THE ESSENTIALS OF MEAT PRODUCTION AND DISTRIBUTION-A GUIDE TO GROCERY STORE PERSONNEL

> Thesis for the Degree of M. A. MICHIGAN STATE UNIVERSITY Robert H. Magee 1955

This is to certify that the

thesis entitled

The Essentials of Meat Production and Distribution-

A Guide to Grocery Store Personnel

presented by

Robert H. Magee

has been accepted towards fulfillment of the requirements for

Master_of Arts_degree in _ Food Distribution

Major professor

Date June 14, 1955

O-169

N,√.

· ·

.

µ | 1

]: } -1≠~- ¥ ۱

THE ESSENTIALS OF MEAT PRODUCTION AND

DISTRIBUTION - A GUIDE TO

GROCERY STORE PERSONNEL

ΒY

ROBERT H. MAGEE

AN ABSTRACT

Submitted to the School of Graduate Studies of Michigan State University of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

Department of General Business

Curriculum in Food Distribution

hins Approved

· · · ·

11 - 7 - 20° 76

> This thesis has been written for the benefit of grocery store personnel interested in acquiring a knowledge of the methods used in the production and distribution of meat. It is the opinion of the writer that such information is often found lacking in grocery <u>store</u> personnel and consequently in young executives moving up from store level positions. It is felt that an understanding of the fundamental methods employed in producing and distributing meat is important to anyone seeking executive status in the grocery chain store field, not only because of the significance of meat in the food industry, but also due to the need for developing men with "well-rounded" backgrounds who will one day be better gualified to assume the responsibilities of management.

With this purpose in mind, the foremost components of the meat marketing system are outlined. Only that information which would be of value or interest to grocery store personnel is included.

The information contained has been gathered from numerous printed publications, bulletins and booklets, and from first hand interviews with prominent men in the meat industry.

The following paragraphs contain the findings that have been made in establishing the factors most pertinent to grocery store personnel.

The importance of meat cannot be over-emphasized. Its

ceive mi in this similar : Ľ. orier to tecause . Vation. VEYS three comerati Live Icith but brings at the dura-Condition effect -Ic e business ch a high livestock ph servers

nutritic.

health a

Frezi zerel Zezi zerel 18 accompi and terela Proper ste nutritional value alone is instrumental in assuring the health and vitality of human beings everywhere. Farmers receive much of their revenue from meat and almost half the land in this country is utilized by livestock converting grass and similar forage into foods suitable for human consumption.

Livestock is raised in certain areas of the country in order to take advantage of the available feed and climate and because the topography of the land prohibits commercial cultivation. Producers can market their cattle in many different ways through such agencies as the public markets, local buyers, cooperative associations, auctions and concentration yards.

Livestock marketings not only vary widely from month to month but from week to week and day to day. This situation brings about a seasonal influence on the price of meat as does the duration of beef, hog and lamb cycles. Supply and demand conditions which result from these factors have a definite effect throughout the industry.

To meet the demand for fresh meat, the meat packing business is geared to slaughter, process, and distribute meat on a high-speed time-table. Approximately ten days after the livestock has been slaughtered, the meat has been purchased by retailers throughout the nation for their customers.

From this point on, it is the responsibility of retail meat merchandisers to sell the product to the consumer. This is accomplished through the establishment of competent buying and merchandising departments, efficient distribution systems, proper store ordering, effective inventory control and similar

· · · • • • • • • •

methods of management. Meat cutting tests are performed to provide a standard procedure and pricing guides used to help establish retail prices. The consumer must then be told about the advantages of meat and subjected to an appealing display in retail meat cases. "The Food Distribution Program at Michigan State University is under the sponsorship of the National Association of Food Chains"

•

.

. .

.

THE ESSENTIALS OF MEAT PRODUCTION AND

DISTRIBUTION - A GUIDE TO

GROCERY STOLL PERSONNEL

ΒY

ROBERT H. MAGEE

A THESIS

1

Submitted to the School of Graduate Studies of Michigan State University of Agriculture and Applied Science in partial fulfiliment of the requirements for the degree of

MASTER OF ARTS

Department of General Business

Curriculum in Food Distribution

1333561

.

