000,000 head annually.)

Before the depression, the Danes exported 80 percent of their bacon; practically all of these exports went to Great Britain. The bacon is exported in the form of a relatively simple product, the Wiltshire side, which is pickled in brine for 3 or 4 days, but not smoked, before shipping.

Danish farmers sell practically all of their hogs direct. The hogs are sold, not by the head as in France, nor by live weight as in the United States, but by individual carcass weight and grade. The weight of the individual carcasses is observed and recorded in the packing plant by a municipal weighmaster. The grading is done by the packing house "master," with government inspectors checking the grades at the export shipping points. Three grades are used. The farmer is paid according to the individual weight and grade of his hog carcasses on the same day he brings in the hogs. Overweight and underweight hogs are sharply penalized.

Hog carcass prices are set each Friday for the following week by a committee of six cooperative bacon factory representatives, and broadcast Friday evening over the radio. The committee attempts to set its price at a level that will clear the market for the week—that is, a price that will move all the product into consumption.

In general, it may be said that Danish livestock marketing problems are inherently simpler than ours, due to the small size of the country and the fact that the bulk of the product is exported to one outlet in simple Wiltshire side form. The Danes have simplified their problems still further by standardizing their grades and prices.

## BRITISH PRACTICES

Great Britain produces only 30 percent of the pork consumed in that country. About 30 percent of the hogs produced in Great Britain are made into bacon; the rest are sold as fresh pork.

Livestock marketing in Great Britain has always been a small-scale, heterogeneous, unorganized affair. The bulk of the livestock has generally been sold through small, primitive, local auctions at so much per head. The British bacon factories are numerous and small. The average English factory slaughters only about 20,000 hogs a year.

In 1933, the British set up a "Pigs Marketing Scheme" in an attempt to improve the marketing of bacon hogs. This scheme dispensed with the local auction method of sale. It provided that all bacon hogs must be sold under contracts with bacon curers (meat packers) on an individual carcass weight and grade basis; the contracts call for the delivery of a stated number of hogs through the year.

The weighing and grading of the carcasses are done jointly by a packer grader and a Pigs Marketing Board grader. The grading is based upon the weight of the carcass and a few measurements made with special calipers.

Hog prices are set monthly, by a fixed formula, in relation to (a) the cost of a specified hog feeding ration, and (b) the wholesale price of bacon. The formula is set afresh each year by direct negotiation between the Pigs Marketing Board, representing the farmers, and the Bacon Marketing Board, representing the bacon curers.

An additional, but voluntary, scheme called the National Grade and Dead Weight Scheme has recently been set up. Under this scheme any kind of livestock can be sold on the basis of its carcass weight and grade. Government graders at the large markets do the weighing and grading of the carcasses that are handled on this basis, and settlement is made according to these carcass weights and grades. The numbers of livestock handled under this scheme are increasing rapidly, but the percentage of the total livestock is still small (January, 1937).

The British are attempting, by these and other means, to move at one step from their previous antiquated marketing methods to a system that is in some respects more advanced than that of Denmark.

## CANADIAN PRACTICES

Canada is primarily a grain producing country, but livestock ranks next to grain as a source of agricultural income. Canadian Dominion-inspected hog slaughter ranges between 2.5 and 3 million head per year. Meat slaughtering and packing ranks fourth in importance in Canadian industries.

Exports of Canadian pork average about 34 percent of the total Dominion-inspected slaughter. The trend of exports has remained roughly horizontal since the World War.

Thirty-eight packing establishments slaughter hogs in Canada. The average annual Dominion-inspected hog slaughter per plant is 74,000 head. This is about half the figure for the United States, where the average annual federally inspected hog slaughter per plant is about 150,000 head. The largest packing plants in Canada are not as large as the largest packing plants in the United States; they each slaughter about 250,000 head of hogs per year. A few of the Canadian packing plants are controlled by United States packing firms.

Direct marketing of livestock has been developing rapidly in Canada since the World War. In 1935, 64 percent of the hogs and 19 percent of the cattle were shipped direct to packing plants. (The corresponding figures in the United States were 44 percent for hogs and 16 percent for cattle.)

In 1922, the Canadians set up official government grades and standards for live hogs and adopted a national government live hog grading system. Under this system, all hogs were sold on official government grades, the grading being either performed or directly checked by government graders. This official live grading procedure has been maintained up to the present time.

In 1934, hog *carcass* grades and standards were set up and a voluntary government hog carcass grading system established. Under this system the farmer was paid for his hogs on the basis of the weight and grade of the carcasses. The carcass grading was performed by government carcass graders stationed in those packing plants that wished to use this system. In 1935, 115,000 head of hogs were slaughtered and paid for on this carcass basis. In 1936, the numbers were more than three times as high—441,162—which is 13 percent of the total 1936 Dominion-inspected hog slaughter.

# Livestock Marketing Methods in Denmark, Great Britain and Canada<sup>1</sup>

By GEOFFREY SHEPHERD<sup>2</sup>

This bulletin is a report of some recent developments in livestock marketing practices abroad.

Several years ago we began to feel that our livestock marketing research would benefit from an investigation of marketing methods in other countries. Accordingly, while I was visiting several European countries during the last 4 months of 1935, I paid particular attention to their livestock marketing methods. Two countries were particularly interesting—Denmark, which has a world wide reputation for advanced marketing methods, and Great Britain, which, until quite recently, has been very backward in that respect. My investigation was then rounded out in the fall of 1936 by a month spent in Canada, which is a country of special interest because of its proximity and similarity to the United States.

In these three countries, every opportunity was given me to study livestock marketing from the ground up. I spent days and weeks in local auction markets, in central or terminal stockyards, on packing house slaughtering and processing floors, and in the offices of farmers' representatives, packing house managers, and government men.

This bulletin embodies the results of this first-hand investigation. It reports, as accurately and objectively as possible, how farmers in these other countries are meeting their livestock marketing problems. It shows how some methods are being used that are rather new to us in the United States.

The bulletin merely reports these methods, without attempting to pass judgment on them, but a question is almost bound to rise in the mind of the reader as he reads along: "Would any of these methods work in the United States, or could they be adapted to this country?"

<sup>1</sup> Project 383 of the Iowa Agricultural Experiment Station.

<sup>2</sup> The author wishes to express his appreciation to the following people for their courteous assistance with this study in the three countries concerned: In Denmark, Mr. C. Trautman, Secretary, De Samvirkenke Danske Andels-Slagteriers Faelleskontor, Vesterbrogade 4A, Copenhagen, and Mr. Axel F. Knudsen, Landbrugsraadet, Faellesrepraesentation for det Danske Landbrugs Hovdeorganisationer, Axelborg, Copenhagen. In England, Mr. R. C. Hinton, Ministry of Agriculture and Fisheries, 10 Whitehall Place, London, S.W.1., and Mr. A. Calder, Marketing Officer, Pigs Marketing Board, Thames House, Millbank, London, S.W.1. In Canada, Mr. L. W. Pearsall, Assistant Chief, Market Services, Livestock Branch, Department of Agriculture, Ottawa, Canada. Thanks are due also to plant managers and other officials too numerous to mention individually, and finally to Prof. Jay Lush, Animal Husbandry Department, Iowa State College, who critically read the sections of the manuscript dealing with Denmark and Great Britain.

A word may be said here concerning this question. The fact that some new livestock marketing methods are working more or less successfully in other countries is, of course, no guarantee that any of them would work well in the United States. Conditions here—such as the place of the hog in the farming system, the type of hog demanded, the size and diversity of the country, the scale of slaughtering operations, etc.—are somewhat different from those in other countries. We cannot say that a method would work well here simply because it works well in other countries.

On the other hand, it is equally fallacious to take the opposite view, that conditions in the United States are so different from those in other countries that no methods in use abroad have any applicability here. It is certainly probable that we can learn something from foreign experience, particularly from such nearby countries as Canada, even if it is only to profit from some of their mistakes.

The adaptability or otherwise of any of these methods to our conditions can best be determined by research. Experimental work along these lines is now being conducted by the Agricultural Economics and Animal Husbandry sections of the Iowa Agricultural Experiment Station at Ames.

## LIVESTOCK MARKETING PRACTICES IN DENMARK

Of the several countries that were visited in the course of this investigation, Denmark has the longest record of progressive livestock marketing methods. A brief preliminary sketch of the Danish hog industry will provide some background for a proper understanding of Danish hog marketing practices.

Denmark is a small country, less than one-third as large as Iowa. It is predominantly agricultural. Its chief agricultural products are bacon, butter and eggs. Denmark's soil is not very fertile, but the Danes have maintained or improved the fertility of their land by good farming practices. Their farms are small, the medium-sized family farms averaging about 40 acres in area. About 90 percent of the farms are owner-operated. A typical Danish countryside scene is shown in fig. 1.

The basic agricultural industry in Denmark is dairying. The hog industry, important though it is, originated and still exists as a by-product industry, based upon the utilization of the skim-milk from the dairy industry. The Danish system of farming is very intensive. In 1931, the number of hogs on farms in Denmark reached a peak of 5,453,000 head<sup>a</sup>; hog production that year was 7,385,755 head. The State of Iowa normally produces between 11 and 13 million hogs, which is about 60 percent more than Denmark produces. Since Iowa is more than three times

<sup>a</sup> International Year Book of Agricultural Statistics, International Institute of Agriculture, p. 36, 1931-32.

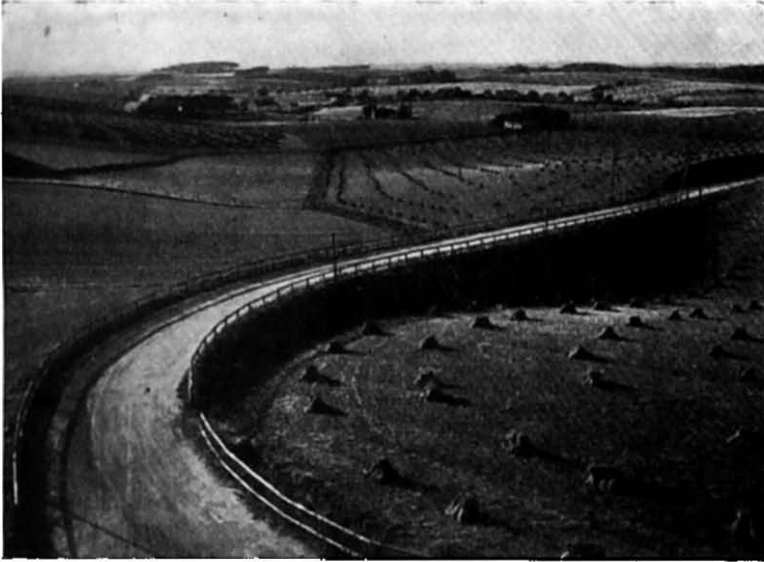


Fig. 1. Danish agricultural scene.

as large as Denmark, the Danes produce about twice as many hogs per square mile as we do in Iowa.

Before the beginning of the depression in 1929, the Danes had focused their attention on the foreign market for their hogs. They used to export 80 percent of their hogs, in the form of Wiltshire bacon sides. Over 98 percent of these bacon exports went to Great Britain.

When the depression came, nations everywhere set up tariffs, quotas and other measures to restrict imports. The British import quota regulations cut down imports of bacon from Denmark to less than two-thirds of the previous amounts. To meet this drastic reduction, the Danes worked out a bacon production control program which cut Danish hog production almost in half. Hog numbers in Denmark in June, 1935, stood at only 3,025,000 head.

#### COOPERATIVE AND PRIVATE BACON FACTORIES

Denmark is dotted with small and medium-sized livestock slaughtering houses. The Danes call them "Svineslagteriers"—literally, swine slaughtereries. When referring to them in English, however, they call them bacon factories. There are 84 of these bacon factories in operation at the present time. Sixty-two of them are cooperatively owned and operated by farmers; the remaining 22 are privately owned. The numbers of both types in past years are shown in table 1.



TABLE 1. NUMBERS OF BACON FACTORIES IN DENMARK\*.

Year	Cooperative bacon factories					Private bacon factories		
	Number of factories	Number of pigs slaughtered		Number of cooperators		Number of factories	Number of pigs slaughtered	
		Total number	Average per factory	Total number	Average per factory		Total number	Average per factory
1888	1	23,400	23,400	1,218	1,218		Not stated	
1890	10	147,500	14,750	15,648	1,565		Not stated	
1895	17	528,800	31,105	25,000	1,471		Not stated	
1900	26	675,200	25,967	60,000	2,308		Not stated	
1905	32	1,031,600	32,238	70,000	2,188		488,000	
1907	31	1,307,120	42,165	—	—		557,116	
1910	35	1,407,635	40,220	90,000	2,571		425,644	
1912	41	1,922,828	46,898	—	—		491,542	
1914	45	2,434,615	54,103	—	—		409,482	
1921-25	45	2,496,000†	55,465†	169,433†	3,765†		448,679†	
1926	48	3,132,000	65,250	176,750	3,682		594,000	
1927	48	4,203,000	87,563	180,221	3,755		777,000	
1928	48	4,473,000	93,188	179,876	3,747		804,800	
1929	51	4,140,000	81,176	185,038	3,627		757,000	
1930	59	5,111,000	86,627	—	—		1,012,000	
1933	62	5,287,000	85,274	—	—	20	1,000,500	50,025
1934	62	4,062,700	65,527	—	—	23	739,500	32,152
1935	62	3,587,000	57,855	—	—	22	657,500	29,888

\*Source of data: Early years, from Hertel, H., (Faber, H.) *Cooperation in Danish Agriculture*, Longmans, Green & Co., 1931. Recent years, from C. S. Trautman, manager, De Samvirkende Danske Andels-Slagteriers Fælleskontor (the head office of the Danish Cooperative Bacon Factories), Vesterbrogade 4A, Copenhagen.

