

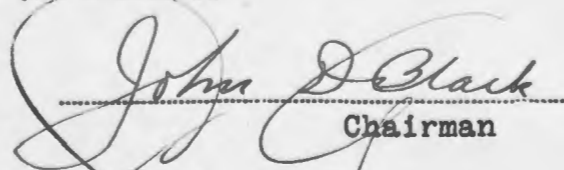
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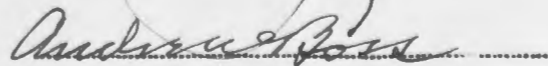
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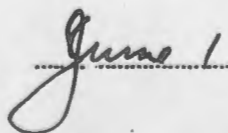
Report
of
Committee on Thesis

The undersigned, acting as a Committee of the Graduate School, have read the accompanying thesis submitted by Joseph Howard Rhoads for the degree of Master of Science.

They approve it as a thesis meeting the requirements of the Graduate School of the University of Minnesota, and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science.


Chairman



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Report

of

Committee on Examination

This is to certify that we the undersigned, as a committee of the Graduate School, have given Joseph Howard Rhoads final oral examination for the degree of Master of Science . We recommend that the degree of Master of Science be conferred upon the candidate.

Minneapolis, Minnesota

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PRICE DETERMINATION ON THE
SOUTH ST. PAUL LIVESTOCK MARKET

A THESIS SUBMITTED TO THE FACULTY OF THE
GRADUATE SCHOOL OF THE UNIVERSITY OF MINNESOTA

by

JOSEPH HOWARD RHOADS

IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE

of

MASTER OF SCIENCE

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1920

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PRICE DETERMINATION ON THE SOUTH ST. PAUL LIVESTOCK MARKET

Chapter I

PURPOSE AND SCOPE OF THE INVESTIGATION

The purpose of this thesis is to explain how prices of livestock are determined on the South St. Paul livestock market. The method employed will be to present the actual price fluctuations and then try to account for them. The price making forces will be in general the same forces that are operating in all markets. Limiting the study to one market, however, makes it possible to study the problem concretely and in detail. The prices studied are central market prices. Local prices to producer and consumer's prices must be considered also at many points in the discussion because of their important bearing on central market prices.

The discussion will be limited in all cases to grade animals, since these alone are reared for meat producing purposes. Animals better suited for breeding and dairy stock than for packing purposes will be left out of consideration except in those cases where they are actually sold to the packer or feeder buyer. The study will include cattle, hogs and sheep. Cattle will be considered in more detail than the others because of their numerous market classes and grades.

Our study is limited to the South St. Paul market, but we must not interpret the term market too narrowly. "Market" as an economic concept does not mean a "market place". Instead a market is such an organization, usually informal and

unconscious, of buyers and sellers in a given area as makes it possible for these buyers and sellers to be aware of each others' transactions and govern their bids accordingly. ⁽¹⁾ The essence of a market is therefore band of contact or communication between the buyers and sellers. The lines of contact and communication are usually brought to a head in some central point. For the market we are studying that central point is South St. Paul. Within the sphere of any large wholesale market, like the one in question are a large number of small local markets. Every shipping point in South St. Paul territory is such a local market. Each of these is nevertheless an independent fully equipped market even though it derives its prices largely from the central market.

A market always has an area, a territory within which are located buyers and sellers who look to this market as a center and through which their commodities pass on their way from producer to consumer. All the region which ships its livestock to South St. Paul belongs to the area of the South St. Paul market. This area is of course not fixed. Figures I, II, III, and IV are a series of maps. ⁽²⁾ Figure I shows the market area for South St. Paul in 1918. Central Minnesota is the heaviest contributing district, due largely to diversified farming and lack of keen competition by other markets for this livestock. Southern Minnesota, South Dakota and Montana send considerable consignments to the other markets. Cattle (Figure II) are fairly well distributed over the entire market area, Minnesota stock making up a major portion of the shipments.

(1) Manuscript, J. D. Black and G. R. Chambers.

(2) Data obtained from the files of the St. Paul Union Stockyards Company in the form of carloads of cattle, hogs and sheep, and mixed carloads. The mixed carloads were pro-rated on the basis of the Bureau of Crop Estimates figures for the number of head of livestock on farms January 1, 1919. This work was contributed by the Division of Research in Agricultural Economics, University Farm.

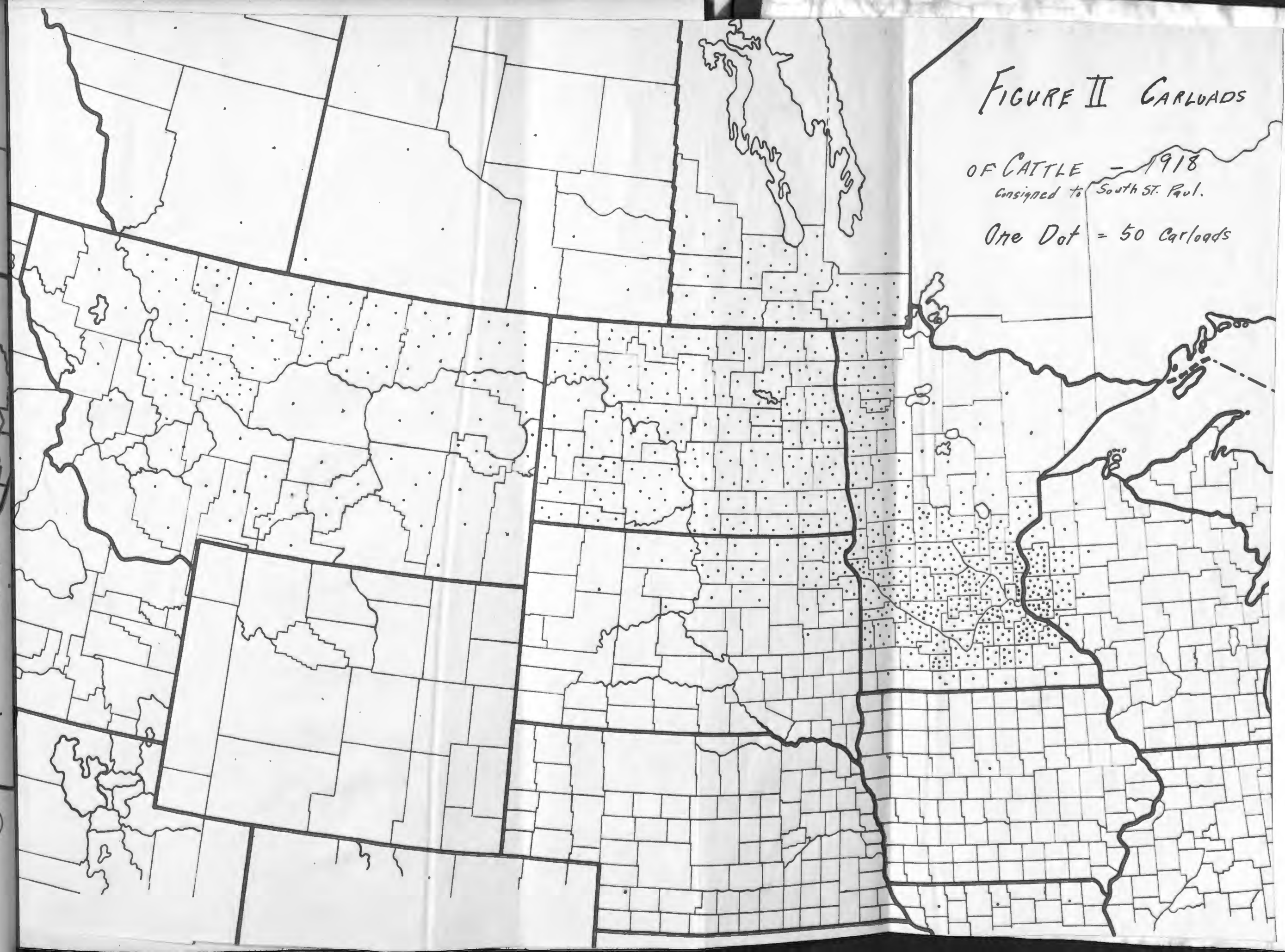


FIGURE III.

CARLOADS OF HOGS

Shipped to South St Paul

in 1918

One Dot = 50 carloads

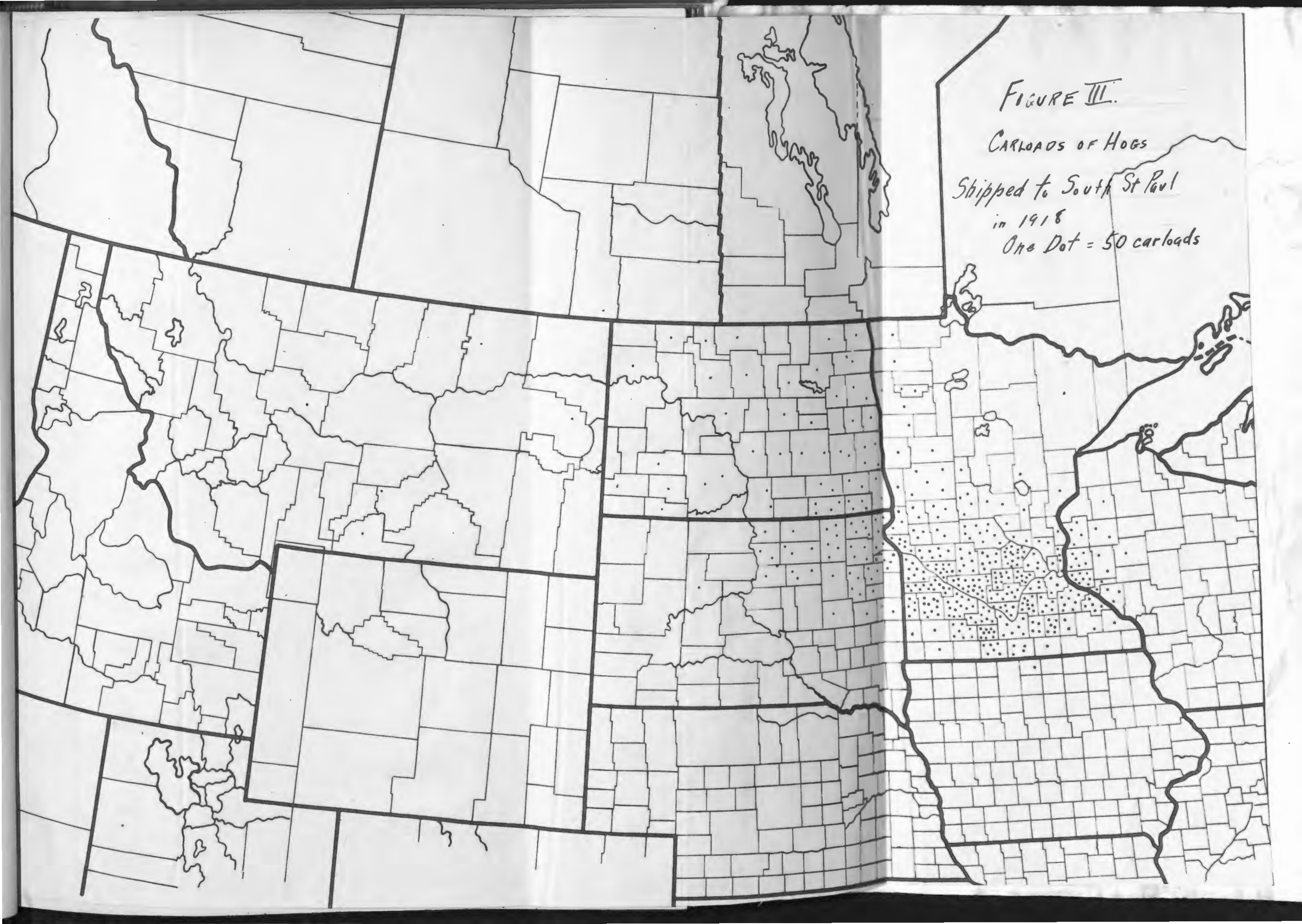
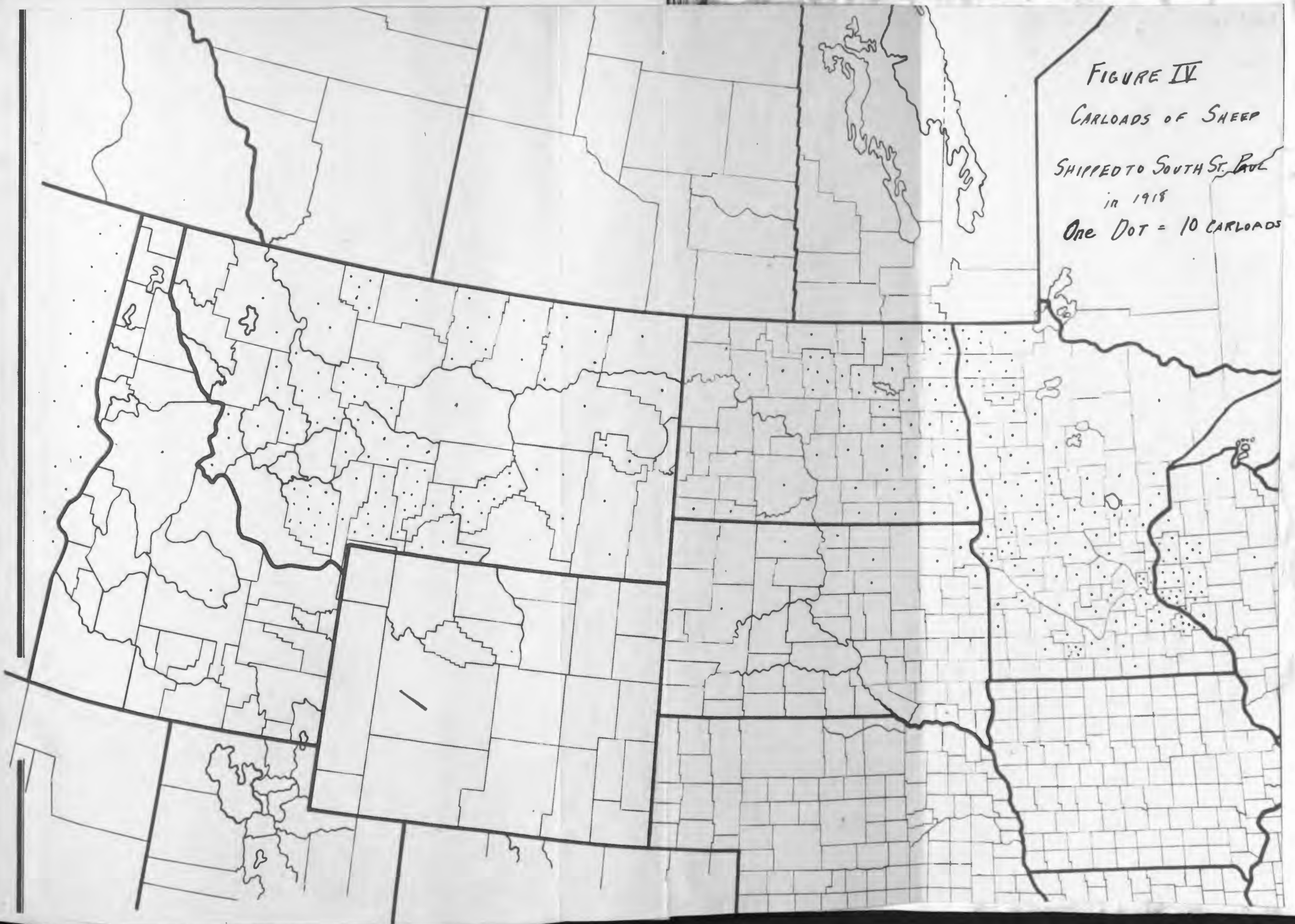


FIGURE IV
CARLOADS OF SHEEP
SHIPPED TO SOUTH ST. PAUL
in 1918
One DOT = 10 CARLOADS



Hogs (Figure III) are largely confined to central Minnesota because of approach to corn belt conditions. Hogs in South Dakota and southern Minnesota find an outlet at the other markets--- Chicago and Sioux City. Sheep (Figure IV) are found in largest numbers on the western ranges; shipments from Minnesota and Wisconsin come from small flocks.

Competition between Markets.--- Figure V illustrates the competition of the various markets to attract the shipments from northwestern territory. Some points, as southwestern Minnesota, South Dakota, and northern Iowa may have as many as three markets competing for the consignments. A large portion of the area lies in regions which have a choice of two markets.

Extent of the South St. Paul Market Area in 1918.--- The significance of the difference states in contributing to the South St. Paul market may be seen in the following table.

Table I. - ORIGIN OF LIVESTOCK SHIPMENTS BY STATES. - 1918 ⁽³⁾

	Number of Carloads				
	Cattle	Hogs	Sheep	Mixed	Total
Minnesota	10,533	10,111	414	16,230	37,288
North Dakota	6,364	1,331	253	4,809	12,757
South Dakota	3,604	3,089	201	3,325	10,219
Montana	6,029	195	1,057	120	7,401
Iowa	30	86	8	8	132
Colorado	6			2	8
Idaho	1		18		19
Illinois	2		1	1	4
Missouri	168	2	4		174
Kansas	31				31
Nebraska	7		7	8	22
Oregon	1		47		48
Washington	4		130		134
Manitoba	2,622	13	4	33	2,672
Saskatchewan	309	5		3	317
Alberta	274	15			289
TOTAL	29,985	14,847	2,144	24,539	71,515

(3) Taken from the files of the St. Paul Union Stockyards Company.

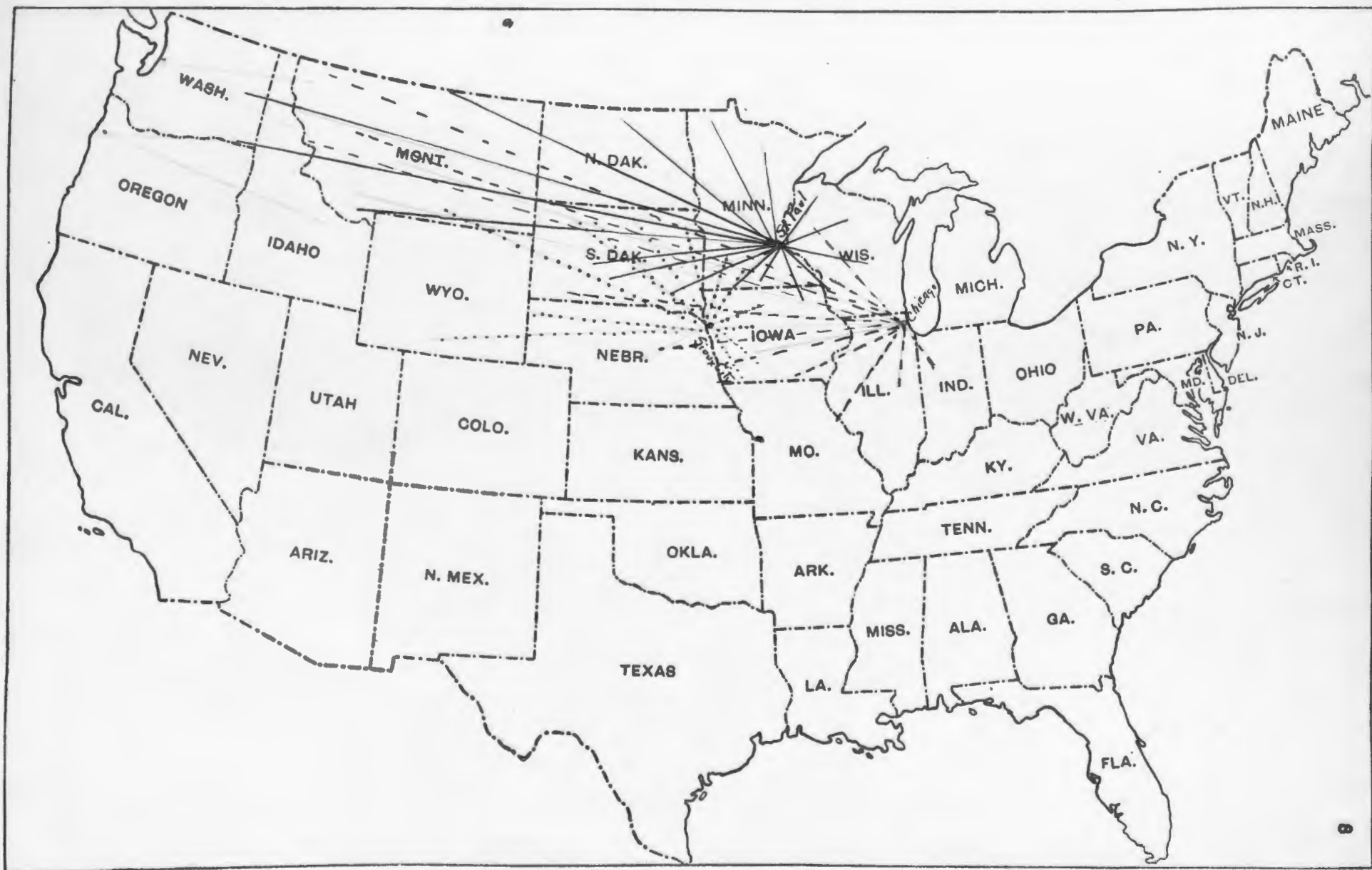


FIGURE V - Competing MARKETS.

9

Growth of the South St. Paul Market

The founding of the South St. Paul stockyards dates back to 1887, when A. B. Stickney, then President of the Chicago Great Western Railroad, and some broad visioned associates, opened the stockyards as a feeding station for cattle enroute from the western ranges to Chicago. The idea was eventually to develop this feeding station to a large packing center to accommodate the rapidly growing population of the central west. The receipts on the opening day, September 30, 1887, were 363 cattle in 17 cars. This is to be compared with the daily average in 1918 of 243 carloads, or 13,910 head of cattle, hogs, sheep, and calves.

In 1888, the first packing plant opened, slaughtering all the hogs offered and doing a moderate fresh beef and mutton business. Of the 272,712 hogs received that year, about 100,000 were imported from Missouri to help get things started, and the total receipts of livestock were only 5,831 cars. The feeding of sheep was started in 1889, and a portion of the stockyards was used for this purpose. The progress of the market the first ten years was slow and yet by the close of 1897, receipts had doubled, totaling 11,204 cars. The opening of Swift and Company's plant in 1897 gave the market another great impetus. Table II shows the increase in receipts by ten-year periods.

(4)

Table II. RECEIPTS OF LIVESTOCK AT TEN-YEAR PERIODS

Year	Receipts by head	Receipts by cars
1888	368,585	5,831
1898	986,023	13,587
1908	1,910,820	30,517
1918	4,128,542	75,918

(4) 1919 Year Book, St. Paul Union Stockyards Company.

1,10,33m

This phenomenal development of the South St. Paul Market merely reflects the agricultural progress of the northwest. Since the South St. Paul stockyards were established, the ranges of Montana have been opened up, the Red River Valley has turned to livestock production, and the plains of Minnesota and the Dakotas are being brought to more intensive culture.

The opening of the large Armour plant in the autumn of 1919 promises even further progress for the South St. Paul market. It is hoped to make South St. Paul one of the leading livestock markets of the country. The accompanying table comparing the seven principal western markets shows that South St. Paul is gaining on all competitors, having reached fourth place in total receipts of cattle, sixth in hog receipts, and fifth in sheep, with substantial increases in all departments.

(5)

Table III. COMPARISON OF RECEIPTS AT SEVEN PRINCIPAL MARKETS

Market	Cattle			Hogs			Sheep		
	1919	1918	PI°	1919	1918	PI°	1919	1918	PI°
Chicago	4,253,406	4,447,689	- 5	8,631,496	8,614,190	0	3,243,957	4,629,736	13
Kansas City	3,073,598	3,319,511	- 7	3,135,688	3,327,722	-6	1,946,978	1,667,463	17
St. Louis	1,975,130	1,993,366	- 1	3,649,652	3,256,400	12	725,348	536,406	35
So. St. Paul	1,490,926	1,430,408	4	2,189,716	2,061,390	6	911,875	630,203	46
Omaha	1,472,951	1,809,409	- 1	3,179,078	3,429,533	-8	3,789,088	3,385,696	12
St. Joseph	751,936	869,888	-14	2,129,056	2,351,013	-9	1,006,443	827,489	22
Sioux City	814,507	817,593	0	2,320,408	2,421,166	-4	686,883	387,423	77

PI° -- Percentage Increase.

(5) South St. Paul Daily Reporter, January 1, 1920.

A comparison of stocker and feeder shipments shows that South St. Paul now stands fifth for cattle, second for hogs, and sixth for sheep.

(6)

Table IV. STOCKER AND FEEDER SHIPMENTS

Markets	Cattle			Hogs			Sheep		
	1919	1918	PI°	1919	1918	PI°	1919	1918	PI°
Kansas City	1,035,609	1,053,415	-2	234,837	174,929	34	671,577	602,002	16
Omaha	658,354	526,068	25	8,253	12,921	-36	1,787,236	1,591,704	12
Chicago	508,793	401,437	27	13,867	24,450	43	1,106,034	967,995	14
Denver	483,326	402,210	20	31,524	17,360	82	1,290,151	921,304	40
So. St. Paul	416,408	336,968	24	103,240	172,569	-40	201,143	109,009	84
Sioux City	328,984	302,926	8	33,009	41,004	-19	272,233	128,791	211
St. Louis	234,045	225,073	4	98,175	76,815	28	138,810	43,007	323

PI° -- Percentage Increase.

Market Classes of Livestock

The present market classifications for livestock are not well established. The traders prefer to differentiate by price; for instance, they will speak of "seven cent cows" or "eleven cent steers" rather than designate the proper class and grade to which the animals belong. The principal reason for this is that some stock fits equally well into several of the elastic grades and standards, especially in the case of cattle because quality and condition are of so many gradations that dividing lines between classes are almost imperceptible.

A market class is based upon the use to which the animals are put. The market is accommodating and finds a place for all gradations of stock from the breeder's ideal down to the odds and ends. Meat animals may be used in any of the following ways: 1) they may be suitable for the packer; 2) if in an unfinished condition, being thin or immature, they may be fattened to yield a higher price for being more adapted for slaughter; 3) animals of superior quality or

(6) The Market Reporter, January 17, 1920, pages 36-37-38.

conformation may be in demand for breeding purposes; 4) cattle of dairy breeding may be more valuable for milking purposes than for beef. Class is determined on the basis of: 1) sex, 2) age, 3) condition, 4) weight, 5) conformation.

These differences are more closely followed with cattle than with sheep or hogs.

The distinction for cattle is sharper to bring out the range in price, because of so many kinds of animals and resulting uses. The following is the division of cattle on the market:

(7)

I. Beef cattle; mostly steers, but some high class heifers, constituting the choice of the market. These fat and finished cattle are suitable for block beef.

II. Range cattle and "grassers", western cattle raised and fed on the ranges.

III. Butcher stock: better grades of heifers, cows, and bulls for use as block beef.

IV. Cutters and canners; mostly thin cows and heifers, but also includes anything not suitable for feeding or too inferior to yield a good carcass, such as poor steers and bulls.

V. Stockers and feeders; young or light weight stock suitable for being fattened.

VI. Veal calves; mostly young calves weighing 120-200 pounds for the fancy veal trade of the East.

VII. Milkers and springers; cattle of dairy breeding, more valuable for milking purposes than for beef.

Swine.-- Hogs are not divided so carefully because they are more uniform than are cattle. At South St. Paul, the market reports give prices only

(7) Vaughan H. W., Market classes and grades, Chapter VI of text.

for market toppers, bulk and range of the day's run, and stock pigs. The following classification is recognized, however:

- (8)
- I. Prime heavy hogs, 350 - 500 pounds, very few arrive at market.
 - II. Butcher hogs, 200 - 350 " , principally barrows.
 - III. Packing hogs, 200 - 500 " , poorer sorts (old thin sows and thin hogs).
 - IV. Pigs 60 - 125 " , used for feeding purposes.
 - V. Roughs, stags and boars.

(9)

Sheep.--- The classes of sheep are of two kinds: Westerns and Natives. The western sheep are raised on the ranges of the west and have a hardy constitution, and are bred for wool chiefly. They are healthy, due to their system of management in the open, and are free from the parasites affecting the native sheep. The small flocks raised on the farms of the country are known as native sheep, and are usually affected by stomach or lung worms. Hence only westerns are used as feeders.

Lamb carcasses are by far the most popular of the sheep classes and consequently constitute about 75 percent of the market receipts for sheep.

The following classes of sheep are found at market:

Classes	Sub-classes
Mutton sheep:	(lambs, yearlings, wethers, ewes, bucks and
natives and westerns	(stags.
Feeder sheep:	(lambs, yearlings, wethers, and ewes.
westerns	(
Breeding sheep	(ewes and bucks.
	(

(8) Vaughan, Market Classes of Swine, Chapter XXIII.

(9) " , Sheep Markets and Market Classification, Chapter XV.

Breeds of Livestock

The several breeds of livestock in general predominate where the environment is most adapted to them. The Hereford is the choice of the rancher because of rugged constitution and thriftiness. The Shorthorn is a general purpose animal, being well adapted to any set of environment, and is raised extensively under general farming conditions. The Angus, which yields the highest quality and best finished carcass, is well suited to the feed lot, because this breed requires the most favorable surroundings to make the most rapid gains. The Milking Shorthorn and Red Polled are especially suitable to diversified farming because of dual purpose qualities, thus being capable of furnishing a high grade carcass for meat after the finish of the lactation period.

The dairy animal, represented by the Holstein, Jersey, and Guernsey breeds, is most adapted to intensive farming near the cities. Veal calves, a product of the dairy industry, find a ready outlet at market. After the dairy cow has completed her period of profit as a milker, she finds her way to market as a canner or cutter where she is slaughtered for beef.

However, most of the animals reaching market are of common breeding, and only little attention is paid to the breed from which an animal descends, except as breed influences type, thus dairy cattle suffer a discount at market because they do not dress out as high a percentage of carcass and yield as desirable beef as the blocky beef bred animal.

In the case of swine there are two extreme types--- lard and bacon. Lard hogs, which accumulate fat from their feed, are suited primarily to corn feeding. Practically all the hogs reaching South St. Paul are of the lard type, the favorite breeds being the Poland China and Duroc-Jersey. The bacon hog is represented by the Tamworth and Yorkshire, and is raised where corn cannot be matured, as in Canada, and to some extent in Montana and North Dakota.

Sheep come mostly from the western ranges, and have a mixture of wool and mutton breeding. The Shropshire is one of the leading mutton breeds while Merino blood is crossed with this to add wool-yielding qualities; also the Merino breed has a peculiar instinct for the whole flock to band together and not break up into small groups as do other breeds. This aids greatly in the work of the shepherd in keeping his flock together and thus caring for his sheep, especially in lambing time.

Kinds of Stockmen

(10)

Livestock production is divided into two stages: breeding and feeding. The ranchman of the west can produce yearlings more economically than the corn-belt farmer, while the western ranges do not afford the necessary grain and feed to mature and fatten the animals properly and consequently contribute much thin and unfinished stock to market for reshipment to the feed lots of the corn-belt. The breeder especially should study market demands since he is moulding the material with which the feeder must work. (11) An animal's quality, being determined by its ancestry, is an unchangeable factor and forms the basis which shall dictate to what use the animal shall be devoted. The feeder can only alter the weight and condition of an animal and is consequently limited to the extent of growing out and fattening the result of some breeder's efforts. Often the work of breeder and feeder is combined into one operation, the same farmer completing both processes.

(10) Gay, Principles and Practice of Judging Livestock, Page 3.

(11) Vaughan, Types and Classes of Livestock, Page 79.

Systems of Farming in the Producing Area

The areas contributing to the South St. Paul market bring forth different classes of livestock according to the systems of farming practised. The ranches of Montana and Dakota, the grain farm of the Red River valley, the general farms of Minnesota, the feed lots of Iowa and southern Minnesota, the dairy farms in the milk producing areas, each contribute a different class of livestock to the South St. Paul market. Minnesota with its diversified farming contributes the bulk of the mediocre or common grade cattle coming to South St. Paul. Where meat production is supplementary to other enterprises, such as grain farming, dairying, fruit growing, trucking, not much attention is given to the selection and care of choice breeding and feeding animals. As a result, Minnesota cattle, hogs and sheep are for the most part of ordinary quality.