.

•

.

ACKNOWLEDGMENTS

The writer wishes to express his sincere appreciation to Dr. David J. Luck, under whose guidance and supervision this investigation was undertaken.

Grateful acknowledgment is also due to Dr. Edward A. Brand for his kind guidance and valuable help throughout the school year.

The writer deeply appreciates the financial support provided by the Grand Union Company which made it possible for him to attend Michigan State University and to complete this thesis. He is also grateful to Mr. Lloyd W. Moseley for his thoughtful consideration and interest.

No measure of thanks would be sufficient to acknowledge my recognition of the untiring efforts of my wife, Anne. Her unselfish devotion and sacrifice throughout the year have contributed immeasurably to everything that has been achieved.

iii

.

TABLE OF CONTENTS

																						PAGE
LIST	0:F	FIG	TRES	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	vi
LIST	OF	TAB	LES	•	•	•	•	•	•	•	• •	•	•	•	•	•	٠	•	•	•	•	vii
CHAPT	l'ER																					
	I.	IM	TROD	UCI	ĽIC)]]	•	•	•	•	• •	•	•	•	•	•	•	•	•	•	•	l
			Purp Sour Scop	ose ce e (e c of of)í N St	St lat ud	ud er Y	y 1.e. •	i .	•••	•	• •	• •	•	•	•	• •	• •	• •	•	1 9 10
]	[].	TE	E SI	GIII	I ?]	°CΛ	LIC.	Ε	0F	M	EAT	1 • •	•	•	•	•	•	•	•	•	•	12
		:	An I Util Nutr 1'he	mpo iza iti Pro	ort ati ior obl	on lon lal ler		So f al f	ur Pa ue Mai	cc stu oj rko	of ire I N eti	R ela lea .ng	ev nd t L	en s ive	ie • •st	• •	·	• • •	• • •	• • •	• • •	12 13 15 17
II	[].	TE	E PO	SI	FIC)]]	0F	T	HE	F2	ARM	IER	•	•	•	•	•	•	•	•	•	20
			Reas Li Outl Tran	ons ves ets spo	s f stc s A ort	or ock va at	t : : : :	he ab n	G le of	eo to L:	gra o t ive	ph he st	ic: Fa	al arı k.	Lo nei) C .	ati	lor	n c	of • •	•	20 31 41
]	EV.	FA	CTOR	s :	EFE	rLU	EĽ	CI	IIC	11	Ξ	PR	IC	E (OF	M	LAI	ר • •	•	•	•	47
			Inte Supp Cycl Seas Pric Pric Fi	rac ly ica ona e l e S ni:	ti an al Dif Spr	on Tr Va fc ea	De De ri ri ds Pr	f ds at B od	Fai nd ici ial otruct	rmo • • • • • • • • • • • • • • • • • • •	Bo Bo	P • • tw Li	aci • • • • •	hter Ar	f, -(al	Re	eta • • •	ail		•	• • • •	47 49 51 55 64 64

PAGE

•

V.	THE MEAT PACKING INDUSTRY
	Necessary Limitations
VI.	FUNDAMENTALS OF RETAIL MANAGEMENT 90
	Sources of Supply
VII.	A LOOK TO THE FUTURE
	Preservation of Meats
VIII.	SUMMARY
APPENDIX.	••••••••••••••••••••••••••••••••••••••
BIBLIOGRAD	РНУ1140