†Average from 1921 to 1925.

It is evident from this table that just before the World War the cooperatives handled 80 percent of the hog slaughter in Denmark. In 1935 the percentage had risen to 84.3. The average number of patrons per plant was about 3,600.

#### LEGAL AND FINANCIAL ASPECTS

"The cooperative associations are unincorporated, as there are no statutes in Denmark providing for their formation. Therefore, they are voluntary associations based upon what may be considered common law principles. The constitution of the association states its purposes, defines the methods of operation, and also the rights and obligations of the members. These articles of association constitute contracts between the association and its members which are enforceable in the courts."<sup>4</sup>

"The cooperative bacon factories are established by non-stock associations organized and controlled by actual producers. The fixed, and part of the operating capital, is secured by loans from the banks, which loans are guaranteed by the members of the associations. The banks and other creditors regard the individual members of the association as jointly and sever-

<sup>4</sup> Report of the Saskatchewan Overseas Livestock Marketing Commission, Regina, Saskatchewan, Canada, 1927, p. 57.

ally liable for all debts and other obligations, . . . and, according to the plan first inaugurated at Horsens, each farmer assumes responsibility in proportion to the number of hogs he delivers annually to the plant. No difficulty is experienced in raising loans from the banks, especially in more recent years, as loyalty to the association on the part of the individual members is unquestioned. The physical assets, of course, provide underlying security for loans so arranged.

"The contract varies from locality to locality, and may cover five, seven or ten years. It should be observed that the contract is an integral part of the constitution of the association, the principles and bylaws of which are agreed to by each member. The producer is pledged to deliver all his hogs to the plant, except such as are actually used for home consumption, for breeding, and in case of sales of small pigs under three months old. A producer may be fined from 10 to 25 kroner per hog [\$2.20 to \$5.50 at current exchange rates] for failure to observe his contract."<sup>5</sup>

Before a cooperative bacon factory is organized, enough farmers must be interested to insure an adequate volume of hogs, and the members pledge all their hogs for 5 or 10 years to the new organization. The Danes consider that there must be prospective members enough to assure an annual volume of at least 25,000 hogs before the organization of a cooperative bacon factory will be undertaken; 50,000 hogs is regarded as the minimum for really efficient operation.

#### SIZE OF PLANTS

The average size of the Danish plants is smaller than that of the interior and terminal packing plants in the middle west of the United States. The average hog slaughter in 1933 for the Danish cooperative plants was 86,000 head per plant, ranging from 323,000 for the largest to 17,000 for the smallest. The average slaughter for the private slaughter houses was 43,000 head, only half as large as that for the cooperatives.

The slaughterings at these plants, particularly at the cooperatives, consist principally of hogs. A visitor from Iowa feels quite at home in one of these plants. The Frederikssund Andels Svineslagteri, for example, slaughtered in 1931 about 175,000 head of hogs, but their combined slaughter of cattle, calves and sheep totaled only 5,000 head. This plant also handled about 1,000,000 kilograms of eggs and 50,000 head of poultry per year.

Before the Danish bacon control program went into effect in 1933, the largest cooperative bacon factory used to slaughter about 400,000 hogs annually; daily slaughter at this plant often

<sup>5</sup> Report of the Saskatchewan Overseas Livestock Marketing Commission, Regina, Saskatchewan, Canada, 1927, p. 62.

touched 5,000 head.<sup>6</sup> The largest hog slaughtering plants in the United States, located at some of the interior markets in Iowa, are about 2½ times as large as this Danish plant. Hog slaughter in several of the Iowa plants before the 1934 drouth was about 1 million head per plant annually.

The slaughtering, dehairing and singeing equipment at the Danish plants is similar to the equipment used in the United States. The processing equipment is simpler than ours, since the carcasses are merely cut into two Wiltshire sides. (A Wiltshire side is the entire half of the carcass, with the head and feet, aitch bone, back bone, breast bone and neck bone removed.) The Wiltshire sides are pickled in brine for 3 or 4 days, taken out of the brine and drained for 3 or 4 more days, and then shipped without any further cutting up or processing. The actual time elapsing from slaughtering to shipping is, therefore, about a week.

#### GRADING AND BUYING PRACTICES

Livestock slaughter is almost completely decentralized in Denmark. Practically all of the bacon factories are located out in the country, and nearly all of the hogs are bought direct from the farmers. "Direct buying" is not an issue there. The bacon factories are numerous in relation to the size of the country. Although Denmark is less than one-third as large as Iowa, it has 84 bacon factories. These factories are fairly evenly distributed over the country, but are most numerous in the eastern part, where the farms are smaller than in the western area. The farmer patrons live close at hand and come into direct contact with the slaughter house operators, so that even if the slaughter houses were privately owned the contact between farmer and packer would be close; since the majority of the slaughter houses are cooperative, the contact is still closer.

The trade area of the average cooperative bacon factory is a compact affair without much overlapping and cross-hauling between areas. The average number of patrons per factory is about 3,600. Since the representative farm in Denmark is close to 40 acres in size, the 3,600 farms comprising an average bacon factory territory cover about 225 square miles. This is an area of less than half an Iowa county.

Danish hogs are produced rather evenly throughout the year; there is no marked seasonal fluctuation as in the United States. The Danes do not sell their hogs in large lots, but "top them out," a few at a time, when they reach the proper weight. The bacon factories buy hogs, not by the head as in France, nor by live weight as in the United States, but by dead weight (i.e., carcass weight) and carcass grade. In other words, Danish farmers do not sell hogs; they sell hog carcasses. The basis

<sup>6</sup> Letter from C. Trautmann, Manager, De Samvirkende Danske Andels-Slagteriers Faelleskontor, Vesterbrogade 4A, Copenhagen, Feb. 8, 1936.



Fig. 2. Ear tags in place.

of sale is the weight and grade of the individual carcasses, determined as described below.

Every hog bears a metal ear tag in each ear with a number stamped on it. This permits easy and positive identification as the carcass goes through the bacon factory. The tag is attached to the front part of the ear, which is thick and tough. The Danes have very little trouble with tags being pulled out in the dehairing machine, which may happen occasionally if the tag is placed in the thin part of the ear; but to remove all chance of mishap, they put tags in both ears. A photograph of the tags in position is shown in fig. 2.

The carcasses are then inspected by a government veterinary inspector. If any part of a carcass is diseased or bruised, that part of the carcass is condemned and cannot be used for food. Even though the rest of such a carcass is perfectly healthy, it cannot be exported, so solicitous are the Danes for their export market; being perfectly healthy, however, it can be used for domestic consumption. If an entire carcass is condemned, of course, none of it can be used for food. In such cases, the loss is shared 60-40 by the farmer and the packer; that is, the farmer is paid 60 percent of the price for No. 1 grade carcasses.

The carcasses which pass veterinary inspection are branded "Danish" with a heated rotary stamp. A photograph of this operation is shown in fig. 3. Then they pass along to a section



Fig. 3. Hog carcasses being stamped "Danish."

and records the weight and ear tag numbers of the carcass. An assistant stamps the weight in blue ink on the inside of each hind thigh or ham, where it is easily visible. For his service the weighmaster is paid about  $\frac{3}{4}$  cent per hog by the packer.

The hog carcasses are then graded by the slaughter house "master," an expert grader, into three classes, according to (1) the thickness of the fat along the back, 3.5 centimeters (1.4 inches) being the desired thickness, (2) the length, 92.5 centimeters (36.4 inches) being the standard, and (3) the firmness of the meat. The first quality carcasses are stamped with the red "Lur" brand, which is a guarantee that the meat is sound and of sufficiently high grade to be exported. The Lur brand is shown in fig. 4.

(Lur is the old Danish name for the war trumpet used by warriors in the bronze age. The Lurs were always sounded in pairs.) Carcasses grading lower than



Fig. 4. The Danish "Lur" brand.

of rail which is connected to a scale, and this scale registers the weight of each carcass by a dial and pointer. The weighing of the carcasses is done, not by a packer employee, but by a municipal weighmaster. Even though the bacon factories are farmers cooperatives the farmers prefer to have a strictly impartial agency doing the weighing. Accordingly, they employ an authorized weighman, often the local town weighmaster who is a disinterested party. The weighmaster weighs the carcasses as they pass him on the rail

first quality cannot be stamped with the Lur brand and cannot be exported. They are merely stamped with the grade number—in blue for No. 2 and in black for No. 3—and sold on the domestic market.

The farmers have confidence in the work of the bacon factory grader, because government inspectors check the grades closely, later on, at the export shipping points. If the inspectors find that the grades are inaccurate, they notify the bacon factory grader to that effect. If, after the second notification, the grades are still inaccurate, the government deprives the slaughter house of its Lur brand. This deprives the slaughter house of its ability to export its products, for only Lur-stamped carcasses may be exported. The system is, therefore, virtually a government grading system, even though the grading is actually done by slaughter house employes.

#### WEIGHTS

The Danes consider that the most desirable weight for a hog carcass is somewhere between 58 and 64 kilograms. We may refer to this as their standard weight. One kilogram equals 2.2046 pounds, so in our terms their standard carcass weight range runs from 128 to 141 pounds. Their hogs dress out on the average about 73 percent.<sup>7</sup> Their standard carcass weight range, therefore, is equivalent to a live weight range of 175 to 193 pounds. This is considerably lighter than average Iowa hogs; butcher hogs here ordinarily average about 220 pounds live weight at the time of slaughter.<sup>8</sup>

Danish carcasses whose weights fall outside of the standard carcass weight range of 128 to 141 pounds are discounted rather severely in price. The list of discounts in effect during a recent representative week is shown below.

<sup>7</sup> Lush, Jay L., "Genetic Aspects of the Danish System of Progeny-Testing Swine," Iowa Agricultural Experiment Station Research Bulletin, No. 204, p. 144, 1935. Computations based upon data copied by the author of the present bulletin, covering the litter-test records of 400 hogs from several different testing stations in Denmark, agree closely with this figure.

Both sets of data relate to litter-test hogs, which may have dressed out higher than the average for the entire run of commercial hogs, figures for which are not readily available. The difference, if any, however, would be negligible. Dressing percentage has not been stressed in Denmark, and the trend of the litter-test dressing percentage data in Professor Lush's bulletin shows no significant change during the past decade.

<sup>8</sup> Unpublished data received from a Corn Belt packing plant by the Agricultural Economics Department, Iowa State College, covering the period July 1935 to June 1936. This is the weight for butcher hogs alone. For all market hogs together, the average would be higher, up in the neighborhood of 225 or 230 pounds.

DANISH HOG CARCASS PRICE QUOTATIONS<sup>9</sup>

The National Quotations Committee of the cooperative slaughter-houses report the price for slaughter hog carcasses with export cards<sup>10</sup> for the week of Sept. 9-14, 1935, as follows:

1st Class, lean.....	154 øre per kilogram
2nd Class, medium fat.....	152 øre per kilogram
3rd Class, fat.....	150 øre per kilogram

During the above-mentioned week the price deductions for over- and under-weight are:

67½-70 kilograms .....	8 øre per kilogram
64½-67 kilograms .....	4 øre per kilogram
58 -64 kilograms .....	no deduction
55 -57½ kilograms .....	5 øre per kilogram
50 -54½ kilograms .....	8 øre per kilogram

—together with a reduction for carcasses which do not grade No. 1 (the export grade) of 6, 20 and 40 percent for bluestamped (grade No. 2), blackstamped (grade No. 3), and condemned carcasses, respectively.

The bacon committee of the Ministry of Agriculture report the quotation for prime hog carcasses without cards during the week of Sept. 9-14, 1935, to be 70 øre per kilogram. The weight limits, the reductions for carcasses which do not grade No. 1 (the export grade), and the deduction for over- and under-weight are the same as for the National quotation. A tax of 2 kroner is paid for swine with, as well as without, cards. Exceptions are made for sows, boars, and condemned and destroyed swine.

Thus carcasses weighing up to 3 kilograms (that is, 6.6 pounds) heavier than the upper limit of the desired weight range are penalized 4 øre per kilogram.<sup>11</sup> This discount is equal to about 40 cents per 100 pounds carcass weight, or about 29 cents per 100 pounds live weight.