From the dairy districts surrounding the large cities of Minnesota, such as the Twin Cities, come the majority of the veal calves and also the old thin cows which have outlived their usefulness in the dairy industry and finally come to market as a poor grade of butcher stock.

Southern Minnesota approaches corn belt conditions. To the farms of this district are shipped young thin animals, such as cows, heifers, steers, feeder pigs, and thin lambs, which are fattened and returned to the market for slaughter purposes. Sometimes the animals are fattened on summer pastures. Often the cattle are fed on ensilage, mill feeds, and hay, and thus fattened during the winter for the early spring market. Sometimes, however, they are simply roughed along on forage and fattened the following summer.

In Montana and the Dakotas the system of livestock husbandry practised is to choose thrifty, hardy animals which will rustle for themselves and survive the hardships of severe winters. White faces are the favorites of the western farmers. To fatten properly under range conditions, cattle must be of good breeding and superior quality. Consequently the fat steer and choice butcher cow

come from these western areas. Using good breeding stock, especially pure bred or high grade sires, has developed the cattle and sheep of the west to highly desirable beef and mutton types. The sheep of the west are far superior to the native Minnesota sheep.

Throughout the western states swine production is of less importance than in the corn belt. In the ranching sections hogs rank even less in the farming economy. However, where the ranches have been divided into smaller units, especially in the irrigated sections, the production of pork is more significant. Sometimes there is a noticeable difference in the type of hogs raised in the west and those produced under corn belt conditions. The western hog appears to be more of a scavenger, being of rangy, bacon type.

Iowa is a very small factor as a contributor to the South St. Paul market, and this state can be passed over with only a word. Farming in this section is noted for swine production and dry feeding of cattle and sheep. Many feeder pigs, cattle and lambs are yearly shipped to Iowa from South St. Paul.

Northwestern Wisconsin, tributary to South St. Paul, brings in an offering of dairy cattle, and summer of winter fattened cattle and hogs. The types of farming in Wisconsin do not differ essentially from those of Minnesota.

Canada ships large numbers of feeder steers to the South St. Paul market. Canadian cattle are usually of superior beef type, generally of Shorthorn breeding. The farmers are permitted to use only high grade bulls, and have attained a highly desirable beef animal. Only steers are allowed to be deported to the United States because the Dominion government forbids breeding stock to be sent to an outside market. Occasionally cows and bulls are shipped across the border, in which case they must be consigned to a packer for immediate slaughter.

Chapter II.

MARKETING MACHINERY.

The marketing process for livestock usually comprises five stages if we include manufacturing. These stages are as follows: 1) local marketing, 2) central marketing, 3) packing, 4) distributing to branch houses, and 5) retailing. Involved in these several stages, of course, is a large amount of transportation of one kind or another.

Needless to state, not all livestock passes through these channels. Local butchers in the small towns often kill and dress some of the livestock raised in the surrounding region. Local packing houses are located at some of the larger towns, as Duluth, Fargo and Albert Lea. Many head of livestock are sold in the country as stockers and feeders, and dairy animals. This stock may be bought and sold either at private sale or auction. Livestock reaching the central market may be sold as stockers and feeders, breeding and dairy stock, and thus not pass through the manufacturing stage immediately.

I shall now attempt to describe briefly each of the stages in the marketing process. It must be remembered that our purpose in doing this is not to give a complete analysis of the marketing process, but merely to furnish a basis for the analysis of price determination.

1. The Local Livestock Market.

Every shipping point in the territory tributary to a central market may be also a local livestock market. There are approximately 2,600 points which ship to South St. Paul. They range in size from 1 to 2 cars to 250 cars per year. In 1918 receipts were 75,918 carloads, making an average of 29 cars per shipping point. The livestock farmers may sell to local buyers or ship the

animals to a central market. Local buyers are of several types. (1) The local stock buyers may live in the region in which they deal, and buy livestock in connection with their farming business. These buyers ship to central markets but may also dispose of their livestock holdings through their vicinity. In this case their business may be limited to a car or two a year for shipment. Some local buyers may spend their entire time in buying and shipping livestock. Their volume of shipments often averages three or four carloads per week. The local buyer may purchase the animals by the head as cheaply as he can, or operate on a margin per hundred pounds of 30 cents for some Minnesota points to \$2.00 or more for distant Montana districts. In the case of the margin basis, the central market quotation is taken and the margin per hundred pounds deducted. The stock is weighed at the local towns and the farmer paid the necessary amount. The animals are usually to be delivered at the local shipping point at the price quoted. Part payment is often made by the local buyer at the time of the sale to insure prompt delivery of the stock at the designated time. (2) Local butchers may buy to slaughter or ship to the central market. (3) City butchers may send buyers out after livestock. These buyers may cover a regular territory and buy enough to maintain the city packing plant to capacity. A regular monthly salary and traveling expenses are paid to these buyers. (4) Local elevators and stores may do a shipping business. These would adopt the methods and margins required by the other local buyers. (5) Traveling or "itinerant" buyers may come in from an outside town and buy at the local point for shipment to a central market. These buyers only appear occasionally when the market looks favorable. (6) Commission men may send representatives out in the country to buy at the local points and ship to the central market. These representatives receive a regular salary. This method is only seldom used.

The farmer has the opportunity of shipping his own stock provided he has enough animals to make a carload for one consignment. Where livestock production is specialized, this method is used, and the farmer obtains the central price for his animals, minus the costs of marketing, such as transportation, feed in transit, terminal charges, yardage and commission.

Farmers who do not have enough animals to make up a carload find it to their advantage to organize a shipping association, and cooperatively market their livestock. Shipping associations have proved successful in reducing marketing cost. In 1918 there were estimated to be 450 shipping associations in Minnesota. The idea of cooperative shipping arose in Minnesota and is spreading to other states. The method of prorating expense differs among the associations. Some organizations prorate the cost for every shipment and pay the members the proceeds. Other associations charge a flat rate based on a study of previous costs. A sinking fund is established and the excess returned to the members at the end of the year. The latter method tends to even out costs of marketing by prorating any occasional excess charge, as holding animals over at the stockyards for several days.

Transportation to Market.-- The livestock is hauled or driven to town. When the animals are driven there is a shrinkage of 5 to 25 pounds per head depending upon the distance and class of animal. Hauling the stock eliminates most of this shrinkage. The local buyers usually designate the day when the stock is to be delivered, and have the necessary number of stock cars ordered from the railroad company to care for the stock. Some buyers have regular shipping days, and many farmers bring their surplus animals to town to sell on these days. Shipping associations also have regular shipping days, usually once a week.

The livestock is transported to the central market in specially latticed stock cars. The haul may be a day's run or take nearly a week, as from western

Montana to Chicago. If the haul requires over 36 hours of journey, the live-stock must be unloaded at a feeding station enroute and rested for at least five hours before being again loaded. The shrinkage suffered by the animals depends upon the distance, care and weather. Hogs may even gain while on the road, especially if the car is loaded light, and feed and water placed in the car. Cattle shrink 30 to 100 pounds, and sheep 10 to 30 pounds, according to the length of the haul. Livestock shipments are so timed as to arrive at the stock-yards at early morning in time to get a "fill" of feed and water for that day's run.

2. The Central Livestock Market.

The South St. Paul market is situated five miles south of St. Paul and can be reached by nine railroads. The terminal of these railroads is at St. Paul, but the Bridge and Terminal Railway switches the cars to the Stockyards. The fee for this service is \$3.00 per car. The property is owned by the St. Paul Union Stockyards Company and comprises about 254 acres of bottom land on the Mississippi River. There are about 86 acres inside the yard limits. Eighty acres are paved with concrete and brick. The stockyards is divided up into separate sections for cattle, sheep and hogs. The different sections are further divided into blocks and pens with alleys separating the different blocks and groups of pens. Each dealer has assigned to him a certain block of pens where he transacts his business. The horse market is handled in a separate sales stable outside the yards. The capacity of the yards, including storage sold and the space occupied by dealers, is 29,000 cattle, 49,000 hogs, 27,000 sheep and 500 horses. The records of the Stockyards Company show that the ownership is distributed as follows: Swift & Company, 9,805 shares; Armour & Company, 6,100 shares; English Interests, 8,175 shares; Scattered Interests, 920 shares; total, 25,000 shares.

The St. Paul Union Stockyards Company, although controlled by the local packers, Swift and Armour, is an independent or separate institution with its own organization and officials. It plays no part in livestock trading but merely owns the pens and equipment of the yards; it receives and reships the livestock; provides a supply of feed and water; it weighs and yards all animals for buyer and seller (the weighing function was taken over by the state railroad and warehouse commission, January 1, 1920.) The stockyard company derives its income from assessment of a fixed charge of yardage for each animal. This fee for each head of livestock is as follows: cattle, 30 cents; calves, 20 cents; hogs, 10 cents; sheep, 7 cents. In addition, all the feed consumed in the yards must be purchased from the stockyard company, and thus a profit is also made upon corn, hay and straw.

There are two classes of dealers at the market: commission men and speculators or scalpers. To safeguard trading, both of these groups of livestock traders have organized the South St. Paul Livestock Exchange. The membership of each firm to this exchange is \$5,000. Each dealer is also required to furnish \$20,000 bond to the exchange to insure fair trading and guarantee payment to livestock producers for animals sent to market. This body acts as a judiciary agency to settle disputes and see that the deals are carried out in a responsible manner. Since many times the trading involved in a single sale amounts to thousands of dollars, this protection is necessary to shippers. Definite rules are laid down concerning the receiving, handling, and selling of livestock. Says D. A. Gaumnitz in his booklet, "The Marketing of Livestock": "Strict principles of trading are enforced. A member's verbal statement in the stockyards with another member becomes binding, and legally enforceable. The Livestock Exchange adjusts all controversies between its members and their patrons. In short, it furnishes the machinery for rapid and safe trading with methods of

punishment for the disobedient." The transactions involved at the yards are on a cash basis, the rule stating that all payments for previous day's sales must be settled by noon the following day.

The dealers, commission men and speculators, each perform a useful and necessary function. The speculator buys and sells livestock, especially cattle, on his own account. This type of dealer furnishes an outlet to absorb the over-supply of stock reaching market on certain days and seasons. The speculators confine their buying mostly to the feeder trade, purchasing thin and immature stock which they can sell to best advantage to farmers and feeder buyers. The economic advantage of the speculator is to prevent prices from rapid fluctuations and keep the prices of different grades of livestock at the proper level. The speculators buy the animals from the commission men, take the stock to their pens, sort and group them so as to make attractive and uniform carlots for the trade.

The second type of dealer is the commission man who buys or sells livestock on behalf of his clientele, thus acting as the paid agent for livestock farmers and feeders. The rate of compensation is fixed by the rules and regulations of the Exchange. At South St. Paul the following rates prevail:

"Section 1. The commission for selling livestock on the South St. Paul market shall be governed by a charge of 1% on gross proceeds on carload shipments, with a maximum and minimum commission. No sale shall be made for less than 50 cents.

"Section 2. Cattle (cattle and calves one species) in cars not over 36 feet in length: minimum, \$14.00 per car; maximum, \$20.00 per car; cars over 36 feet in length, \$24.00 per car maximum.

"Section 3. Hogs in cars not over 36 feet in length: minimum, single decks \$12 per car, double decks \$15.00 per car; maximum, single decks \$14.00 per car, double decks \$18.00 per car; cars over 36 feet in length, \$16.00 per car maximum (single deck).

"Section 4. Sheep in cars not over 36 feet in length: minimum, \$14.00 per car; maximum, \$20.00 per car.

"Section 5. Mixed carloads. Cars not over 36 feet in length: minimum, \$14.00 per car; maximum, \$20.00 per car; in cars over 36 feet in length \$24.00 per car maximum.

"Section 6. Commission for buying.-- Commission for buying livestock on this market shall not be less than the following:

Cattle, \$12.00 per car.

Calves, \$12.00 per car single deck.

Calves, \$20.00 per car double deck.

Milkers and Springers, \$1.00 per head.

Hogs, \$10.00 per car single or double deck.

Pigs, \$15.00 per car single or double deck.

Sheep, \$10.00 per car single deck.

Sheep, \$15.00 per car double deck.

The function of the commission firms is to sell or buy livestock for their patrons on the scale of compensation directed by the Exchange. In addition, the commission man looks after all the details incidental to the transaction. At the time of the sale the price is fixed in terms of so much per hundred pounds, the entire amount being determined after the animals have been weighed by official state weighmasters employed by the Railroad and Warehouse Commission. The owner of the stock is obliged to pay the freight charges from the local shipping point

to the central market, cost of feeding the animals enroute and at the yards, a yardage charge, and at the South St. Paul market, a terminal charge for switching the cars from the railroad to the stockyards. After deducting all such charges and his commission from the amount realized on the sale, the commission man sends the balance to the stockman by bank draft or check.

Stock cars usually arrive at the yards early in the morning. The live stock is unloaded, driven to the commission men's pens and alleys, and fed and watered. The commission firm acting for the shipper then divides the animals into bunches of one to a carload with a view to adjusting the number to the needs of prospective buyers and to obtaining uniformity in character and quality. The salesman looks to see the purpose or usefulness for which each animal is best suited and sorts the stock accordingly. He places animals of the same grade and quality into separate pens and receives bids from the various buyers. These possible purchasers are of the following classes: (1) the local packer who buys for immediate slaughter; (2) the buyer of a packing company who has no plant at that particular market; (3) "order buyers", or those who are buying on orders for outside parties; (4) the speculator or scalper who pick-up bargains to resell; (5) and lastly, the stockman who comes to buy feeders.

After sorting the animals so as to make them look most attractive, the commission man allows the stock to get a good "fill" of feed and water. He dickers with prospective customers as they visit his alley, and holds out for as much as he thinks he can get. The different grades of stock have a market quotation each day. Bargaining comes into play when the commission man and the buyer higgles over the quality and condition of the animals. The salesman has his reservation price but attempts to get the highest possible bid. When he thus begins to receive bids, and does not sell to the early prospects, he peddles on the previous offers to raise the price to the next buyer who appears. He

continues until he obtains a bid that suits. Many of the offers of the buyers are standing bids-- thus at South St. Paul, Swift's and Armour's representatives often leave standing offers with salesmen and do not know at the time whether stock will be weighed to them or not. The commission man thus has opportunity to reach a large number of buyers and sell to the highest bidder. The first thing each morning the commission men and buyers inform themselves regarding quotations on the various kinds of stock and the visible supply. If the supply is short and the demand for certain grades is active, the buyers seek the salesmen; but if the market is dull and indifferent, the sellers seek the buyers.

The owners or shippers can sell their livestock on the open market, but invariably consign to some commission merchant whose experience, responsibility and market knowledge yield best results to the stockmen. Commission firms not only take care of animals reaching the yards but also impart information concerning present market conditions and future prospects. Some firms pride themselves upon their ability to give cattle and sheep a "fill" of hay and water, and hogs of corn and water. This method is used to reduce the shrinkage suffered by the animals on the way to market and prevent them from being gaunt and out of condition. Cattle will take on 30 to 75 pounds fill, hogs and sheep 15 to 30 pounds. This prevents an excessive shrinkage between home weight and stockyards weight.

3. Packing.

The packing plants are conducting a large manufacturing business. They convert livestock into fresh and cured meats and the accompanying by-products. By large scale operations these plants prove very efficient for guiding the meat into the proper channels. Packing plants have refrigerator car routes and branch houses throughout the country. Butchers and small packers conduct a local business. Trained experts purchase livestock in the yards for the butchers and packers. These buyers are given orders as to how many animals to buy each

day, and approximately the price to pay. The combined daily killing capacity at South St. Paul is 5,500 cattle, 18,000 hogs, and 4,000 sheep.

4. Distributing.

The packers ship a large portion of the meat to the eastern cities for consumption and export. They also ship to branch houses, wholesale houses, and direct to retailers. Swift has about fifteen and Armour twenty branch houses located in the northwest. Wholesale houses may buy the meat for distribution to the retailers in their vicinity. Many retailers purchase direct from the packers. Car line routes all over the country afford facilities for delivering the meat. Whole carcasses, cured meats, and single cuts, in large or small lots, may be thus obtained. The meat is sold through traveling salesmen, mail orders, telegraphs and telephone calls. Transportation from the packing houses is accomplished through refrigerator lines. The packing plants and branch houses have automobile trucks and heavy drays to carry the meat to the retailers.

5. Retailing.

The meat is retailed to the consumer through various types of dealers. The prevailing method is by means of small meat markets conveniently located in the consuming centers. Department stores in the larger towns and cities have established meat market sections and sell mostly cured meats and prepared products, as ham, bacon, sausage and oleomargarine. Some of these stores also sell fresh meat. Customers are accommodated by the credit and delivery system. Grocers usually handle cured meats and often adopt the "cash and carry" basis.

6. Special Marketing Channels.

Livestock may be diverted to other channels than the slaughter houses at South St. Paul. The stock may be shipped to other markets, as Chicago or Sioux City, or go east for the Kosher trade. Eventually, however, the animals will go to the block. Considerable volume of trade at every market is done by the stocker and feeder business. In this case the animals are sent back to the farms and feed lots for fattening. Many cows are sold at this market for dairy purposes.

Distribution of animals sold at South St. Paul for the year 1918 is as follows:

	Cattle	Calves	Hogs	Sheep
Consumed in South St. Paul	403,110	212,525	1,304,382	175,524
Other Packers and Local Butchers	205,725	18,726	683,495	35,466
Feeders shipped to the Country	338,150	13,874	174,965	109,146

(Taken from the files of the St. Paul Union Stockyards Company).

Chapter III.

CLASSIFICATION OF PRICES.

At each of the stages in the marketing process, a special set of buyers and sellers are in action and a special price or range of prices is established.

These may be indicated as follows:

<u>Classes of Prices</u>	<u>Sellers</u>	<u>Buyers</u>
1. Local prices		
a. Farm price	Farmers	Farmers
b. Local market price	Farmers	Local stock buyers Local butchers Traveling buyers Country buyers (Shipping Associations) ^c
2. Central market prices		
a. Killer wholesale price	Commission men (as agents for farmers)	Packers Local butchers Speculators Outside packers
b. Feeder wholesale price	"	Feeders Speculators Brokers (agents for feeder buyers)
c. Speculator's wholesale price (selling)	Speculators	Feeders Brokers (agents for feeder buyers)
	Commission men (as agents for speculators)	Packers Local butchers Outside butchers Brokers (agents for feeder buyers)
d. Speculator's wholesale price (buying)	Commission men (as agents for farmers)	Speculators

(Continued)

**3. Wholesale manufactured
meat prices**

a. Wholesale dressed meat prices	Packers	Wholesalers Branch houses Local butchers Retailers
b. Wholesale by-product prices (for partially finished goods)	Packers	Subsidiary companies (as tanneries, etc) Outside manufacturing concerns
c. Wholesale by-product prices (for finished goods)	Packers	Wholesalers Branch houses Retailers

4. Wholesale meat prices	Wholesalers Branch houses	Retailers Hotels Local butchers Grocers
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5. Retailer's price	Retailers	Consumers
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* There is some question as to whether shipping associations should be classed as buyers. While they replace local buyers, they do not guarantee the farmers a set price, nor do they buy outright.

Farm prices are the first encountered in livestock production. They are merely estimates of the average value of each class of livestock on the farms of given communities. These figures are sent in by the reporter in the various sections of each state to the Bureau of Crop Estimates. Prices determined in this way are erratic and depend to large extent upon the judgment of the crop reporters. Furthermore all these men may not be using the same basis for estimating farm price. Auction sales in the community may be the influencing factor; need of the farmers for breeding of milking stock might be reflected in private sales; there may be a shortage of livestock in the section, and local market price plus cost of hauling or driving the livestock to the farm might dictate the price; on the other

hand, a surplus of livestock might lead the reporter to judge farm price as the local market price minus cost of transporting from the farm. Consequently farm price is subject to considerable variation. Some prices have been estimated upon one basis, while others have been differently determined. The question has been raised as to whether farm price is a separate entity or merely local market prices with allowance for transportation costs to or from the farm. The farm price quotations for livestock are usually "to be delivered" prices at the local market. These prices may be found in publications by the Bureau of Crop Estimates, such as the Monthly Crop Reporter and special pamphlets of the field agents.

Local market price is usually a reflection of the central market quotation. This price is determined by the local buyers and farmers at the local shipping point. The method of establishing this price depends upon the type of buyer in the community. The farmers may receive a price in terms of 100 pounds of live animal or a price on a per head basis, according to the agreement with the local buyer.

Central market price forms the balance wheel between the prices of livestock to the producer and prices of the dressed meat to the consumer. These prices are determined by keen competition between the commission men who represent the farmers, and the butchers, packers, feeder buyers and speculators. The result of this bargaining constitutes the central market price for each grade of animal. Due to varying desires and motives, prices may be different to the different classes of buyers. Thus butchers and packers will outbid the other buyers for the fat stock, country buyers will pay a premium for young thin stock, while scalpers seek to obtain the livestock under the price paid by the packer or feeder buyer. The scalpers must buy at a price low enough to sell at a profit to the other buyers. Central market prices are quoted in the local papers

and farm magazines. The figures given cover a range or spread in prices of each class and grade of livestock, and allow for difference in price to the several groups of buyers.

Wholesale meat prices are the prices quoted to the retailer. The packer usually sells directly to the retailer through a branch house or car line route. Demand for meat in large cities, as Boston, New York, and Buffalo, is a potent factor in determining wholesale price. However, the packers attempt to sell the carcass and dressed meat at a price sufficient to cover the cost of the animal, operating expenses, and a margin of profit. Wholesale meat prices may be found in the Butchers' Advocate, other trade journals, and reports by the Bureau of Markets.

Retail meat prices are those paid by the consumer at the local butcher shops. These prices vary according to the locality and type of shop which is being conducted. Overhead expenses, as clerk hire, rent, delivery system, extension of credit, cause a considerable difference in the retail price of meat in the same city. The retailers usually require a margin of at least 30 per cent to cover operating expenses. (12) The Bureau of Labor Statistics quotes average monthly retail price for the different cities.

(12) Warner K. F., Paper on "Marketing of Livestock Products in Minnesota"

Chapter IV.

PRICE DETERMINING FORCES.

Before proceeding to analyze the process of price-determination of live-stock, we must have in mind very clearly the various price-determining forces. The following presentation does not claim to be original nor complete.

A. Free Competition.

The usual explanation of price determination assumes what we call a state of free competition, that is, a frictionless state where supply, demand, and prices are free to move instantaneously in response to changes of any kind. In such a state, typical supply and demand schedules, such as A and B in the following figures, would ordinarily rule.

Price per head	Number of head demanded
\$50	6,000
\$40	8,000
\$35	15,000
\$30	20,000
\$25	22,000

Figure A. Demand Schedule for Butcher Cows.

Price per head	Number of head offered
\$70	32,000
\$60	24,000
\$50	22,000
\$40	18,000
\$35	15,000
\$30	9,000

Figure B. Supply Schedule for Butcher Cows.

Figure A represents the demand schedule for butcher cows at varying prices, while Figure B represents the supply schedule for the same kind of cows.

At the prices given, the butchers will take the number of cattle indicated, and the farmers will produce the number indicated. The assumption is that all cows are alike, and it costs \$30 per head to produce a cow under the most favorable circumstances, and hence no animals will be offered for sale at a price below \$30. No exchange will take place below \$30, and none can be over \$50 because that price is higher than the highest bidder is willing to pay. The available supply is therefore limited, according to the schedule, to 22,000 head at \$50 each. At this price, however, only 6,000 head are demanded. The farmer will offer 18,000 head at \$40, but the buyer wants only 8,000 head at this price; the farmer will offer 15,000 at \$35 per head, while the butchers will take 15,000 at this price. The butchers can use 20,000 at \$30, but at this price the farmers will offer only 9,000 head. Under this arrangement all bidders will not be satisfied, as there can be but one price. Consequently \$35, the point where supply and demand become equal, will be the price at which the trade takes place. It is the point of equilibrium or intersection of the two curves where supply and demand are equal at the same price.

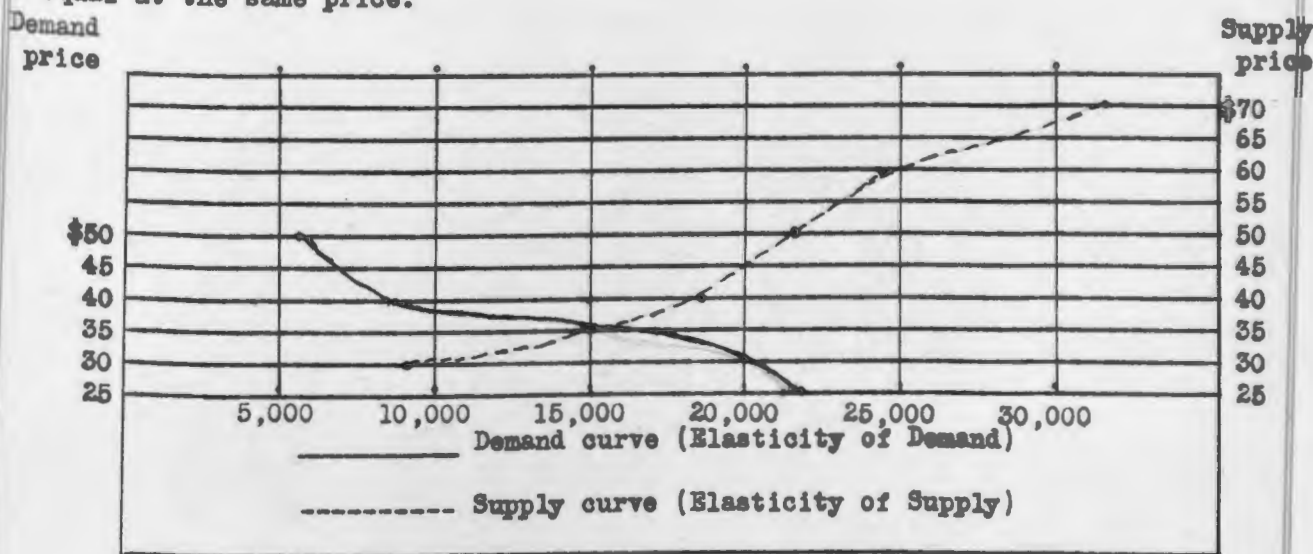


Figure C. Determination of the Price Point.

B. Economic Friction.

The principal reason that an explanation of prices in terms of free competition is inadequate is the prevalence of a large amount of what is called "economic friction". By this term is comprehended whatever hindrances there may interpose between buyers and sellers and between different buyers and different sellers, that keep them from being fully informed as to the state of the market, and whatever hindrances may prevent sellers from at once supplying the additional goods that increased price is expected to call forth, or buyers from demanding the additional goods that a lower price is expected to cause them to demand. Buyers and sellers are seldom in constant or direct communication among themselves or with each other, since market news requires hours, even weeks and months to travel. Furthermore no one knows what conditions or transactions are occurring outside his sphere of action or communication. The animals necessary for response to increased price may first have to be produced, or at least those already in existence must have time to be shipped to market, and in the meantime vast changes in market conditions may have taken place. In addition, favorable news may unduly stimulate production, or encourage farmers to overstock the market, and depression in price will inevitably result. On the other hand, low prices may discourage to a greater degree than necessary any effort to maintain the required production. In fact the livestock farmer is confronted with many adverse circumstances which tend to hinder production and marketing operations; 1) he cannot speed up or suddenly slacken his livestock enterprises to respond to market changes; 2) he may be far removed from market and cannot obtain market information in time to benefit from a sudden increase or decrease in price; 3) after he loads his stock for market he cannot withdraw the livestock out of visible supply; 4) he may be forced to sell because of lack of feed, as crop failures or dry pastures; 5) other farm work may interfere with his attention to his livestock;

6) bad weather may hinder shipments from local points; 7) there may be a car shortage on the railroads, and necessary livestock cars cannot be obtained.

There is also economic friction from the demand side. Since all classes of livestock vary as to quality and usefulness, different groups of buyers will be concerned in making purchases. The packer, the breeder, the dairyman, and the feeder buyer all have different price schedules, depending upon what they can afford to pay for an animal. Their respective places of business are widely separated, and consequently these possible purchasers only occasionally have chances to do extensive bidding against each other. The cost and risk of buying and shipping livestock to the place where needed may prevent active bidding. At local points only the local buyer may be the bidder, and the stock retained on the farms because of a higher reservation price. At the central markets, the packers alone may be willing to take the animals. Future market reports may also deter satisfactory bidding. Lastly, the sellers often experience difficulty in finding the desires and needs of the buyers, or the buyers cannot locate the proper quality and kind of livestock to best fill their needs.

C. Bargaining.

Wherever goods vary in quality and cannot be perfectly graded, or buyers or sellers are ignorant of the conditions of the market, there enters a chance for buyers and sellers to higggle, and for the best bargainer to make bargaining gains. Livestock cannot be sold by grade or sample. Either the buyers and sellers or their representatives must actually inspect the goods. This makes bargaining necessary. Skill in livestock judging, tact, and salesmanship all play important parts in "higgling" over the grade or price of the animal. Efficient farmers when buying livestock to breed or fatten are often willing to capitalize part of their superior efficiency and bid over the worth of an animal to the ordinary farmer. The ability of buyer or seller to drive a bargain enters in large

measure into successful livestock production.

Bargaining may be of two sorts; individual or collective. The former implies single action on either side of the market, while the latter refers to group action. Where farmers pool their interests, as in creamery associations, local co-operative elevators, or livestock shipping associations, they are resorting to forms of collective bargaining. The effect of bargaining is to make a more favorable trade for the stronger side of the deal.

D. Monopoly.

Monopoly means complete or partial control of price on the part of buyers or sellers of a commodity brought about by purposed unity of action. Scarcity predisposes to monopoly, however, because it makes it easier for a few men to control the price. Similarly, concentration of ownership predisposes to monopoly. For this reason, the packers are accused of monopolistic action. No one can dogmatically state where monopoly begins or ends, for it is a question of degree. By secret agreement among themselves, it is alleged, the packers have obtained monopolistic buying power over the livestock produced on farms, and after slaughtering the animals, monopolistic selling power over the dressed meat prices. Co-operative action on the part of producers may also pave the way for monopoly. A commodity sold under monopoly price is equivalent to a fixed supply good, and the demand schedule alone determines the market price. The price which the monopolists seek to establish is the one which will net them the largest profit, obtained by the product of the units of good multiplied by the profit per hundred weight.

E. Custom.

"Custom is the phenomenon of the repetition of ways of doing or thinking solely because of the previous performance of them often enough to establish a tendency toward such repetition. Applied to price, it means the paying of

certain prices or offering to sell at certain prices merely because such prices have been paid before and for no other reason." (13) Custom not only acts upon price directly in the manner indicated, but also upon price indirectly through the conditions of supply and demand. The farmers of Minnesota and surrounding states have largely become accustomed to farrowing their swine litters in May and marketing late in the fall. The consumers of meat also have preferences; thus the people of Minneapolis use more meat from cow and heifer carcasses than do the people of St. Paul. Pork loins are in greater demand than necessary because housewives do not know how to prepare other fresh pork cuts so well. To continue to do things in the old fashioned way, though it may be obsolete, is to follow the path of least resistance. Often the advantage of a superior method cannot be easily impressed upon the recipients. Custom affects price, either from the production or the demand side by causing slow changes and only a slight desire to learn new methods, or choice of other alternatives. The effect of this phenomenon, therefore, is to make relatively inelastic supply and demand schedules for livestock production and meat consumption.

F. Public Authority.

It will be obvious that under certain conditions one or more of the price forces named may assume great importance and unduly affect prices. To offset this, public authority may step in when needed to fix minimum or maximum, or set prices on commodities. Price supervision is merely an attempt to establish the equilibrium that would result under a state of free competition. The war produced many monopoly conditions and created sudden extraordinary demand for all kinds of products. Economic friction prevented supply from responding to sudden increases in demand. Public authority therefore is an attempt to restore normal price schedules.

(13) Manuscript, J. D. Black.

Chapter V.

CONDITIONS OF SUPPLY.