LIST OF FIGURES

FIGURE

PAGE

1.	Deef-Cattle Production and Feeding Areas in	. 1
	the United States	21
2.	Distribution of the Heg Population and Corn	
	Production in the United States	27
3.	Geographical Distribution of the Sheep and	
	Lamb Population of the United States	30
4.	Channels of Livestock Movement from Farms	33
5.	Relation Between the Hog-Corn Price Ratio and	
	Subsequent Hog Marketings, 1901-1949	5 1 4
6.	Seasonal Variation in Prices of Corn Belt	
	Beef Steers at Chicago	57
7.	Seasonal Variation in Prices of Choice Steers	
	at Chicage After Small and Large Corn Crops .	59
8.	Seasonal Variation in Fat-Lamb Prices at St.	
	Louis	63
9.	Meat Packers, National and Regional	72
10.	Channels of Movement of Meat and Meat Products	-
	from Meat Packing Plants	21
11.	New York Style Standard Cutting Test	103
12.	Chicago Style Cutting Test	104
13.	Gross Profit Per Cent Made on Various Cuts of	
Ũ	Neat	107
14.	Beef Pricing Guide	111
15.	Advance Meat Classified Report	113
16.	Period Meat Merchandising Results	114
17.	"Mcat-The New Look"	117

- · · ·

LIST OF TABLES

TABLE	PAGE
I.	Percentage of Total Livestock Receipts of Several Central Markets and of 66 U.S. Markets received by Rail versus Truck, 1948
II.	Animal By-Products

1178 31e tî yeste, t tive Indi c fict Test fre the i Beat Contr aig.-chalt of the es 2.4 eve and t 80al of 1 leat. I Vidine 1 iversit -- . . (Dese is C. 5 83 Sec. 15 pr

1

1

۲

a). .

CHAPTER I

INTRODUCTION

Purpose of Study

The manner in which we live and the length of time we live are determined in large part by our diet. For thousands of years, meat has been a pillar of the human diet. Primitive man chose it instinctively. Modern man not only obtains from meat the same rich enjoyment, but also has profited from the discoveries of science which have shown how richly meat contributes to the satisfaction of his needs, both for high-quality proteins and easily digested fats, and for many of the essential minerals and vitamins.

But meat also has other virtues. It is pleasing to the eye and tempts the appetite; not merely a food, it is even a goal of man's existence. A vigorous and healthy nation needs meat. The fulfillment of this need is accomplished by providing it for the people of this nation through a complex and diversified channel of distribution.

The purpose of this thesis is two-fold. An obvious purpose is to indicate the significance of the meat industry, not only as a segment of the food industry but as an important contributor to our nation's growing economy. It is forecast that some 16 billion dollars in consumer expenditures will be spent for meat alone in 1955. This figure represents over 6.5 per cent of 1955 consumer expenditures forecast¹ and does not include the revenue received from the many by-products of the industry. It is a healthy contribution to an expanding economy and signifies the unknowing recognition by the American people of the importance of meat in their lives.

۴.

And yet its importance cannot be fully expressed in a purely monetary sense. The meat industry is composed of hundreds upon hundreds of varied occupations, ranging from the farmer who is the very basis of any economy, to the retailer who performs the final distributive action of the meat marketing force. Each component of the marketing system is an industry in itself. Each component provides employment for millions of men and women throughout the United States. Practically the entire populace is dependent upon meat and the many industries that have developed because of its acceptance. Some receive their very livelihood from meat while others delight in its savory taste or nutritive values.

The synopses of the components of the meat marketing system are presented in the following chapters in an effort to point out the vastness of the industry, the factors and conditions which bring about this immensity, and the far-reaching effect it has on the people of this country. It is thought that an uncerstanding of these components will serve as supplementary evidence in confirming the importance of the meat industry.