Expressed in terms of hog trading as we carry it on in this country, the statement above means that if a live hog is any-

<sup>9</sup> Landbrugsraadets Meddelelser, Faellesrepræsentation for Det Danske Landbrugs Hovedorganisationer, Axelborg, Copenhagen, No. 37, 12. September 1935, pp. 969, 970. Translated by Prof. M. Mortensen, Head, Dairy Industry Department, Iowa State College.

<sup>10</sup> Export cards are part of the Danish system for controlling hog production which they set up in 1933. Each farmer is given a quota of hogs which he can sell for export. This quota is based chiefly upon the land taxes paid by the farmer, the previous sales of hogs from that farm, and the amount of buttermilk returned to the farmer by his creamery for feeding to hogs. If a farmer's export quota is 20 hogs, he is given 20 export cards, one of which accompanies each hog at the time of sale. He can raise as many hogs as he likes, but he can sell only 20 for export. The rest must be sold for domestic consumption. The domestic price fluctuates with the surplus production over export requirements, that is, with the production for domestic use, which is uncontrolled. That is, it is controlled only by the domestic price, which in time controls production for the domestic market. The domestic price fluctuates greatly, from about half the export price up toward the full amount of the export price.

It is interesting to observe that this system gives the Danes production control by the price of the marginal units, as in an unregulated economy, without the usually associated disadvantage of the price of all the units being brought down to the marginal unit price.

<sup>11</sup> One øre is one-hundredth of a Danish crown or "kroner." During recent years, international exchange rates have been unstable, but the krona has been settling down to a value of about 23 cents in American money.

where up to 9 pounds<sup>12</sup> heavier than the upper limit of the desired weight range, it is discounted 29 cents per 100 pounds live weight. The discount for being up to 9 pounds too light is the same as for being too heavy. If the hog is from 9 to 18 pounds too heavy or light, the discount is twice as great; that is, the discount is 58 cents per 100 pounds live weight. This is the reason why the Danes bring in their hogs so close to the standard weight; their prices are heavily discounted if they don't.

The farmer is paid on the basis of the weight and grade of his individual hog carcasses the day his hogs are slaughtered. Because payment is made on the basis of the carcass grade, the producer of high-grade hog carcasses is paid for that high quality, as he should be, while the producer of the poor-grade carcasses is penalized for that poor quality.

A direct and powerful incentive for improving hog quality is thus given the farmer. Under this incentive, Danish hog producers have first determined exactly what the British consumer wants, and then brought their hog carcasses up to that definite quality standard. Danish hog carcasses now have a world-wide reputation for uniformity and high quality. The improvement in quality that has been accomplished since the World War cannot be shown directly, since data showing the grades of the total slaughter of hogs are not available; a roughly accurate picture can be shown, however, based upon data for testing-station swine. These swine came from the best herds in the country, and their carcasses presumably graded better than the average commercial carcasses for the country as a whole. There would at least be a lag in the improvement of commercial carcasses behind that of the testing-station swine. The rate of improvement, however, with which we are chiefly concerned, would be roughly the same for both kinds of data.

The testing-station data are shown in table 2. This table shows that 93 percent of the carcasses now grade No. 1 or No. 2, where formerly only 74 percent reached those grades. It shows further that 75 percent of the total number now grade No. 1 whereas formerly only 49 percent graded No. 1.

TABLE 2. PERCENTAGE OF DANISH HOG CARCASSES IN EACH GRADE, 1928-1934.\*

	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34
Grade I	49	52	63	73	71	75
Grade II	25	26	23	20	22	18
Grade III	26	22	14	7	7	7

\*Jespersen, Jobs, "Afkomundersøgelser over Svin of Dansk Landrace". Fortryk Sektion VII. Nr. 1, København, Juli, 1935.

<sup>12</sup> This figure is obtained by dividing 3 kilograms (the first carcass weight range above the desired weight range given in the National Quotations Committee's price quotations) by 73, the average dressing percentage of the Danish hog, and converting the result into pounds.



### HOG CARCASS PRICE DETERMINATION

Hog prices (or, rather, hog carcass prices) do not fluctuate from day to day and vary from one market to another in Denmark. They are not set in the open market by the unregulated play of supply and demand. A uniform price for the whole country is set each week by a price committee in Copenhagen. This committee consists of six members, all six representing cooperative bacon factories.

The price committee meets each Friday to decide upon the price for the following week. It gets into telephonic communication with England, and the price it sets is based very largely upon the state of the English market, the number of bacon carcasses remaining unsold there, and the prospects for the coming week. The price is broadcast the same evening (Friday) over the radio, and appears in the press the next day. It is also printed in a bulletin, along with other information, and published on Saturday by the Danish central council of agricultural representatives. The prices hold throughout the week.

A copy of the prices published for the week of Sept. 9-14, 1935, is shown on page 126. Live hog prices are not quoted at all; only carcass prices are given. These prices apply uniformly over the entire country. The farmer does not have to bargain or dicker with the packer about the price of his hog carcasses. He simply takes them in to the plant and gets the going price.

The price committee does not attempt to "set the price of hogs" at some artificial level. It merely attempts to size up supply and demand situations for the coming week, and set a price that will clear the market for the week. The price is the same as the average price for the week that would have resulted had there been no price committee at work; it simply has the minor day-to-day fluctuations taken out. The farmer does not need to tune in (even if he has a radio) on half a dozen markets in order to keep abreast of price changes and pick out the highest prices. He simply looks up the official price once a week. For that matter, he does not even need to look up the price; he knows that the cooperative bacon factory will pay him the official price, no more and no less, in any case.<sup>18</sup>

### SUMMARY OF DANISH PRACTICES

Let us sit back for a moment and view the Danish livestock marketing practices in some perspective. If we do that, several main features stand out.

Their hog marketing problems are less complex than ours.

<sup>18</sup> It should be remembered that in addition to the weekly official price the cooperatives pay a patronage dividend to their members at the end of the year, the dividend varying according to the efficiency of the factory concerned.

Denmark is a small, relatively homogeneous country, with its attention focused upon a single market (Great Britain). The British market demands a uniform, standardized product conforming to certain specifications, and the Danes have met these specifications.

The problem is still further simplified by the fact that the chief product (the Wiltshire side) sold by the bacon factory is the entire side of the carcass, with no cutting up involved (except for the removal of the head, feet, etc.) and only a simple pickling process required. That is, the processing of the carcass involves a minimum of operations; the bulk of the product is sold by the packer in practically the same form, i.e., the carcass, in which it is purchased from the farmer.

Danish farmers have further simplified their problems by following the hog half way through the packing house, i.e., to the carcass rail, before establishing the basis of sale. This enables the cooperative to reflect accurately to the farmer just what his product is worth, and provides the full incentive to the original producer to produce what the market wants. Still further, they have taken advantage of the small size of their country and homogeneity of their product to bring the price determining mechanism to an almost irreducible minimum of simplicity; half a dozen men meet in a committee room and set the official price for the coming week, and the job is done.

We may now attempt to place the Danish livestock marketing system as a whole in a broad generalized setting or background, and orient it with reference to stages of market evolution. In the early, primitive stages of marketing systems, the marketing process is simple. Local buyer meets local seller, the goods are exchanged at some price or other, and that is all. In a later stage, marked by the entry of the railroad and telegraph, the market becomes more complex. Concentration of the physical commodity in central markets becomes a dominant feature, with price determination performed chiefly at these terminal markets.

In a still later stage, decentralization sets in; the truck disputes the supremacy of the railroad, and the radio challenges the position of the telegraph. The market becomes broken up into small particles diffused all over the country, hung together only by a fine net of telegraph wires and invisible radio waves; in some aspects it is simpler than before, but in others it is more complex, with even some elements of confusion. The process of price determination becomes diffused over the whole market.

In a still more advanced stage, simplicity emerges again. The hundreds of small nerve centers become coordinated into a more or less unified nervous system. Organization of the structure of the market, standardization of the product, and what E. G.

Nourse describes as "sophisticated methods of price determination,"<sup>14</sup> adapted to a modern decentralized marketing system, overtake the initial disorganizing effect of decentralization; simplicity overtakes disorganization. The Danes appear to have attained this advanced stage of marketing development.

### LIVESTOCK MARKETING PRACTICES IN GREAT BRITAIN

Great Britain does not produce enough livestock domestically to meet the meat requirements of its population. Before the depression she produced only about 45 percent of the beef that was consumed in the country, and only 30 percent of the pork; the rest had to be imported.<sup>15</sup>

The annual production of hogs in Great Britain, in the 5 years 1926-30 before the depression, averaged 3,690,000 head. The hog industry, in spite of considerable annual variations, has remained virtually stationary in terms of volume of output during the past 20 years. From one-quarter to one-third of the total production of hogs is made into bacon; the rest is sold as fresh pork.

Hog production in Great Britain has always been, until very recently, a small-scale, heterogeneous, and unorganized industry. A graphic summary of the weaknesses of the industry was recently made by the British Pig Industry Council in the following terms:<sup>16</sup>

- (i) superfluity of breeds and types;
- (ii) lack of efficiency measures, such as would be provided by pig-recording and litter-testing;
- (iii) inadequate technique in feeding and management;
- (iv) excessive losses from disease;
- (v) irregularity of production;
- (vi) lack of defined carcass grades;
- (vii) circuitous route of fat pigs from farm to destination;
- (viii) uneven distribution of bacon factories;
- (ix) type of factory cure;
- (x) uneconomic factory throughput;
- (xi) lack of national grade standards for bacon;
- (xii) misrepresentation of imported supplies.

To these, three can be added from the Ministry's Report on the Marketing of Pigs,<sup>17</sup> namely—

- (xiii) the gamble of the store (i.e., feeder) market;
- (xiv) the absence of payment for quality;
- (xv) inadequate market intelligence.

<sup>14</sup> Nourse, E. G., *Marketing Agreements Under the AAA*, Brookings Institution, Chap. 14. 1935.

<sup>15</sup> These figures, and those given in the next paragraph, are published in the (British) Ministry of Agriculture and Fisheries "Report of the Reorganization Commission for Pigs and Pig Products," Economic Series No. 37, 1932, pp. 7-9.

<sup>16</sup> *Ibid.* p. 11.

<sup>17</sup> (British) Ministry of Agriculture and Fisheries "Report on the Marketing of Pigs," Economic Series No. 12, pp. 19-21 and 92-95.

## LIVESTOCK AUCTION MARKETS

The livestock marketing system of Great Britain, unlike that of Denmark, has always been very primitive. Until the introduction of the Pigs Marketing Scheme in 1933, the prevalent method of sale was the local auction market. The auction market system is not necessarily primitive, but it was so in Great Britain. Most of the auction markets were small, local affairs, usually open only 1 or 2 days a week, and provided with meager physical facilities for trading.

At these local auctions, and in the case of sale by private treaty too, livestock was generally sold by the head, rather than by liveweight, the prevalent system in the United States. Until comparatively recent years, this involved guessing at the weight. "The outstanding feature (of the English system) and one which has been adversely commented upon for upwards of a century, is that animals are still, to a great extent, sold 'by eye,' and the farmers thus lose, and others gain, what must annually amount to a large sum of money. Sir H. Rew, when investigating the past history of this custom, showed that attempts innumerable had been made to demonstrate to farmers that weight alone should be the guiding factor in sales, at least, of cattle. Tables of calculated weights based on measurements were repeatedly compiled, and actual demonstrations, arranged by such persons as Sir John Lawes, showed convincingly the bias that existed in favor of the expert purchaser; but the farmer, who was the one person to have compelled a change in custom, seemed genuinely to prefer that sales should proceed without reference to any consideration other than that of the appearance of the animals.

"All impartial authorities agreed that the butcher, by dint of constant practice, must inevitably be a better judge of the amount of meat he was purchasing than was the farmer, and test after test showed the truth of this. In 1891 the Markets and Fairs (Weighing of Cattle) Act required those in charge of markets to provide means of weighing animals. This represented a considerable advance, but, so great was their apathy, that it is doubtful if the Act would ever have been placed on the Statute-book if it had been left to the initiative of the farmers alone. For years after the compulsory introduction of these facilities little advantage was taken of them, but during the last twenty years there has been a steady accession to the numbers of beasts sold by weight . . . Of the number of livestock of all kinds changing hands in the United Kingdom, only a fraction passes over the weigh-bridge, so that there is ample room for further efforts to be made at popularizing this method of sale. The usual reasons adduced against it are that 'farmers prefer the old ways,' and that, naturally, butchers do not urge

its merits upon them. It is also possible that market authorities may in the past have been partly to blame, for in many recorded instances, they appeared to consider that their liabilities were met so long as a weigh-bridge was installed somewhere in the vicinity of their market. Such erections are not likely to be in great demand if their presence is not patent, or if access to them is difficult, especially if there is a feeling abroad that they are merely intended to comply with some unnecessary regulation."<sup>18</sup>

#### SIZE OF PLANTS

The British bacon factories are smaller and more numerous than the Danish bacon factories. The average English factory handles only about 400 carcasses per week; the factories in Scotland and Ireland are still smaller. This may be contrasted with the average weekly output of the Danish factories, which is about 1,500 carcasses. It is probable that the average costs of production in the United Kingdom are unnecessarily high, owing in part to the small average size of factories. It has been stated in evidence that under English conditions the minimum economic capacity is 500 pigs per week; yet half the bacon factories in England and Wales, representing one-fifth of the total capacity, have an average weekly capacity of less than 500.<sup>19</sup>

The British bacon factories are practically all privately owned. In 1935 there were about 600 bacon factories in Great Britain, of which only 3 or 4 were cooperative. Only 26 of the 600 factories were really large enough to be considered in the factory class. The rest were simply small slaughter houses curing some bacon. About 40 percent of the 600 factories are owned by one firm, Marsh and Baxter by name.