Before proceeding to interpret the price phenomena of the market place in terms of the price-making forces described in the last chapter, we must consider the conditions which determine what amounts of livestock will be put on the market at certain prices and how soon they will be put upon the market. Market supply must be considered under two heads: first, supply out of stock, that is, out of goods already produced; and second, supply out of new production. Stock in this case will be interpreted as including all the livestock that will be thrown upon or held off the market under influence of price changes, whatever its condition of preparedness. One part of this stock is already at the market, another part is on its way to the market, and a third part is on the farms awaiting the opportune moment to be started on its way. It will be apparent that supply in stock enters largely into the short-time fluctuations of the market, whereas supply out of new production produces long-range price movements.

Supply may be considered from two angles: first, that of the cost of bringing an additional supply to market; and second, that of the time required for a response to a price stimulus. The first is ordinarily called "proportional cost" and the second may be called "response time". These two considerations apply both to supply out of stock and to supply out of new production.

A. Supply Out of Stock.

Proportional Cost.--- The animals which have reached the stockyards and those which are on their way to market may be classed as a fixed supply good, and hence will command a price subject to the intensity of the demand at the trading centers. Animals at the stockyards will not be shipped back to the

farmer who consigned them to the market, but will be sold to one of the livestock buyers at the current market price. The cost of holding animals in the stockyards prohibits keeping livestock there for any length of time. The animals will usually shrink in the yards, and the feed bill for maintaining each head of cattle per day is 40 to 50 cents, and 15 to 30 cents per head of hogs or sheep. Occasionally it is profitable to hold over animals for several days to a week waiting for an advance in the market. Usually however the animals are sold on the same or following day after they reach the yards.

Livestock on farms may be ready for consignment to the market, or may be in process of growing and fattening. With favorable market news the finished stock and the undesirable animals will be sent as soon as possible to the market, since it is costly to maintain the animals where satisfactory gains in weight are not being made. Often this stock will come to market in spite of a poor market condition because the pastures and feed required could be more efficiently used for other purposes. On the other hand, for the unfinished stock which is on the farm in the fattening process, profitable gains in weight are being made. These animals will sell better when fat and mature than at present when they are not in good condition. If the stock is making satisfactory gains, the farmers hesitate to dispose of it even with higher market condition than usual. To get this stock on the road to market, the farmers must be persuaded that the animals will bring a higher price per head to market now than to hold until fat. Thus the gain in price per hundredweight at present must offset the gain in weight during the fattening period.

Time response.-- Animals in the yards or enroute to market will not be taken out of visible supply and so no appreciable response will be made for this stock because of a price change. Speculators at the stockyards may buy some of the animals to hold over for several days when the market stands a chance for

advancing; or some of the dealers may buy for shipment to another market, thus traders at Winnipeg may ship to South St. Paul, and those at South St. Paul may buy for consignment to Chicago. The farmer who ships to a central market has the privilege of consigning on to the next market if he so wishes. These changes in supply, however, only slightly affect the time response and are matters of a few days.

The stock still remaining on the farms will be considerably affected in the time at which they are placed upon the market in response to a price change. News of a stronger or weaker market may be carried to the producing areas the same day by telephone or telegraph, or may travel slower through the mail and live-stock reports in local papers. If the market is higher than usual the farmers will soon send their finished and unprofitable animals to market. It may be a day to a week or more before this response is felt at the market by increased receipts. Sufficient time must elapse to allow the favorable market news to travel and for the stock to be shipped to market. If the market continues to show strength, the farmers who have fattening stock on hand will begin to send these to market. Some farmers will commence to feed their stock heavier so that the animals will be ready for market in the course of a few weeks and so benefit by the favorable price. Others will figure that the increased market price may not last until the animals are fat and they too will soon ship their stock. The response time for increased receipts from this source may be from a week to several months in length. The permanency of the price change affects quantities of live-stock sent to market; if the farmers believe the higher price is only temporary, they will be much quicker to contribute to increased receipts.

The effect of a depression in price will cause a dearth in receipts. Some of the finished animals on farms may be consigned to market in spite of the unfavorable news because there may be a feed shortage or other need for disposing of the stock. If the market condition shows no signs of improving, the fat

stock and the unprofitable animals may nevertheless be shipped. If the farmers have facilities for retaining the animals on the farms, the response to a decreased price will be felt in a few days or a week depending upon the speed with which the news travels that the market is suffering a depression. A decreased price will be more potent in retaining the young thin stock on the farms and prolonging the lactation seasons of the dairy cows.

B. Supply Out of New Production.

The supply of livestock for market may be increased by obtaining the animals out of new production. The cost of producing a greater supply of stock depends upon whether the farmers are using their land, labor, capital, and management in farming to the proper intensity. They may not be raising the right number of animals or the right amount of feed to yield the most profit from their livestock and other enterprises. They could rearrange their operations so as to be farming under the most favorable conditions and with the right degree of intensity. Thus they might raise more livestock at a decreasing cost per head by more effectively using the feed and other items at their disposal. On the other hand they might have too many animals for the amount of home grown feed. In this case the farmers might profitably raise more feed crops and thus decrease the feed cost per head of livestock. In our analysis we will assume that the farmers have already reached the desirable intensity of culture.

Proportional Cost.--- Greater production may be brought about by: (1) taking land, labor, capital, and management out of some other use and devoting them to livestock production; (2) hiring more labor and capital and applying them to livestock production. The additional capital obtained in this way may be applied: 1) to more livestock, or 2) to the same amount of livestock by more intensive care.

If livestock replaces some grain or other crop, at least as much income or credit of some kind must be derived from the livestock enterprises as from the previous use in order to get the farmers to make the change. In fact the livestock must often yield a greater return to induce the farmer to forsake the former use of his land, labor, capital, and management, and commence livestock production. To increase the supply of livestock, ordinarily land must be taken out of some other use, as must also labor, management, and equipment. Assuming that the inducement for additional livestock has come from a rise in prices for meat, not from a fall in prices for alternative products, the rental charge per acre for land will be higher than for the land formerly used for livestock production because this new land has been taken out of a superior use to care for the extra number of livestock. The alternative or opportunity cost must be greater than for the land formerly used, otherwise the land would have been used already for livestock in preference to some other enterprise. A premium must be offered therefore to induce the farmer to take the land out of some other crop and grow livestock in its place. Greater production may also be brought about by either using a poorer grade of land and so the average output of each acre would be less, or applying more intensive culture to the land already in use.

If the extra livestock is produced by hiring more labor and capital, the effect is the same, since the labor and capital is being taken from somebody else who is probably using it for other purposes. Thus capital, labor, management, and equipment would cost more per animal because of opportunity use. Livestock is therefore an increasing cost good when additional supply is brought about by growing livestock in preference to other farm products.

With respect to feed requirements the cost per head of livestock increases with the size of the herd maintained upon the typical farm. Each farmer is normally caring only for the number of animals which he can best handle to

utilize his home grown feed, much of which is waste and roughage. The major part of the marketable animals in the area tributary to South St. Paul are by-products or at least raised in connection with other types of farming. Thus the livestock is kept mainly for disposing of the forage and roughage necessarily produced from the other crops. To increase the number of animals, therefore, on a given farm, resort must be made to other and more expensive kinds of feed. Hence feed costs per head would inevitably increase.

Labor costs in general decrease with the number of head maintained because more animals could be added without materially increasing the amount of labor required for the herd. The proportional cost of labor per head would then decrease. However, if the farmer keeps enough livestock to occupy all the labor which he has at his disposal, he may add to the size of his herd, drove, or flock only at increasing cost per head. Ordinarily the farmer may care for his livestock with his own spare time, and often also with the aid of family labor. He may be increasing his income by taking advantage of livestock raising in otherwise dull seasons, or using the childrens' help before and after school hours and during vacations, and just maintain enough animals to fill in these spare hours. Hence to increase the number of animals kept, he must resort to hiring a man to care for the new addition of livestock. Perhaps the hired man could care for more animals than are introduced, but due to lack of feed and other factors, the full quota of stock to utilize the hired man's time most advantageously will not be added. The overhead burden of the new farm hand must be distributed over the whole herd, which would increase the cost per head for labor charge.

In regard to interest and depreciation, the expense increases in nearly constant proportion, while some items, as shelter and sire cost, usually decrease per head upon enlarging the herd. Interest bears a constant cost because that charge is based more nearly upon the actual value or utility of the animal. The charge for shelter varies greatly with the conditions under which the animals are

raised. A farm equipped for livestock production will have substantial buildings to care for the animals. These barns and sheds can usually be rearranged and enlarged so as to maintain an increased herd at slightly extra charge. The shelter cost per head would therefore be decreased when the housing cost is distributed over the entire herd. If the farm lacks necessary buildings to take on the extra livestock, new structures may be erected. The charge for shelter in this case may for the present be increased for each head of livestock, but if the new barns are used to full advantage the shelter costs may again decrease.

The charge for depreciation is applied primarily to breeding and dairy stock rather than market animals. The depreciation is highest for animals which have only a limited period of usefulness, as dairy cows bought as springers, used during lactation time, and then sold to butchers for canners and cutters. The age of the breeding stock increases the rate of depreciation. As a rule poor grade animals suffer more rapid depreciation than the better grades.

Sire cost rapidly diminishes as the size of the herd is increased to the full use of the sire. When the herd is enlarged to require two or more sires, the sire cost per head of breeding stock will suddenly increase but will diminish again as the herd becomes of sufficient size to require full use of the sires.

To increase the production of livestock, the management of the farmer must usually be taken out of other uses in order to apply it to the livestock enterprises. The opportunity cost of that management must be charged to the animals added to the herd. If the farmer were already using his management to best advantage, the enterprises which he would have to forsake would yield more compensation than livestock production previously had returned. Hence his management will be charged at an increased cost to the new animals added to the herd.

Another element affecting cost of an increased supply is the extra cost of the breeding stock in times of rising prices. There must be enough inducement and permanency of the increased prices to encourage the farmers to purchase breeding animals at the high prices. In a time of falling prices many breeders and feeders will become discouraged and will sell at sacrifice prices. Others will stay in the business because they would lose too much of their capital by making a change. Thus farmers will often raise livestock at a loss to avoid leaving the business and encountering a greater loss.

Economic friction may cause extra costs in producing an increased supply of livestock. Fixed capital, as land, buildings and machinery, and circulating capital, as labor, management and feed, must be taken out of some other use to provide the necessary care for the additional livestock. The forms of capital goods may be more adapted to the other uses than to livestock production, and there will be considerable economic resistance in changing to the livestock enterprises. To accommodate the extra animals, fields must be rearranged and fenced; buildings and barns must be altered and new additions constructed; sheds useful for grain, dairy and machine purposes would be practically useless; machinery adapted to other types of farming would be of little value on a livestock farm. Thus much of the capital on the farm would be almost worthless and could only be salvaged at the scrap value.

The farmer may have special training along some other line, as truck gardening, grain growing, dairying, and would hesitate to make the change. His superior ability and management could not be used to best avail in a new livestock enterprise. He would be applying a less efficient grade of work in raising the animals than the skilled livestock producer, but he must be rewarded by at least the same compensation he received in his special line of farming. Hence if farmers turn from other enterprises to raise livestock, the cost of producing the

additional animals would be at an increased rate because of economic friction.

One cannot assume that the quality will be the same regardless of an increase or decrease in number. It is likely that a sudden increase in the number of head will result in bringing poorer animals into the herd, while a decrease will eliminate the less desirable stock. Quality has two elements, capacity and efficiency. Efficiency has reference to the return which an animal makes for the several items of cost. An animal which is well adapted to the use to which put is rated as one of high efficiency. Capacity has reference to the amount of cost which is expended upon an animal. The greater an animal's capacity, the greater should be the product of the animal per item of cost, and the less the overhead expense per unit return. If animals of smaller capacity are added to a herd, results will be at an increased cost per head. The combined effect of capacity and efficiency of the different grades of animals will cause considerable variation in results attained in production.

Intensification may be made by applying more labor and capital to the same or lesser number of head of livestock. If more intensive methods are used upon the same number of animals, the maintenance cost would necessarily increase. The less desirable breeding stock may be disposed of, as the less profitable milch cows, the aged animals, and young stock of poor quality. The feed, shelter, and labor formerly given to the usual number of animals on the farm will be more intensely applied upon the ones remaining after the surplus supply has been removed. This would bring about a greater proportional cost per head of livestock retained, an item which would make livestock production under this system, an increasing cost good. Oftentimes even more labor, care, and feed will be applied on the farm to the diminished herds in order to keep production up to standard. This causes the proportional cost per head of livestock to mount even higher, and livestock enterprises are continued at greater resistance.

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Table V. Yearly Cost of Maintaining a Herd.

Ranch No.	No. of cows in herd.	Cost per One Hundred Cows.					Total Exp.
		Pasture	Feed	Labor	Equip.	Admin.	
Two	1,000	\$498.29	\$469.29	\$118.01	\$ 53.01	\$ 19.54	\$1,986.41
One	2,000	326.62	375.66	105.93	73.94	46.54	2,008.38
Six	2,200	726.28	381.59	122.74	278.43	71.49	2,194.33
Eight	2,500	737.12	216.30	162.92	107.27	82.64	2,248.55
Nine	3,200	669.65	303.94	154.64	76.83	54.43	2,584.21
Five	9,500	715.99	205.53	205.53	281.47	62.23	2,442.26
Seven	12,000	1052.19	125.74	237.42	280.81	130.69	3,674.49
Twelve	25,000	506.87	85.00	86.00	52.98	166.98	2,615.41

Table V illustrates the increased cost per head in the larger herds.

It is compiled from a survey of a large number of ranches, and the comparison is not as striking as if taken at different periods on the same farm where environment remains nearly unchanged.

Time response.-- When livestock must first be produced out of new production before it can come to market, sufficient time must elapse after a price change for new animals to be grown. Each class of animals will of course have a different production period, or time of response. Young animals, as veal calves, lambs or pigs will have less than a year, while the mature stock, as cows and steers will require two or three years. Earlier maturing stock, as ewes and sows will have a one or two year period of response. Mature cattle can be grown from

(14) Report of the Federal Trade Commission on the Meat Packing Industry, Part VI. Cost of Growing Beef Animals, Pages 40 - 54.

the calves existing on the farms, and thus the time of response be reduced. Time response is one of the main determining factors to regulate the supply of market stock, because future needs as well as present must be considered and provided for. The immediate response may result in over or under production with an accompanying amount of economic friction in existence. The effects of a price change will depend in large measure upon the permanency of the new price level. Erratic fluctuations of price will cause maladjustment in the production centers. It should be the endeavor of the livestock producer to gauge the necessary number of animals which he could maintain to most advantage and thus intensify to the proper degree to reduce the cost of production per head of livestock.

Chapter VI.

CONDITIONS OF DEMAND.

Conditions of demand are as significant in price determination as are conditions of supply. In analyzing supply we considered relation of cost to increasing and decreasing supplies. With demand, the relationship is between the utility of the commodity and varying supplies of it. The principle involved is expressed in the general law of diminishing utility, that the larger the supply of a commodity acquired or available to be acquired, the less the utility of any unit of it, because the less intense the desires satisfied by the marginal units of it. The effect of this law is to produce normally for any commodity a demand schedule with a certain "elasticity of demand", and the ratio of variation of demand and price is the measure of elasticity of demand for this commodity. This ratio is not constant, but varies greatly with people, by seasons, and from year to year.

A number of factors influence the consumption of meat. The demand varies according to locality. Table VI shows the meat consumption in different sections of the United States. Upon inspection of the data, it will be observed that the total meat consumption per capita is nearly 10 per cent more in the country than in the city. The people of the city do not require as much food for repairing muscle tissue and supplying physical energy as rural workers. Beef consumption is nearly two-thirds greater in the city than in the country. This difference is attributed to the difficulty of distributing and storing fresh meat in the rural districts. There are no refrigeration facilities in most of the small towns and country homes. Pork consumption is three-fourths heavier in the country than in the city. This can be accounted for by the fact that pork can

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Table VI. Meat Consumption Per Capita in the United States.

	Total	Beef	Veal	Mutton	Pork	Poultry
URBAN						
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
North Atlantic	166.8	64.0	13.5	10.9	61.5	16.9
North Central, east	176.8	75.6	11.6	7.3	69.3	13.0
North Central, west	181.4	77.5	11.7	6.8	67.2	18.2
South Atlantic	158.4	55.1	5.7	5.4	76.3	16.0
South Central	178.4	66.1	4.4	8.7	79.7	19.5
Western	177.8	76.2	16.3	13.6	60.5	11.2
Total	171.6	68.3	11.8	9.3	66.3	15.8
RURAL						
North Atlantic	174.7	47.1	10.7	7.6	85.5	23.9
North Central, east	196.2	48.3	7.2	5.8	109.9	25.1
North Central, west	212.7	57.4	6.3	3.8	113.1	32.0
South Atlantic	172.4	28.5	3.2	4.4	117.6	18.7
South Central	182.4	28.6	1.7	6.9	121.3	23.9
Western	188.2	64.7	9.3	15.8	81.5	16.9
Total	187.1	41.6	5.4	6.5	109.7	23.9
Total population:						
North Atlantic	168.8	59.6	12.8	10.0	67.7	18.7
North Central, east	186.0	62.7	9.5	6.6	88.5	18.7
North Central, west	202.3	64.1	8.1	4.8	97.8	27.4
South Atlantic	168.9	35.2	3.8	4.7	107.1	18.0
South Central	181.6	36.3	2.3	7.3	112.8	23.0
Western	183.1	70.3	12.7	14.7	71.3	14.1
Total	179.9	54.0	8.4	7.8	89.6	20.2

(15) Monthly Crop Reporter, October 1919.

easily be cured and kept without cold storage. Much of the pork used in the rural districts comes from home slaughter and local butchers. Considered geographically, beef consumption is heavier in the northern states than in the southern states, whereas pork consumption is heavier in the South than in the North. The reason for this difference is due to the warmer climate of the South. Hogs are raised more extensively in the South where the larger corn crop is grown. The difficulty of keeping fresh meat also favors pork consumption in the South.

Reasons for Varying Demands.

Meat in the family diet.-- Meat occupies an important place in the home budget. This food is rich in proteins which supply nitrogen to the body, build up and repair wasted tissues. Meat also serves as a source of body fuel to generate energy. One-third of the cost of food is for meat. Table VII is a study of an investigation of the budgets of forty middle class families in Philadelphia in 1914 -1915.

(16)

Table VII. Expenditure for Food.

	Average 1915	Average 1914
Meat and fish.....	\$158.....	\$137
Eggs.....	34.....	35
Butter.....	42.....	40
Milk.....	45.....	47
Bread.....	43.....	38
Cereals.....	8.....	9
Vegetables.....	75.....	82
Fruits.....	34.....	43
Beverages.....	18.....	13
Sweets and condiments.....	22.....	20
<hr/>		
All food.....	489.....	464

(16) Leeds, John B., The Household Budget, Page 139.

The importance of meat as an article of diet is shown in Table VIII which gives per capita food consumption in selected cities.

(17)

Table VIII. Pounds of Foods Consumed per Man per Day.

	Atlanta	New York	St. Paul and Minneapolis
Total meat	.296	.356	.316
Total fish	.0176	.071	.04
Whole milk	.169	1.407	.813
Total dairy products	.653	1.575	.977
Total cereals	.856	.966	.901
Total fruits	.427	.212	.337
Total sugar	.163	.152	.175
Total vegetables	1.001	.913	1.339
Total miscellaneous	.0944	.055	.056
Total fats	.16	.111	.146

Income and standards of living as well as locality influence the intensity of the demand for these several items of food.

Competition of different kinds of meat.--- Beef, pork, veal and mutton compete with each other for a place in the family budget. Price of the several kinds of meat will not alone determine the amounts consumed. The education of housewives in preparing the different kinds of meat influences the demand. People also have different preferences for meat, thus mutton finds disfavor on many tables, but taste for this as well as other meat can be cultivated.

Comparison of different kinds of meat.--- The per capita consumption of meat (Table VI) indicates that pork is the heaviest consumed, and beef stands second. Veal and mutton find relatively small place in the dietary.

(17) Monthly Labor Review, August 1919, Page 22.

(18)
Table IX. Consumption of Meat.

A. Estimated total production, exports, imports and consumption of dressed meat and lard in the United States, 1914 - 1919.

(In millions of pounds)

ITEM	1914	1915	1916	1917	1918	1919
Total dressed meat						
Produced	14,039	14,937	15,922	14,740	18,041	17,326
Exported	475	1,309	1,304	1,322	2,454	2,215
Imported	323	129	38	44	210	62
Consumed in U. S.	13,887	13,757	14,656	13,463	15,797	15,173
Total lard						
Produced	1,652	1,840	1,973	1,577	2,089	2,119
Exported	461	489	457	385	555	785
Imported						
Consumed in U. S.	1,192	1,351	1,517	1,193	1,533	1,334

B. Per capita consumption of each kind of dressed meat and lard in the United States (in pounds).

Beef	58.92	55.06	57.36	61.23	66.74	58.95
Veal	4.38	4.26	5.26	6.39	6.90	7.96
Mutton and lamb	7.45	6.31	6.10	4.59	4.95	5.90
Goat meat	0.20	0.17	0.22	0.18	0.14	0.09
Pork (except lard)	69.75	71.22	74.73	57.59	71.35	69.08
Total meat	140.70	137.02	143.67	129.98	150.08	141.98
Lard	12.06	13.45	14.87	11.51	14.57	12.48
Total meat and lard	152.76	150.47	158.54	141.49	164.65	154.46
Population of the continental United States, July 1. (in thousands)	98,781	100,399	102,017	103,365	105,253	106,871

(18) U. S. D. A., Bureau of Animal Industry, Report compiled by John Roberts, Editorial Office.

Demand for different cuts of meat.--- Often preferences are expressed for different cuts of meat. The prices of some cuts may become unduly high because meat is produced as a joint-cost product. Hams, bacons, loins bear fixed relation to each other, and production of one necessarily involves the others. Campaigns of education are often conducted to create demand for the cheaper cuts.

Meat substitutes.--- The possibility of substituting other foods for meat also influences demand. Large receipts of fish, poultry, game, eggs, vegetables or fruit at certain seasons affect the price the public is willing to pay for meat.

Changes in Demand.

The demand for meat may change over a period of years. Per capita consumption would tend to show the relative demands. Changes might be due to new wants and desires of the people, new customs and habits, or campaigns of education and advertising. Table IX gives the per capita consumption of dressed meat for 1914 - 1919. The total United States consumption was figured by taking production, adding imports, and subtracting exports. From the table it will be noticed that beef has experienced only little change except during war years when beef was substituted for pork. Beef consumption is seen to be rather inelastic in nature. Mutton and lamb have grown into disfavor, and pork suffered a lack of consumption in 1917, due to excessive European exports.

Seasonal Demand.

Meat is subject to seasonal demands. The dressed meat sent to the distributing houses and car routes of the packers is in process of consignment to the consumer and would serve as an index of the relative amounts of meat retailed to the public during the various seasons. Table X shows the seasonal demand for meat over the Northwest. No figures could be obtained for hogs, since pork is

not sold in carcass form, but is cut up and distributed both as fresh and cured meat. Beef finds its heaviest demand in October, November and December; veal in the latter spring and early summer; mutton in the autumn and winter. Fortunately the periods of greatest demands are also periods of greatest supply, and close correlation exists between the two, partially because prices will be cheaper in times of greatest supply, and also because the consuming public seem to have adapted themselves to eating meat at the most opportune time. Since the winter season is the time of heaviest meat consumption, we should expect the packers to make heavy purchases in the fall and store the carcasses in their refrigerators until the trade is ready for the removal of the meat onto the market. Thus the packer is obtaining a two-fold advantage: 1) by filling his coolers when the market supply of live animals is greatest, and 2) getting ready for the winter trade of dressed meat. Thus the packer's purchases alone will not determine the time of heaviest meat consumption, since much of the meat is stored for a period before being resold, and some meat as cured pork may be kept indefinitely.

(19)

Table X. Seasonal Meat Consumption.

Number of dressed carcasses shipped by Swift & Company from South St. Paul to distributing houses and car routes during the year 1919.

Month	Cattle	Veal	Mutton
January	7,166	4,805	8,151
February	6,340	7,409	7,840
March	7,022	5,889	4,976
April	5,715	8,741	4,744
May	8,090	9,355	5,111
June	7,306	9,260	8,397
July	7,515	6,986	9,050
August	11,237	6,811	10,244
September	9,677	6,847	14,194
October	10,433	6,782	16,954
November	13,280	6,646	16,874
December	10,693	5,335	10,816

(19) Data obtained from the files of Swift & Company, South St. Paul, Minn.

Sources of Demand.

The demand for livestock comes from three sources: 1) dressed meat; 2) breeding and dairy purposes; 3) feeding or fattening purposes. These demands largely supplement each other. Feeding enterprises usually start in the spring when the pastures are ready to maintain the herds and flocks. Dairying and the raising of young stock also require taking advantage of cheap feed where possible. So far as production costs are taken into account, summer dairying would prove most profitable. The milk supply, however, is a fairly constant quantity and dairymen must make provision to care for their trade the year around. Even this industry offers a choice in intensity during the different seasons; the supply of milk used in butter and cheese making, and that used for raising young stock, can be changed to suit the opportunities and profits of the dairymen. In the autumn when dairy needs and feeding enterprises do not use the surplus animals reaching the stockyards, the packer steps in and asks for more stock than be required during the more favorable production seasons for stockmen. The demand for livestock is fairly well distributed over the year from the changing needs of industries dependent upon domestic animals. There are two periods a year when demand becomes greater: in the spring when there is an abundance of cheap feed and in the autumn when the packer is ready to fill his needs for increased consumption.

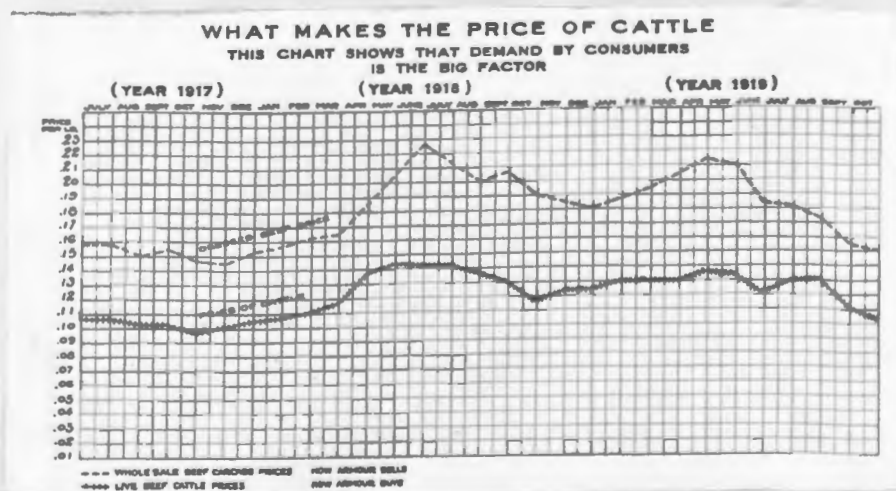
Importance of Demand as a Price Factor.

The price commanded for retailed meat will depend upon the varying intensity with which the consumer must have that meat. The amount demanded by the country as a whole traverses a wide margin since our population consists of inhabitants of innumerable desires, tastes, and incomes. Thus the elastic demand schedule for meat will exert a powerful influence in determining what the packer shall pay for the live animal. They must know for instance, what the "traffic will bear".

The packers maintain that demand is more potent in determining price than the supply of livestock at market. Figure VI is a chart which shows a high correlation between price of dressed beef and price of cattle. While demand alone does not determine the dressed meat price, it does however exert a strong influence.

(20)

Figure VI. Influence of Demand.



(20) Booklet, "The Livestock Producer and Armour".

Chapter VII.

MARKET CLASSES AND MARKET QUOTATIONS.

The animals reaching the central market are divided into classes and grades. We had occasion to enumerate the market classes in Chapter I. These classes are subdivided into grades, which are based upon the adaptability of an animal to fit in a class. The factors which divide one grade from another are: quality, general appearance, and condition. The grades are designated as ranging from prime, choice, good, medium, down to common. Each market class is divided into all or several of these various grades. These various classes and grades have separate groups of price quotations. The price of each grade is determined essentially by the use to which an animal is put. Cattle have more range of conformation, quality, and adaptability than the other animals. Hence grading is more closely practised with cattle.

Cattle arriving at the market are placed in one of the two groups: killers and feeders. The deciding feature for this distinction is the condition or finish of the animal. These divisions must necessarily graduate into each other, and in fact overlap, and form what may be designated as "marginal groups". Killing cattle are fat or well fleshed mature animals while feeding stock consist of the younger and thinner cattle. The latter can be more advantageously utilized by sending them back to the farms to consume roughages and unsalable products. They are fattened on rations largely of concentrates in order to interpose the flesh and muscle layers with quantities of fat, a process known as "marbling". Since it usually costs more per pound to fatten an animal than the live animal brings per pound at the market, there is need for the killer to sell at a higher price per pound than the feeder stock. From the packer's viewpoint,

mature and well finished stock will dress a higher percentage, yield a more tender grade of meat, and contain the necessary fat to age the carcass in the cooler, so that the butcher is willing to pay more per pound for the fat mature animal, since he can sell such a carcass to better advantage than is the case with thinner younger stock. Age and finish therefore are important considerations in classifying market animals.

The animals are still further differentiated as to price on the basis of sex. Steers will command a higher price than cows or heifers of the same qualifications. Steers, which are adapted to beef purposes only, are fattened to a greater degree than are cows and heifers which have several uses-- milking, breeding and beef. The females of the herd are more valuable to the stockman for breeding and milking, and if they are not suitable for these purposes, are consigned to the market without being fattened to such a degree as steers. Hence steers usually acquire a better finish, have more marbling of fat in the muscle layers, and dress out a more desirable carcass than cows and heifers. The females are set back also by sex activities and this retards muscular development. They accumulate more fat in the abdominal regions, which decreases the dressing percentage. The grade of an animal influences price, as grade represents the adaptability of an animal to suit the purpose to which the class will be placed. Weight, which usually is indicative of maturity and finish, is another factor affecting value. The heavier an animal, the greater price it will command, owing to the higher dressing percentage and better muscular development. Finally, steers are designated as beef stock because of superiority over the sexed animals, while cows, heifers and bulls are known as butcher stock.

Prime steers represent the highest grade of beef cattle, being almost above criticism in conformation, quality and condition. Very few animals come to this market of this grade. The weight of such steers ranges from 1,200 - 1,400

pounds, and the cost of finishing cattle to this degree is almost prohibitive except for show purposes, such as the International Livestock Exposition.

Choice steers possess most of the characteristics sought by packers, but may be a trifle faulty in quality or condition.

Good steers are usually deficient in one of the three requirements-- conformation, quality and condition. Ordinarily such steers are fat, of good weight and form, but lack in quality and appear to be a little on the coarse order.

Fair steers are generally too paunchy and too lacking in condition and quality to dress a high percentage of beef or show a good proportion of fat.

Common steers, the lowest grade of steers coming to the market, are very much lacking in form, quality and condition. These steers are too coarse to sell as higher grades of beef and are too rough to be used as stockers and feeders.

Butcher stock, which includes cows, heifers and bulls, may be looked upon as by-products of the beef industry. Heifers command higher prices than the similar grade of the other two classes; they usually are of greater thrift, yield a more tender meat and dress a higher percentage. The grades of heifers-- choice, good and medium-- are analogous to the steer classes, the essential difference being sex.

Cows constitute stock of the different types-- beef, dual purpose and dairy-- and are usually fattened and sent to the block when they can no longer be used advantageously as breeders or milkers. Many fat dry cows reach market because it would not compensate the farmer or dairyman to maintain the animal until she again freshens; dual purpose cows especially receive the advantage of ready market demand because of the two-fold utility of milking qualities and a yield of good beef. The grades range from the fancy, well-bred beef animals in prime condition down to the poorest classes of stock, canners and cutters, which are mostly old thin cows cast off from dairy use. Cutters carry some flesh and some of the carcass

may be sold over the block, while canners are suitable for use only as canned and potted meat.

Stockers and Feeders are young and thin animals, mostly steers, which are suitable for returning to the farms for growing and fattening. Feeders are older and heavier animals than stockers and weigh 900 - 1,100 pounds, and should have the blocky compact type, good breeding, and uniformity in color markings. Stockers weigh from 600 - 900 pounds and sell for less, grade by grade, than feeders since it requires a longer period to finish the lighter animals for market. Stockers are usually grazed or roughed along until of feeder weight and age.