^{1.} The Livestock and Meat Situation. United States Department of Agriculture, Agricultural Marketing Service, (March 1935), p. 23

The second and primary purpose of this thesis pertains to one of the principal distributors of the final meat product -- the chain store food company. It is the contention or the writer that there are men occupying positions of responsibility in food chains who have only a vague understanding of the system employed in marketing meat. The general store manager serves as a prime example. Many men in this position guide the activities of \$5 million per year operations with practically no idea of the marketing functions involved in their meat department. The Food Distribution Curriculum at Michigan State University reiterates this contention. Among the 1954-55 class were former store managers, grocery managers, produce managers, co-managers, trainees, etc., sponsored and carefully selected by several of the largest chains in the country. They readily admitted their lack of knowledge on the subject and substantiated the necessity for it by participating in courses such as Animal Husbandry, Agricultural Economics and Poultry, which were directly concerned with the marketing of livestock and meat. These men and others working in the same capacity simply never had the opportunity to learn about the meat industry. Training programs have been established in some companies in order to acquaint the personnel with each department in the store. This certainly is a step in the right direction. However, in the majority of cases the training is limited to routine store operations, and the trainee does not grasp the full significance of the marketing system. Perhaps he has no immediate need for such a knowledge, being temporarily preoccupied in the exercise

of his duties. Yet when the time comes for him to assume the responsibility of supervision and leadership in a company, this is the type of knowledge that will aid him most.

Supervisors do not necessarily have to possess the technical skills involved in cutting and preparing packages of meat since many of the rules governing these techniques are passed down via company policy. Their job is to supervise and see to it that these policies are carried out. It is also their job, however, as an important tool of management, to understand the structure and operation of the marketing systems pertaining to the food industry; to be able to explain these functions to a less informed store personnel; and to place themselves in a position where they would be ready and able to accept a job in any department of the company.

It is the opinion of the writer that deficiency in this respect is also present on a supervisory level. This is only natural when the source of supervisory management is considered. Most supervisors ascend a gradual store ladder in the grocery department and then make their final step from general store manager. Since there is generally no training or source of knowledge at store level, the supervisor is equipped only with the limited information he has gathered from his own experience. Usually both technical and general knowledge of the complete meat department operation are found lacking. Some companies have attempted to mitigate the situation by appointing meat supervisors (thoroughly trained and experienced meat men) for each District. This form of specialization is effective but it creates certain problems in so doing. In instances

where the general store manager has authority over all departments of a store, the meat manager is responsible to three men directly above him; namely, the general store manager, the meat supervisor and the district supervisor. One of the fundamental rules of management is that, although subordinates should be held definitely accountable to their superiors, <u>divided</u> accountability should be avoided. No subordinate should have more than one boss. If he does, there are bound to be times when he receives conflicting orders and friction may follow. The subordinate himself is usually in no position to take direct issue with either of his superiors and hence is in an untenable position.²

This same type of ineffective management can be traced progressively through many organizational charts. Its existence is seemingly inherent in the corporate chain. There are exceptions, to be sure, but they are usually few and far between. The chain stores started out as grocery stores with grocery men as their leaders. Today they are highly departmentalized with some self-service meat departments contributing thirty-five per cent of the business. The chains have not kept pace in training men to combat this significant emergence of departmentalization.

At this point one thing should be made perfectly clear. The implication is not that meat department personnel are inadequate. As a general rule, they are top-notch; specialists in their field. The point is that such departmentalized specialization is confining. It limits the man and the company. Millard C. Faught, President of the Faught Company, Incorporated,

^{2.} Moore, F. G. <u>Manufacturing Management</u>. Homewood, Illinois: Richard D. Irwin, Incorporated, 1954, p. 59

"We have begun to conclude that while specialization may still be an ideal way to increase the efficiency of machines, there are now certain obvious limits to how narrowly we should confine a man within this mechanized and automized process ---- it is important to note that business enterprise is struggling with ways to get the whole man back in management. In its search for new executive material it is beginning to look for what is often referred to as 'the well-rounded man'."³

Mr. Faught explains his statement and the contention of

the writer with this comment:

"The American economy in all its business ramifications now produces a billion dollars worth of goods and services for every day in the year. It is hardly surprising, therefore, that it urgently needs more wellrounded men who have broad vision as well as special skills and talents ---- this does not mean that future business executives or industrial technicians, whether they are financiers, foundry superintendents, metallurgists, or merchants, will be less well-schooled in their specialities. They may well have even more precise training than in the past, because the technological refinement and economic complexity of enterprise continues apace. But these future experts will henceforth - if it is humanly possible - also have their special talents counter-balanced by a broader understanding of the 'whole show and where they fit into it'."4

The crux of the matter is that executive talent springing up from store and supervisory levels is not equipped with a comprehensive knowledge of the food industry. Familiarity with meat department operations is very often found lacking. It is this factor more than any other that constitutes a stumbling block to many individuals, and it is for this reason that any search for the "well-rounded man" will very often prove fruitless.