#### THE PIGS MARKETING SCHEME

From 1930 onward, the British government began making a comprehensive attempt to improve the agricultural marketing system. Their efforts in the field of livestock marketing eventuated in two marketing programs or "schemes," as the British call them. One of these was the "Pigs Marketing Scheme," dealing specifically with bacon hogs. The other was the "National Grade and Dead Weight Scheme," dealing with all kinds of livestock.

We will explain these two schemes in order, beginning with the Pigs Marketing Scheme.<sup>20</sup>

The Pigs Marketing Scheme is one of several established in

<sup>18</sup> Venn, J. A., *The Foundations of Agricultural Economics*, pp. 289-290, 1934.

<sup>19</sup> (British) Ministry of Agriculture and Fisheries, "Report on the Marketing of Pigs," *Economic Series No. 12*, p. 57.

<sup>20</sup> For a more complete description of this scheme, see the 1934 and 1935 editions of the *Agricultural Register*, published by the Institute for Research in Agricultural Economics, Oxford, England.

Great Britain under the Agricultural Marketing Acts of 1931 and 1933. It dispensed entirely with the auction market system for bacon hogs. It provided that all bacon hogs in Great Britain must be sold through the Pigs Marketing Board (a nationwide association of producers, not a government board) under contracts with bacon curers on an individual carcass weight and grade basis.

The contracts originally called for the delivery of a stated number of pigs each month through the year, with a tolerance of 10 percent on monthly deliveries but of only 5 percent on the deliveries for the whole year. The 1935 contract, in addition, called for the delivery of at least 25 percent of the total number of pigs during the first 4 months of the year, and not more than 45 percent during the last 4 months of the year. Bonuses were paid for pigs delivered in the first 4 months of the year. The purpose of this regulation was to render supplies more uniform throughout the year. If the producer defaults on his contract, he must pay damages equal to about \$3.75 per hog to the Pigs Marketing Board and additional damages equal to about \$1.25 per hog to the bacon curer.

If a hog dies in transit, or upon arrival at the curer's factory is found to be suffering from a disease which was not reasonably apparent when it left the producer's farm, which renders it unsuitable for manufacture into bacon, the curer must pay the farmer for it anyhow, at the same price as if it were in good condition. The loss to the curer is covered by an insurance deduction of 12 cents per head levied upon all hogs slaughtered for bacon.<sup>21</sup>

The hogs are sold by carcass weight and grade. There are four carcass weight classes, as follows:

Class 1, 140 to 170 pounds	Class 3, 191 to 230 pounds
Class 2, 171 to 190 pounds	Class 4, over 230 pounds

The first three classes are divided into five carcass grades (A to E) according to measurements of shoulder fat and belly thickness taken at the factory. Class 1 C is called the standard, and premiums or discounts are paid for the grades above and below the standard. Prices are f.o.b. farm.

#### HOG CARCASS PRICE DETERMINATION

As in Denmark, the prices for hog carcasses are set, not by the free play of unregulated supply and demand, but by negotiation each year between the Pigs Marketing Board (representing the farmers) and the Bacon Marketing Board (representing the curers, i.e., the packers). The British system, however, is one step further removed from the open-market system

<sup>21</sup> Contract with Pig Producers, 1936, Pigs Marketing Board, Thames House, Millbank, London, S.W.1.

than the Danish system. The Danes merely forecast what the supply and demand prices will average for the coming week and set their price for the week at that level. The British go further. Originally, they decided what price they thought bacon hog producers ought to receive for their hogs, in the interests of the industry and of the country as a whole, and set the price at that figure. They shifted this price up and down each month in relation to changes in the price of an agreed ration of hog feed. This procedure, however, resulted in a price that was too high, during the first contract period of 4 months, to move the product all into consumption and heavy losses resulted. Accordingly, the scheme has been modified so that prices are now set in relation to the wholesale price of bacon as well as feed prices. The formula for the relation to wholesale prices and to feed prices is set afresh each year by direct negotiation between the Pigs Marketing Board, representing the farmers, and the Bacon Marketing Board, representing the bacon curers (meat packers). The prices are subject to change each month according to changes in the price of wholesale bacon and of feeds. The British price determining system now, therefore, is less different from the Danish system than when it was first set up.

The farmer is paid for his hogs on the basis of their individual carcass weights and grades, as in Denmark. The weighing and grading of the carcasses are done jointly by the packer grader and a representative of the organized hog farmers. The interests of these men are opposed, but disputes seldom arise. The reason for this is that the grading of the carcasses has been simplified, indeed over-simplified, to such a point that it requires only a few measurements of back fat and belly thickness in relation to total carcass weight with special calipers to determine the grade. A photograph of the two graders (the packer grader and the representative of the Pigs Marketing Board) at work is shown in fig. 5. The man in the background (wearing a hat) is the farmer who brought in the hogs. The type of calipers used to establish the grade according to measurements of back fat and belly thickness is shown in fig. 6.

The British believe that it is only when grading is over-simplified like this, and reduced to a purely objective basis, that two graders with opposing interests can get along well together. Where the element of personal judgment enters in, it is thought better to have the grading done by an impartial third party, such as a government grader.

#### THE NATIONAL GRADE AND DEAD WEIGHT SCHEME

This rather awkward title refers to an experimental, voluntary scheme which the British government set up in 1930, under which producers of kinds of livestock other than bacon hogs



Fig. 5. Representative of the packer and of the Pigs Marketing Board jointly grading hog carcasses. (Photograph by the author.)

could sell their livestock on a carcass weight and grade basis.

Although the bulk of the livestock in Great Britain was sold by the farmer at local auction markets, many of the livestock



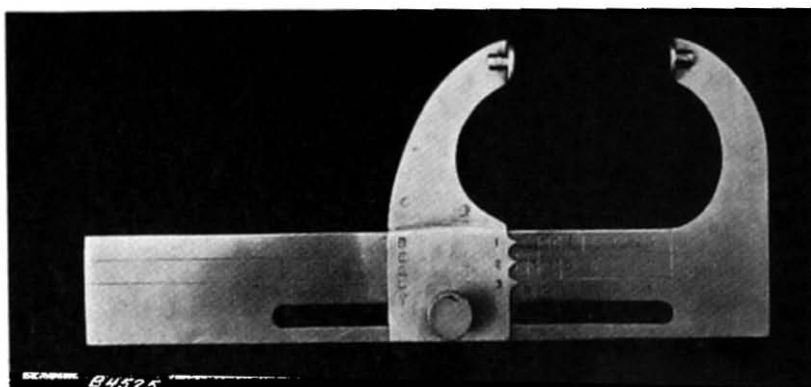


Fig. 6. Type of calipers used to determine hog carcass grades.

dealers who bought livestock at these local auctions sold the stock to slaughterers and meat wholesalers, often through intermediary dealers or commission agents, on a carcass basis (which the British call a dead weight basis). The government accordingly set up a marketing scheme which would shorten the route from the farmer to the slaughterer or wholesaler and give him the advantage of direct contact with the wholesale market on a dead weight, that is, carcass basis. The scheme fitted into the "National Mark" movement,<sup>22</sup> and permitted the benefits of the National Mark meat grading scheme to extend clear back to the farmer.

The new scheme was a voluntary arrangement under which the farmer could establish direct contact with a wholesaler, at some central market, and sell his beef cattle to him on a carcass basis. The farmer's interests were protected by the fact that the weight and grade of his carcasses were determined, not by the buyer, but by a government weigher and grader.

In June, 1933, at the request of the National Farmer's Union, the carcass weight and grade scheme was extended to fat lambs, and in November, 1933, to all classes of sheep. At the beginning of 1934, the scheme was further extended to other classes of cattle not eligible for the National Mark (e.g., cows, bulls, stags) to calves, and to pork pigs and sows (but not to bacon pigs, which are covered by the Pigs and Bacon marketing schemes.)<sup>23</sup>

The workings of the scheme are described, in a recent statement provided by the Ministry of Agriculture, as follows:

<sup>22</sup> The National Mark movement was a general program calling for the stamping of high grade, domestically produced farm products with a uniform "National Mark." The objective was (1) to protect the consumer against low quality food, and (2) to advertise home-grown produce.

<sup>23</sup> See Fat Lambs and Fat Sheep, and Pork Pigs and Sows, Ministry of Agriculture, Marketing Leaflets 46 and 63, respectively, 1935.

"The National Grade and Dead Weight Scheme represents a step towards the rational marketing of fat stock. The Bingley Commission, in their Report dated March, 1934, stated that the dead-weight system is the best, if not the only satisfactory way of selling cattle on description to a wholesaler at a distance, and advocated the extension of the system to all wholesale meat markets of any size. The Scheme offers the producer an alternative market for his stock, over and above local markets, and frees him from the bondage of local prices. The producer is afforded the opportunity of diverting local surpluses to the large consuming areas. This steadies and improves local prices, for, in keeping local supply equal to demand, it prevents those violent fluctuations in price which at present are an everyday happening. The Scheme is entirely voluntary and there is no attempt at control of prices or quantities. It does not seek to remove the best stock from local auctions or to shut these down; the two systems of sale are complementary. The aim of the Grade and Dead Weight Scheme is to curb exploitation, and give the producer the best available market value for his stock.

"The Ministry of Agriculture has established offices at the principal wholesale meat markets. The present centres are London, Birmingham, Leeds, Bradford, Halifax, Sheffield, Manchester and Liverpool. The producer with fat stock to sell can apply to the nearest, or any of these centres, giving a description of the stock and asking for prices to be quoted. At each centre there is a Head Grader, an official appointed by the Ministry of Agriculture, who acts as an impartial intermediary between the producer and the wholesaler. The Head Grader, on receipt of an offer of fat stock from a producer, circulates the description given amongst various wholesalers on the market. His knowledge of the trade of the various wholesalers enables him to offer the stock in the most advantageous quarters. The best of the competitive prices obtained is sent to the producer, who can of course accept or decline it. If he is satisfied with the advance quotations that the dead weight price is likely to yield him a better return than selling on the hoof through his local market, he should notify the Head Grader of his acceptance. This notification concludes the contract as between the farmer and the wholesaler who gave the quotation. The great advantage to the producer of this system of price quotation is that he is bid a definite price based on national grade and dead weight *before the stock leaves the farm*. This advantage needs no emphasis.

"Quotations per pound under the Scheme are based upon two main factors—(1) the weight of the carcass, or the range of weights within which the carcass falls, and (2) the grade of the carcass. The grade of the carcass is not in any sense affected by the weight range into which it falls. For instance, a 13 cwt. bullock can be Grade I as easily as a 9 cwt. bullock. But of the two bullocks, one heavy and the other light, both grading No. 1, the light weight beast will command a higher quotation per pound than the heavy weight. This of course applies to all classes of stock. If the Scheme were operated without weight ranges, the wholesaler would be compelled to give a quotation low enough to cover himself

against the risk of the animals being heavy. These weight ranges, therefore, when used in conjunction with carcass grades, are the producer's surety for getting the full market value for every pound of meat of each particular animal he sells under the Scheme.

"There are four carcass grades for bullocks and heifers, viz.: Super, I, II and III. For all other classes of stock there are three grades, I, II and III. There are 5 weight ranges for pork pigs, four for sows, three for lambs and four for sheep. These weight ranges are all based on dressed carcass weights. There are no carcass weight ranges for cattle because producers are accustomed to viewing this class of stock from the standpoint of live weight. The quotations for cattle, therefore, are governed by grade plus the producer's description of their approximate live weights.

"The quotation sent to the producer sets out a price per lb. dressed carcass weight (sinking the offal)<sup>24</sup> for each of the various grades applicable to the class of stock offered. This quotation is based on the description of the stock alive as given by the producer when asking for a quotation. It will be evident, therefore, that this description must be as accurate as possible. It should give the exact number, the breed or type, the sex and the approximate live weights. The approximate live weight is important because of the different market value for the various weight ranges.