Choice feeders will develop under favorable conditions into choice and prime fat steers. They possess the ability to make economical gains in flesh. Heavy feeders may be sold to packers or feeder buyers, according to the intensity of the demand in either division. Possessing this double source of outlet at market, these steers command a higher price than if only one use could be made of the animals. Canadian steers, an especially choice class of feeders shipped extensively from Canada to South St. Paul, enjoy high prices because of their reputation for beef type, uniformity of body and color, weight and other favorable feeding qualities.

Good feeders are lacking in some of the requirements characterizing fancy selected feeders. They are not so thrifty, are deficient in conformation and are of less desirable breeding. They sell for less price than choice feeders because they are incapable of developing muscle and laying on fat at the same cost as the better classes of stock.

Medium or fair feeding steers lack in form, quality and constitution, and will usually never gain a higher grade than medium when fattened. Many are off-colored and have little promise of making good killers.

Veal calves are mostly suckling calves and still possess their baby fat. They are four weeks to two months of age, and weigh 100 - 200 pounds. Choice veal, "top calves", are strictly fat calves of about 150 pounds and about seven weeks of age. Good calves, "seconds", are not so fat and usually weigh from 100 - 140 pounds, and dress out less than the higher grade. Because of the tenderness and fine quality of the meat, veal calves bring the highest price of any class of cattle, even exceeding fat steers.

Price Quotations.

The price differences of cattle may be illustrated by the following tables compiled from the South St. Paul Daily Reporter for Wednesday, January 21, 1920.

CATTLE QUOTATIONS

Killing Cattle

Steers--

Choice to prime.....	15.00@17.75
Good to choice.....	12.50@14.00
Fair to good.....	9.50@12.00
Common to fair.....	6.75@ 9.00
Canner Steers.....	5.50@ 6.00

Cows and Heifers--

Choice to prime heifers.	10.50@12.00
Good to choice cows.....	8.25@10.00
Fair to good cows.....	6.25@ 8.00
Cutter cows.....	5.75@ 6.25
Canner cows.....	5.00@ 5.50

Bulls--

Choice to prime.....	9.00@10.50
Fair to good butcher....	8.00@ 8.50
Bologna bulls.....	6.50@ 7.75
Light bulls.....	5.50@ 6.00

Veal Calves--

Good to choice.....	16.50@17.75
Fair to good.....	15.50@16.50

Stockers and Feeders

Feeding Steers--

Good to choice.....	8.50@10.50
Fair to good.....	7.25@ 8.25

Stock Steers--

Good to choice.....	7.25@ 9.00
Fair to good.....	5.50@ 7.25

Stock cows and heifers.... 5.00@ 7.50

REPRESENTATIVE CATTLE SALES

Killing Cattle Butcher Steers

2...	685...	7.00
34...	1068...	9.50
2...	1215...	12.00

Canner Steers

1...	400...	6.00
4...	900...	6.50

Butcher Cows and Heifers

1...	1140...	6.50
1...	760...	8.00
2...	1110...	10.50

Canners and Cutters

14...	932...	5.50
4...	825...	6.00
1...	500...	6.25

Bulls

1...	530...	6.00
1...	940...	7.25
1...	1810...	9.00

Veal Calves

2...	120...	14.75
41...	120...	17.75
3...	142...	17.75

The first feature to observe in these tables is the distinction between quotations and representative sales. In quotations the animals are divided up into grades, and comparative prices for these are given, while representative sales group the livestock only according to class. The quotations give figures for all grades, regardless of whether all such are found on the market at the time or not, thus citing what might be expected should such cattle, as "choice to prime", be offered for sale. Quotations merely give prices to define the range limits of the grades. Comparing actual prices obtained, veal calves return highest values of any class of cattle. Steers, we notice, outsell cows and heifers, and the more ideal the finish, form and quality the higher the price for each grade. Differences in weight are exemplified in the case of stockers and feeders. Prices for the various sorts of cattle for this day range from veal calves at \$17.75 per hundred pounds to the lowest grade of poor and thin cows and heifers at \$5.00 per hundred pounds.

The medium of circulation of current market information is the local livestock paper,-- "The South St. Paul Daily Reporter-- Mail Edition". For the benefit of the trade and stockraisers, this paper gives prices received at market for the various classes and grades of livestock, apparent causes for the "weak, steady or strong" condition of the market, and the price trend with outlook for the ensuing days. The reporters may be seen each day conversing with the commission men and dealers regarding market prices and prospects. The results of these interviews and observations are written up and published in the mail or livestock edition of the paper. Various columns tell the story of the day's trade; one of the most prominent features is the tabulated list of "representative sales" and "price quotations".

The quotation range for cattle, calves and sheep is sufficiently wide so that it usually does not change greatly over the whole week. While fluctua-

tions may occur inside the price range, the limits of price spread for each grade usually remain unchanged for the week. The average monthly prices used in this thesis have been determined by taking the spread for the several grades of cattle, sheep and calves. The average of the four or five weekly prices of each classification for the month gives the average monthly price. The author of this thesis was obliged to resort to the original files of the South St. Paul Reporter to secure the price data used herein, and make his own compilations and computations. (10) The storage tables thus obtained give weekly prices and from these are computed the analysis tables of monthly price changes.

Prices of Hogs

The average price obtained for hogs is more accurate and easily calculated than for any other case. Actual representative sales data could be used here, since 10 to 25 cents price difference measures the spread between the highest and lowest price of market hog. Thus hog prices have no need of price quotations to separate the various classes. Note, however, that rough and coarse hogs as well as pigs, are not considered as butcher and packing hogs, and consequently are omitted in this consideration of market hogs. The South St. Paul Reporter gives the price data on swine in three forms: 1) range of the day's "crop", 2) bulk of sales, and 3) "average cost" per hundred pounds of live weight of all hogs sold to butchers and packers during the day. The "average cost" was taken as the most accurate index to hog prices. The average cost on Monday is taken in place of a weekly price. No appreciable error would be made in doing this. The monthly price is calculated by averaging the Monday prices for the month.

(20) "The Farmer", a weekly agricultural magazine contains the same data as the Reporter, and was used in place of the newspaper in many cases.

Prices of Sheep

The classes of sheep have a wide range in price. There are many kinds of sheep classes, the most important of which are lambs which constitute at least 75 per cent of the receipts. Consequently we will limit the price study to the better grades of lambs. The taste of the public for mutton is confined mainly to the lamb carcass, and the producer markets all his sheep as lambs, except those which he intends to retain for wool and breeding stock. Quotations and representative sales are given for sheep. The monthly prices for lambs in this thesis was obtained by taking the mean of the weekly price and averaging these prices for the month.

Chapter VIII.

SUPPLY AND CHANGES IN SUPPLY.

The number of animals available for slaughter is best told by a study of the stockyard receipts. The movements of livestock to market are largely determined by the same natural conditions that fix the limits of the grazing season and the immaturity of crops available for stock feeding. Thus the distribution of the supply as shown by market receipts throughout the year will be very irregular. Economical livestock production is a question of securing cheap feed, since the feed cost constitutes 80 per cent of the expense of raising and maintaining farm animals. Summer pastures offer the best and cheapest feed known, and in some sections grazing on the native grasses affords the only means of livestock subsistence. The farmer on the diversified farm, the feed lot or corn belt enterprise, is equipped to feed and maintain animals fairly well throughout the year, but the ranches and summer pastures must necessarily dispose of the majority of their holdings before the onset of winter. Consequently the autumn sees a deluge of cattle, sheep and hogs reach the market, while in the spring of the year, receipts are light and stock is at a premium because of scarcity and brisk demand. The tables given on the following pages show the situation as regards the market receipts of the four kinds of livestock for the last ten years with an average and percentage calculation of the same. These figures were compiled from data obtained from the yearbook (1910 - 1919) of the St. Paul Union Stockyards Company.

(24) Thesis, Cost of Meat Production, Peck.

RECEIPTS OF CATTLE BY MONTHS.

Ten Year Average 1910 - 1919

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Ave	PerCent Total Ave.	PerCent Ave. Mo. Rct.
Jan	16970	21572	20330	23405	27300	31775	37987	55113	56958	85673	37708.3	5.5	66.
Feb	13684	22933	18611	23793	26500	26079	39642	45288	43143	58563	31823.6	4.7	55.
Mar	33735	27492	24453	33110	37330	44292	56646	55549	62570	58627	43380.4	6.3	76
Apr	21782	20645	27413	29133	28298	38673	40939	49167	66001	55653	37770.4	5.6	66
May	20391	20049	20681	22037	25284	32058	40741	43398	48905	47238	32078.2	4.6	56
June	25569	21626	18217	23826	23677	32448	34997	37768	46412	39541	30408.1	4.5	53
July	32255	22575	22308	24131	24536	44814	42499	56706	108387	91960	47035.3	6.8	82
Aug	60547	44830	45434	29768	37947	7516	73965	80809	104636	105019	57047.1	8.6	103
Sept	82932	57558	60308	54378	64358	107733	100502	141679	162335	139840	97162.3	14.2	169
Oct	101212	90686	66952	72154	79973	128180	150277	189185	180543	202686	126184.8	17.9	222
Nov	53697	45158	41276	49154	52150	105128	88801	152205	167266	184042	93888.0	13.7	163
Dec	18948	17366	27081	30927	40357	46577	49624	75618	114436	101402	52234.0	7.6	91
Total	481722	412490	393064	415998	467710	645273	756620	982485	1161592	1170244	688719.8	100.0	
PerCent of Ave for 10 yrs.	69.9	59.9	57.0	60.4	67.9	93.7	109.9	142.7	168.7	169.9			100.0

Table XI - It will be noticed that for cattle, the month of October in all ten instances sees the heaviest market run, nearly 18 per cent of the average years' supply reaching market during the month, while the highest month is not so clearly defined, February running lightest twice, May once, June four times, August once and December once, June finally averaging as the month of lowest receipts followed closely by May and February, contributing 4.6 per cent and 4.7 per cent respectively, of the year's supply. Thus from the average of smallest to largest receipts, there is a range of nearly four times the cattle reaching market during the heaviest month than during the lightest. Nearly one-half (45.8 per cent) of the year's supply is brought to market in the three fall months. The universal answer to such a practice on the part of stockmen is the economy and profit with which livestock can be matured and fattened on summer feed. As before stated, the western ranges send in practically all their supply at the end of the pasturing season.

Table XII- The calf crop presents a different story. Calves are a by-product of another industry - dairying. The distribution of receipts of calves runs more nearly uniform than any other class of livestock. The average supply reaching market indicates the practice of summer dairying for farms tributary to South St. Paul. Most of the calves come from the diversified farming districts of Minnesota, the territory adjacent to the Twin Cities bringing in not a few calves from the dairy farms. Many of the calves are hauled to market by motor trucks, quite a trade having developed along this direction.

The periods of lowest receipts are the winter months, December bringing in 5.7 per cent of the year's contribution, January 5.4 per

RECEIPTS OF CALVES BY MONTHS.

Ten Year Average 1910 - 1919.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Ave	PerCent Total Ave.	PerCent Ave.Mo. Ret,
Jan	3621	6761	6597	7282	6979	6673	9229	12931	13811	21483	9537	5.4	65.6
Feb	3652	8221	6385	7846	6999	6678	12121	12223	12844	18509	9548	5.5	65.7
Mar	9653	13334	9812	11630	11608	11139	17091	14218	19424	24806	14271	8.2	98.2
Apr	8356	12426	13665	12029	12164	11669	15477	17897	25091	34722	16350	9.3	112.5
May	12341	14084	14249	12001	13040	13111	24621	24615	33600	37699	19936	11.5	137.2
June	17014	13734	15195	12565	11852	13869	19991	20352	30409	31074	18605	10.6	128.1
July	12594	8961	12727	10151	10317	14055	14688	20061	33923	32574	17055	9.8	117.0
Aug	14352	11413	12584	7446	9514	12461	17735	18623	22372	25646	15215	8.7	104.7
Sept	13580	10319	11713	10212	10507	14682	15079	20629	20887	21706	14930	8.6	102.8
Oct	13465	13968	12187	10739	10142	15960	16520	25355	22739	26286	16736	9.6	115.2
Nov	8781	7878	8627	7571	8420	12769	13301	16888	17364	21686	12329	7.1	84.9
Dec	4535	5048	6967	6467	5911	9605	8642	10852	16362	24491	9888	5.7	68.1
Total	121944	126147	130708	115948	117453	142671	184495	214644	268816	320682	174350	100.0	
PerCent of Ave. for 10 yrs.	69.9	72.4	75.0	66.6	67.4	81.8	105.8	123.1	154.2	183.9			100.0

cent and February 5.5 per cent, while the largest receipts are nearly double these figures, being 11.5 per cent for May, 10.6 per cent for June and 9.8 per cent for July. The majority received are suckling calves, averaging about six weeks old, and weighing 120 - 180 pounds, a size commanding a high price from the dressed veal trade of the Eastern states. Consequently market receipts indicate fairly accurately, the time of freshening of the cows in the sections tributary to South St. Paul.

Table XIII-In the case of hogs, the late fall and fore part of the winter show the heaviest runs, November having greatest receipts four times, December and January each three times out of the ten year period tabulated, the average being December heaviest with 13.2 per cent of the Year's supply, closely followed by November (12.5 per cent) and January (12.3 per cent). The run of hogs to market is fairly distributed during the late winter, spring and early summer, and a very rapid falling off comes during August (3.5 per cent) and September (3.5 per cent). This dearth of swine receipts during August and September is caused mainly by the system of husbandry followed by the majority of farmers thruout the country. The bulk of the hogs sent to market weigh 180 - 250 pounds, the size most desired by packers, and hogs meet this requirement when six to eight months of age. Most of the pork producers seem to follow the path of least resistance in the farrowing of spring pigs. If the farrowing season is made to occur in March, artificial heat should be provided in the hog barns. Sufficient care must be taken to keep the chilly weather from affecting the litter, and adequate feed provided, then allowed to run on pasture during the summer and pushed sufficiently toward the finish of the feeding period, the spring pigs will be ready to market at a weight of 175 - 225 pounds and be in

RECEIPTS OF HOGS BY MONTHS.
 Ten Year Average 1910 - 1919.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Ave	PerCent Total Ave.	PerCent Ave. No. Ret
Jan	65861	103645	144946	115253	145578	268915	411272	265215	246118	289726	205653	12.3	148.8
Feb	57762	69017	91715	89625	116523	220222	306930	153327	177115	256906	153914	9.3	111.4
Mar	56666	91200	87049	100448	123515	191960	233950	149550	200991	156371	139160	8.4	100.7
Apr	51232	74807	79147	90147	105521	139258	171927	124798	167397	154978	115921	7.0	83.9
May	68721	87651	93791	108280	128962	181743	226009	147632	162639	187131	139356	8.4	100.8
June	73216	78691	82694	110364	151978	166630	171399	127691	119721	183927	126631	7.6	91.6
July	56210	49044	55395	82936	113048	131465	135001	100231	119156	163173	100616	6.2	172.8
Aug	46650	36834	31639	51582	66035	53778	87540	51819	61029	91994	57890	3.5	41.9
Sept	53757	30754	34938	69299	63348	54770	90895	59283	57877	83366	59829	3.6	43.3
Oct	90373	72209	78331	131566	113490	122593	226311	186464	167255	145627	133422	8.0	96.5
Nov	113038	114667	104323	145861	220552	257247	325879	315683	269351	209893	207649	12.5	150.2
Dec	102400	102214	99697	161410	241080	366620	286334	245749	312741	266624	218507	13.2	138.1
Total	835886	910733	983665	1256801	1589630	2155201	2674547	1927952	2061390	2189716	1658548	100.0	
PerCent of Ave. for													
10 yrs.	50.4	54.9	59.3	75.8	95.8	129.9	161.3	116.2	124.3	132.0			99.99

7-10-20

time for a period of light receipts during August and September.

The easier method of raising spring pigs, however, is to farrow during the pleasant weather of late April or May. Pasture will then be ready for the brood sows with their litters, the pigs will put on economical gains from summer pastures and will be ready to go into the grain fields and gather waste after the harvesting, and to complete their growing and fattening period by hogging down corn fields or by being finished off on the year's corn crop. In this case they will be at marketable age and weight in the late fall or early winter. From the distribution of market receipts, it will be noticed that this is the practice most commonly followed.

Table XIV- Sheep, it will be noticed, offer the most excessively unbalanced market flow of any class yet encountered. Nearly two-thirds (64.6 per cent) of the year's crop reaches market during the autumn season - September, October and November; of the 1910 - 1919 period. October tops the list as the months of deluge sheep supply. On the other hand, April (1.8 per cent), May (1.4 per cent) and June (1.5 per cent) have equally as light market receipts. The mutton trade is primarily limited to a demand for the lamb carcass. The lambs born in the spring then will be ready for market in the autumn at a weight of 75 - 90 pounds. It is estimated that at least 75 per cent of the market receipts are lambs, and consequently spring lambs constitute the backbone of the sheep trade. Hence, we have an excessive amount coming to the market at about the same time, During the summer months of April and May, is the shearing season. All animals kept to this period are shorn and shorn sheep sell at a considerable discount at market. Consequently the shepherd finds it profitable to hold the sheep and take advantage of the summer pasture to maintain and fatten his flocks. Hence, there

RECEIPTS OF SHEEP BY MONTHS.

Ten Year Average 1910 - 1919.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Ave.	PerCent Total Ave.	P.C. Ave. Mo. Ret.
Jan	62653	21697	36761	34339	53545	45319	60909	73337	20236	35059	44386	6.0	75.2
Feb	20580	20067	27967	32399	48598	64450	60052	35382	16769	32535	35880	5.1	60.8
Mar	32074	24194	35040	41946	50344	48874	33425	11377	19471	35932	33268	4.0	56.4
Apr	6469	12860	12125	14450	22786	11025	10071	3471	11142	18826	12322	1.8	20.9
May	9059	8960	10007	11011	19763	8772	10842	2547	5753	9135	9582	1.4	16.2
June	15421	15351	12072	7840	5978	11174	5490	3975	4762	17272	9933	1.5	16.8
July	33260	23424	26385	13531	19889	11043	11724	11655	8046	44527	20348	2.8	34.5
Aug	81601	47942	50895	48472	24025	21550	22676	19380	25835	93900	43628	6.2	73.9
Sept	153097	102181	101310	106964	144051	98700	70102	53619	123458	164700	111818	15.8	113.4
Oct	313467	275609	118058	219865	176573	175094	179096	126208	197150	207799	198892	28.9	336.9
Nov	112403	132152	151853	196176	158485	144274	104897	61214	151374	188512	140134	19.9	237.4
Dec	24727	27716	45500	58451	70702	63844	53930	27452	46207	63685	48222	6.8	81.7
Total	864811	712153	627973	785444	794739	704119	623214	429617	630203	911885	708413	100.0	
PerCent of Ave. for 10 yrs.	122.1	100.5	88.6	110.9	112.2	99.4	88.0	60.6	89.0	128.7			100.0

is almost negligible trade in sheep during the spring and early summer.

Thus each period of the year has its own characteristic offerings of livestock, as indicated by market receipts. Generally speaking, the receipt movements come to a climax in the autumn, and the greater part of the year's business is transacted at this time. This period of peak load, September thru December, is known to the trade as the "rush season". Graph I, plotted from the monthly averages of Tables I - IV illustrates not only the relative importance of the number of different species of livestock, but also the seasonal changes in market supply. Hogs rank first cattle second, sheep third and calves fourth in volume of trade. The sheep market appears greater than it really is, since much of the sheep consignments are billed thru to Chicago. These figures, it must be remembered, are Unloading chute counts and include thru shipments. Accurate data could not be obtained as to local consignments, since the stockyards company keeps no separate record of such.

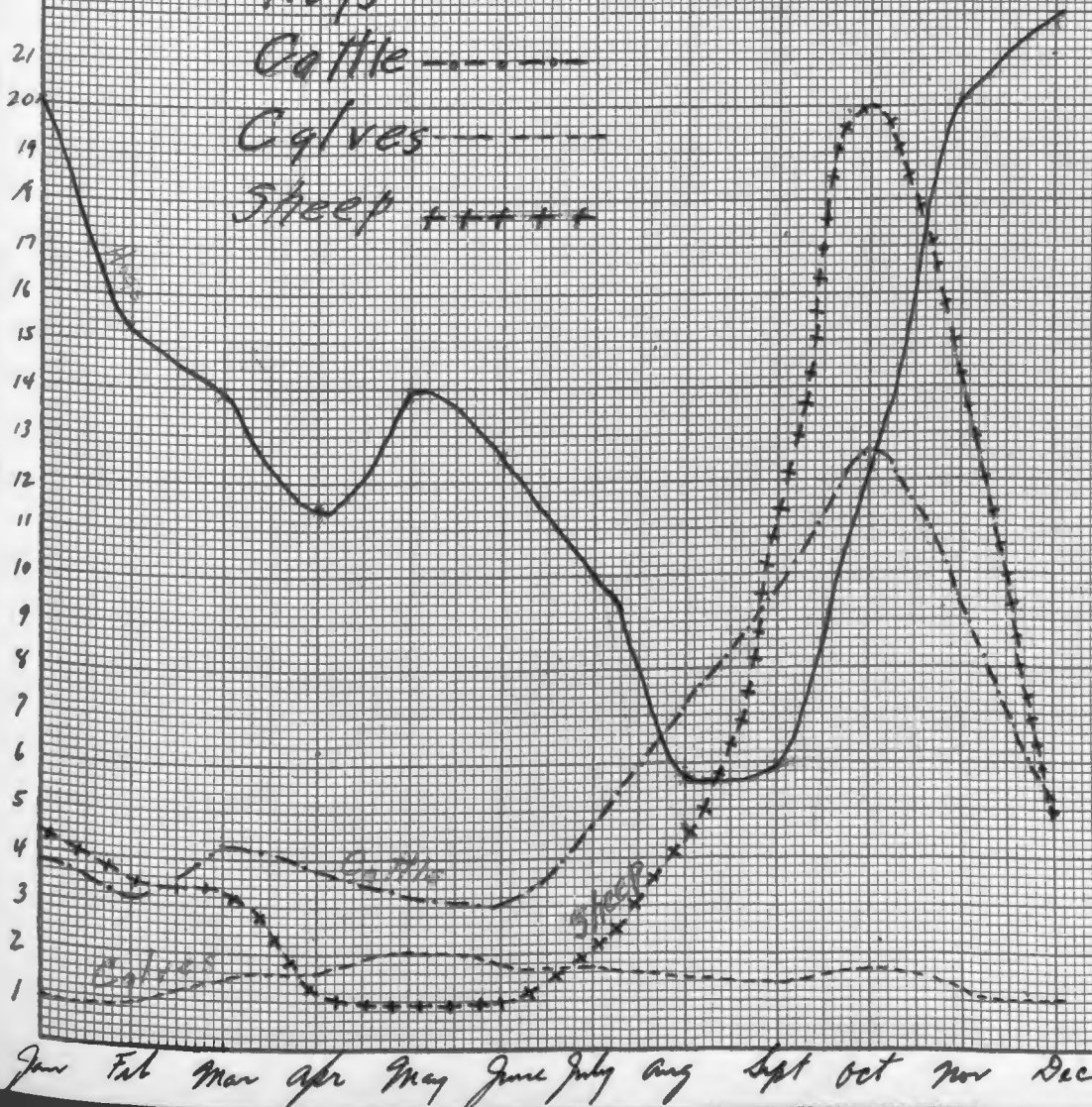
The uneven distribution of market receipts introduces another very important consideration - price variation. It is a commonplace expression of economics that the exchange of commodities occurs by moving price up or down the scale according to the intensity of either supply or demand or thru combined action. Furthermore, when two changeable quantities vary in the same direction or opposite directions, the not necessarily proportionally, the relationship is known as a concurrent deviation. If both variables change in the same direction, as demand and price, direct deviation results; if in opposite order, as supply and price, inverse deviation occurs.

With variable market receipts, the reaction with price is inverse correlation. Thus periods of light receipts find resulting

RELATIVE IMPORTANCE of the LIVESTOCK RECEIPTS AT SOUTH ST PAUL RECORDED BY MONTHLY AVERAGES 1910-1919.

Legend: : unit ordinate = 10,000 head

- Hogs —————
- Cattle - - - - -
- Calfes - - - - -
- Sheep + + + + +



high prices, while liberal shipments to the stockyards bear down the price. The interest of the stockman is aroused when he has stock nearly ready to sell, and with great regularity he turns to the page of market reports in the newspaper. He is attempting to get a line on market conditions and trends. With a knowledge of market price influences, the general situation can usually be safely predicted, altho as we shall see later, unforeseen difficulties may disturb the course of the market temporarily. Seasonal changes however will act more definitely and are worthy of detailed consideration.

Chapter IX.

PRICE VARIATIONS BY CLASSES OF LIVESTOCK.

We are now ready to consider the actual variations in the prices of livestock to see what light these will throw upon the question of how prices are determined. These variations will be examined in the succeeding chapters in the following order:

1. As to classes of livestock
2. As to time-- long-time, seasonal, weekly, daily and hourly
3. As to classes of market prices
4. As due to bargaining
5. As to location of central and local markets

The method of presentation will be to present price data when they are available, analyze these data and then try to single out the price-determining forces.

This chapter deals with the prices which different classes and grades of livestock command at a central market. Since prices depend largely upon the use to which an animal is put, each grade has a separate quotation. Table XV gives the average South St. Paul market price for the ten years from 1910 - 1919 for hogs, sheep, calves, and six classes of cattle. In the ten years, hogs have averaged the highest price of any class of livestock six times, sheep twice and veal twice. The high price paid for hogs is due to the fact that they dress out a higher percentage and that much of the pork is cured. The prices for sheep include only the better grades of lambs. Lamb carcasses are sold mainly to fancy trade and hence command high prices. Veal also is considered a delicacy and out-sells any class of cattle.

Table XV. Yearly Prices of Livestock,
at South St. Paul, 1910 - 1919 ⁽²⁾

Year	COWS			STEERS			HOGS	LAMBS	VEAL
	Good to: Choice Feeding	Fair to: Good Killing	Good to: Choice Killing	Good to: Choice Feeding	Fair to: Good Killing	Good to: Choice Killing	Aver- age	Good to: Choice	Good to: Choice
	:	:	:	:	:	:	:	:	:
1910	2.95	4.08	6.11	4.56	5.54	6.69	8.70	6.57	7.46
1911	3.05	4.04	4.74	4.75	5.20	5.82	6.51	6.00	5.73
1912	3.73	4.40	5.35	5.67	5.90	7.22	7.32	7.26	6.87
1913	4.82	5.81	6.70	6.98	6.91	7.79	8.04	8.87	7.54
1914	4.95	5.99	6.78	6.87	7.25	7.92	7.99	8.84	7.74
1915	4.70	5.44	6.40	6.24	6.30	7.91	6.87	8.66	8.69
1916	5.27	5.92	6.96	6.75	7.02	8.23	9.16	10.03	10.48
1917	6.07	6.96	8.44	8.54	7.88	10.24	15.09	12.01	15.12
1918	7.07	7.17	8.94	9.67	10.60	13.22	17.20	13.34	16.53
1919	7.22	7.38	9.13	10.74	11.36	14.00	17.74	15.17	16.18
All years	4.99	5.77	6.96	7.08	7.40	8.90	10.46	9.68	10.23

Only the better grades of steers and cows are quoted in this table. The lowest grade of steers given here outsells the highest grade of cows. The price depends in large measure upon the finish of an animal. In the fattening process cows or steers may pass through the following grades: "good to choice feeding", "fair to good killing", to "good to choice killing". The ten year average is \$4.99, 5.77, 6.96 for the respective grades of cows, and \$7.00, 7.40, 8.90 for the grades of steers. Killing grades command higher prices than feeding stock. This is due to a margin being required to fatten the animals. This margin, as shown by the table, ranges upward to \$4.00 per hundredweight, with the usual average of about \$2.50. Steers command higher prices on the basis of

(2) Taken from Tables , Chapter X.

dressing percentage and quality of meat. A considerable spread in the prices of steers is noticed over the same grade of cows and heifers. Professor Vaughan in his discussion on "Fashions in Market Cattle" ⁽¹²⁾ suggests that such a great spread is unaccountable because of meat quality and dressing percentage alone, but is occasioned mainly by discrimination against cows and heifers on the market, and this in turn due to the customs of the consuming public. "The word, 'fashions'", he adds, "implies that the market indulges in some practices that are unutilitarian and impractical, but are more or less fanciful and whimsical."

(12) Vaughan, Page 75, Steer and Heifer Beef.

Chapter X.

PRICES: TIME VARIATIONS.

Livestock, like other freely reproducible commodities, is subject to two classes of price changes. (1) Long-time price changes developing during a season or year or over a series of years as the result of large and more permanent forces. (2) Immediate price changes developing over short periods, from month to month, week to week, day to day and hour to hour. The latter tends to be the result of temporary disturbing forces which tend to detract prices from the proper normal.

A. LONG-TIME VARIATIONS.

Price changes may occur by cycles. These variations are due to supply and demand attempting to accommodate themselves to each other. Often economic friction prevents supply from being properly regulated to suit the changing demands. Since production must be guided by the time required to produce a new animal, changes in supply will be in periodic crest and troughs. Change in price usually is the stimulus which causes over or under production. There are other forces, as dry weather and crop failure, which are present long time fluctuations. These better factors are due to temporary conditions and tend to distract the price from attaining the normal cycle.

Response of Production to Changes in Livestock Prices.--There is a related rise or fall in market prices and receipts for the different classes of animals from year to year. Increase or decline in price, however, will not always be synchronous with the corresponding changes in supply. This happens because large change in supply cannot be attained over a short period of time, but production time will dictate how long a period is required to induce an increase in

supply or curtail the production of such. Consequently in the raising of livestock for market, supply change will often "lag" a year or two behind the price change if the additional supply can come only from breeding or new stock. If then the price suddenly drops, the inertia of the livestock production will cause supply to continue at the previous rate for the production time before supply can be decreased by halting the breeding and feeding operations of the farm. Economic friction is responsible of this maladjusted action.

When increase in price appears, some response can be made immediately by selling some animals out of stock; thus the less profitable cows, younger steers and heifers, lighter hogs and older sheep will be sold, whereas ordinarily they would be retained on the farm for a longer period if the price had not become attractive. On the other hand, with a decline in price, these previously mentioned animals and other promising stock would be kept over for another year to wait for the price to advance again to its normal level.

Tables XVI and XVII and figures VIII, IX and X, show the irregularities between supply and price from 1888 the founding of the South St. Paul Stockyards until 1918. Chicago prices were used because South St. Paul prices are not available before 1910 (1910-1918 being computed by the author for this thesis). No appreciable error is made by using Chicago prices since South St. Paul closely follows Chicago in livestock prices. The degree of direct correlation for market receipts and prices over a period of years is found by taking a moving average of each and comparing. In general, as shown by the charts, advance in price induces an increase in supply many times with a lag of a year or two to allow response of new production, as well as out of stock.

Upon computing a moving average, the period of which is the

Table XVI.

CHANGES IN LIVESTOCK RECEIPTS AND PRICES.

1888 - 1919.

Year	Rcpts of Hogs at S. St. Paul			Price of Hogs at Chicago.		
	No. of Head	5 year moving ave.	Deviation.	Price per cwt.	5 year mov. ave.	Deviation
1888	272712			5.70		
1889	249099			4.30		
1890	315987	268037	47950	3.90	4.64	-.74
1891	263479	252313	11166	4.30	4.82	-.52
1892	238909	267826	-28917	5.00	4.97	.03
1893	194092	277519	-83427	6.60	5.05	.55
1894	326563	287591	39072	5.05	4.89	.16
1895	364455	288404	76051	4.30	4.63	-.33
1896	313736	317267	-3531	3.50	4.08	-.58
1897	243074	325783	-82709	3.70	3.88	-.18
1898	358405	352975	-14570	3.85	4.03	-.18
1899	369243	413587	-44344	4.05	4.50	-.45
1900	500415	498477	1938	5.05	5.13	-.08
1901	616796	582704	34092	5.85	5.56	.29
1902	667526	685183	-17657	6.85	5.78	1.05
1903	759542	756147	3395	6.00	5.82	.18
1904	881635	804950	76685	5.15	5.90	-.75
1905	855237	844800	10337	5.25	5.75	-.50
1906	860810	919574	-58764	6.25	5.69	.56
1907	866777	888331	-21554	6.10	6.13	-.03
1908	1133412	884461	48951	5.70	6.86	-1.16
1909	725420	874442	-149022	7.35	6.95	.40
1910	635886	917823	-81937	6.90	7.44	-.46
1911	910753	942501	-31768	6.70	7.77	-1.07
1912	983665	1115341	-134608	7.55	7.96	-.41
1913	1256801	1379201	-112405	8.35	7.60	.75
1914	1589630	1771969	-182339	8.30	8.18	.12
1915	2155201	1920826	234375	7.10	9.69	-2.59
1916	2674547	2081740	592807	9.60	11.51	-1.91
1917	1927952	2201761	-273809	15.10		
1918	2061390			17.45		
1919	2189716					

CHANGES IN LIVESTOCK RECEIPTS AND PRICES.