"A typical quotation would be arranged like this: A producer who has eight bullocks ready for market sends a description on these lines—8 bullocks, Hereford Cross, 9 to 10 cwts. live weight. This is sufficient to enable the wholesaler to quote a price based on the Ministry's standard grades. The prices will run something like this—Super Grade 7½ pence, Grade I 7 pence, Grade II 6½ pence, Grade III 6 pence.<sup>25</sup> This set of quotations gives a price for each grade and it therefore covers all gradable qualities that might be included in the consignment. The differentiation in price ensures that the carcass of each animal in the consignment will be valued on its merits. The wholesaler will pay the producer for his stock according to the grades and weights of the carcass as certified by the Ministry's graders. The price per lb. for each individual carcass in the consignment is determined by the grading. This price is multiplied by the ascertained dressed weight of the carcass and the price for each animal thus obtained. The weighing of each carcass is superintended by the Ministry's grader, so that absolute accuracy is ensured. Thus, if 4 of the 8 bullocks previously mentioned are found after slaughter to be Grade I, the producer will get 7 pence for every pound that the dressed carcasses weigh. Similarly, he will get 6½ pence or 6 pence per lb. for each of the remaining carcasses according to whether they are graded II or III. He will also receive the Cattle Fund payment in the case of the animals which are certified for this purpose. The Ministry's Head Graders are the certifying officers. If the cattle turn out so badly as to be ungradable, the wholesaler sells them on commission. The same course is followed as regards animals which have been grossly misdescribed by the producer, but cases of this sort are infrequent.

<sup>24</sup> The meaning of this phrase is that the slaughterer takes the offal, without specific payment for it.

<sup>25</sup> Pence is the plural of penny. A penny is worth 2 cents.

"The quotation is founded on the confidence which the wholesaler places in the Scheme. He knows the standard grades and weight ranges and can therefore quote for any type of stock without seeing it at all. As already explained, the quotations are governed by weight ranges as well as grades, the former being provided so as to ensure that the producer will get the full benefit of the higher prices which are usually commanded by the lighter weights. Thus if a producer offers pork pigs of 'approximately 80 to 100 lbs. dead weight,' the wholesalers will be asked to quote prices on the three weight ranges of 80 lbs. and under, over 80 to 100 lbs. and over 100 to 128 lbs. The pigs will be graded on their quality I, II, III and placed in the different weight ranges according to their carcass weight. This ensures that every pig is sold according to grade and at its proper value according to weight range.

"The National Grade and Dead Weight system is an immense advance towards the accurate valuation of fat stock. It enables the producer to get the full current market value. It eliminates all the guess work inherent in selling cattle at live auction sales and ensures that the producer gets full value for what he has to sell. It is quite possible for two bullocks each weighing 10 cwt. alive, and looking almost identical, to kill out at 600 lbs. and 640 lbs. dead weight, respectively. At a live auction, this difference of 40 lbs. may not be fully reflected in the respective prices obtained, but under a grade and dead weight sale the producer is paid for every pound of carcass weight. The fact that the grading and weighing is in the hands of an impartial expert, the Ministry's Grader, gives the producer a guarantee that he receives payment for full weight according to grade. In this connection it is important to note that standard methods of carcass dressing have been adopted. As regards cattle, pork pigs and sheep a standard dressing for the whole country has been agreed to, but in the case of lamb carcasses the dressing varies at the different centres. Details of the methods of dressing are fully explained in the Ministry's Marketing Leaflets.

\* \* \* \* \*

"The charges under the Scheme are comparatively low. The costs falling on the producer are (1) carriage from his farm to the wholesale meat market, (2) insurance and (3) grading charge. The insurance covers damage or death in transit from farm to abattoir. It also covers the risk of condemnation for disease as well as the risk of loss of Cattle Fund payment arising out of such condemnation. The insurance premiums charged to the farmer are 2 shillings\*\* per head in the case of cows, 1 shilling per head for all other cattle. Calves and sheep are 1 penny and ½ penny per head, respectively. Small pork pigs up to 120 lbs. dead weight are 2 pence, heavier pigs over 120 lbs. dead weight 3 pence, and sows 6 pence. The wholesaler pays equal premiums. Grading charges amount to 2 shillings per head in the case of cattle and 3 pence per head for calves, sheep and pigs. The charge of 2 shillings for cattle

\*\* One shilling is worth about 25 cents at recently current rates of exchange. A penny is one-twelfth of a shilling, or about two cents.

TABLE 3. NUMBERS OF HEAD OF LIVESTOCK SOLD ON THE CARCASS WEIGHT AND GRADE BASIS, 1930-1935.\*

Year	Bullocks and heifers	Cow heifers	Cows	Bulls and stags	Calves	Lambs	Ewes	Rams	Other sheep	Pork pigs	Sows
1930	140										
1931	410										
1932	1,017										
1933	2,448					14,578	2,129		261	26	
1934	5,358	57	93	22	12	17,598	728	32	2,750	1,480	9
1935	9,800	175	542	46	11	24,101	669	14	2,885	7,220	42

\*Information direct from the Ministry of Agriculture and Fisheries, London, England.

includes, where applicable, the charge for certification in respect to Cattle Fund payment. All these charges, except transport, are paid by the producer by way of deduction from the wholesaler's cheque."

The numbers of head of livestock slaughtered under the provisions of these experimental, voluntary carcass weight and grade schemes since their inception are shown in detail in table 3. The numbers are increasing, but the percentage which they constitute of the total slaughter is still very small.

#### SUMMARY OF BRITISH LIVESTOCK MARKETING PRACTICES

The recent developments in British livestock marketing practices outlined above are so sweeping that they may be described as revolutionary rather than evolutionary. They represent, not additional refinements of an already highly efficient system, as in Denmark, but a desperate attempt to bring order out of a muddled, poorly articulated, chaotic mass of local and central markets, by one radical stroke.

We can appraise the British developments better if we place them with reference to a scale or range of market excellence according to degree of accuracy of price determination and of reflection of consumers' preferences. We might rank livestock marketing systems on a scale of this sort as follows:

1. Lowest of all in accuracy is the system of sale by the head, live weight, with the weight estimated. This has been the traditional method in Great Britain.
2. A more accurate system is sale by the 100 pounds live weight, with the weight determined by scales; this is the prevalent system in the United States today.
3. The most advanced and accurate system is sale by carcass weight and grade, with the weighing and grading performed or closely supervised by an impartial agency.

With this ranking in mind, we observe that while Denmark's livestock marketing system has attained to the third, most advanced stage, the British are moving directly from their antiquated, unorganized sale-by-the-head basis to a highly organ-

ized, carcass-weight-and-grade basis, without going through the intermediary stage of sale by the 100 pounds live weight. They are moving both by the industry-wide marketing-scheme route in the case of bacon hogs, and by the small scale, voluntary route in the case of other livestock.

## LIVESTOCK MARKETING PRACTICES IN CANADA

We come now to consider our neighbor to the north.

Canada is primarily a grain producing country. Livestock comes second to grain as a source of agricultural income.<sup>27</sup> Yet meat slaughtering and packing ranks fourth in the list of Canada's industries in point of gross value of products.<sup>28</sup>

There is no agricultural Middle West in Canada comparable with the Middle West in the United States. There is only the great Appalachian plateau, or pre-Cambrian shield, a vast stretch of rough non-agricultural land spreading northward from the Great Lakes up beyond the Arctic Circle. The relatively newly-settled Canadian West is separated from historic, ancient eastern Canada by 1,000 miles of inhospitable, almost barren land, instead of being linked by a rich and fertile Corn Belt as in the United States.

Since the World War, Canada's annual Dominion-inspected slaughter of hogs has ranged most of the time between 2.5 and 3 million head per year. Hog production has been slowly declining in eastern Canada, but this decline is more or less offset by gradually increasing production in the west.<sup>29</sup> About half of Canada's hogs are now raised in eastern Canada; the rest are raised in the West.

A considerable proportion of Canada's pork is exported. Ordinarily, from 70 to 75 percent of these pork exports consists of Wiltshire sides, although the percentage has declined below these figures during the past 2 years. The rest of the exports consists of hams, backs and shoulders. Bellies are not exported; neither is lard.<sup>30</sup>

The total amounts of exports, and the percentage which they constitute of the total slaughter of hogs, vary greatly from year to year. The amounts and percentages each year from 1921 to 1925 are shown in table 4.

On the average, for the 10 years (1921 to 1930, inclusive) just before the depression, the Canadians exported pork equivalent to 34 percent of their total Dominion-inspected hog slaughter. United States exports (exclusive of lard) for the same period equalled 5.1 percent of the total United States

<sup>27</sup> Canada Year Book, 1936, p. 228. The figures for 1934 are: Gross revenue, field crops, \$544,975,000; farm animals, \$99,438,000.

<sup>28</sup> *Ibid.*, p. 437.

<sup>29</sup> Canada Year Book, 1936, pp. 244-5, and comparable pages for earlier Year Books.

<sup>30</sup> Miller, G. B., Bacon Specialist, Livestock Branch, Ottawa, C.S.T.A. Review, May 1936, p. 499.

hog slaughter.<sup>31</sup> Since the depression, our pork exports have remained low, but Canada's exports have recovered rapidly; they exceeded their pre-depression average in 1935.

#### THE STRUCTURE OF THE CANADIAN LIVESTOCK MARKETING SYSTEM

The structure of the Canadian livestock marketing system is in most respects similar to that of the United States. Before the World War, it was fundamentally a central or terminal market system, based upon 9 or 10 central or terminal public stockyards located at important cities and strategic railroad centers. A considerable portion of the livestock in the country was sold direct to packers, but the bulk of it was consigned by farmers or local dealers to commission men at the stockyards, and was sold by the commission men to packer buyers at the yards. The names of the chief stockyards cities, and the receipts of hogs at each stockyard in 1935 are shown below:

STOCKYARD CITY	HOG RECEIPTS*
Winnipeg	215,697
Montreal	183,735
Toronto	175,868
Calgary	84,090
Edmonton	77,561
Saskatoon	32,104
Prince Albert	28,549
Moose Jaw	19,862
Regina	15,685
Total	832,949

\*These figures do not include receipts direct, which are not available for publication.

Most of the packing plants were located at the public stockyards, although some plants, mostly in Ontario, were located at country towns and cities where there were no public stockyards. These country plants were similar to the local and interior packing plants found in considerable numbers in the United States.

#### INCREASE IN DIRECT MARKETING OF HOGS

After the World War, direct marketing increased in Canada, just as it did in the United States. The following quotation from a Canadian authority runs in much the same terms as recent statements concerning direct buying in the United States.<sup>32</sup>

"At the present time few developments in the marketing of livestock have aroused as much interest as the increase in the direct marketing of livestock, particularly hogs. While the shipment of livestock direct to packers is not a new feature,

<sup>31</sup> Statistical Abstract of the U.S., 1935, p. 454, and Livestock, Meats, and Wool Market Statistics, B.A.E., U.S.D.A., 1935.

<sup>32</sup> E. N. Arnason, "Live Stock," Proceedings of the Seventh Annual Meeting of the Canadian Society of Agricultural Economics, Edmonton, Alta., June 25-27, 1935, pp. 55-8.

TABLE 4. TOTAL INSPECTED SLAUGHTER AND EXPORTS OF HOGS AND HOG PRODUCTS—CANADA, 1921-35\*

Date	Number of head of hogs	Total Dominion-inspected slaughter	Exports					Percentage exported
		Total carcass weight (1000 lbs.) A x 120	No. of head of hogs alive	Total carcass weight (1000 lbs.) C x 120	Bacon and hams (1000 lbs.)	Pork (1000 lbs.)	Total exports of hog meats (1000 lbs.) D+E+F	Gx100 B
	A	B	C	D	E	F	G	H
1921	1,636,389	196,367	3,154	378	103,123	2,970	106,471	54.2
1922	1,927,212	231,285	2,338	281	99,141	1,681	101,103	43.7
1923	2,256,474	270,777	1,554	186	100,305	3,342	103,833	38.3
1924	2,913,643	349,637	28,197	3,384	113,896	14,754	131,534	37.6
1925	2,641,731	317,008	89,323	10,719	132,523	17,286	160,528	50.6
1926	2,491,425	298,971	85,972	10,317	93,185	16,798	120,300	40.2
1927	2,540,342	304,841	197,106	23,653	58,012	24,570	106,235	34.8
1928	2,547,024	305,643	23,263	2,792	41,339	11,015	55,146	18.0
1929	2,353,161	282,379	3,943	473	28,773	10,185	39,431	14.0
1930	1,926,325	231,159	2,324	279	14,796	5,680	20,755	9.0
1931	2,242,765	269,132	3,911	469	12,775	4,763	18,007	6.7
1932	2,722,825	326,739	5,598	672	35,820	10,241	46,733	14.3
1933	2,802,377	336,285	6,031	724	73,297	6,005	80,026	23.3
1934	2,871,980	344,638	4,602	552	120,410	3,330	124,292	36.1
1935	2,805,825	336,699	19,424	2,331	125,337	7,097	134,765	40.0

\*Basic data from Annual Market Review, Livestock Branch, Department of Agriculture, Canada, pp. 64-5, 1935, and comparable pages in earlier Reviews.

it has assumed increasing importance during the past few years and it is a safe assumption that no discussion of recent marketing practices would be complete without some examination of direct marketing.

"In 1929, out of a total of 2,657,609 hogs marketed in Canada, 1,624,871, or approximately 61 percent, were shipped direct to packing plants. In 1933, approximately 63 percent were shipped direct. [In 1935, the percentage was 64.] While direct shipments have been less important with respect to cattle, the trend has been upward as is indicated by the fact that while in 1929, the percentage shipped direct to plants was only about 9 percent, by 1933 it had risen to about 13 percent [and by 1935 to 19 percent]. The percentage of calves and sheep shipped direct to plants has increased decidedly in recent years. The large volume of hogs being shipped direct is, however, what arouses concern on the part of many producers.

"Reference has been made to the shift in production which resulted due to the rapid settlement of the West with the trend toward mixed farming, as against cattle production under range conditions. As the population increased the number of local consuming centres also increased with the resultant development of local slaughter house facilities. While the stockyards had represented the most logical method of concentrating both cattle and hogs for shipment or sale during the earlier



development of the West, the growth of local packing house facilities tended to place many [interior] packers in an increasingly favourable competitive position compared with buyers depending on the public markets. A similar situation had developed in Eastern Canada:

"The principal reason for the increase of direct marketing to packing plants is found in transportation developments both by rail and by truck, which has made some packing plants more convenient to producers than public stockyards. Another factor is the difference in the cost of moving live animals as compared to the finished product, which, in some instances has made it desirable to shorten the route between the packing plant and the source of supply for livestock. The motor truck has played an increasingly important part in the growth of direct shipments due to lower costs, especially for short hauls . . . .

"The development of direct marketing, assisted by changes in methods of transportation, more consuming centres and decentralization of the packing industry, is thus seen to have been a logical outcome of the evolution which has taken place in our livestock industry and our economic system as a whole."

#### SIZE, OWNERSHIP AND LOCATION OF PLANTS

In 1935, there were 38 meat packing establishments slaughtering hogs in Canada. The total Dominion-inspected hog slaughterer for the year 1935 was 2,805,825;<sup>33</sup> the average hog slaughter per plant, therefore, was about 74,000 head. This is only half the average plant slaughter for the 219 plants operating under Federal inspection in the United States, in 1935, which was about 150,000 head.<sup>34</sup>

The largest plants in Canada are not as large as the largest plants in the United States. Some of the largest United States plants slaughter 1,000,000 head of hogs a year. The three largest plants in Canada each slaughter in the neighborhood of 250,000 head of hogs.

Some of the Canadian plants are single-unit concerns, that is, the one company owns but one plant; some are owned by companies with several plants each, for instance Canada Packers Limited, which is like a small edition of one of our "Big Four" packing companies; and some are owned, or at least controlled, by United States packing firms. Six of the Canadian plants are controlled by one of our "Big Four" packing companies, and one is controlled by another of our large packers. The location and ownership of the plants are shown in fig. 7.

<sup>33</sup> Annual Market Review, 1935, Live Stock Branch, Department of Agriculture, Ottawa, p. 64.

<sup>34</sup> Mohler, G. R., Chief, Bureau of Animal Industry, U.S.D.A., correspondence, Oct. 10, 1936.



Fig. 7. Meat packing establishments slaughtering livestock in Canada under the Meat and Canned Foods Act.\*

NAME	MAP KEY	ADDRESS
Burns and Co. Ltd., Portland St. East	B	Calgary, Alta.
Burns and Co. Ltd., 71st St. to 120 Ave.	B	Edmonton, Alta.
Burns and Co. Ltd., 597 15th St. East	B	Prince Albert, Sask.
Burns and Co. Ltd., Winnipeg St. and 10th Ave.	B	Regina, Sask.
Burns and Co. Ltd., Woodland Drive	B	Vancouver, B.C.
Burns and Co. Ltd., Cor. Logan and Grighton Sts.	B	Winnipeg, Man.
Canada Packers Ltd.	C	Edmonton, Alta.
Canada Packers Ltd., 200 Montcalm St.	C	Hull, Que.
Canada Packers Ltd., 1260 Mill St.	C	Montreal, Que.
Canada Packers Ltd., 148 George St.	C	Peterboro, Ont.
Canada Packers Ltd., Marion St.	C	St. Boniface, Man.
Canada Packers Ltd., St. Clair Ave. West	C	Toronto, Ont.
Davis and Fraser, 342 Grafton St.	Dav	Charlottetown, P.E.I.
Dumarts Ltd.	Du	Kitchener, Ont.
Eastern Abattoir Ltd., 4365 Frontenac St.	E	Montreal, Que.
Farmers' Abattoir Co., 348 Dupuy St.	F	Winnipeg, Man.
F. W. Fearman and Co. Ltd.	Fe	Hamilton, Ont.
First Cooperative Packers of Ontario	FC	Barris, Ont.
Fowler's Canadian Co., Wentworth St. N (Controlled by Armour and Co)	Fow	Hamilton, Ont.
Gainers Ltd., 96th St.	G	Edmonton, Alta.
Pacific Meat Co., Ltd., 8950 Shaughnessy St.	Pac	Vancouver, B. C.
Public Abattoirs Ltd., 341 Dupuy St.	Pu	St. Boniface, Man.
St. Boniface Abattoir Co., 505 Dawson Road	St	St. Boniface, Man.
Sask. Cooperative Abattoirs Ltd., 11th St.	Se	Saskatoon, Sask.
J. M. Schneider Ltd.	Sc	Kitchener, Ont.
Swift Canadian Co. Ltd., 66th St.	Sw	Edmonton, Alta.
Swift Canadian Co. Ltd., Albert St. Extension	Sw	Moncton, N.B.
Swift Canadian Co. Ltd., 8th Ave and Hillcot St.	Sw	Moos Jaw, Sask.
Swift Canadian Co. Ltd., Burnette St.	Sw	New Westminster, B.C.
Swift Canadian Co. Ltd., St. Clair Ave. West	Sw	Toronto, Ont.
Swift Canadian Co. Ltd., Louise Bridge, Elmwood	Sw	Winnipeg, Man.
Toronto Municipal Abattoir and Cold Storage	T	Toronto, Ont.
Union Packing Co. Ltd., 8th Ave. N.E.	U	Calgary, Alta.
Wellington Packers Ltd., P.O. Box 168	Wel	Guelph, Ont.
Western Packing Co. Ltd., 1000 Alexander Ave.	Wes	Winnipeg, Man.
Whyte Packing Co. Ltd., 78 Linton Ave.	Wh	Stratford, Ont.
W. Wight and Co., 60 Paton Road	Wi	Toronto, Ont.
Wilall Ltd., 1239 Mill St.	Wl	Montreal, Que.

\* Report of the Veterinary Director General, Department of Agriculture, Canada, pp. 30-31, 1935.



DEVELOPMENT OF LIVE HOG GRADING<sup>35</sup>

We have spoken of the rise of direct marketing in Canada that took place after the World War, contemporaneous with a similar movement in the United States. Another and in many respects more far reaching change has also been under way. This movement has resulted in a complete reconstruction of the Canadian hog grading system.

Back in 1921, a national swine conference was convened at Ottawa to consider the difficulties that were then being experienced in marketing Canadian bacon in Great Britain. The major problem was the inferior quality of the Canadian product. After much discussion the Conference recommended the introduction of an official grading system as a means toward the improvement of commercial hogs. The livestock Branch of the Dominion Department of Agriculture was requested to establish and administer an official hog grading service for all hogs arriving at terminal markets, slaughter houses and packing plants, with the grading to be performed by government graders.

These recommendations were adopted and put into force in 1922. Official standards for live hog grading were established in October of that year, under the authority of the Livestock and Livestock Products Marketing Act. A hog grading staff was built up. Government graders were soon installed at all public stockyards, slaughter houses and packing plants. Their duties were to grade all hogs arriving at stock yards for sale, and at packing plants for slaughter.

The official grades established in 1922 have been maintained, with some changes in 1929, up to the present time. The regulations are relatively simple. Nine grades are prescribed. The most important grades, into which the bulk of the the hogs fall, are three quality grades with specified weight limitations; these three grades are: (1) "Select Bacon," (2) "Bacon," and (3) "Butcher." The first two of these grades, "Select Bacon" and "Bacon," include all bacon type hogs of suitable type, weight and finish; the hogs of non-bacon type, or bacon type hogs lacking suitable finish and quality, are graded as "Butchers."

Grades for "Lights and Feeders," "Heavies," and "Extra Heavies" are provided for hogs of less desirable weights, and "Roughs," "Stags," and "Sows" take care of other miscellaneous offerings. The grades are shown in tabular form in table 5.

<sup>35</sup> This section is based upon information gained during a month's investigation in Canada in the Fall of 1936, and from the following literature: Pearsall, L. W., Standards for the Grading of Market Hogs, C.S.T.A. Review, Ottawa, Canada, May, 1936; correspondence with Mr. Pearsall during 1936; Hog Grading Regulations, the Canada Gazette, Jan. 30, 1932, and Mar. 17, 1934; and Carcass Grading Regulations, mimeographed, Ministry of Agriculture, Ottawa, Canada, Jan. 26, 1935.

TABLE 5. OFFICIAL HOG GRADES AND WEIGHTS\*.

Grade name	Live weight†	Other Specifications
Grade 1. Select Bacon	180 to 220 lbs.	Jowl and shoulder light and smooth; back from neck to tail evenly fleshed; side long, dropping straight from back; belly showing thickness of fleshing; flank well let down and firm; ham full; good general finish; no excess fat.
Grade 2. Bacon	170 to 220 lbs.	Of the same general characteristics as Select Bacon hogs, but lacking somewhat in length or in general quality as compared with the Select Bacon Grade; good general finish; no excess fat.
Grade 3. Butchers	150 to 230 lbs.	Not conforming to the standards for the bacon grades, but with smooth fleshing and good finish.
Grade 4. Heavies	230 to 260 lbs.	Smooth conformation and finish.
Grade 5. Extra Heavies	Over 260 lbs.	Smooth conformation and finish.
Grade 6. Lights and feeders	Under 150 lbs.	Smooth conformation under 150 lbs. and unfinished hogs of any weight.
Grade 7. Roughs	No weight limits	Rough conformation. Any weight.
Grade 8. Sows Sub-grade (a) Sub-grade (b)	Under 350 lbs. No weight limits	Smooth finish and trim underline. All other sows.
Grade 9. Stags	No weight limits	Boars which have been castrated and are well healed.

\*From Hog Grading Regulations, Canada Gazette, Saturday, Jan. 30, 1932, and Saturday, Mar. 17, 1934.

†The weight limits given are for live hogs at stockyards or packing plants, "W. O. C." (Weighed Off Cars, before being fed or watered.) The corresponding weight limits for fed and watered hogs at stockyards and local shipping points are 10 pounds heavier than these.

In the livestock trade, the value of the "Bacon" grade is regarded as the basic price; price quotations and market reports are made on the basis of this "Bacon" grade. By agreement, the packers pay for "Select Bacon" hogs a uniform premium of \$1.00 per head above "Bacon" hog values. (Originally the premium was 10 percent, then 5 percent). The "Butcher" grade usually sells at a discount of \$1.00 per head or 50 cents per hundredweight below the "Bacon" price, but on some markets may occasionally sell at a narrower differential. Prices for "Lights and Feeders," "Heavies" and "Extra Heavies" fluctuate above and below the basic price, varying at different markets according to local domestic requirements. "Lights and Feeders" frequently bring "Bacon" prices or better when feeder hogs are in demand.

During the early years, official grading was required only at the destination, i.e., at the terminal market stockyards and slaughter houses. The farmer, however, received very little benefit or encouragement unless he secured the direct advantage of grading in *country* buying and selling. Accordingly, the regulations were amended to require official grading of hogs at local country points as well as at public stockyards and packing plants. This accomplished the purpose of grading by

making the advantages of grading available to the primary producer.

A livestock dealer is now required either (1) to grade all hogs at the shipping point, or else (2) to mark each farmer's lot of hogs for official grading at the destination. If a dealer grades the hogs he buys locally and settles directly with the farmer on that basis, he must send along with each shipment a manifest showing his grading for each farmer's lot of hogs. The efficiency of country grading can thus be checked by comparing it with the official grading at the destination, and lax or indifferent grading can be controlled. If the dealer does not wish to assume the responsibility of country grading himself, he may mark each farmer's lot of hogs for official grading by government graders at the plant or public market to which they are consigned. (The marking is usually done with a paint brush or clippers on the hog's back.) In either case the farmer is informed just how his hogs graded.

The extent to which these regulations could be enforced was dependent on the degree of support by the producer, and the success and effectiveness have varied accordingly in different districts. In areas where a better class of hogs predominated, grading was supported and rapid improvement in quality followed. In other areas having a higher percentage of lower quality hogs which would be subject to a discount in price, indifference or even opposition was evident. In those areas, therefore, the administration of the system was for a period more educational than regulative.