1888 - 1919.

Year	I. Prices of Beef Steers at S. St. Paul			II. Prices of Beef Steers at Chicago.		
	Repts. of Cattle No. head.	5 year moving ave.	Deviation	Price per cwt.	5 year. moving Ave.	Deviation
1888	31514			4.80		
1889	64546			3.80		
1890	93227	81376	11851	4.05	4.21	-.16
1891	136983	97002	39981	4.40	4.18	.22
1892	80612	99080	-17468	4.20	4.27	-.07
1893	109644	98142	11502	4.45	4.36	.09
1894	74933	99158	-14225	4.25	4.29	-.04
1895	88540	107346	-18806	4.50	4.35	.15
1896	92062	120081	-28019	4.05	4.39	-.34
1897	171552	139072	32480	4.50	4.60	-.10
1898	173316	156598	16718	4.65	4.73	.08
1899	169888	179354	-9466	5.30	4.97	.33
1900	176172	188188	-12016	5.15	5.31	-.16
1901	155843	205564	-49721	5.25	5.34	-.09
1902	265721	241981	23740	6.20	5.27	.93
1903	260195	293752	-33557	4.80	5.25	-.45
1904	351974	347981	13993	4.95	5.26	-.31
1905	435028	386589	48439	5.05	5.18	-.13
1906	426927	414712	12275	5.30	5.44	-.14
1907	458763	428043	30720	5.80	5.72	.08
1908	400908	437382	-37574	6.10	6.07	.03
1909	418629	434482	-15853	6.35	6.29	.06
1910	481723	421342	60380	6.80	6.68	.12
1911	412490	424379	-11889	6.40	7.11	-.71
1912	343059	434196	-41137	7.75	7.57	.18
1913	415998	480435	-64437	8.25	7.89	.36
1914	467710	549261	-81551	8.65	8.51	.14
1915	712918	667146	44772	8.40	9.28	-.88
1916	756620	816265	-59645	9.50	10.66	-1.06
1917	982485	956772	25713	11.60		
1918	1161592			14.65		
1919	1170244					

I. Taken from "Livestock Report 1919" of St. Paul Union Stock-yards Company, page 4.

II. Taken from "Year Book of Figures", published by Drovers' Daily Journal, Chicago, Ill.

CHANGES IN LIVESTOCK PRICES AND RECEIPTS.

1888 - 1919.

Year	Rcpts of Sheep at S. St. Paul			Prices of Lambs at Chicago.		
	No. of Head	5 year moving ave.	Deviation	Price p per cwt.	5 year mov. ave	Deviation.
1888	61343			4.25		
1889	121564			4.30		
1890	189603	111818	78785	4.80	4.90	-.10
1891	89423	130212	-40789	5.75	5.00	.75
1892	97156	124928	-27768	5.40	4.85	.55
1893	153314	121981	31333	4.75	4.80	-.05
1894	95142	144179	-49037	3.55	4.55	-1.00
1895	174868	187790	-12922	4.55	4.46	.09
1896	200415	245366	-42951	4.50	4.58	-.08
1897	315210	300857	14353	4.95	4.97	-.02
1898	430194	363798	66369	5.35	5.24	.11
1899	383598	390189	- 6591	5.50	5.30	.20
1900	489574	447615	31959	5.90	5.41	.49
1901	332367	536704	-203337	4.80	5.43	-.63
1902	602340	614537	-12197	5.50	5.33	.17
1903	875640	680310	195330	5.45	5.51	-.06
1904	772766	760888	11878	5.00	5.92	-.92
1905	818437	753986	64451	6.80	6.23	.57
1906	735259	650727	84532	6.85	6.41	.44
1907	567830	595386	-27556	7.05	6.89	.16
1908	359343	604661	-245318	6.35	7.04	-.69
1909	496062	600034	-104072	7.40	6.86	.54
1910	864811	612063	252748	7.55	6.89	.66
1911	712126	697283	14843	5.95	7.16	-1.21
1912	627973	757019	-129046	7.20	7.28	-.08
1913	785444	724880	- 60564	7.70	7.57	.13
1914	794739	707098	- 87641	8.00	8.53	-.53
1915	704119	667427	36692	9.00	10.21	-1.21
1916	623214	636378	- 13164	10.75	11.99	-1.24
1917	429617	659808	-230191	15.60		
1918	630203			16.60		
1919	911885					

FIGURE VIII
 RELATION OF SUPPLY AND PRICE
 OF Beef Cattle
 OVER A PERIOD OF YEARS

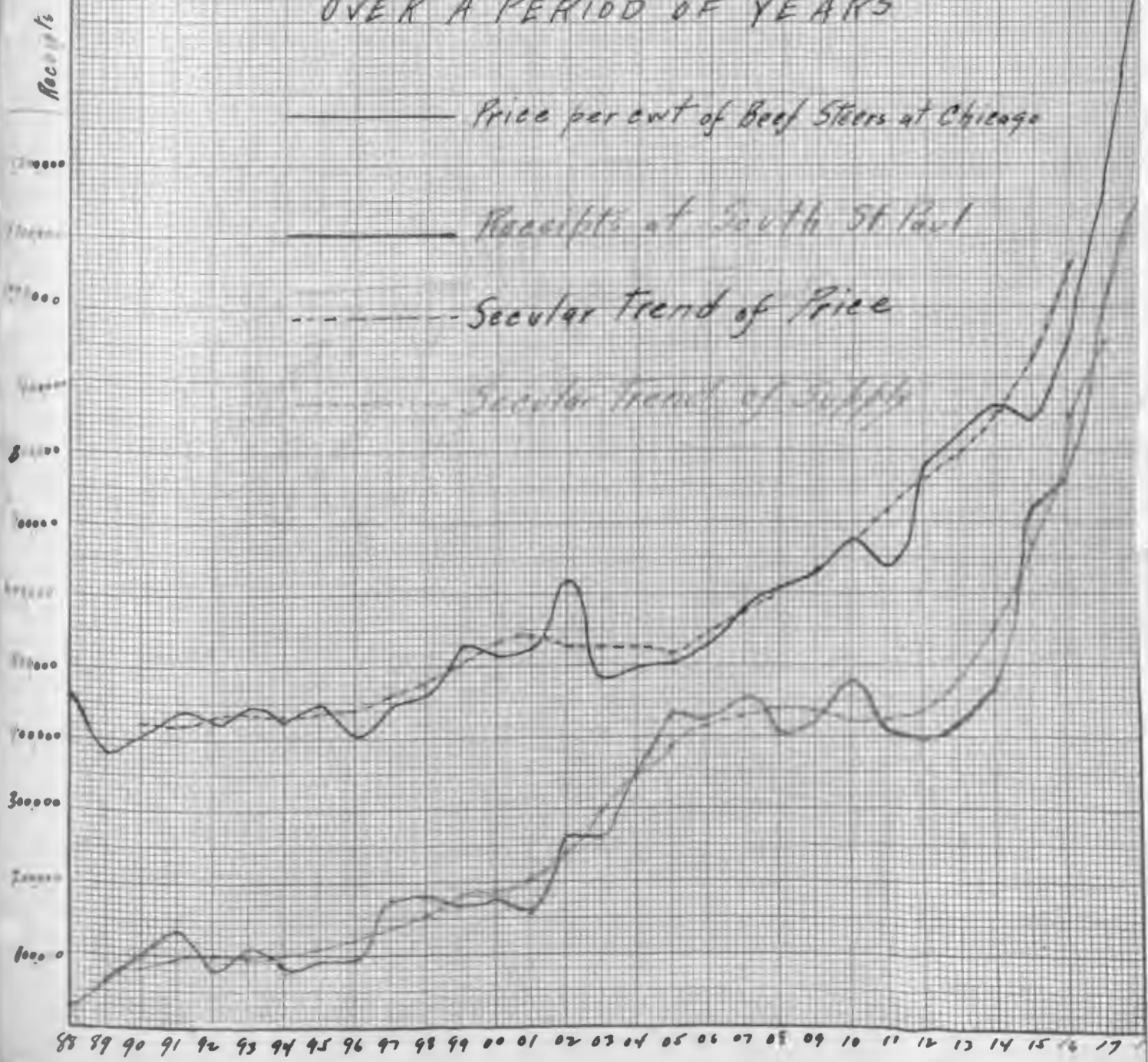


FIGURE IX
 RELATION OF SUPPLY AND PRICE
 OF HOGS
 OVER A PERIOD OF YEARS

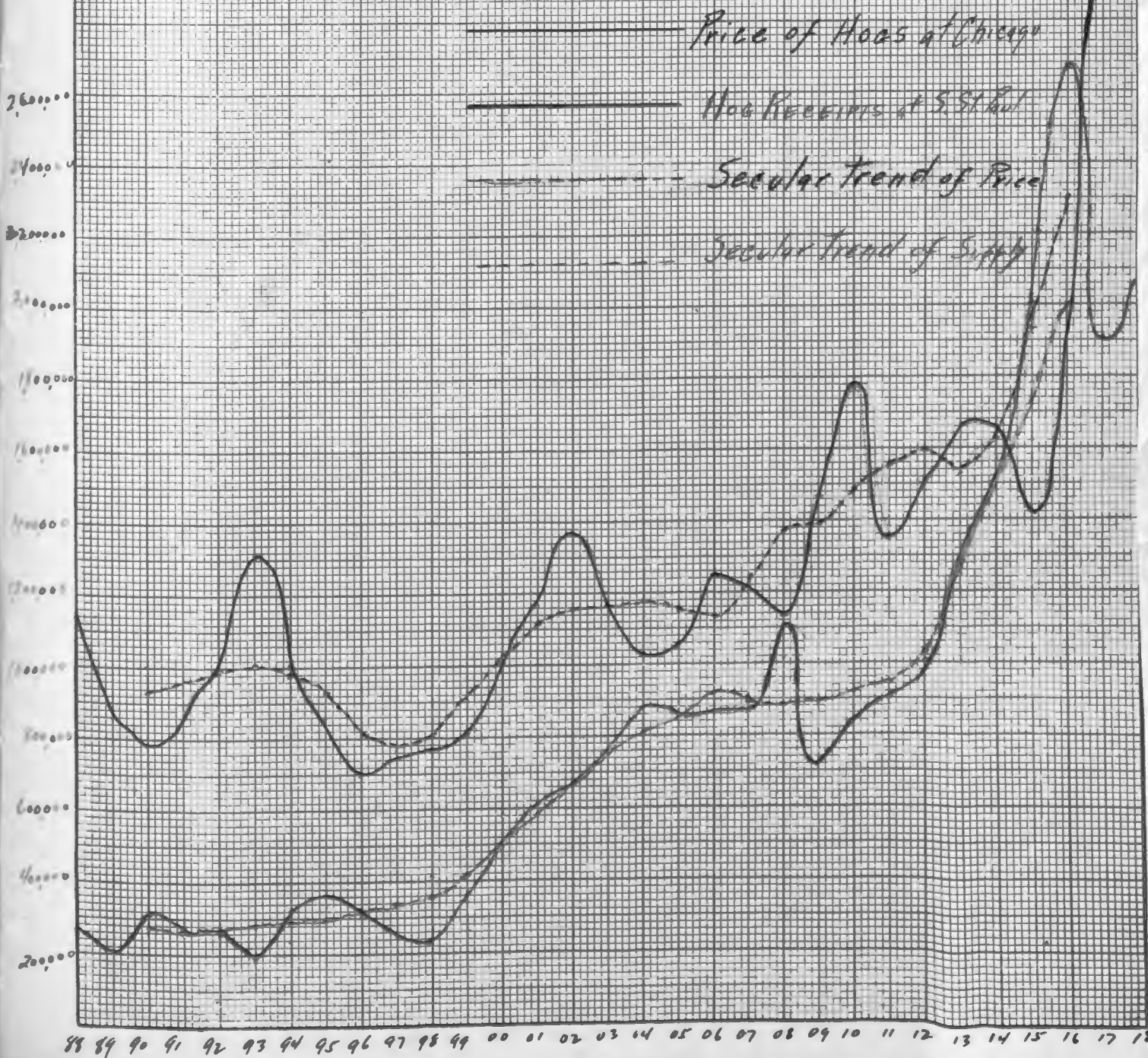


FIGURE X
 RELATION OF SUPPLY AND PRICE
 OF LAMBS
 OVER A PERIOD OF YEARS

————— Price per cwt of Lambs at Chicago
 ————— RECEIPTS OF LAMBS at South St Paul
 - - - - - Secular trend of Price
 - - - - - Secular trend of Supply

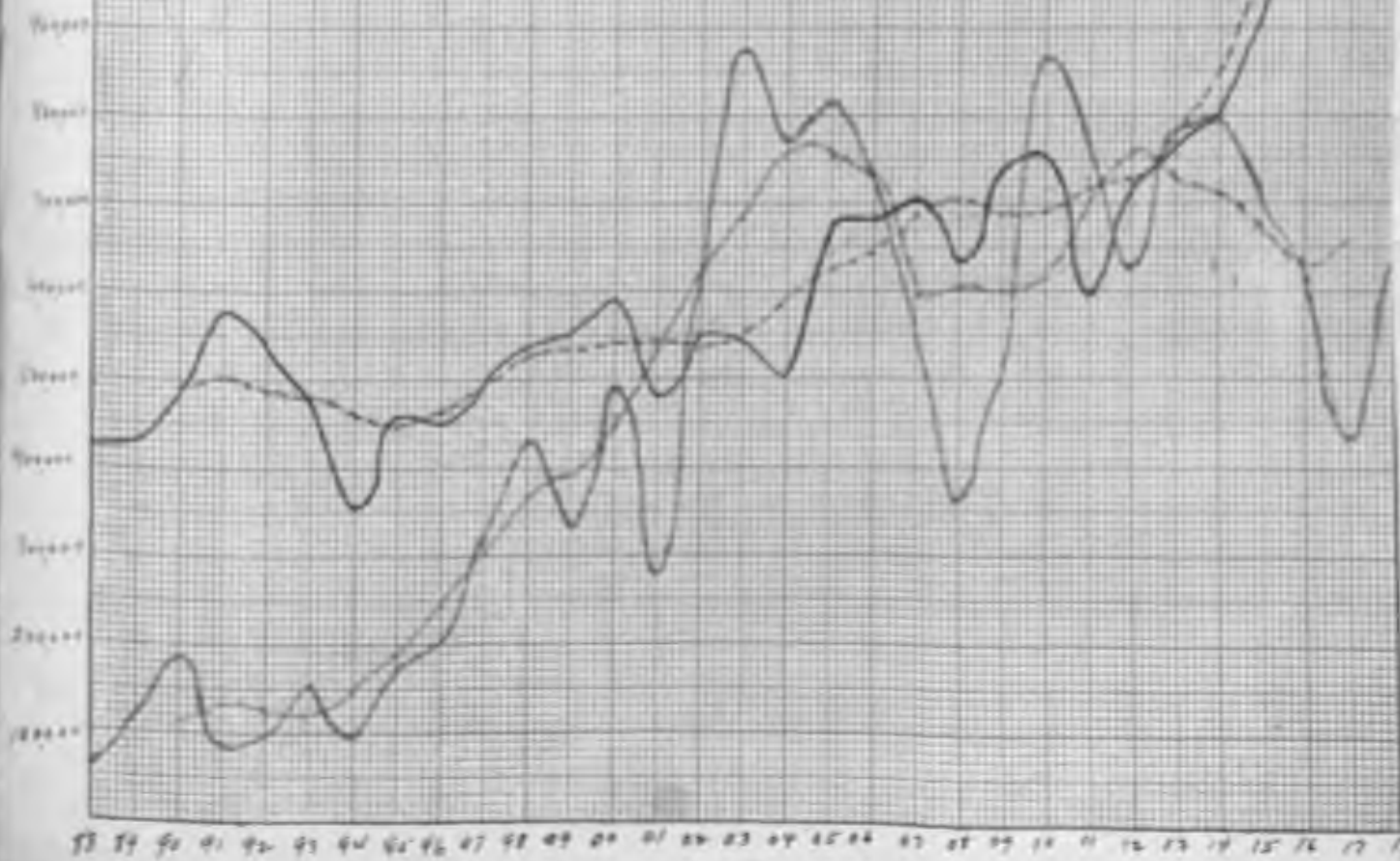
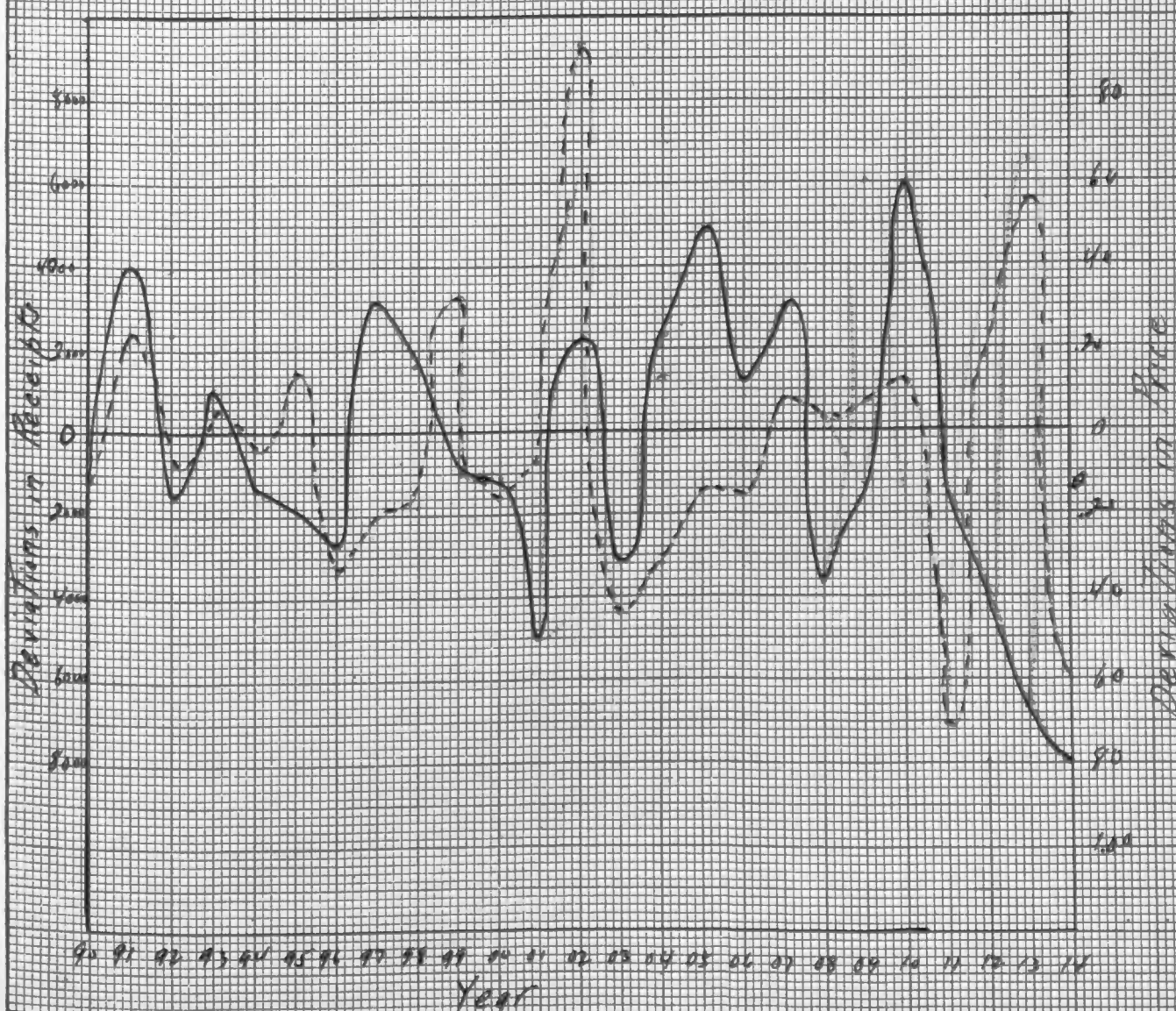


FIGURE XI

Short Time Variations in Cattle

Prices and Receipts

— Receipts
 - - - Price



cycle of the receipt and price change, the secular trend is found by plotting this moving average. Deviations from this trend constitute the immediate or short time effects of receipts and price changes upon each other. Short time deviations should show an inverse correlation. Figure XI is a graph of the cattle receipt and price deviation. Some crests and depressions are in direct correlation while others are in the inverse correlation and consequently we could not improve the correlation by introducing a lag of one or two years. The discrepancy is due in part to using St. Paul receipts and Chicago prices, but St. Paul prices are not available prior to 1910.

Hog and sheep deviations from the moving average reveal the same difficulty and do not show a high degree of correlation for the short time changes.

Relation to General Prices.-- In considering the effect of price changes over a period of years, livestock prices will tend to follow the general price level commanded by other commodities. Because of over production for some years, and under production for others, due to relative inertia and inelasticity of forth coming supply, livestock prices will have periodic crest and troughs, as shown by expanding and contracting prices which govern the amount of livestock to be produced during the ensuing years. Thus a prospect of increasing prices will encourage an advance in supply but the extent of production will be too great, and over supply will result; on the other hand with the declining price, production can not be suddenly curtailed and when the change does take place, production will be decreased to too great an extent with an inverse reaction with price. Table VIII and figure XII show the tendency for the period of years 1910 - 1919. Decrease in price index is

Table XVIII.

YEARLY CHANGES IN LIVESTOCK PRICES.

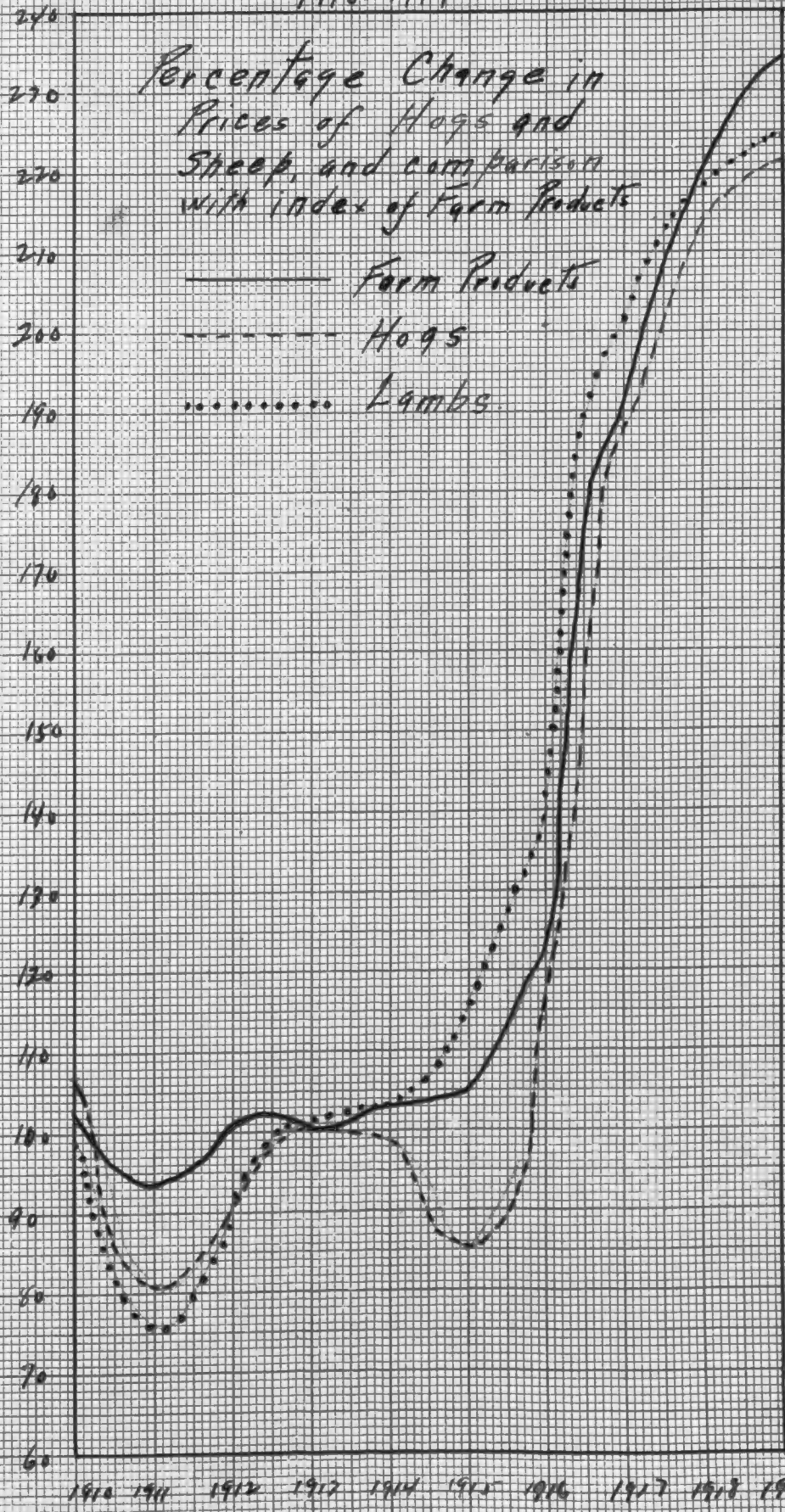
1910 - 1919.

YEAR	Good to choice Feeding Steer Prices	Choice Index	GtCo Fd.Cows Prices	GtCo Veal Calve Ind.Prices	GtCo Veal Calve Ind.Prices	Ave.Cost of Hogs Ind.Prices	Ave.Cost of Hogs Ind.Prices	Best Lambs Ind.	Best Lambs Ind.	Ind.No. Farm Prod.	Ind.No. Farm Prod.
1910	4.56	65	2.95	61	6.57	74	8.70	107	7.46	99	103
1911	4.75	68	3.05	63	6.00	68	6.51	81	5.73	76	93
1912	5.67	81	3.73	77	7.26	82	7.32	91	6.87	91	101
1913	6.98	100	4.82	100	8.87	100	8.04	100	7.54	100	100
1914	6.87	98	4.95	103	8.84	99	7.99	99	7.74	103	103
1915	6.24	89	4.70	97	8.66	98	6.87	85	8.69	115	105
1916	6.75	97	5.27	109	10.03	113	9.16	114	10.48	139	122
1917	8.54	122	6.07	126	12.01	135	15.09	188	15.12	201	189
1918	9.67	138	7.07	147	13.34	150	17.20	214	16.53	219	220
1919	10.74	154	7.22	150	15.17	171	17.74	221	16.18	214	234

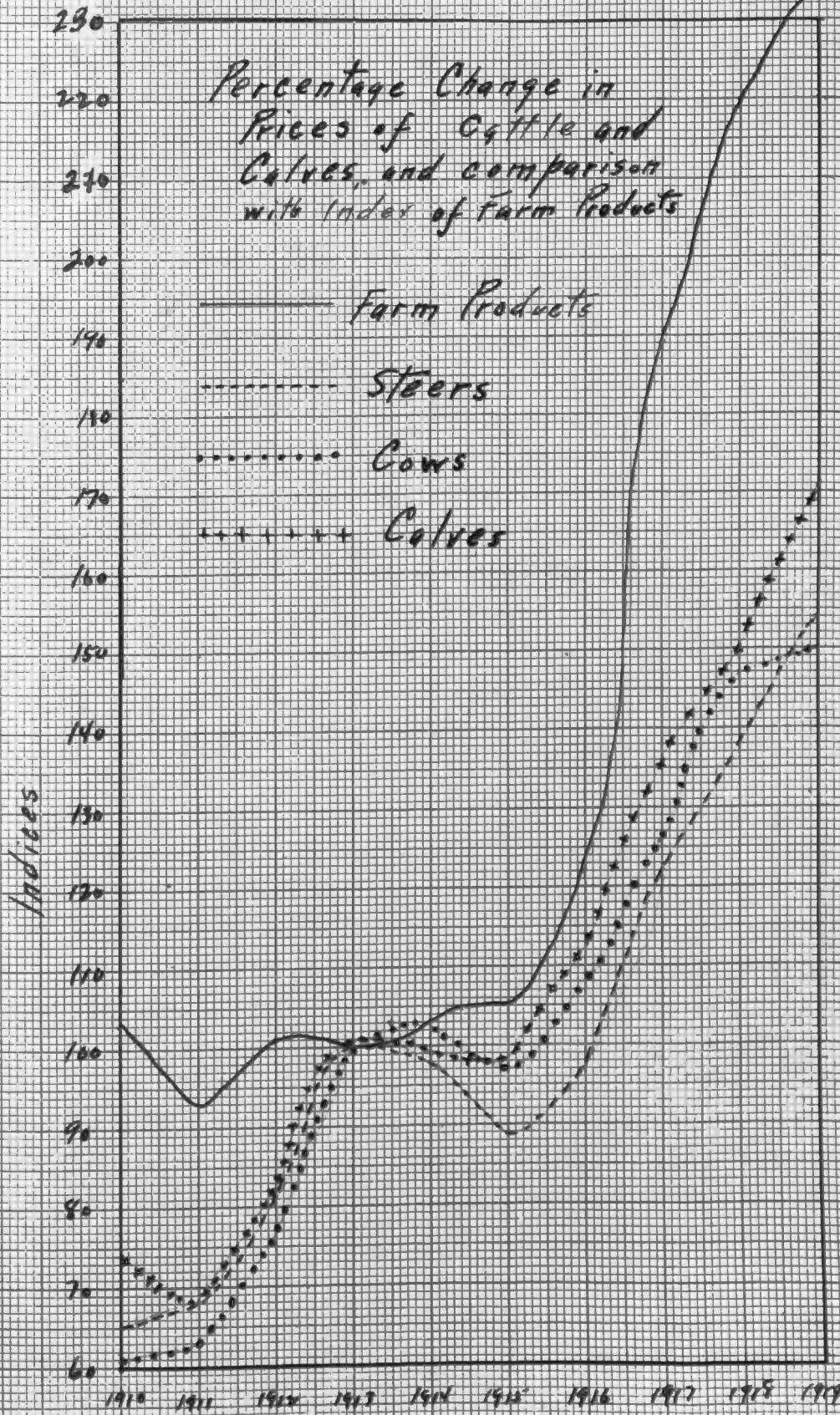
Taken from Bureau of Labor Statistics, Monthly Labor Review, February 1920. 1913 - 100.

° Good to Choice.

YEARLY CHANGES IN LIVESTOCK PRICES
1910-1919



YEARLY CHANGES IN LIVESTOCK PRICES 1910-1919



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accompanied by a more extreme falling off of livestock prices in 1911 (except for cattle). Price levels then strengthen as a result of decreased production. Hence, prices of livestock increase to greater extent than warranted, then by reaction recede toward the normal level by 1915, and with the skyward trend of general prices, livestock prices leap forward with hogs especially climbing upward at rapid pace because of tremendous export of pork to Europe during the war years.

B. SEASONAL VARIATIONS.

To the farmer as a producer, seasonal variations will be of most concern, as he is growing an animal over a period of time, and is interested particularly in the beginning and end of the process, - namely, what shall be the cost for the raw material, the thin animal whether bought or raised, and what he shall obtain for that animal at the end of the feeding period. Consequently it is not sufficient to observe the spread between feeders and killing stock, but changes that may occur during the feeding process must also be taken into account. Farming is a seasonal business, the length of a period being one year, and any cycle of regular changes will be completed in this time. Since feed and maintenance costs vary according to the seasons, it is reasonable to assume that there will be a pronounced trend of market prices of live stock in defined directions for the different months and season of the year. In fact, market receipts, together with demands of packers and feeder buyers, are indicative of price changes of regular recurring order. If such a relationship is found upon investigation, we may call it, the cycle of livestock prices.