The results of this official grading system have been encouraging. The comparison in table 6 of quality of hogs marketed by provinces in 1923 as compared with 1930 and 1935 clearly indicates the progress that has been made in the improvement of commercial hogs in Canada. <sup>36</sup>

The Canadians feel some pride in their accomplishments with live hog grading. The words of a Canadian livestock authority well express their feelings: <sup>37</sup>

"This record of actual improvement in quality of hogs is gratifying, but does not tell the whole story of hog grading. In the main, farmers are removed from direct contact with markets and are dependent upon other agencies to interpret market requirements. The grades as prescribed and defined in the Hog Grading Regulations set forth the most desirable type, quality, finish and weight, and thousands of hog raisers now measure their success in terms of "Select" bacon. All the Dominion and Provincial swine improvement policies have been

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<sup>36</sup> Pearsall, L. W., Standards for the Grading of Market Hogs. C.S.T.A. Review, Ottawa, Canada, May, 1936. Page 449.

<sup>37</sup> *Ibid.*

TABLE 6. PERCENTAGES OF TOTAL RUN OF HOGS IN EACH GRADE, SHOWING IMPROVEMENT IN GRADE OF CANADIAN HOGS SINCE 1923 BY PROVINCES.\*

Province and year	Grades		
	Select	Bacon	Butcher
<b>Alberta</b>			
1923	2.4	—	—
1930	6.0	21.0	58.1
1935	18.5	39.0	30.1
<b>Saskatchewan</b>			
1923	4.8	—	—
1930	6.1	17.0	47.8
1935	16.2	34.4	24.1
<b>Manitoba</b>			
1923	7.9	—	—
1930	14.4	26.5	35.6
1935	18.4	39.6	14.1
<b>Ontario</b>			
1923	21.1	—	—
1930	24.7	55.5	14.1
1935	31.6	49.9	9.4
<b>Quebec</b>			
1923	10.9	—	—
1930	9.5	28.8	31.1
1935	16.0	35.8	22.7

\*These percentages total a few points short of 100, because, in the interests of simplicity of presentation, we have omitted the extension of the table that shows the small percentages falling in the other six grades.

designed to support grading. This has insured a continuity of effort which has created what may be properly termed a national bacon hog policy, with all energies directed toward one objective. The system of trading has been completely changed from what may be termed "flat" buying to purchase and sale on a graded basis. "Flat" trading did not disappear with the inception of grading, but steady application has gradually established the principle of determining value according to quality, and purchase on grade is now accepted as common trading practice throughout Canada."

#### CARCASS GRADING RESEARCH

Live grading permits of a general selection of better type hogs carrying a desirable degree of finish and most suitable weights, but it has definite limitations as a means of accurately determining the utility value of a carcass. As the official hog grading system developed and the principle was more widely accepted, interest in the accuracy of grading increased. From time to time, whenever a grader's grading of a lot of hogs was questioned, a check grade of the carcasses after slaughter was always accepted as a final court of appeal. An obvious question then arose: Why should not the carcass be made the basis of grading in the first place, instead of the live hog?

The main advantages that would flow from the adoption of

a national carcass grading system appeared to the Canadians to be these:

1. It would provide for:
  - (a) More accurate determination of the degree and quality of finish.
  - (b) Specific and accurate carcass weight limitations within each grade.
  - (c) Official grading for each farmer's lot of hogs.

These features would ensure that premium or discounts would be paid for hogs that would accurately reflect their quality.

2. Since each farmer's lot of hogs would be identified, it would be possible to:
  - (a) Trace the origin of soft and oily carcasses and investigate their causes.
  - (b) Trace causes of bruising and reduce its occurrence.
  - (c) Determine the presence of disease in herds of hogs and take steps to eradicate it.
  - (d) Determine breeding stock from which undesirable pigs originate and eliminate such strains.

The Canadians were well aware of the fact that hogs carrying the same degree of finish differ greatly in the evenness of back fat covering. Uniformity of back fat covering is an important consideration in the carcass, and this can best be determined in a carcass after slaughter. Carcasses differ also in conformation, that is, in the proportions of the different cuts to the total weight. Furthermore, hogs differ greatly in dressing percentage or yield. The dressing percentage depends upon the type of hog, the degree of finish, the weight, and the fill; the fill in turn depends upon the feed, the distance from the farm to the slaughter house and the time en route. The extent of the variations in dressing percentages in actual practice is revealed in table 7, which is based upon one of many tests conducted by Canadian authorities. The hogs in this test were delivered by truck, and comprise 451 farmers' lots, averaging 5.9 pigs per load.

TABLE 7. DISTRIBUTION OF 451 TRUCKLOADS, TOTALING 2,682 HOGS, BY DRESSING PERCENTAGE.

Dressing percentage	70% and under	71%	72%	73%	74%	75%	76%	77%	78%	79%	80% and over
No. of head	142	65	297	382	324	482	388	294	105	109	94
Percent of total	5.2	2.4	11.0	14.2	12.0	17.9	14.4	10.9	3.9	4.0	3.5

A considerable part of the variation shown in this sample results from the variation in the weight of the hogs in the sample. On the average, the heavier the hog, the higher will be his dressing percentage. The variation in dressing percentage within one weight group, say within the 200 to 220 weight range, would be less than the variation shown in table 7. On the other hand, it must be remembered that the table shows the variation in the dressing percentages of different *loads* of hogs. The variation in the dressing percentage of different individual hogs would be considerably higher than that shown in table 7.

Because of differences in dressing percentage, live hogs, even of identical weight and grade, will differ considerably in actual value. A 200-pound hog dressing 76 percent will be worth 76—73/73 or 4 percent more than another 200-pound hog dressing 73 percent. If the latter hog is worth \$20.00, the former is worth \$20.80; there is that much more carcass there. But the dressing percentage is difficult to ascertain accurately on the hoof, and both the hogs may have been sold at the same live price, live weight.

Soft and oily pork, disease, ridglings, and bruising, take a heavy annual toll, either by decreasing the value of the animal or by increasing the cost of production. At present, this toll is spread as an average over all hogs. The identification of individual lots of hogs permits linking the product with the original producer, and this enables intelligent and effective investigation of the cause of soft pork. It also opens the way to the eradication of disease and the elimination of breeding stock producing undesirable pigs. It removes the incentive to "fill" hogs beyond the point necessary to minimize tissue shrink. Finally, it permits facts in regard to bruising to be brought to the attention of those shippers, drovers and truckers whose hog deliveries carry more than normal bruising.

#### INTRODUCTION OF CARCASS GRADING

The Swine Conference in 1921 had appointed a permanent committee to act in an advisory capacity to the Dominion Department of Agriculture in the development of hog grading and other policies pertaining to the swine industry. This committee was known as the Joint Swine Committee and was composed of five producers, two packers and two officials of the Dominion Department of Agriculture. Cognizant of the limitations of live grading and familiar with the grading system in other countries, this Joint Swine Committee recommended to the Department of Agriculture on Jan. 31, 1934, that experimental work be undertaken to determine whether a system of carcass grading would be practical and adaptable to conditions of marketing and slaughtering hogs in Canada.



TABLE 8. STANDARDS FOR CARCASS GRADING OF HOGS.\*

Weight ranges and carcass measurements			
BACON GRADES			
GRADE "A"	CLASS 1		
Weights	140-170 lbs.		
Minimum length	29"		
Max. fat shoulder	2"		
Max. fat loin	1½"		
GRADE "B"	CLASS 1	CLASS 2	CLASS 3
Weights	135-175 lbs.	125-134 lbs.	176-185 lbs.
Minimum length	28"	27"	30"
Max. fat shoulder	2¾"	2"	2¾"
Max. fat loin	2"	1½"	2¾"
PORK GRADES			
No minimum length requirement			
GRADE "C"	CLASS 1	CLASS 2	CLASS 3
Weight	135-175 lbs.	120-134 lbs.	176-185 lbs.
Max. fat shoulder	3"	2¾"	3½"
Max. fat loin	2¼"	2"	2½"
GRADE "D"	CLASS 1	CLASS 2	CLASS 3
Weight	135-175 lbs.	120-134 lbs.	176-185 lbs.
GRADE "E"	Includes unfinished or oily; rejected or condemned; Physical injury; stags and ridglings.		
	Lights—weights 119 lbs. and under.		
	Heavies—weights 186 lbs. to 205 lbs.		
	Extra heavies—weights 206 lbs. and over.		

\* Hog Carcass Grading Regulations, Mimeographed, Live Stock Branch, Department of Agriculture, Canada, 1935.

Following some preliminary work to establish tentative carcass grades, the Hog Grading Regulations were amended on Mar. 17, 1934, to provide for carcass grading on a voluntary basis. The hog carcass grades established are shown in table 8. They divide hog carcasses into two major classes, "Bacon Grades" for export, and "Pork Grades" for the domestic market. The further sub-divisions are shown in the table.

When these carcass grades had been established, the recommended experimental work was begun. The main problems were to provide a practical method of:

- (1) Identifying each farmer's lot of hogs as carcasses after slaughter.
- (2) Accurately weighing and recording the weights of the carcasses.
- (3) Making settlement.

#### Identification

Eartags are generally employed as a means of identification in other countries. Tags of various designs were tested, with varying results depending on the type of equipment and operating speed of the plant. In some cases eartags were torn out by the dehairing machine. The primary cause of this was over-scalding in the scalding vat. The ear is more susceptible

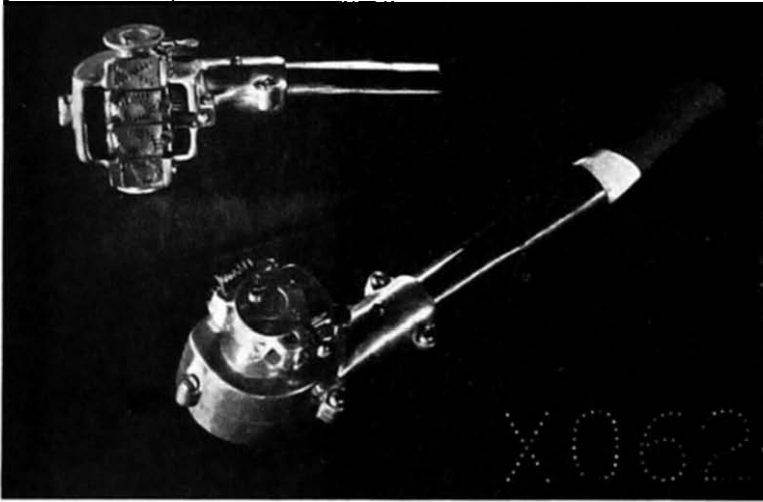


Fig. 8. Tattooing instrument.

to over-scalding than other parts of the hog. It became evident that some modification of plant equipment would be required, if eartagging was to be successful. Losses were eventually controlled to a satisfactory minimum by thermostatic control of the water temperature in the scalding vats to insure proper scalding, and power conveyors to prevent carcasses remaining too long in the scalding vat. With these changes, eartagging proved to be satisfactory so long as the plant operated normally, but in the event of a breakdown or interruption in slaughtering, over-scalding occurred and difficulties were encountered.

The possibilities of tattooing were also investigated. The tattoo mark was applied by imprinting characters on the shoulder of the live hog by a sharp tap with the tattooing instrument. Results at first were indifferent; but with the production of a suitable ink and successive improvement of the tattooing instrument through several stages of development, this method was eventually found to be superior to ear-tagging. It is being generally utilized now in preference to the other. Two views of the most recently developed type of tattooing instrument, and a typical tattoo mark, are shown in fig. 8.

### Weighing

Accurate weighing is obviously essential. It is equally important that the method of recording and tabulating the weights should be such as to inspire confidence in the trade. The problem of weighing was purely mechanical, and a special scale was designed which, after thorough testing, was found



Fig. 9. Electric self-recording scale in operation.

efficient and capable of a capacity up to 550 hogs per hour.<sup>38</sup> It is operated electrically, eliminating the human element of error in incorrect reading or transcribing of weights. The scale stamps duplicate weight tickets and also records the weights in the machine. Scales of this type are now installed and operating in 16 packing plants and giving efficient and satisfactory service. A photograph of this sort of scale in operation is shown in fig. 9.

This tattooing, weighing, and recording equipment reduces the carcass weighing and grading procedure to the simplest terms. The visitor in the plant, watching the work being done, gets an impression of efficiency and accuracy. As each carcass leaves the scale, a clerk picks up the scale ticket that has just been stamped by the machine with the weight of the carcass; he records the tattoo number of the carcass on this ticket and hangs the ticket on the carcass. The carcasses are then graded by the government grader as they roll past him along the rail. He removes one part of the duplicate scale ticket from each carcass, glances at the weight stamped on the ticket, grades the carcass and records the grade on the ticket.