Each class of livestock in each of the species is found to have its own characteristic recurring periods of high and low price points,

dependent in large measure upon the market receipts of that class and seasonal demand. The flow of livestock to market in turn is determined greatly by conditions of production. As regards production season, the farmer can breed raise his animals at the periods of the year found most advantageous to him. In summer feed in the form of pasture is relatively cheap and labor at a premium, livestock requiring very little attention during this time and using cheap feed to make rapid gains. Consequently, the grazing season brings forth the majority of market animals. In winter labor is at a minimum utility but feed high, and resulting cost of winter feeding is an expensive item. In the spring at the onset of the grazing season, price will be high because of the expense of winter feeding and the demand for feeder stock to use the pasture lands. The farmer has the choice of marketing his stock in the autumn or carrying it thru the winter. Often the cost of winter feeding is prohibitive because the animal may be fed a maintenance ration and not gain in flesh. The price which they would bring in the spring would not compensate the farmer for feed and labor expended.

The seasonal variation of the principal classes of female or "she stock" is shown in tables XIX, XX, XXI and the ten year averages for the same are plotted in graphic form in figure XIII. Each curve represents merely the center of the range for the grade. There is possibility of either of the lower grades being finished into the highest grade, thus "good to choice feeding cows" may become "fair to good killing cows" in a short feeding period, after being properly fattened, these cows may reach the highest classification, "good to choice killing cows". The price curve reaches its crest in the spring usually May or June, and declines to its trough in the autumn. There is a tendency for the curve to delay its downward course during the

Table XIX.

GOOD TO CHOICE FEEDING COWS.

Price per hundred pounds live weight.

	¹ 1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Average.
Jan.	2.75	3.06	3.25	4.49	4.79	4.53	4.71	5.12	6.63	7.38	4.67
Feb.	2.80	3.22	3.25	4.67	5.01	4.53	5.10	5.59	7.28	7.38	4.88
Mar.	3.09	3.11	3.31	4.80	5.32	4.63	5.44	6.31	7.43	7.47	5.09
Apr.	3.34	3.13	3.78	4.86	5.62	5.29	6.00	6.82	7.62	8.15	5.46
May	3.50	3.30	3.97	5.25	5.78	5.41	5.96	7.22	8.31	8.68	5.74
June	3.37	3.08	3.92	5.24	5.95	5.08	5.69	6.97	8.09	8.00	5.54
July	2.88	2.80	3.73	4.99	4.92	4.60	5.42	6.05	7.10	7.44	4.99
Aug.	2.70	3.26	3.91	4.98	4.65	4.50	5.30	5.75	6.75	7.41	4.92
Sept.	2.79	3.17	4.11	4.90	4.63	4.40	5.25	5.78	6.50	6.81	4.83
Oct.	2.89	3.00	^{II} 3.63	4.59	4.47	4.62	4.97	5.67	6.32	6.00	4.62
Nov.	2.80	2.75	^{II} 3.78	4.42	4.19	4.32	4.70	5.75	6.00	5.94	4.46
Dec.	2.79	2.75	^{II} 4.12	4.70	4.06	4.47	4.69	5.80	6.78	6.05	4.62
Ave.	2.95	3.05	3.73	4.82	4.95	4.75	5.27	6.07	7.07	7.22	4.99

I. No figures are given for good to choice feeding cows, hence "cutters" were used to fill this column.

II. Lower grade of stock cows and heifers.

Table XX.

FAIR TO GOOD KILLING COWS.

Price per hundred pounds live weight.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Average.
Jan.	3.75	3.97	4.28	5.66	5.81	5.50	5.12	6.05	7.15	7.69	5.50
Feb.	3.75	4.12	4.25	5.66	5.00	5.47	5.53	6.38	7.34	7.32	5.58
Mar.	4.25	4.12	4.38	5.85	5.85	5.40	6.32	6.97	7.75	7.35	5.82
Apr.	4.59	4.12	4.57	5.91	5.94	5.50	6.43	7.60	8.25	7.69	6.05
May	4.50	4.12	4.81	5.88	6.75	5.90	7.02	8.32	8.44	8.00	6.37
June	4.50	4.12	4.38	6.15	6.55	6.00	6.82	8.12	8.53	7.62	6.28
July	4.03	4.00	4.25	6.10	6.25	6.00	6.05	7.33	8.59	7.50	6.01
Aug.	3.84	4.00	4.15	6.00	5.97	5.57	5.81	7.08	8.06	7.82	5.83
Sept.	3.93	4.12	4.45	5.81	5.84	5.22	5.44	6.72	7.87	7.18	5.66
Oct.	4.03	4.00	4.32	5.75	5.78	5.00	5.55	6.30	7.15	6.84	5.47
Nov.	3.94	3.88	4.38	5.50	5.70	4.90	5.38	6.21	6.75	6.71	5.33
Dec.	3.93	3.89	4.63	5.42	5.50	4.88	5.53	6.45	7.38	6.83	5.44
Ave.	4.08	4.04	4.40	5.81	5.99	5.44	5.92	6.95	7.17	7.38	5.77

- I. Spread between "good to choice" feeding cows used \$1.15.
 II. Market trend for the month added 25¢.
 III. Range cows.
 IV. Includes grain and grass fed cattle.

Table XXI.

GOOD TO CHOICE KILLING COWS.

Price per hundred pounds live weight.

	1910	1911	1912	1913	1914	1915	1916	1917 ^V	1918	1919	Average
Jan.	4.75	4.75	5.15	6.68	6.69	6.40	6.15	7.68	7.88	9.22	6.53
Feb.	4.75	4.88	4.98	6.56	6.85	6.15	6.50	8.00	8.06	8.75	6.55
Mar.	5.28	4.85	5.31	6.83	6.75	6.10	7.19	8.50	8.37	8.80	6.80
Apr.	5.56	4.86	5.80	6.84	6.82	6.65	7.43	9.40	9.20	9.72	7.23
May	5.75	4.86	5.97	6.75	7.49	6.92	8.08	9.82	10.07	9.88	7.56
June	6.25	4.88	5.59	6.88	7.42	7.12	8.12	9.75	10.12	9.12	7.53
July	6.75	4.75	5.28	6.89	6.88	7.12	7.44	8.98	9.50	9.40	7.30
Aug.	I 6.85	II 4.75	5.28	6.87	IV 6.85	6.60	7.21	8.72	9.31	8.81	7.23
Sept.	I 7.03	II 4.75	5.47	6.82	IV 6.63	6.15	6.75	8.13	9.20	8.87	6.98
Oct.	I 7.05	II 4.61	5.03	6.84	IV 6.47	6.05	6.25	7.63	8.51	6.75	6.68
Nov.	I 6.55	II 4.45	5.06	6.34	IV 6.32	5.81	6.35	7.31	8.00	8.50	6.46
Dec.	I 6.70	II 4.53	III 5.31	6.30	IV 6.16	5.76	6.19	7.38	9.22	8.72	6.83
Ave.	6.11	4.74	5.35	6.70	6.76	6.40	6.96	8.44	8.94	9.13	6.96

- I. Average market trend used. Dry fed cows only.
 II. Includes grass and range cows.
 III. Market trend added, 28¢.
 IV. Grass and dry fed.
 V. Includes heifers.

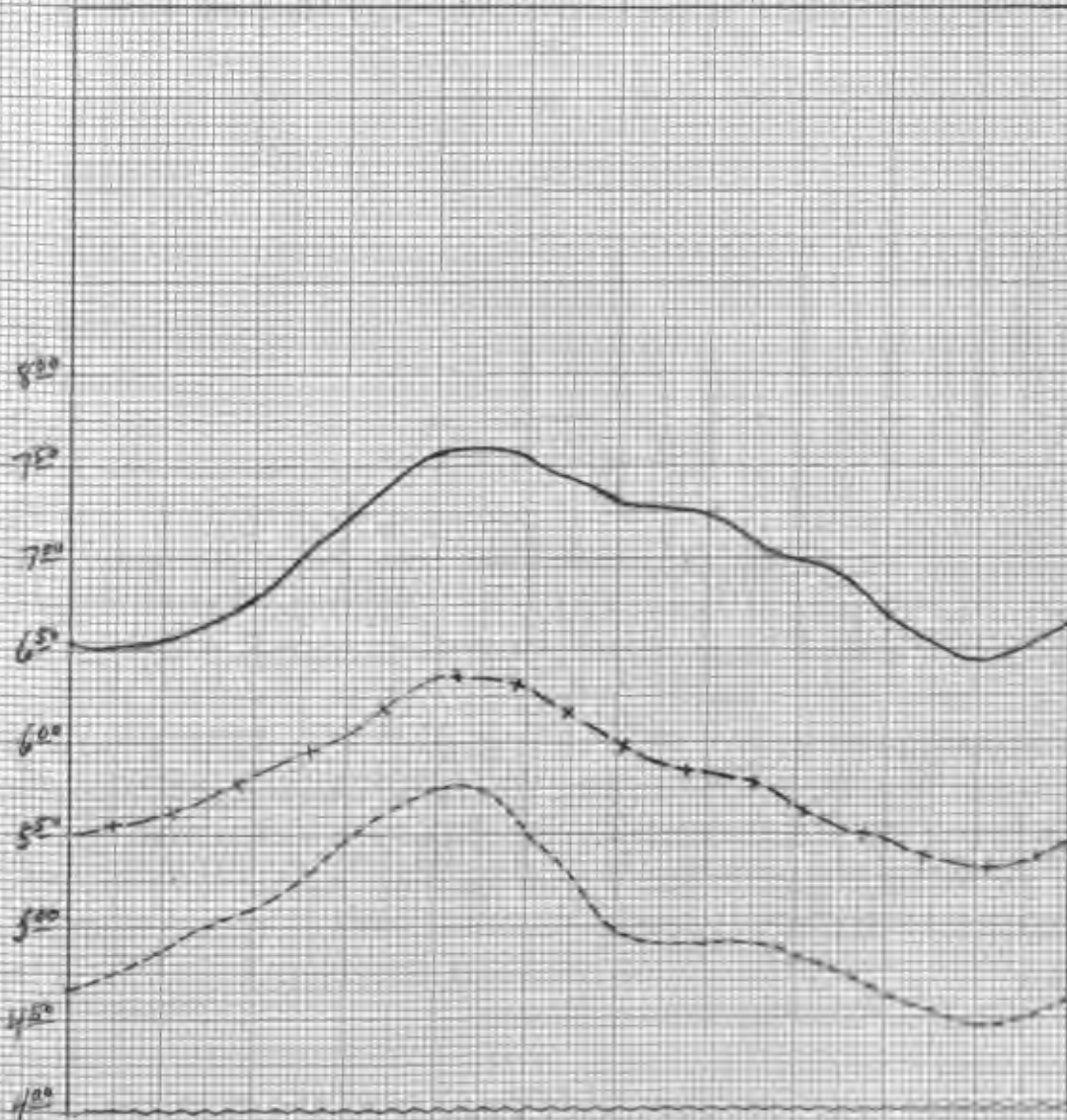
TEN YEAR AVERAGE: 1910-1919

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SEASONAL VARIATION

of the cow classes

SOUTH ST. PAUL STOCKYARDS



Good to Choice Killing Cows ———
 Fair to Good Killing Cows - - - -
 Good to Choice Feeding Cows

Jan Feb Mar Apr May Jun July Aug Sept Oct Nov Dec

FIGURE XIII

the summer months and sometimes actually brace up in August and September. However, this phenomenon is not pronounced. During the ten years in question, good to choice feeding cows were highest in May eight times, and April and June each once, and lowest in the fall trough, twice in October, five times in November and three times in December; for the other two grades, the same accumulative influence of price is noted to center its highest and lowest points likewise. The average highest price for each of the three grades is May, and the lowest November. In spite of the decline in price for each grade during the summer and fall season, the cows will usually be profitable for the farmers because of the rapid gain in weight and advancement to a higher grade by acquiring a better condition by fattening.

The seasonal range varies in different years because of temporary disturbing factors, as weather, supply at market and financial conditions of the country. The steer classes have cycles of price variation analogous in form to the curves of the female or butcher stock. There are, however, noticeable differences in the magnitude and time of the culmination and depression of the beef classes than for the cows and heifers. The feeder steers have an abnormal demand and scarcity in April and May, and this season finds good to choice feeding steers actually outselling a better fattened grade of killing beef. In the spring, farmers will capitalize the opportunity to obtain feeders for the summer herbage and send the price of this grade of feeders above the natural price that would obtain were there not this keen demand. Prices of the feeder steers decline after this competition subsides, and reach a trough in July, when demand for best feeders again becomes felt for cattle to return to the farms to utilize the ripening crops. After the slight

Table XXII.

GOOD TO CHOICE FEEDING STEERS.
 Price per hundred pounds live weight.
 900# - 1100# Live Animals.

	I							II		Average	
	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	
Jan.	4.12	4.65	4.85	6.61	6.77	6.45	6.18	7.55	8.50	10.75	6.64
Feb.	4.38	4.91	5.05	6.94	6.90	5.92	6.08	8.09	9.31	11.12	6.87
Mar.	5.19	4.95	5.13	7.19	7.07	5.85	6.97	8.46	9.62	11.47	7.19
Apr.	5.75	4.84	5.56	7.32	7.16	6.47	7.47	9.05	10.50	12.85	7.70
May	5.38	4.85	5.75	7.25	7.42	6.55	7.70	9.50	10.50	12.03	7.69
June	4.75	4.39	5.56	6.97	7.36	6.60	7.55	8.94	10.81	11.60	7.45
July	4.13	4.18	5.35	7.00	7.03	6.53	6.90	8.00	9.62	10.06	6.88
Aug.	4.15	4.72	5.79	7.03	6.99	6.50	6.65	8.12	9.56	10.44	7.01
Sept.	4.22	4.88	6.07	7.08	6.88	6.06	6.28	8.85	9.75	10.08	7.02
Oct.	4.15	4.88	6.11	6.97	6.74	6.00	6.35	8.97	9.31	9.63	6.91
Nov.	4.25	4.84	6.24	6.64	5.96	5.90	6.48	8.81	9.00	9.50	6.76
Dec.	4.30	4.86	6.52	6.70	6.22	6.07	6.37	8.15	9.60	9.40	6.82
Ave.	4.56	4.75	5.67	6.98	6.87	6.24	6.75	8.54	9.67	10.74	7.08

- I. "Good" and "Choice" quotations combined.
 II. "Good" to Choice" 700# - 900# steers.
 III. Natives.

Table XXIII.

FAIR TO GOOD KILLING STEERS.

Price per hundred pounds live weight.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Average
Jan.	5.87	5.15	5.45	7.10	6.65	6.31	6.75	7.07	9.50	12.44	7.23
Feb.	5.87	5.25	5.38	7.00	7.15	6.12	6.81	7.75	10.06	12.13	7.35
Mar.	5.94	5.25	5.56	7.00	7.08	6.17	7.06	7.75	10.25	11.90	7.40
Apr.	5.88	5.25	5.78	6.91	7.18	6.32	7.18	8.75	10.35	12.44	7.65
May	5.88	5.25	6.38	6.75	7.22	6.78	7.62	8.94	11.00	12.07	7.79
June	5.91	5.25	6.28	7.10	7.41	7.06	7.62	8.81	10.75 ^I	11.54	7.77
July	5.70	5.25	6.38	7.09	7.75	6.94	7.32	8.10	10.75	12.18	7.75
Aug.	5.25	5.25	6.50	7.00	7.55	6.60	7.10	7.69	10.50	11.32	7.48
Sept.	5.25	5.12	6.27	7.00	7.44	6.16	6.81	7.41	10.65	10.15	7.23
Oct.	5.25	5.12	5.62	7.00	7.25	5.94	6.62	7.45	11.06	9.81	7.11
Nov.	4.87	5.09	5.18	6.53	7.25	5.73	6.69	7.12	10.75	9.75	6.90
Dec.	4.78	5.22	5.97 ^{II}	6.50	6.87	5.50	6.63	7.70	11.10	10.65	7.09
Ave.	5.54	5.20	5.90	6.91	7.23	6.30	7.02	7.88	10.60	11.36	7.40

I. This and following prices for the year include grass steers only.

II. Grass taken \$1.00 less than fed steers for December.

Table XXIV.

GOOD TO CHOICE KILLING STEERS.

Price per hundred pounds live weight.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Average
Jan.	7.12	6.00	6.50	8.16	7.92	7.75	7.75	9.10	10.75	14.81	8.59
Feb.	7.12	5.94	6.50	7.87	8.08	7.38	7.78	9.50	11.12	15.25	8.65
Mar.	7.10	5.85	6.72	7.83	7.93	7.36	7.94	9.50	11.63	15.33	8.72
Apr.	7.00	5.75	7.08	7.72	7.94	7.44	8.03	10.15	12.70	15.12	8.89
May	7.00	5.73	7.40	7.56	8.15	7.98	8.45	10.32	13.25	14.66	9.05
June	7.00	5.75	7.44	7.98	8.19	8.38	8.82	10.38	13.75	13.58	9.13
July	6.80	5.82	7.50	8.03	8.25	8.44	8.55	9.97	14.50	13.69	9.16
Aug.	6.50	5.80	7.50	7.75	8.18	8.25	8.25	10.37	14.50	14.12	9.12
Sept.	6.50	5.75	7.38	7.80	7.90	8.12	8.00	11.32	14.44	12.80	9.00
Oct.	6.50	5.75	7.35	7.76	7.75	8.00	8.02	10.95	14.06	12.50	8.86
Nov.	5.94	5.75	7.25	7.56	7.65	8.00	8.50	10.83	13.75	12.62	8.76
Dec.	5.69	5.94	8.00	7.50	7.10	7.81	8.73	10.75	14.25	13.52	8.90
Ave.	6.69	5.82	7.22	7.79	7.92	7.91	8.23	10.24	13.22	14.00	8.90

- I. Feed taken as \$1.00 higher than grass.
 II. Abnormal price, war conditions.
 III. Decline due to falling off of exports.
 IV. Does not include grass.

SEASONAL VARIATION of the steers classes

TEN YEAR AVERAGE 1910-1919

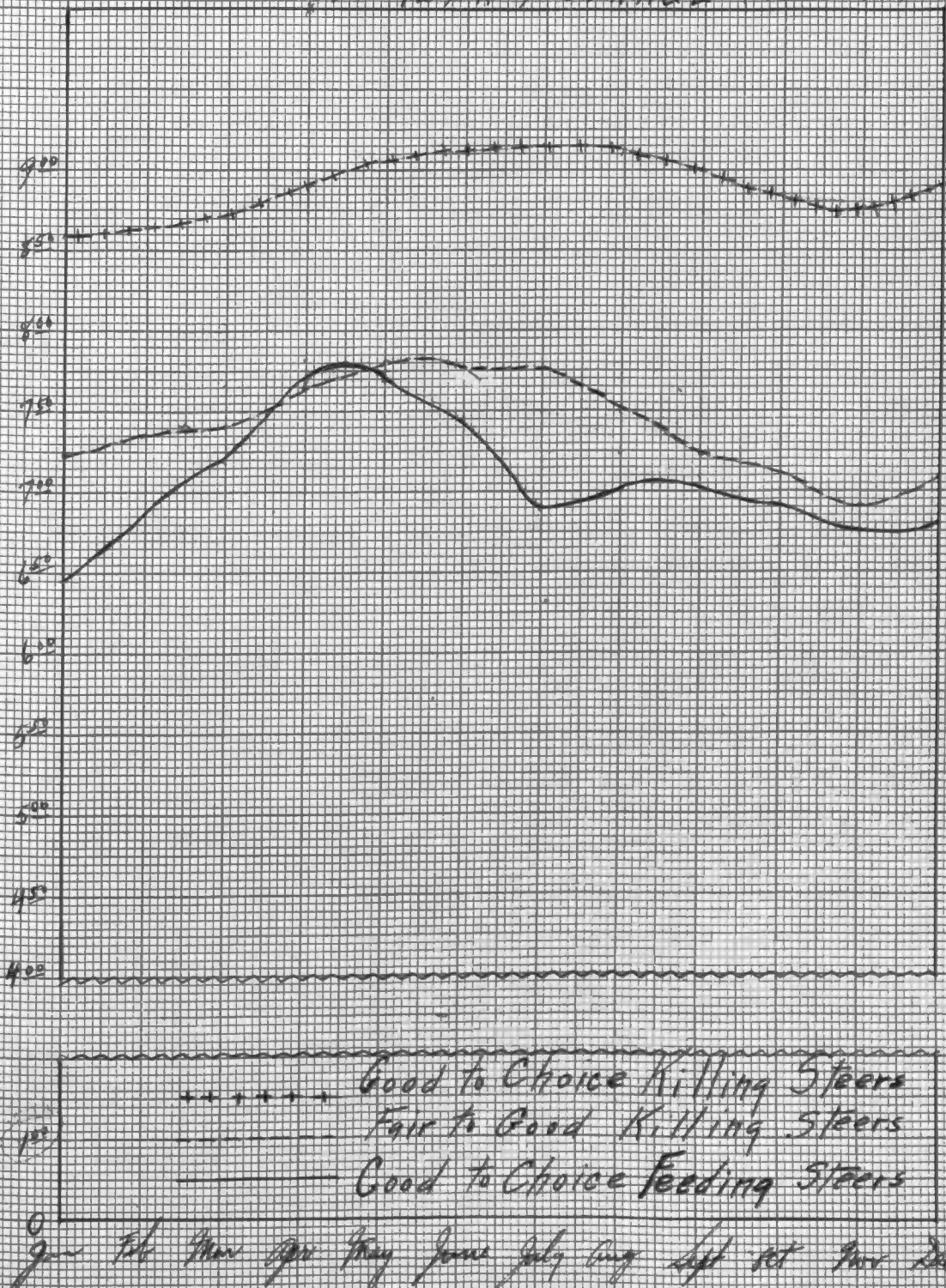


FIGURE XIV

rise in August, the price is on a downward trend until November, but the price for the good to choice feeders holds up well even in autumn. The next higher grade, "fair to good killing steers" has a more typical cycle of variation, a rise until spring reaching a climax in May, tendency to linger near the high point during the summer, and a normal decline in the autumn. The highest grade of beef cattle is the "good to choice killing steers" which because of limited supply due to high cost of finishing to this degree, has a minimum of variation. The crest of the wave culminates later in the season than for any other cattle grade and attains its premium price all summer, with a slight decline in the autumn. In looking over the tables for the steer classes, we find approximately the same tendency of direction and magnitude of variation for the different years as we have discussed for the average of the ten year-period.

The average seasonal price taken over a period of years tends to smooth out any irregularities that might exist to distort the natural price course and thus restrain permanent and normal factors from functioning adequately. Occasionally there are introduced circumstances that influence or control prices temporarily and impede free competition. In the livestock marketing system, effects of these unduly important influences are brought to light in the abnormal conditions for limited periods of time. The recent world war occasioned a series of price distortion. For instance, the packers secured a contract for dressed beef to supply the United States army with the specification that the carcasses should be from steers and weigh not less than 500 pounds in one case and at least 600 pounds to make the next higher grade. Such beef of necessity must come from well finished grades of steers; consequently the effect was to send prices of the better grades of live steers skyward, and such

animals commanded a premium in the form of abnormal price, greater than ever before in the history of the South St. Paul market. The grades "good to choice killing steers" and "prime killing steers", profited by this condition during the years 1917 and 1918, and continued until the spring of 1919, when exports and outside news caused a slump in the prices, and a "price drive" resulted whereby the packers sought to cheapen the cost of live animals.

The same phenomenon is noticed in the market prices of swine. Due to active demand and extreme scarcity of hogs during the summer of 1919, porkers climbed to the record price of \$22.50 per hundred weight. In September of that year exports of pork declined, and the year's supply of spring litters was ready to be placed upon the market. Hog prices commenced a sensational drop and finally found a bottom price of \$11.90 per hundred before the market had time to adjust itself. This situation also was looked upon as a price-drive, or buyer's monopoly, as the year's supply of pork was a fixed supply and had to move to market at some price, dictated by the demand.

Price fixing, a form of government intervention, is found in the fall of 1918, when the minimum price of \$17.00 per hundred pounds was established for hogs, the cost of live hogs to packers hovered only slightly above seventeen cents during November and December. An abnormal supply of hogs reached market during these two months, and when the regulation was lifted, prices soon ascended; first-- because packers had filled their coolers and planned to sell out at an advanced price, and second--the bulk of marketable hogs had already been slaughtered and there were not enough hogs to meet the turning capacities of the packing plants.

I. Government price at South St. Paul.

Table XXV.

AVERAGE COST OF HOGS AT SOUTH ST. PAUL.

Price per hundred pounds live weight.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Average
Jan.	8.19	7.70	5.96	7.17	8.03	6.78	6.91	10.39	15.82	17.02	9.40
Feb.	8.88	7.14	5.96	7.84	8.33	6.51	7.95	11.87	15.50	17.14	9.81
Mar.	10.37	6.59	6.54	8.54	8.37	6.63	9.31	14.14	16.80	18.34	10.57
Apr.	9.78	6.13	7.61	8.73	8.48	7.10	9.40	15.22	16.97	20.09	10.95
May	9.21	5.78	7.39	8.23	8.10	7.27	9.55	15.56	17.06	20.26	10.84
June	9.18	6.00	7.31	8.40	7.87	7.32	9.27	15.03	16.20	20.18	10.55
July	8.45	6.46	7.34	8.73	8.36	7.02	9.44	14.82	17.21	21.20	10.90
Aug.	8.08	7.17	8.12	7.96	8.59	6.53	9.92	16.52	18.90	19.65	11.16
Sept.	8.94	6.94	8.35	7.88	8.41	7.06	10.38	17.64	19.41	16.85	11.19
Oct.	8.48	6.20	8.54	7.77	7.34	7.78	9.25	16.89	17.34	14.02	10.38
Nov.	7.34	6.03	7.54	7.55	7.18	6.36	9.05	16.64	17.14	14.45	9.93
Dec.	7.53	5.95	7.23	7.52	6.80	6.02	9.50	16.40	17.01	13.47	9.74
Ave.	8.70	6.51	7.32	8.04	7.99	6.87	9.16	15.09	17.20	17.74	10.46

I. Prices for the years 1910 - 1916 are taken from Mr. J. J. Wagner's Thesis, "Price and Receipt Movements of Hogs on the South St. Paul Livestock Market", and the succeeding years were obtained from tables compiled for this thesis.

SEASONAL VARIATION IN PRICE OF HOGS

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FIGURE XV

Swine--The seasonal variation in price of hogs (table XIV, figure XV) constitutes a double cycle. One peak occurs in April, there is a decline in May and June. The price rises to the highest point in August and September, and then rapidly declines to the autumnal trough.

Table XXVI.

VEAL CALVES: GOOD TO CHOICE.

Price per hundred pounds live weight.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Average
Jan.	6.63	6.78	6.58	8.78	9.12	8.75	9.00	11.85	12.65	12.97	9.51
Feb.	6.43	6.65	5.63	8.56	8.94	8.62	9.85	10.72	11.47	13.32	9.02
Mar.	6.87	5.69	6.15	8.52	8.17	8.42	9.47	11.62	12.88	14.45	9.23
Apr.	6.60	5.00	5.92	7.72	7.81	7.28	8.53	10.75	11.95	13.38	8.49
May	6.11	5.23	6.65	8.50	8.56	7.70	9.57	12.38	11.60	13.25	8.95
June	6.03	6.10	6.94	8.78	8.53	8.32	10.50	12.53	13.09	15.30	9.61
July	6.15	5.45	7.23	9.19	9.15	8.94	10.70	11.40	13.38	16.00	9.75
Aug.	6.50	5.95	7.53	9.59	9.35	9.90	10.77	12.25	14.95	17.62	10.44
Sept.	7.12	6.45	9.05	9.84	9.78	9.62	10.72	13.53	16.20	18.25	11.05
Oct.	7.12	6.15	8.41	9.25	9.19	9.44	9.70	13.15	13.56	16.00	10.20
Nov.	6.65	6.50	8.66	8.87	8.85	8.45	10.87	10.90	14.50	16.12	10.04
Dec.	6.70	6.12	8.40	8.85	8.65	8.44	10.62	13.10	13.85	15.35	10.01
Ave.	6.57	6.00	7.26	8.87	8.84	8.66	10.03	12.01	13.34	15.17	9.68

SEASONAL VARIATION IN PRICE OF VEAL CALVES

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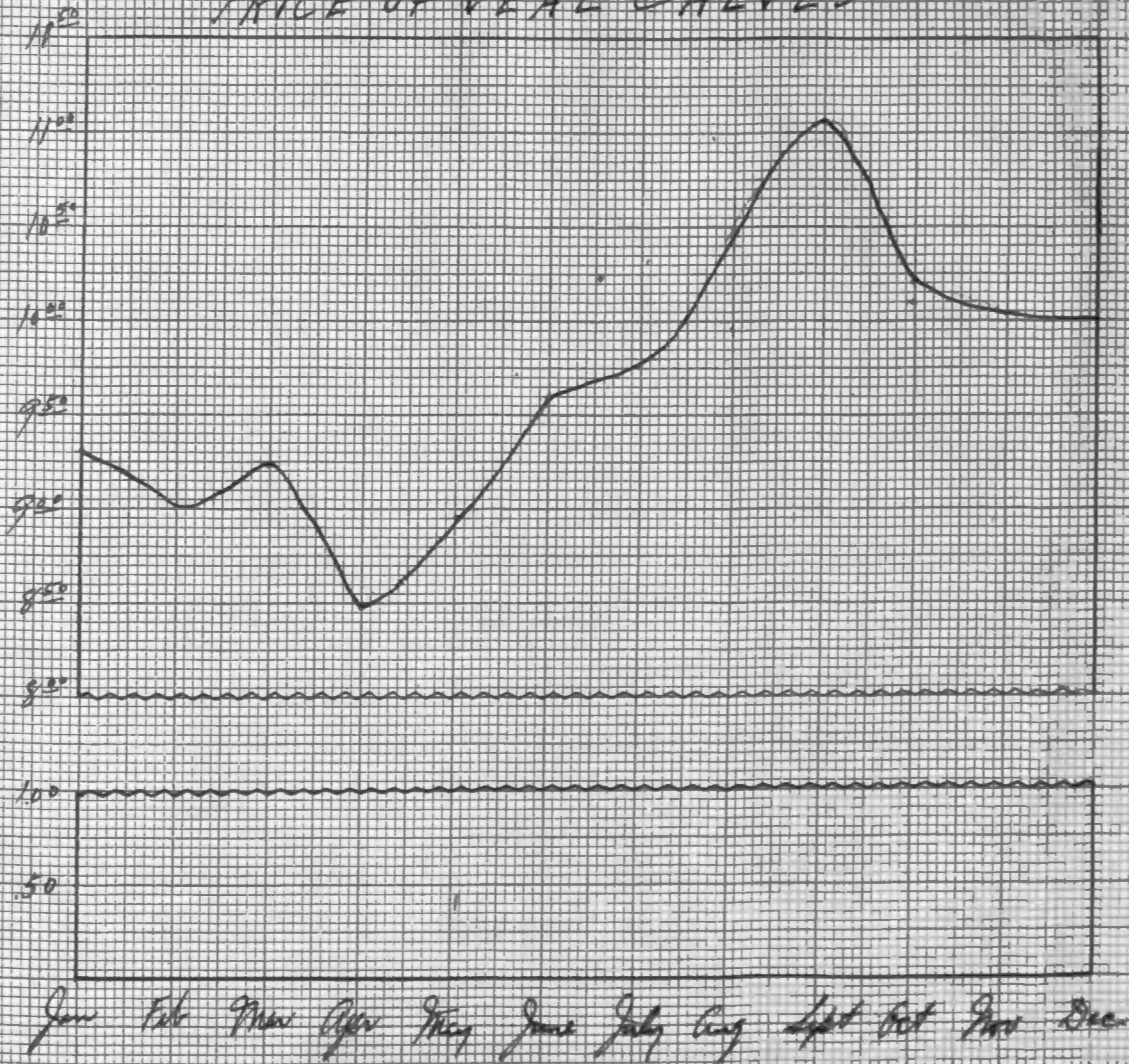


FIGURE XVI

Veal--In the case of veal calves (table XXVI, figure XVI) there are really two cycles a year. Highest prices prevail in September and decline until the winter season, and then make a slight advance in March, and thence decline to the lowest point of the year in May. Then prices steadily rise until September.

Table XXVII.

BEST LAMBS : GOOD TO CHOICE.

Price per hundred pounds live weight.

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	Average
Jan.	8.25	5.93	6.35	8.25	7.25	7.81	9.60	13.37	16.75	15.62	9.92
Feb.	8.68	5.75	6.19	8.12	7.09	8.06	10.19	13.94	16.25	17.06	10.13
Mar.	9.50	6.06	7.09	8.32	7.07	8.95	10.44	14.25	17.44	19.15	10.83
Apr.	9.32	5.86	7.70	8.25	7.07	9.52	10.44	13.40	19.62	18.50	10.97
May	9.00	5.70	8.00	8.50	8.81	10.88	11.80	14.82	18.00	17.90	11.35
June	7.90	5.50	6.50	7.38	9.00	9.44	10.40	15.75	17.62	17.15	10.66
July	6.80	6.47	7.00	7.44	8.19	8.31	10.05	15.25	17.00	16.12	10.26
Aug.	6.06	5.90	6.54	6.96	7.57	8.50	9.75	15.34	16.00	15.12	9.78
Sept.	6.11	5.33	6.22	6.88	7.34	8.00	9.69	16.58	16.60	13.50	9.50
Oct.	6.24	5.50	6.46	6.52	7.18	8.06	9.65	16.50	14.94	13.88	9.49
Nov.	5.79	5.21	6.73	6.88	8.35	8.17	11.38	16.19	14.62	14.06	9.74
Dec.	5.92	5.59	7.61	7.24	7.90	8.62	12.31	16.00	14.55	16.05	10.18
Average	7.46	5.73	6.87	7.54	7.74	8.69	10.48	15.12	16.53	16.18	10.23

Note--This table on lambs could not be constructed with a high degree of accuracy since the lamb market besides being very erratic, consists of discontinuous classes; woolled lambs are on the market in early spring, shorn stock usually in April, and spring lambs make their appearance in May. Many lambs quoted in May are shorn lambs of the previous year's crop and also some spring lambs may be included in the same quotation--if spring lambs and no "hold-overs" or yearlings, or shorn stock were included, May would be the high month of the years by considerable margin. The chart not being strictly accurate because of change in quality and kinds of lambs, does give market tendencies however.

SEASONAL VARIATION IN PRICE OF LAMBS

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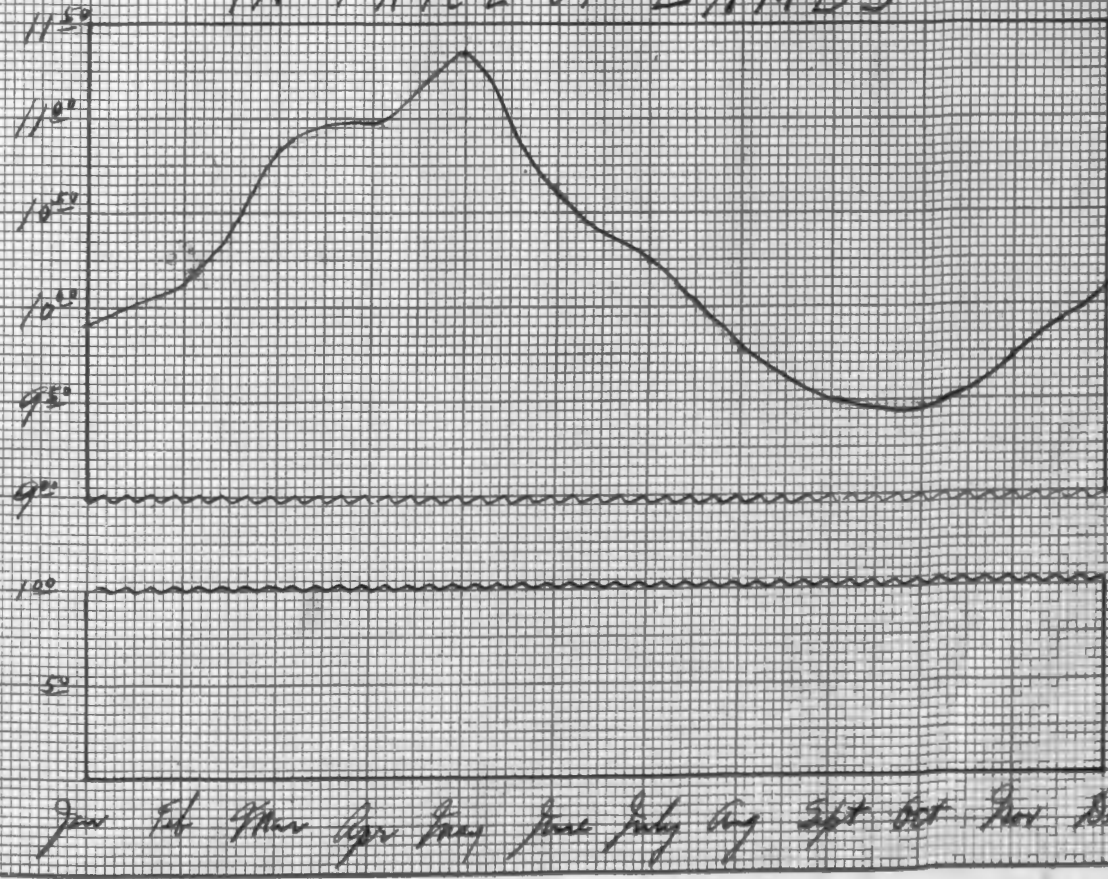


FIGURE XVII

Lambs--The sheep market differs from other classes of livestock in that some grades of lambs and sheep are found among the livestock consignments only during certain periods of the year. This makes sheep quotations discontinuous, and accurate comparisons of seasonal prices are less accurate than if quality and classification remained unchanged. Lamb prices (table XVII, figure XVII) are highest in May when the new crop starts coming to market, then steadily decline to September and October.

CORRELATIONS BETWEEN SUPPLY AND PRICE.

We have considered the regular seasonal price changes, together with digressions from the normal periods and waves of variation. It is necessary at this time to inquire into the causes that determine the nature and cycle of price variation. Market receipts indicate definite changing monthly supply, price fluctuations occur with directed trends, while the requirements of beef for consumption suggest varying capacities of packing centers to absorb livestock consignments during the different season. Evidently the market prices are wrapped up in the forces of supply and demand. The changeable supply apparently is responsible for high and low periods of price, since demand is relatively an elastic quantity, for packers could dress and store the meat until needed. Periods of large receipts should be accompanied by low prices, and vice versa, an inverse correlation. Due to economic friction there may be a lag in price rise or fall, or a sudden action of price in anticipation of a change in receipts. Nevertheless, the supply would be indirectly responsible for the price change.

A comparison between market receipts and prices of the different species of livestock is shown in table XVIII and presented graphically in figures XVIII and XIX. The inverse correlation established between market supply and price indicates the probability of a causal connection between these two factors. We note that periods of scantest supply bring highest prices, and conditions of over supply bear down the price prevailing on the market. In short, any change of supply seems to cause an opposite, though not proportional change in price. Supply might not necessarily be the cause of the price trend but rather indicate the seasonal cost of preparing livestock for mar-

Ket. Sometimes, however, the curves are irregular and account must be made by other conditions than supply changes. A variation in demand will often explain lack of expected correlation supply and price. In order for supply and price to have an inverse correlation, we should assume a constant demand, an hypothesis not quite strictly accurate since the demand level changes in intensity with different season and classes of animals. In comparison with the supply, however, the demand change is of limited variation.

among the discrepancies of perfect correlation, we have the price of "good to choice feeding cows" in late autumn declining even after the supply begins its process of curtailment, but this is due to decreased demand for that class of animal at this time of year. In the case of veal calves the greatest supply is in May, while the lowest price occurs a month previous. The price of veal calves depends in good measure upon the fancy trade of the East and any influence there makes itself manifest in the live veal market. During the lenten season the call for dressed veal declines rapidly and prices of calves decrease earlier than would otherwise be the case. Again in the autumn the veal supply suddenly increases and prices decline, then supply falls off, but price shows very little response except to decline at a less rapid rate.

The correlation curves for sheep and hogs likewise show a close connection between supply and price, the periods of greatest supply being contemporaneous with lowest prices, and vice versa. The causal relationship between the market receipts and price changes indicates that variations alter the seasonal prices obtained, or that both items are the result of a third factor which acts to produce this effect. Changes in supply moreover might be traced back to variation in seasonal cost of livestock production. We have discussed that factor previously, however, in the earlier part of this thesis.

Table XVIII.

CORRELATION OF SUPPLY AND PRICE.

Ten Year Average 1910--1910.

Month	CATTLE		VEAL CALVES.	
	Receipts	Price I	Receipts	Price
Jan.	37708	4.67	9537	9.31
Feb.	31824	4.88	9548	9.02
Mar.	43380	5.09	14271	9.23
Apr.	37770	5.46	16350	8.49
May	32078	5.74	19936	8.96
June	30408	5.54	18605	9.61
July	47035	4.99	17055	9.75
Aug.	59047	4.92	15215	10.44
Sept.	97162	4.83	14930	11.06
Oct.	126185	4.62	16736	10.20
Nov.	93888	4.46	12329	10.04
Dec.	52234	4.62	9888	10.01

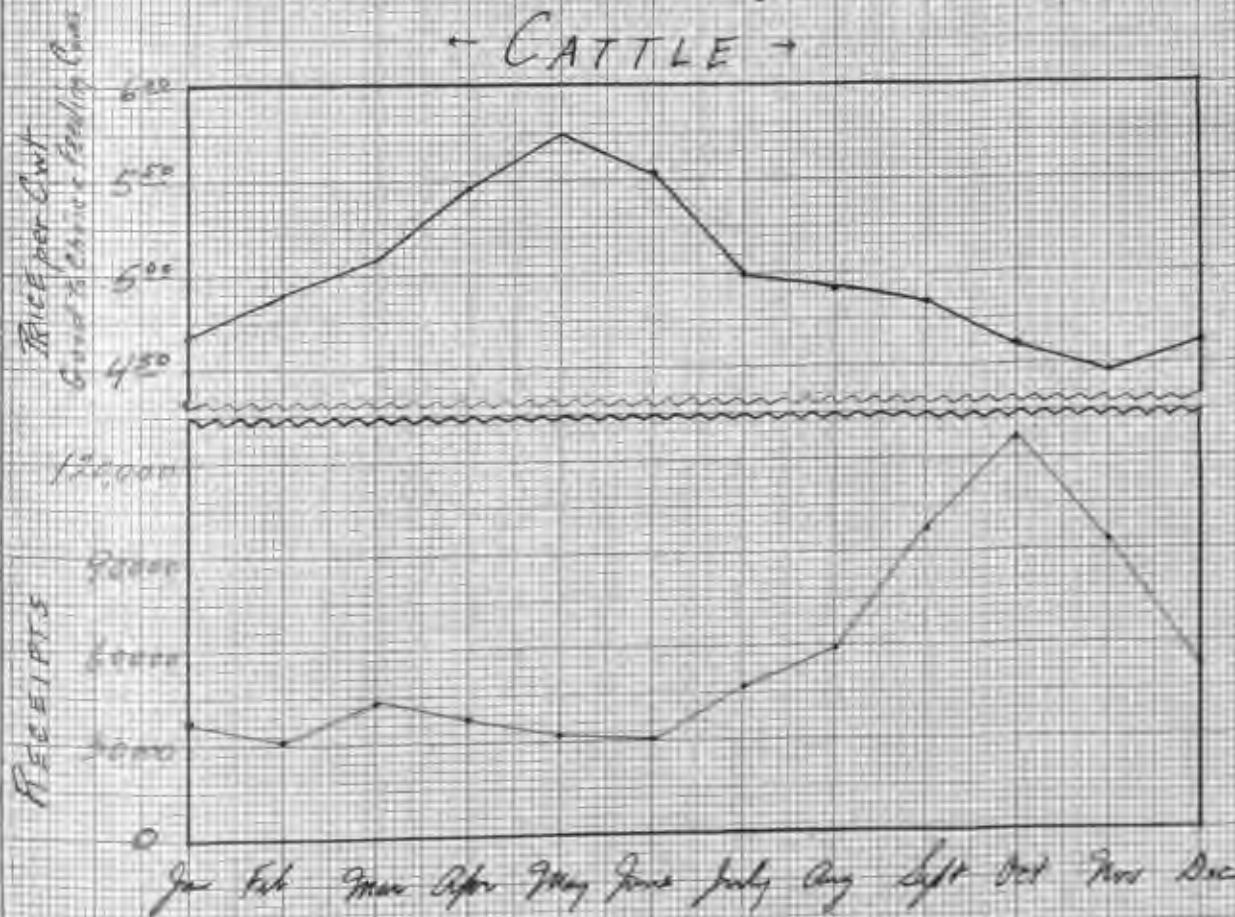
I. Good to Choice Feeding Cows.

II

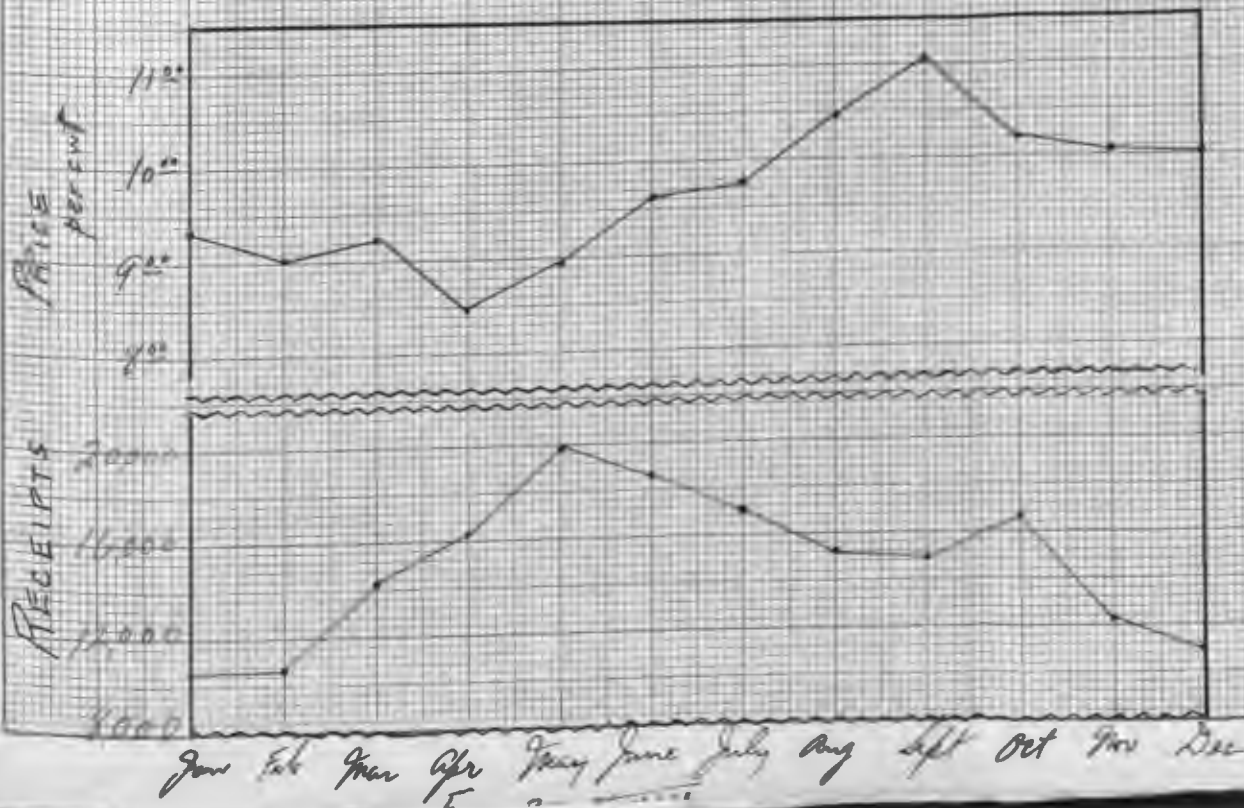
Month	HOGS		SHEEP	
	Receipts	Price	Receipts	Price
Jan.	205653	9.40	44386	9.92
Feb.	153914	9.81	35880	10.13
Mar.	139160	10.57	33268	10.83
Apr.	115921	10.95	12322	10.97
May	139356	10.84	9582	11.35
June	126631	10.68	9933	10.66
July	100616	10.90	20348	10.26
Aug.	57890	11.16	43628	9.78
Sept.	59529	11.19	111818	9.50
Oct.	153422	10.33	198892	9.49
Nov.	207649	9.93	140134	9.74
Dec.	218507	9.74	48222	10.18

II. Best Lambs.

SEASONAL VARIATION OF SUPPLY AND PRICE - CATTLE -



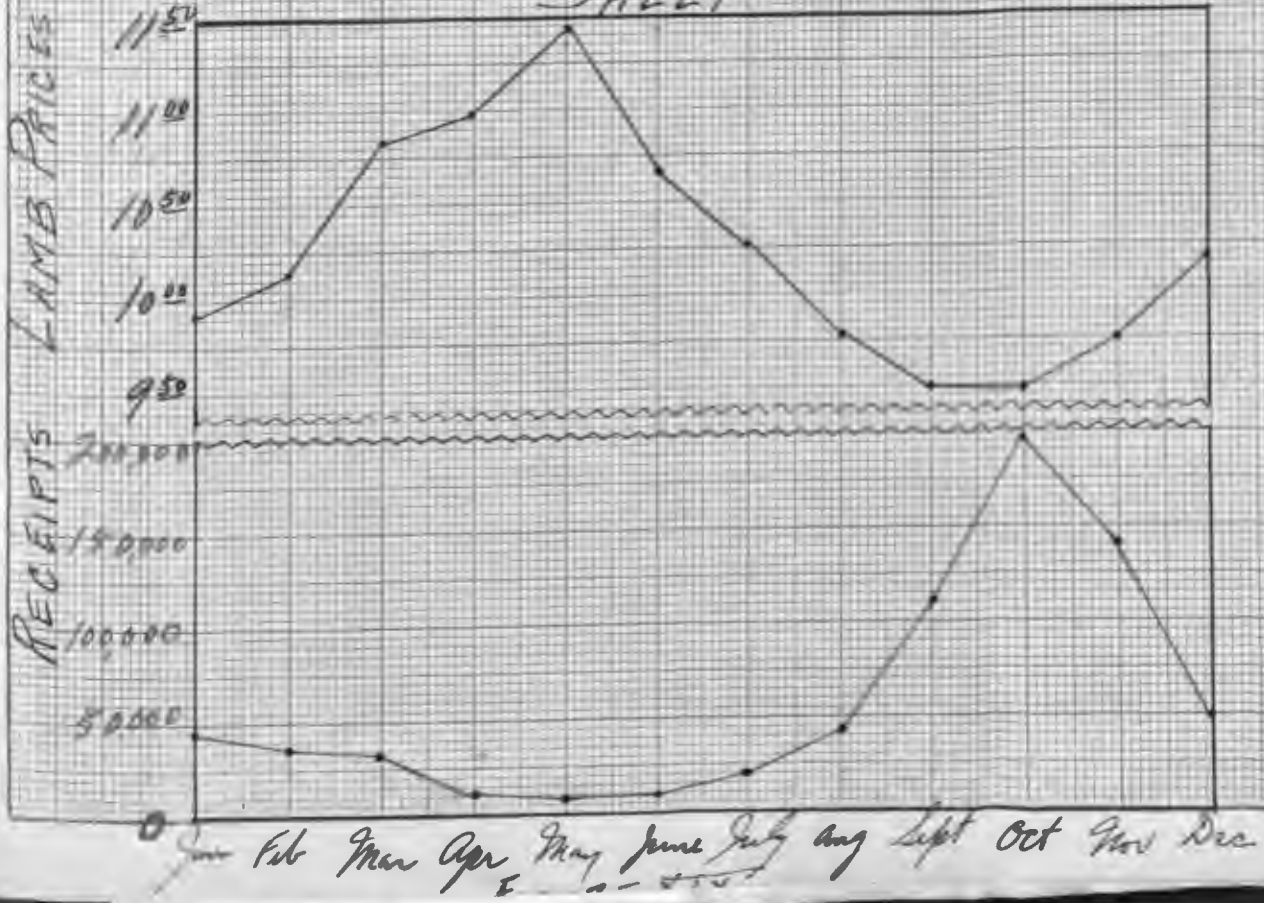
VEAL CALVES



CORRELATION between SUPPLY and PRICE
HOGS



SHEEP



SHORT-TIME VARIATIONS.

The short-time fluctuations of livestock prices are measured by weekly and daily changes on the market. The week is regarded by the livestock merchants as the unit of a price making period, and consequently quotations and price changes are most commonly given in weekly terms. For short periods of time there are so many conflicting factors that correlation between price and supply is only limited. Sudden and often times unexpected changes in supply and demand act as disturbing elements to oscillate the price. Thus we might give a number of causes for a change in demand for livestock for a short period: seasonal call for various classes of animals, as spring demand for feeder; stronger tones of outside news, as rise in the Chicago market; activity of dressed meat trade in the eastern export cities; increase or decrease in foreign consumption; retail butcher requirements in the holiday season, as Easter, Thanksgiving, or Christmas. The supply of livestock also might be affected by a sudden change: drouth in the western producing centers to hurry the grazing stock to market; snow or rain storms so that livestock shipments will be curtailed; changes in the grain market; and other incidents. In short any influence affecting livestock from either the consuming or producing end will tend to alter the weekly market price quotations. It is impossible to eliminate economic friction over short periods of time.

The market tends to work automatically: if good prices are offered, an increase in supplies is encouraged, and upon arrival of the additional quota of livestock, the price drops by reaction, and vice versa. The market is ever attempting to accomodate itself to sudden and erratic changes in conditions. This in addition to

WEEKLY PRICE AND RECEIPT MOVEMENTS - 1919.

Week beginning	Receipts.	Prices and Reason assigned			
Monday	Cattle	Calves	Hogs	Sheep	for market changes.
April 21	13162	7501	33629	1057	With heavier receipts, easier trend to the cattle market, steers in the \$15.50-\$16.00 class, have limited business. Veal \$13.00. Record prices continued to feature, the hog market \$20.35-\$20.40, prevailing spread. Lambs \$17.50-\$18.25.
April 28	14281	9426	47797	684	Sharp reduction on cattle market, steer \$15.00. Fat cattle 50¢-75¢ lower. Veal \$12.00, hogs 40¢-50¢ lower, \$19.95-\$20.00. Sheep and lambs steady to strong. Choice woolled lambs earn \$18.50.
May 5	13581	8549	46298	4255	No improvement in cattle market as all markets are receiving a surplus supply, steers \$15.25, calves \$13.40, hogs \$20.20-\$20.70. Lambs 50¢-\$1.00 lower, the range for choice lambs being \$17.00-\$18.50.
May 12	11517	9108	43452	1065	Advancing prices in cattle, scoring advance 25¢-50¢, steer top \$15.50, veal \$15.00, hogs 10¢-15¢ higher than week ago. Woolled sheep and lambs passed as a market factor, only shorn arriving. Shorn lambs \$13.50.
May 19	10071	7922	37332	1267	Cattle values continue to slide and the cattle market is showing little stability, steers \$14.50-\$15.00, veal \$14.50. Hogs opened at \$20.60 and dropped back to \$20.20. Shorn lambs \$13.50.
May 26	9113	8445	46007	2397	Cattle values continued downward plunging with fresh discounts of 75¢-\$1.00, steers \$14.00. Dressed meat trade slow. Calves \$14.00. Not much change in hog market, \$20.00-\$20.10. Best lambs \$13.50.
June 2	8279	8455	48186	3019	The fat cattle market continues to decline, a full dollar drop for the week, steers \$13.50, demoralized meat trade in the East. Calves \$14.00. Hogs offer a half dollar \$19.40-\$19.50. Spring lambs \$14.00-\$18.00, shorn lambs \$11.00-\$13.50.
June 23	10634	7332	41814	6440	The cattle market continues lower, values hit toboggan because of western drought, steer \$13.40, veal \$16.75, hogs \$20.40-\$20.50. Lambs 50¢-\$2.00 lower, tippy spring lambs \$16.50-\$16.75.
June 30	8391	5959	36422	3645	With light receipts, prices of cattle closed steady to strong, steers \$13.75, veal \$16.75, hogs soared skyward again, \$21.00 Wednesday, the bulk for the week went at \$20.84-\$20.90. Lambs \$16.25-\$16.50.

WEEKLY PRICE AND RECEIPT MOVEMENT.

Week	Receipts				Prices and Reason assigned
beginning Monday	Cattle	Calves	Hogs	Sheep.	For Market Changes.
July 7	11427	6589	40552	4569	Price betterment was the rule for cattle all week and advance of \$1.00 was noted for the period, steers \$14.50, veal \$17.50, hogs on highest basis in history \$21.30-\$21.50. Lambs 25¢ higher \$16.75
July 14	22211	8128	42254	12751	Expanding cattle receipts caused a decline in cattle values, steer top \$14.00. Decline most for greasy and plainer kinds. Veal \$17.00. Porkers 75¢ lower than high time \$20.75-\$21.00. Lambs advanced 25¢-\$0.17.00.
July 21	32852	8844	36046	17674	Prices tumble under heavy receipts of grass and western cattle, steers \$13.50, veal \$16.00. Hay market bowls along at dizzy heights \$21.75-\$22.00. Best lambs trimmed 50¢-75¢, \$15.00-\$16.25
July 28	24011	4422	21661	10592	Eastern beef trade depressed sharply and prices of cattle lowered 25¢-50¢. Top steers yielded \$13.00-\$13.25, veal \$18.00. Hogs steady centering around \$21.50. Lamb prices saggy with outside news bearish \$14.50 top.
Aug. 4	19047	5114	26272	14112	Fat cattle values took a higher trend. Result of rains in drought sections, curtailment of rains anticipated. Top steers \$14.00. Hogs slump to \$19.25-\$20.00. Veal \$27.00, lambs \$14.75.
Aug. 11	30109	5918	19153	14159	Prices showed upward tending in cattle toppy heaves commanding \$14.25-\$15.50. Hogs reached record top \$22.50, then declined \$1.50-\$2.50, closing at \$19.00-\$19.50. Lambs 50¢-\$1.00 up, \$15.75
Aug. 18	26744	7511	21761	12092	Cattle receipts showed a seasonal increase and buyers sought concessions of 50¢-\$1.00, toppy steers yielding \$15.00, veal \$18.50, hog market gained some of the recent losses, \$19.00-\$20.50. Lamb top \$16.00.
Aug. 25	45567	6500	20377	51128	Buyers retained their bearish frame of mind and values are down \$1-\$2 for the period \$14.00 for steers, veal \$18.00. Hay prices slipping, \$17.00, about the average cost. Sheep and lambs \$2-\$3 lower, top lambs \$13.00.
Sept. 1	34130	4947	16673	30417	Stockers and feeders too numerous for demand, killers 25¢-50¢ lower, steers topping at \$13.50, veal \$18.50. Hog receipts lighter and prices steadied, \$17.50-\$18.00. Best lambs advanced 50¢, topping at \$13.80.

WEEKLY PRICE AND RECEIPT MOVEMENTS.

Week beginning Monday	Receipts				Prices and Reason Assigned for Market Changes
	Cat'tle	Calves	Hogs	Sheep	
Sept. 8	25460	4691	15489	32241	With liberal supply of cattle, values have continued to slide downward with the weeks decline of 25-75¢. Top steers \$13.00. Veal \$18.50. Hog market dropped rapidly to \$10.25-\$16.75. Lambs topped at \$13.75.
Sept. 15	25529	4721	16330	41578	Continued liberal receipts with grasses predominating and a sluggish dressed meat demand, cattle declined 25-50¢ lower, top steers \$12.50. Veal \$19.50. Hogs steady at \$16.50-\$17.00. Lambs suffer big drop of \$1.25-top \$12.50.
Sept. 22	32296	5134	20927	43045	Trade betterment reflected in 25-50¢ advance in market for cattle, top steers \$15.00. Veal \$19.50. Hogs erratic ranging around \$16.50-\$16.75. Sheep and lamb prices higher, top for lambs \$13.25.
Sept. 29	38764	5110	27537	45368	Values did not shift much for cattle despite increased receipts with strong demand for dressed beef at Eastern seaboard cities. Steers \$13.00, veal \$18.50. Hogs declined to \$14.25-\$15.50. Sheep & lambs have steady advance past two weeks top \$14.25.
Oct. 6	38482	5000	30212	25001	Dullness featured the week's cattle market, tippy grasses bringing \$12.50-\$13.00. Veal declined to \$16.50. Hogs continued downward trend-\$13.75-\$14.25. Best lambs down 50¢ and topped at \$13.75.
Oct. 13	50359	5104	43445	52739	Market trend lower due to surplus receipts, surplus too big for buyers to absorb, steers selling up to \$12.50, Veal \$16.00. Hogs continued to slide, \$13.75-\$14.00. Sheep and lambs steady, top \$13.75.
Oct. 20	48995	5337	37864	50795	Despite record run values were maintained for cattle with advance of 25-50¢-\$12.75. Veal \$16.50. Hogs lowest in two years, \$11.20-\$12.50. Lambs steady at \$13.75 top.
Oct. 27	51803	5397	30904	57723	Bad weather with snow in some sections caused shippers to rush stock to market especially from the range, with cattle trimming of 50-75¢, tippy steers at \$13.00. Veal \$17.00. Hog rebound to \$12.50-\$13.75. Lambs steady.
Nov. 3	45846	5285	40292	67230	Moderate cattle runs had tendency to stabilize market, values unchanged. Steers \$12.00. Veal \$17.00. Light receipts sent hogs soaring again \$14.45-\$14.85 at week's close. Sheep & lambs steady \$13.75.

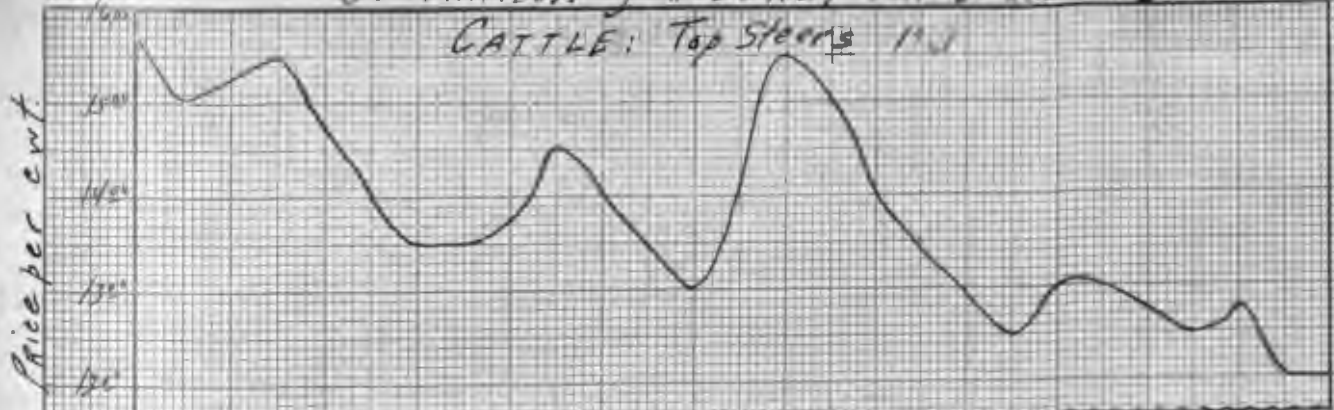
bending toward the seasonal norm, the prices of livestock must also be in trend with local disturbances. Table abc, and Chart illustrate the course of price operation for weekly periods. The data covers prices and receipts for a part of the year 1919, the price movements being obtained from the weekly magazine, "The Farmer", and the receipt changes from the files of the South St. Paul Daily Reporter. In looking over the market conditions, it will be noted that supply change is given more often than any other factor as the reason for price fluctuation. The market moves by twenty-five cent price jumps for all classes except hogs, where five and ten cent margins are given as the unit of price change. This is due to the fact that there is less difference in the grades of hogs than there is for other kinds of livestock.