The tickets are then taken to the office. The ownership of the hogs is traced through the tattoo number, and checks in full settlement are issued and put in the mail before the close of business that day. One copy of a quadruplicate statement

<sup>38</sup> This means between 9 and 10 hogs per minute. In larger time units, it means 4,400 hogs per 8-hour day, and well over 1 million hogs a year.

of grades and weights accompanies each check, so that the farmer will know exactly how his hog carcasses graded and weighed in the plant.

The farmer does not get his money until he gets his mail the next day, or later if it takes more than a day for mail to reach him. So far this delay has not proved to be a handicap, and no objections have been made to it.

#### COST OF CARCASS GRADING

The cost per carcass of weighing and grading hog carcasses on the rail varies inversely with volume of carcasses graded, up to the point where full utilization is made of the necessary equipment and personnel. None of the large Canadian plants is carcass grading all of its kill, so the cost under conditions of full utilization cannot be given direct from actual operation. Two or three of the graders, however, made estimates of the cost for a full run of hogs, based upon their own experience with partial utilization. These estimates were then checked by packing plant operators, and are given below.

The regular operating speed of one moving carcass rail in the ordinary operation of large Canadian packing houses, with or without carcass weighing and grading equipment, is about 500 hogs per hour. The rail is sometimes speeded up to 600 hogs per hour, or more, but 500 is a good everyday operating speed.<sup>89</sup> In an 8-hour day, this would take care of 4,000 hogs.

If all the carcasses were being weighed and graded, the additional staff required to handle 4,000 hogs in an 8-hour day would be the following:

- (1) Two men with a tattooing instrument apiece out in the unloading pens of the plant, tattooing the hogs as they come in. Each of these men would need a helper to drive the hogs past him. The total number of men required for the tattooing, therefore, would be four.
- (2) Two carcass graders in the plant. Hog carcasses can be graded more quickly and easily, as well as more accurately, than live hogs. A grader has no trouble grading carcasses at a rate of 550 per hour, but after 1 or 2 hours of continuous grading he needs a few minutes rest to refresh his brain. Two graders could handle this situation very well by working alternately 1 hour each, the one resting or taking the tickets over to the main office while the other was grading.
- (3) The number of clerks in the main office, transferring the records from the tickets to the settlement sheets and getting out the checks, would depend in large measure upon

<sup>89</sup> In the United States, the largest plants run at 550 to 600 hogs per hour; but the Federal veterinary inspection service here will not permit speeds in excess of 600 per hour.

the amount of mechanical calculating equipment provided. If they were equipped with ordinary adding machines, five clerks might be needed; if, however, combination calculating, recording and check writing machines were provided, the number of clerks would be reduced to three or four. We will use five men (or, more likely, girls) as the basis of our estimate.

The only members of this force who would be highly trained would be the graders. Two graders at \$10 per day would come to \$20. The nine clerks and tattooers at \$4 each per day would come to \$36. The total wage bill per daily run of 4,000 hogs would, therefore, be \$56. The cost of tickets, and the depreciation on the weighing and other equipment, would not be more than \$20. The total cost would, therefore, be \$76. On a run of 4,000 hogs, this would amount to 2 cents per hog, or about 1 cent per 100 pounds live weight.<sup>40</sup> On a run of hogs smaller than 4,000, of course, this cost per hog would rise, perhaps to as much as 3 cents per hog, or 1½ cents per 100 pounds live weight.

#### CONDEMNATIONS

All livestock slaughtered in Canadian packing plants is inspected immediately after slaughter by government veterinary inspectors, as in the United States. Some of the carcasses are found to be unfit for human consumption, in whole or in part, on account of severe bruises, muscular strains, or disease. Such carcasses or parts of carcasses are either rejected as unfit for human consumption as fresh meat, or condemned as unfit for human consumption in any form. Condemned and rejected carcasses and portions of carcasses, since they cannot be sold as fresh meat, are diverted to other uses, mainly tankage and fertilizer.<sup>41</sup>

When livestock is sold on the hoof, the buyer is usually not able to detect the presence of bruises or diseases which may render a part or all of a carcass unfit for human food. Accordingly, the animal is purchased at the same price as healthy stock. But the bruised or diseased portion or carcass is worth only a small fraction of the value of a healthy portion or car-

<sup>40</sup> This estimate is regarded by Canadian authorities (graders and plant managers) as very liberal. A further check of the estimate is provided by the fact that the total Canadian hog grading budget for 1935 was only \$100,000 for 2,805,825 hogs, about 3½ cents per hog. This amount covered all the costs, graders' salaries, overhead administrative expense, traveling expenses, etc., of conducting their live hog grading system and developing their carcass grading system as well (the latter involving some part-time extension work by the graders).

<sup>41</sup> The percentage of rejected and condemned hog carcasses in 1935 in Canada was 0.34; in addition, portions of carcasses equivalent in weight to 0.07 percent of the total were condemned. Total condemnations and rejections, therefore, were 0.41 percent of the total slaughter. The percentage for beef was higher, about 1.6. Report of the Veterinary Director General for the year ending Mar. 31, 1935, Department of Agriculture, Canada, pp. 32 and 34.

cass that is sold as fresh meat. The packer loses almost the full amount he paid for condemned meat. Since this loss is unforeseeable until after the animal is paid for and slaughtered, the packer recoups his losses by buying all livestock at a slightly lower price than he would pay if he had no condemnation losses to meet. He deducts from the price he pays for livestock a small insurance fee to cover his condemnation losses. In Canada, this deduction is uniformly .5 percent of the purchase price for hogs; it is shown, specifically as such, on every sales account sheet for livestock.

When livestock is sold on the carcass basis, it is not paid for until after the carcass has been slaughtered and inspected. Accordingly, the packer is in a position to pay just what each carcass is worth; he could pay full price for healthy carcasses, and practically nothing for condemned carcasses. The farmer whose stock was condemned would suffer severe losses which at present he escapes. This would be equitable, but it would present a drastic break with past practice, and inflict the full penalty before the farmer would have time to clean up his herd. Yet unless the farmer is informed of condemnations, he is unaware of the need of improving his practices.

In the light of these considerations, the Canadians have decided that, for the present, the traditional practice with respect to condemnations will be continued. That is, the packer will continue to deduct 0.5 percent of the price, for all hogs, and pay full price for condemned or rejected carcasses, regardless of whether the hogs are purchased on the hoof or on the carcass basis. When the hogs are purchased on the carcass basis, however, the farmer will be informed if any of his carcasses were condemned or rejected. He will be paid full price for them, as under the traditional live-weight system, but he will be told about any condemnations, and the reasons for them. Thus he will know what steps to take, so that if in the future a change is made and the condemnation loss is placed squarely on the producer of condemned carcasses, he will have had time to act upon the condemnation information previously given him.

#### DEVELOPMENT OF CARCASS GRADING

Carcass grading on a voluntary basis, for purely experimental purposes, was started at Peterboro, Ontario, in July, 1934, and at Stratford, in the same province, a little later in the year. By the end of 1934, 3,577 hogs had been carcass-graded. During the next year, 1935, the majority of the plants in eastern Canada were equipped for carcass grading and began buying some of their hogs on that basis. The total number of hogs carcass-graded in 1935 was 114,937.

TABLE 9. NUMBERS OF HOGS CARCASS-GRADED IN CANADA, BY SECTIONS AND QUARTERS, 1934 TO 1936.\*

Province	1934	1935				
		1st quarter	2nd quarter	3rd quarter	4th quarter	Total for year
Ontario	3,577	12,181	22,759	28,236	33,801	96,977
Quebec	—	—	—	—	705	705
Maritime Provinces	—	—	591	3,936	12,728	17,255
Western Canada	—	—	—	—	—	—
<b>Total</b>	<b>3,577</b>	<b>12,181</b>	<b>23,350</b>	<b>32,172</b>	<b>47,234</b>	<b>114,937</b>
		1936				
Ontario		42,387	50,835	78,102	108,371	279,745
Quebec		5,424	2,611	11,199	18,506	37,740
Maritime Provinces		7,103	7,293	5,851	16,708	26,955
Western Canada		1,663	10,710	17,578	56,771	86,722
<b>Total</b>		<b>56,577</b>	<b>71,499</b>	<b>112,730</b>	<b>200,356</b>	<b>441,162</b>

\*Weekly Livestock Market Report, Markets Intelligence Service, Dominion Livestock Branch, Department of Agriculture, Ottawa, Canada.

Meanwhile, experimental work was proceeding in western Canada. During 1936, carcass grading was started at several western plants. As the year progressed, the numbers of hog carcasses graded in the country as a whole each quarter were more than three times as high as the numbers for the corresponding quarter of the previous year. The data by quarters and sections of the country are shown in table 9.

The total numbers of hog carcasses graded for the year 1936 as a whole were 441,162. This is 13 percent of the total 1936 Dominion-inspected hog slaughter.

The objective of the Department of Agriculture is to have all plants properly equipped for carcass grading in the near future, and a qualified staff of graders developed, so that carcass grading will be available to producers in all parts of Canada.

The use of the carcass as the basis of payment appears to have very little effect upon livestock dealers' practices. Dealers endeavor to get in touch with the highest bidders for the particular kinds, weights and qualities of hogs they have for sale, much the same as before; and conversely, buyers look for the lowest priced hogs of the kind they want, wherever they can find them. Both buyers and sellers really deal in carcasses in any case, whether they settle for hogs on the hoof or on the carcass rail. When hogs are sold on the hoof, buyers and sellers have to estimate the weight and grade of the carcasses as well as they can by inspection of the live animal. When hogs are

settled for on the carcass basis, the inaccuracy in this estimate of the weight and quality of the carcasses is eliminated; that is the only difference. The opportunity for some undesirable trading practices is greatly reduced, but in other respects, buying and selling methods remain much as before.

#### INFLUENCE OF EXPORT MARKET

The original impetus to improve the hog grading system, as we have seen, came from the exporters of pork who were competing on a world market. It is possible that this export situation is chiefly responsible for the success of the Canadian hog grading work. Perhaps the fact that the product is competing on a world market renders an official hog grading system peculiarly advantageous, or essential. In quest of information on this point, the author discussed this question at some length with Mr. L. A. Pearsall, Assistant Chief, Market Services, Live Stock Branch, Department of Agriculture, at Ottawa, Canada. His opinions are set down in the following statement:

"The fact that a considerable percentage of Canada's hogs are exported in the form of Wiltshire sides provided an additional incentive for setting up the carcass grading system as the basis of sale, but the usefulness or applicability of the carcass basis does not depend upon the carcasses being sold as Wiltshire sides nor upon export business. The volume of export business or Wiltshire trade varies at the different plants. In a considerable number of plants the business is entirely domestic. If the grading standards established are sound, it does not matter whether the product goes into the export trade in the form of Wiltshire sides or is processed for the domestic trade.

"The trade in England determines the value of Wiltshire sides according to their quality and cut-out value, or proportion and percentage of high-priced cuts as compared to the less desirable portion of the carcass. In the domestic trade in both Canada and the United States, the packer to a large extent cuts and prepares the carcass into the various retail cuts. In the main, our domestic packers realize that a hog carcass that will make a good Wiltshire will cut advantageously in making retail cuts. As a matter of fact, probably the strongest supporters of our carcass grading system are packing houses in which domestic business predominates.

\* \* \* \* \*

"The English wholesaler buys carcasses from the Canadian packer. He pays the packer prices which are based upon the quality and estimated cut-out value of the carcasses to the English retailer and consumer. The Canadian packer who slaughters primarily for the domestic Canadian trade is in the



same situation; he buys hogs from the Canadian farmer, and he is in a position to pay prices based similarly upon the quality and estimated cut-out value of the carcasses to the trade. This is the more true since he sells his product in the form of cuts (hams, backs, loins, etc.) and his income from sales depends directly upon the cut-out value of the carcasses, since he sells them cut out (cut up). As far as carcass grading is concerned, there is no real difference between the export and the domestic business. The one benefits from carcass grading the same as the other."

#### SUMMARY OF CANADIAN PRACTICES

The Canadian hog marketing system, up to the time of the World War, was primarily a public market structure, based upon sale by the 100 pounds live weight. Since the War, three important changes in this system have taken place:

(1) Direct marketing has risen in importance, until now it accounts for two-thirds of the total number of hogs sold, and one-fifth of the cattle.

(2) In 1922, official government grades for live hogs were established; all hogs received at public markets and packing plants were graded thereafter by government graders. Later this system was extended directly or indirectly to local country markets as well.

(3) In 1934, an official but voluntary carcass weighing and grading system was introduced. Under this system, hogs could be sold on the basis of carcass weights and grades. The weighing and grading of the carcasses are done by government graders stationed in the packing plants. In 1935, 114,937 hogs—4 percent of the total Dominion-inspected slaughter of hogs—were handled on the voluntary carcass basis. In 1936, the figures were more than three times as high as the figures for 1935. For the year 1936 as a whole, the numbers totaled 441,162, which is 13 percent of the total 1936 Dominion-inspected slaughter.

The Canadians thus appear to be moving from the live weight basis, through an official live weight grading stage, toward an official carcass basis for the sale of hogs.