Correlation tends to assert itself by showing responses of price movements to receipt changes, but due to the fact that the producing centers are far removed from the trading exchanges, economic frictions hinders the the proper functioning of supply and price. In weekly tables and charts, correlation between succeeding weeks is lacking to notable degree. Charts for calves and sheep as well as cattle and hogs, could be constructed, but the graphical presentation of these two latter classes will suffice. In the cattle of cattle (chart) an increase in supply causes a decline in price, an inverse correlation; whereas in the case of hogs in the autumn of 1919, decline of hogs prices due to lack in exports of pork, has the effect of curtailing the supply, which results in a direct correlation.

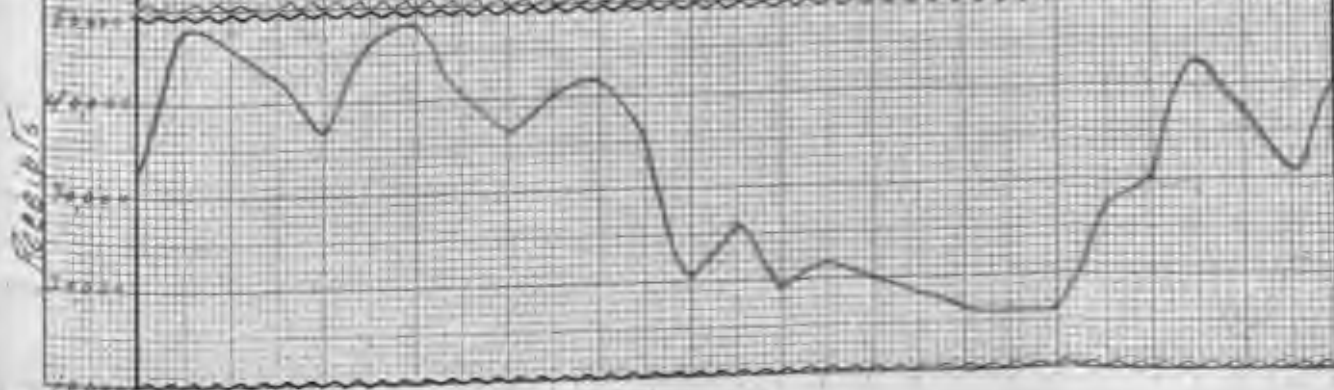
For weekly receipts and prices, therefore, there only is an approximation for the economic forces of supply and demand to work in harmony. Distance to market from production areas, sudden changes in conditions attending market needs and desires and other temporary

CATTLE: Top Steers 1911

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April May 10 June 10 July 10 August 10 September 10 Oct 10 Nov 3
 April May 10 June 10 July 10 August 10 September 10 Oct 10 Nov 3



disturbing factors, contribute a share to determine immediate price of the various classes of livestock.

Daily Changes--Daily variations are so erratic that no one, not even the experienced livestock salesman, can predict with any degree of certainty, what will happen to livestock prices from one day to the next. Unforeseen and sudden impulses are ever in activity on the daily market. Monday, however, is usually the day that sets the pace for the ensuing days, this being the beginning of the week, and trading conditions and outlook for several days becomes evident at the time. Saturday is regarded as clean-up day and always has a meagre offering of receipts. The supply of livestock for any day might be considered a fixed-supply-good; once on the market the stock can seldom be shipped back to the farm from which they came because of expense and distance, and consequently must be sold at some price occasioned by the intensity of demand. In fact, one on the way to market, livestock consignments are fixed in available supply. A period of low prices therefore will encourage heavier receipts, and vice versa, but the response will not be felt for several days, because of lapse of time required to dispatch the news of stronger or weaker market conditions to the country and cause proper response to livestock shipments. Thus by raising or lowering livestock prices the large marketing consumers, as the butchers and packers, can regulate the forthcoming supply.

Table XXX, accompanied by chart XII, gives some idea of the periodic influx of receipts for the days of the week, and the price changes by days from December 15, 1919 to January 24, 1920. Prices were obtained from the South St. Paul Daily Reporter, and the receipts from the files of the St. Paul Union Stockyards Company.

The days are divided into weekly stretches because each week might be regarded as unit in itself. Prices are not quoted for Saturday since there is no independent market on the day, the preceding prices of Friday being used for the few lots of livestock sold on Saturday. As suggested prior to this, correlation for daily receipts and prices is strikingly lacking, daily prices being determined by general trade conditions for that week.

Veal calves (chart XXI) find heaviest receipts near the middle of the week, Tuesday or Wednesday, since calves are by-products of Minnesota dairies, and mid-week is scheduled to receive Minnesota and local offerings. Monday is slated for consignments from the west, and week end sees only limited activity.

Hogs usually arrive in greatest numbers during mid-week also because the majority of porkers too, are Minnesota products. Cattle usually have heaviest consignments on Monday, especially in the autumn when the westerns arrive. Monday and Wednesday ordinarily see the best sheep runs.

Not much can be said concerning daily price phenomena since no definite criteria exist to determine whether the market will remain unchanged, be strengthened or weakened during the week.

Table XXX.

DAILY RECEIPTS AND PRICE MOVEMENTS.

1910 - 1920.

1919	Receipts				Effect upon Market
Date	Cattle	Calves	Hogs	Sheep	Price Changes
Mon. Dec. 15	9541	181	7574	3343	Undertone of cattle trade saggy-25¢ cut in price, veal calves-\$16.25. Reduced hog run sells at higher terms-40%-50% advance top \$13.40. Lambs steady-\$15.75 top.
Tues. Dec. 16	3489	1519	12031	1217	Cattle trade continues on easier trend 25¢ lower than Monday. Veal calves \$16.00. Hogs erratic but command higher bids-\$13.75. Lambs steady.
Wed. Dec. 17	4213	1989	19519	4094	Lower trend continues in cattle trade 50¢ lower \$1-\$2 lower than early last week. Veal \$16.00. Hogs advance 10-15¢ on free crop, \$13.90 pig. Lambs 25¢ lower \$16.00.
Thur. Dec. 18	3686	930	8434	1308	Barely steady for cattle at week's decline; lack of feeder calf, common animal too poor to winter. Veal \$15.50. Hogs 20¢ down-\$13.70. Lambs steady-\$16.00 native top.
Fri. Dec. 19	1555	755	8083	3075	Cattle trade steady, some more active, reduction in supply caused more activity in killer division. Veal \$15.25. Hogs steady. Sheep steady.
Sat. Dec. 20	330	70	3251	3585	Only little improvement in cattle price due to unfavorable weather high cost and scarcity of feed. Veal breaks due to liberal run. Reduced hog runs tone up market. Lambs steady \$15.75.
Mon. Dec. 22	4979	358	15253	2309	Firm deal for cattle marks week's start reports of 15-25% advance. Veal \$15.00. Hog business maver on fair crop values down 10-20¢-\$13.00. Lambs steady \$15.75 top.
Tues. Dec. 23	2150	1740	13346	1437	Cattle sell unevenly higher-30-50% advance over last week, result of light run. Veal \$14.50. Hogs move at 40-50% break to day-\$13.15. Light run puts edge on sheep, choice lambs \$16.25.
Wed. Dec. 24	1317	757	9265	2726	Cattle firm. Runs greatly reduced because of near holiday. Weeks advance 25%-50%. Veal \$15. Mild decline for hogs 5-10¢ \$13.10. Lambs 25-50¢ higher-\$16.50.
Fri. Dec. 26	3117	87	4167	1122	Cattle rates firm on light run \$15.00 top for veal. Hogs sell at 15-30% advance \$13.40 top. Choice lambs \$16.50. Packers eager for lambs on light run.
Sat. Dec. 27	502	47	398		Cattle sales show strength over week ago. Holiday curtailed live stock supply. Values up 25%-50%. Hogs erratic thru week. Small run of sheep and prices high.

DAILY RECEIPTS AND PRICE MOVEMENTS.

1919	Receipts				Effect upon Market
Date	Cattle	Calves	Hogs	Sheep	Price Changes.
Mon. Dec. 29	2932	151	5032	3162	Cattle rates spotted with litter change. Veal steady-\$15.00. Hogs advance 25¢-35¢ run moderate top \$13.75. Lamba steady \$16.50
Tues. Dec. 30	2898	1707	9973	1218	Cattle clear at firm rates. Veal 50¢ advance \$15.50. Hogs-further bulge puts top at \$14.00 pig. Straight in sheep and lamb market 25¢-50¢ higher-\$17.00/
Wed. Dec. 31	2443	2042	15520	6478	Cattle goat about steady rates; some reports of stronger tone led 25¢ advance-\$15.75. Hog business up 5¢-\$14.00 Steady for sheep if they have the quality.
1920 Fri. Jan. 2	1617	115	5728	572	Small cattle run moves at steady rates. Veal steady \$15.75. No change in hog business on light run. Lamba \$16.75 quality lacking in sheep division.
Sat. Jan. 3	320	90	2342	78	Cattle trade this week has been spotted. Veal has advanced 75¢ for the week. Stronger deal for hogs this week. Lower tendency lamb and sheep.
Mon. Jan. 5	3186	315	12752	5167	Cattle trade starts steady. Veal calves firm-\$15.75. Hog swing up marks spring of hog trade advance of 30¢-45¢-\$14.80. Lamba steady to higher-\$17.00
Tues. Jan. 6	3095	2006	18516	1271	Cattle trade continues firm. Demand for veal calves lively and prices advanced 50¢-top\$16.34. Hogs forfeet much of bulge, 30¢ decline-\$14.50. Native lamba \$17.00 (\$17.25 in small lots).
Wed. Jan. 7	3943	2338	27484	3625	Undertone for cattle trade becomes weak. Market steady to 25¢ off for killers. Veal steady \$16.25. Hogs down 40¢-50¢ crop heavy. Sheep steady to strong \$17.00-\$17.75 lamba.
Thur. Jan. 8	1929	941	9828	1897	Cattle price basis uneven trend easier. Veal calves, \$16.50-\$17.00, erratic. Hogs on firm level as news improved \$14.10. Sheep active deal \$17.30 lamba.
Fri. Jan. 9	2065	1006	10910	1897	Cattle steady. Veal calves uneven again \$15.75 catching most tops. Hogs go up erratically, 30¢ higher \$14.50. Sheep 25¢-50¢ higher. Top Lamba \$1.00 higher for week \$18.25
Sat. Jan. 10	249	48	2836	263	Cattle trade spotted all week. Veal calves have stronger average. Hogs erratic with heaviest run in month. Sheep and lamba on ascent, increased demand for killing.

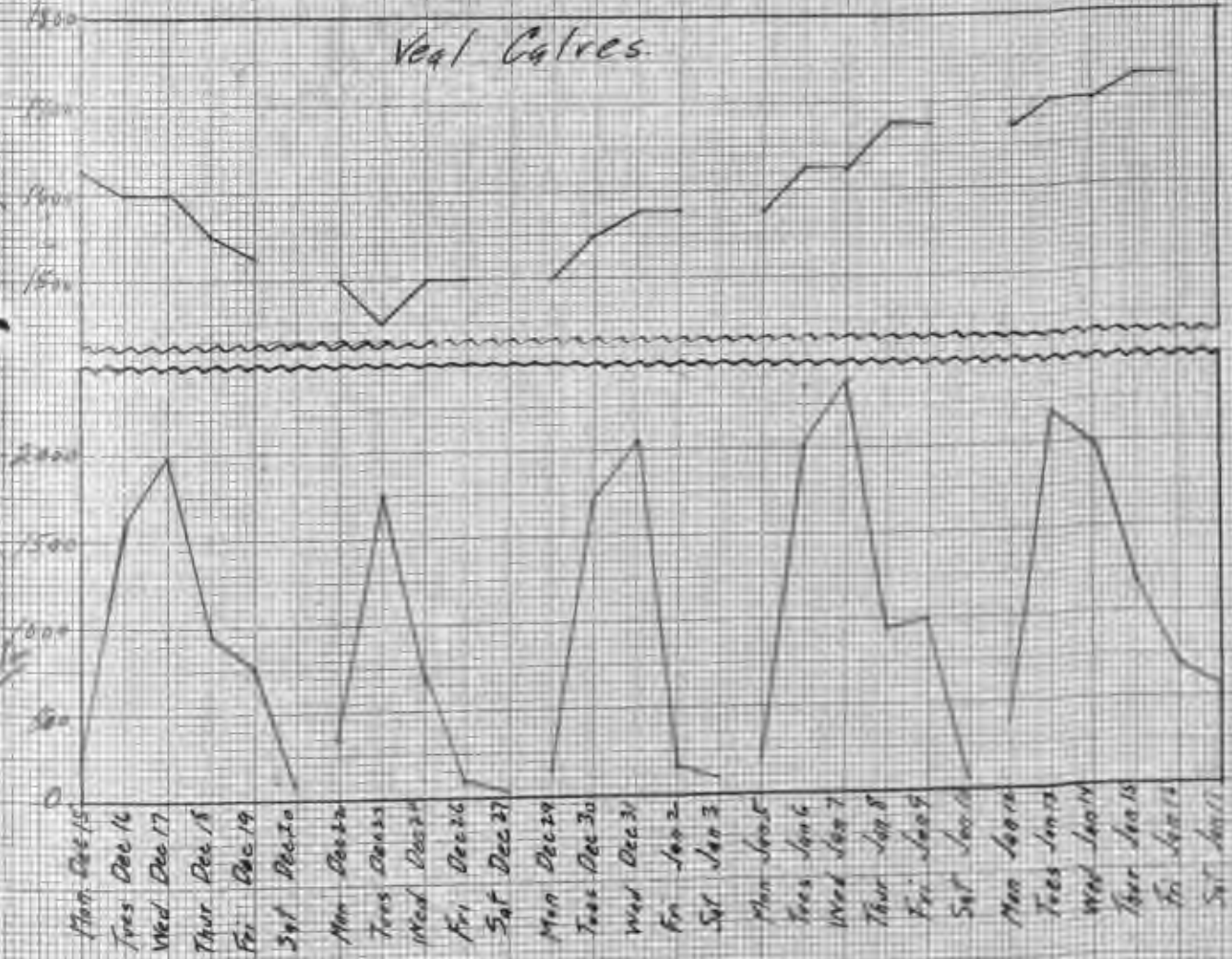
DAILY RECEIPTS AND PRICE MOVEMENTS.

1920	Receipts				Effect upon Price
Date	Cattle	Calves	Hogs	Sheep	Market Changes
Mon. Jan. 12	3550	353	14139	4081	Undertone of cattle trade rather weak; easier release for killers, feeders steady. Veal steady, \$16.75. Hogs 20¢-25¢ off \$14.10. Sheep and lambs rather show-\$18.00.
Tues. Jan. 13	3224	2195	16371	1459	Cattle rates waver mildly on fair crop. Veal calves gain 25¢ and \$17.00 top. Hog business rises to \$14.15. Lambs steady, \$18.25 for choice lambs.
Wed. Jan. 14	4346	1971	24763	2863	Beef cattle draw lower offers. Veal \$17.00 stead. Liberal hog run moves at quarter rise, \$14.40. Choice lambs \$18.50.
Thur. Jan. 15	2844	1201	8959	687	Cattle reflect weak undertone yet. Calves up 25¢, \$17.25 demand lively. Hog market highest in two months on big bulge 45¢ gain 14.85. Native lambs steady \$18.00.
Fri. Jan. 16	2271	708	12340	3506	Cattle move on stead basis. Veal steady at \$17.25. Hogs unchanged \$14.85. Sheep steady \$18.00-\$18.25.
Sat. Jan. 17	323	54	3371	856	Cattle values on lower terms than a week ago. Killers off 25¢, good feeders hold. Calves advance 50¢ for week. Hogs lightest since November. Sheep have a fairly active market.
Mon. Jan. 19	3607	271	10536	1650	Opening trade for fat cattle about steady-easier undertone in some quarters. Veal-\$17.25. Hogs-quarter rise on fair crop, \$14.85. Lambs stronger by 25¢-\$18.50.
Tues. Jan. 20	2533	1617	12146	1075	Cattle steady veal advance of 50¢ \$17.75. Hog trade up 25¢ again-\$15.10. Lambs steady \$18.50.
Wed. Jan. 21	3262	1502	16568	2869	Cattle rates on par with previous day. Veal steady-\$17.75. Hogs-liberal crop sells steady today-\$15.10. Lambs steady to strong-\$18.50.
Thur. Jan. 22	2875	1172	8117	1303	Steady sales no appreciable change a cattle. Veal steady \$17.75. Hogs up again on a moderate supply 25¢-50¢ higher \$16.40. Lambs steady \$18.50.
Fri. Jan. 23	1456	978	11719	1767	No change in cattle. Veal advanced 25¢ and reaches \$18.00 top. Hog bids off 30¢ with liberal quota-\$15.10. Lambs 25¢ higher \$18.75.
Sat. Jan. 24	424	120	1723	4838	Cattle mostly steady thru week. Veal reaches \$18 for top. Hogs highest since November. Sheephouse trade strong to higher.

Daily Price and Receipt Changes

Price per Cwt.

Veal Calves



Price per Cwt.

Hogs



Receipts

Chapter XI.

VARIATIONS BY CLASSES OF MARKET PRICES.

This chapter can be complete only if it presents all the different market prices and the spread between them and accounts for this spread. Obviously such an undertaking is hopeless in view of the present state of our knowledge of livestock marketing. The following table presents what data are available.

Table XXX. Market Prices.

	Price for 100 Pounds of Beef.			
	(1) Farm	(2) Central Market	(3) Dressed Beef	(4) Retail
January	9.00	9.73		23.72
February	9.10	9.54		23.98
March	9.90	9.69		24.77
April	10.20	10.43		24.24
May	10.30	10.60		27.31
June	9.80	9.97		26.88
July	9.60	9.62	17.70	25.92
August	9.20	10.02	16.79	24.64
September	8.10	9.23	16.08	22.67
October	7.50	9.04	16.10	21.37
November	7.50	8.83	15.13	20.57
December	7.70	8.98	15.68	21.64
Average	8.99	9.67	16.24	23.99

Farm prices are given in place of local market prices because the latter are not available. The difference between these two is very slight because many crop reporters quote local market prices instead of farm prices. In addition, farm prices at some points are local market prices minus cost of hauling from farms and in other cases local market prices plus cost of hauling to farms.

(1) Monthly Crop Reporter, February 1920.

(2) Tables 20 and 22, this thesis.

(3) Bureau of Markets, Weekly Reports; Data prior to July not available.

(4) Monthly Bulletin of the Bureau of Labor, St. Paul Quotations.

These results tend to cancel hauling cost and cause farm price to equal local market price. Only farm prices for Minnesota are given in this table.

Only one central market price is quoted since cattle range through all variations. It is not possible to find the proportion of the different classes of cattle and consequently a representative class must be taken which will coincide with the bulk of stock coming to market. Figures for 1919 of "good to choice killing cows" and "good to choice feeding steers" were taken; the former weighted by two, the latter by one, and the average taken. This is about the proportion in which these animals come to market.

Wholesale dressed beef prices were obtained by using Chicago prices and weighting "good cow" and "medium steer" by two and one respectively. Chicago prices are slightly higher than St. Paul prices, but the latter could not be obtained. The retail price for St. Paul represents the sum total of all the retail cuts in the carcass. Retail prices for sirloin and round steak, rib roast, chuck and plate were obtained from the Monthly Labor Review for 1919. The prices were weighted in proportion in which the cuts appear in the carcass.

Central market price for Minnesota stock as shown by the table averages 68 cents per hundred weight more than the farm price. The difference is to cover transportation, shrinkage and central marketing charges. These two prices vary considerably, narrowing in the spring and early summer and separating in the winter months. A margin of 67 per cent over central market price is required to kill, dress and distribute the wholesale beef. Retail prices tend to follow wholesale prices, there being a margin of 48 per cent between the two. Market prices are found to be dependent upon each other and a high degree of correlation to exist between the different prices.

Chapter XII.

VARIATIONS DUE TO BARGAINING.

The prices quoted in local papers and farm magazines are averages for the day or week. These averages are based on a wide range of individual bargaining. The range is largely due to differences in quality within the market grade, but not wholly so. A considerable part of it is due to bargaining. Wherever the commodity exchanged cannot be standardized and graded accurately, opportunity arises for buyers and sellers to higggle over quality and price and for the more skillful or more powerful bargainer to get the better of the deal. The more isolated buyers and sellers are from each other, and the less information each possesses as to the state of the market and the prices others are buying and selling for, the better the chance for bargaining gains. In a bargaining market, therefore, prices of individual transactions are apt to differ for the same grade of commodity, and often depart widely from the single price of the ideal market.

Central Market Prices.

Opportunity for bargaining arises in the central market because it is difficult to grade animals within narrow limits. There is uncertainty as to quality and condition. Buyers and sellers cannot tell by outside appearance the worth of an animal. The judgment of various men may differ as to the grade and class in which to place an animal. The salesman sort all stock into lots that look most attractive. Often animals of different grades are placed in one group and all sold at the same price. Considerable chance for difference of opinion arises as to the price at which a group of stock ought to sell. Furthermore some animals might serve several purposes and command a different price for each use.

Skilled salesmen are required in order to sort and sell the stock for the highest price. There is tact in knowing when and to whom to sell. Peddling on previous offers often is objectionable, and consequently some salesmen depend upon showing the stock to only one or two buyers and selling at the right moment. The prices obtained depend considerably upon the ability of the salesmen and buyers.

Sellers may have more bargaining power than buyers. This superior influence might be based upon a better knowledge for the sellers of trade conditions. Thus farmers often place orders for feeding and dairy stock through commission firms rather than buy upon their own judgment. Another advantage for sellers might arise when a buyer sees a pen of stock which he is desirous of obtaining. If a group of well bred cattle catches a farmer's eye, often he will pay a higher price than ordinarily for the stock. Many times farmers come to the market to buy feeders but have not time to stay around the stockyards a few days to wait for the quality of stock which they want. Because of pressure of work on the farm they will pay more than necessary for a carload in order to get back home. Even the packers may have to bid over the market value on some stock when supplies are scant. They may need an additional number to maintain the capacity of the plant and will pay an extra price to get the stock.

Buyers also may have superior bargaining power. Packers have the ability of staying off the market and thus exert an undue influence upon price. The buyers for the packers usually have orders for the day to purchase a given number of animals. An oversupply may be waiting in the yards. If the buyers act indifferent, commission salesmen will lower the price to dispose of the stock. In times of heavy receipts, packers may resort to concerted programs of buying. They might stay off the market the whole morning to obtain price concessions.

The fill of feed and water must be estimated by the buyer when he makes his bid. Due account should be taken of the amount of shrink which an animal

will suffer before going to slaughter or on being shipped. Animals with excessive "fill" will be subject to discount if the buyer insists upon lowering the price.

The buying process itself is a case of bargaining. The salesman offers the stock for sale and a buyer rides into the pen. "I'll give 7.90" (per hundredweight); "They're worth 8.15 today", the commission man replies. The buyer shakes his head and starts to leave. "Eight even", he calls back. "Eight and a nickel", the commission man concedes. "Weigh 'em", from the buyer and the deal is over.

(35)

Farmers do not usually sell their livestock at the central market because of lack of acquaintance with buyers, ignorance of market conditions, and inexperience in selling. They find it to their advantage to trust commission firms with this function. Farmers who attempt buying and selling on their own account often find themselves severely handicapped in the art and knowledge necessary for bargaining.

Farmers' organizations, as the Equity Cooperative Exchange at South St. Paul, have limited outlet for their consignments. Members of the Livestock Exchange are forbidden to deal with the Equity. Hence the Farmers' Exchange may sell only to packers and country buyers. This places the Equity salesmen to disadvantage in disposing of the stock. The buyers gain by bargaining because they know the salesmen will sell even at the lower bid.

Special market prices.--- Through bargaining processes, there are often a number of prices prevailing on the market. The speculators will buy only if they see a chance of making a gain in price or placing a "fill" in the animals. These traders attempt to gain concessions in price by acquaintance with the salesmen and with bargaining skill. Order buyers often attempt to obtain stock at slightly reduced rates for their clients.

(35) Warner K. F., Marketing of Livestock Products in Minnesota.

REPRESENTATIVE SALES.

Killing Cattle.

No.	Wt.	Price
1	890	9.75
1	930	10.00
5	854	10.25
8	897	10.00
4	975	9.50

Differences in prices obtained for stock sold

during the day depend essentially upon the conformation, quality, weight and condition of the animals. Nevertheless there is an element of bargaining in the sales.

The accompanying figures of representative sales show

typical cases of prices obtained for cattle. While these differences in price are due mainly to variations in grade, it is conceivable that bargaining plays an important part in causing some of this difference. Thus the animal weighing 890 pounds and selling at \$9.75 might be of equal grade as the eight weighing 897 pounds and selling at \$10.00. The salesman may receive a higher price per hundred-weight by having several animals together than one alone. The salesman receiving \$10.00 may have been more tactful or obtained a more anxious buyer than the salesman who received only \$9.75. Assuming that the animals in all five instances are the same in quality, the price differences noted may have occurred between different sellers and buyers on the same day.

Local Market Prices.

There is an element of bargaining between the buyers and sellers at local points. Wherever communication is imperfect and grading not closely practised, higgling may become more important in price determination. Local buyers may take advantage of farmers' ignorance of market conditions. Especially is this true where there are only one or two buyers at a local market. Where there are several local buyers or a shipping association in a town, or farmers are in the habit of shipping their own stock, local buyers must bid on a closer margin to meet competition. There will be closer grading and less chance for bargaining.

Wholesale Meat Prices.

Bargaining may also affect wholesale meat prices. The dressed meat, however, can be closer graded than the live animals. Retailers throughout the country can buy the grade of carcass which they desire. They can choose the quality and kind of meat which will most appeal to the consumer at the price. Usually the packers quote prices to the retailer and there is not much chance for higgling. Packers, nevertheless, must regulate price to dispose of the fresh perishable meat.

Retail Meat Prices.

The retailer has the meat in his shop and sets the price at which he will sell. Customers may buy the meat at the given price. If prices are too high the meat remains in the shop. By the ability to substitute other articles of food for meat, customers in reality may bargain with the retailer. Some people will pay more for meat than will others. Housewives may seek to find the meat most suitable at the price offered. If one shop has poor quality of meat or higher prices than necessary, customers will try other markets.

Chapter XIII.

GEOGRAPHY OF MARKET PRICES.

Market prices are largely dependent upon each other. The essential difference at various classes of markets is the cost of transportation from one market to the next. Prices are forced in line through the influence of competition. Any ill-adjustment is mostly due to economic friction.

Local Market Prices.

Each local market has a separate price which depends upon the distance to a central market. The greater the competition at local points and communication with central markets, the more narrow become the margins of local buyers. If farmers know prices at central markets, they will insist upon obtaining a corresponding price, less cost of transportation, at shipping points. Local buyers have more chance for profit in districts isolated from central markets.

Central Market Prices.

Each primary market has a number of subsidiary or secondary markets located nearer the heart of production areas. South St. Paul, Sioux City and Omaha are all tributary to Chicago and to that extent are secondary markets. The interdependence of these with Chicago is seen in the fact that conditions and prices there cast a marked influence upon these secondary central markets. In many cases livestock consignments bound for Chicago stop and feed at South St. Paul with privilege of selling here, and are shipped on to the terminus if market prices are higher there. If market price is lower at South St. Paul some dealers will buy a number of cars of stock for consignment to Chicago. The difference is accounted for by freight and shrinkage.

MARGIN BETWEEN PRICES.

I II.
At South St. Paul and Chicago.

HOGS.

Month	1912			1915			1918		
	Chicago	St. Paul	Diff.	Chicago	St. Paul	Diff.	Chicago	St. P.	Diff.
Jan.	6.25	5.96	.29	6.90	6.78	.12	16.30	15.82	.48
Feb.	6.20	5.96	.24	6.80	6.51	.24	16.65	16.58	.15
Mar.	7.10	6.54	.56	6.75	6.53	.12	17.10	16.80	.30
Apr.	7.80	7.61	.19	7.30	7.10	.20	17.45	16.97	.48
May	7.65	7.39	.26	7.60	7.27	.33	17.45	17.06	.39
June	7.50	7.31	.18	7.60	7.32	.28	16.60	16.20	.40
July	7.65	7.34	.31	7.25	7.02	.23	17.75	17.21	.54
Aug.	8.25	8.12	.13	6.90	6.53	.37	19.00	18.90	.10
Sept.	8.45	8.35	.10	7.25	7.06	.19	19.65	19.41	.24
Oct.	8.75	8.54	.21	7.90	7.78	.12	17.70	17.54	.16
Nov.	7.75	7.54	.21	6.65	6.36	.29	17.70	17.14	.56
Dec.	7.40	7.25	.17	6.40	6.02	.38	17.55	17.01	.54
Average	7.55	7.32	.24	7.11	6.87	.24	17.58	17.20	.38

III.

NATIVE BEEF CATTLE.

Month	1912			1915			1918		
	Chicago	St. Paul	Diff.	Chicago	St. Paul	Diff.	Chicago	St. Paul	Diff.
Jan.	6.85	6.50	.35	8.05	7.75	.30	12.10	10.75	1.35
Feb.	6.60	6.50	.10	7.50	7.38	.12	12.60	11.12	1.48
Mar.	7.20	6.72	.48	7.65	7.33	.32	14.70	12.70	2.00
Apr.	7.65	7.08	.57	7.70	7.44	.26	15.40	13.23	2.17
May	7.95	7.40	.55	8.35	7.98	.37	15.85	13.75	2.10
June	8.00	7.44	.56	8.80	8.38	.42	16.05	14.50	1.55
July	7.90	7.50	.40	9.20	8.44	.76	16.75	14.80	1.95
Aug.	8.50	7.50	1.00	9.05	8.26	.80	16.00	14.44	1.56
Sept.	8.15	7.38	.77	8.95	8.12	.83	14.80	14.06	.74
Oct.	7.90	7.35	.55	8.80	8.00	.80	15.06	13.75	1.31
Nov.	8.10	7.25	.85	8.70	8.00	.70	14.90	14.25	.65
Dec.	7.85	8.00	-.15	8.35	7.81	.54	14.60	13.22	1.38
Average	7.72	7.22	.50	8.43	7.92	.52			

- I. St. Paul prices taken from Tables X and XI.
 II. Chicago prices from Drovers Journal.
 III. Analogous to "Good to Choice Killing Steers" at S. St. Paul.

Market receipts at South St. Paul are not the only important and dominating influences of price at this market. These prices must show some correspondence with those attained at Chicago. Besides freight and shrinkage we must also take into account that we have two different kinds of markets and that the resulting market classes and grades are not entirely identical. For instance the requirements for a choice steer might be different at the two places, since in the main South St. Paul is a feeders' market while Chicago specializes in fat, well-finished stock. By comparing prices, however, we may note whether there is a tendency for a constant or varying difference for given classes and grades. The accompanying table gives figures for comparison of hogs and the best grade of beef cattle; good to choice killing steers at South St. Paul are almost analogous to native beef cattle at Chicago. The monthly range of prices varies from 10 - 56 cents per hundred for hogs and 10 cents to \$2.15 for cattle. Much of this difference is caused by changes in local conditions in conformance with the dictation of supply and demand. For hogs the yearly average of price difference in 1912 and 1915 was 24 cents, and for 1918 38 cents; for cattle 50 cents in 1912, 52 cents in 1915, and then rising to \$1.38 for 1918. This difference is partly due to freight rates. ⁽³⁶⁾ Shrinkage costs the shipper more when prices are higher, thus when prices are double shrinkage costs also will be double for the same weight. Daily differences between prices at South St. Paul and Chicago are due mainly to costs of shipping and to economic friction. Packers guide their buying prices in relation to the Chicago market.

(36) Freight for cattle and hogs in 1912 and 1915 was 20 cents per hundredweight; in 1918, 25 cents.

Chapter XIV.

CONCLUSION.

This study has pointed out the important factors which determine price. Content of a market must be defined before the influence of various forces can be adequately presented. The types of market through which a commodity passes have an important bearing upon price making since grading, handling, and manufacturing offer possible variations. Forces of supply and demand are the dominant factors which automatically regulate prices. An exhaustive analysis must therefore consider conditions of production and consumption. Supplementary factors-- economic friction, monopoly, custom, public authority-- have significance in determining prices. Each market has its own set of prices. All markets however are dependent upon each other through competition. Price variations may be due to difference in grades of stock or location of market. Variations may arise from the passage of time, and be of long or short period. Price movements can be explained on the basis of the various factors which act to influence supply and demand.

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