Since the executive positions of tomorrow will eventually be filled by the supervisors and managers of today, this thesis

^{3.} Faught, M. C. The Need For Executive Versatility. <u>Dun's</u> <u>Review and Modern Industry</u>. (October 1954), p. 66

^{4.} Ibid. p. 76

is especially directed toward them with the expressed desire that it may be of some aid in fulfilling their objectives in the food industry. An effort has been made to provide a clear, concise analysis of the marketing system employed in the distribution of meat. In so doing, references are made to various bulletins and publications that will furnish, if necessary, a more elaborate consideration of any one particular phase.

As further evidence of the necessity of such information on the part of chain store personnel, the following are some of the activities being conducted or considered by several large companies. At the recent Meat Clinic conducted by the National Association of Food Chains in Chicago (April 18-19, 1955), a topic of considerable concern proved to be the broadening of the capacity and outlook of meat managers.⁵ Several companies have already adopted projects calling for the meat manager to play a more active role. They feel that he should have a comprehensive knowledge of the entire meat program, not mercly a repetiticus view of his own operation. Their objective is to broaden the present scope of the manager and enable him to acquire an insight into the various aspects of the meat industry. At the same time, it would provide the manager with an excellent foundation for a possible executive position sometime in the future. Every chain at the clinic expressed a desire to continue working toward this end.

Another point montioned at the Meat Clinic established that normal procedure in Meat Merchandising Department is to plan "sales programs" approximately four weeks before the actual "sale date". Such tentative programs are generally

Discussion with Dr. E. A. Brand, Director of Food Distribution Curriculum, Michigan State University, April 20, 1955.

confirmed three weeks before the "sale date" so that meat buyers can have some leeway in preparing their orders. In both cases, "sales planning" and "meat buying", the individuals responsible should have an accurate and complete picture of market conditions if maximum results are to be achieved. He must know what the farmer intends to do with his cattle or hogs, what types of livestock are arriving at the markets, what seasonal variations may effect the price he must pay, and many other items that constitute effective "sales planning" and "buying". The executive who is familiar with this procedure is already one step ahead of the next man when the time comes for advancement.

There is one final supposition that merits consideration. Centralized prepackaging, a possibility discussed in some detail in the concluding chapter of this thesis, could very well revolutionize the entire meat department organization. Such an operation would undoubtedly be performed by the meat packer, an event which would eliminate to a great degree any meatcutting at store level. Experienced meat cutters would probably gain employment in the packing plants and thus create a vacuum directly below the position of meat manager. How then could a company fill its managerial ranks if there were no meat men to move up the chain of command? One possibility, since the operation would no longer require as much technical skill, would be a horizontal movement of managers from one department to another. Once again the individual with the best all-around background would have the best chance for advancement.

This last point should be emphasized for it is almost universally true. The individual with the most comprehensive knowledge of his job - whether it be at store level, supervisory level or executive level - is more likely to be promoted than a less ambitious fellow employee. And comprehensive knowledge in the food industry includes the study of <u>meats</u> and the industries associated with it.

Sources of Material

The information contained in this thesis has not been derived from any one main source. It is rather a combination of material gathered from numerous printed publications and from first hand interviews with prominent men in the meat industry.

The outline is presented along the line of most of the books published on the subject of marketing livestock. A number of these books have been read along with several pertinent chapters contained in books on related subjects. These readings have contributed notably to the overall picture, but due to their relative antiquity, their usefulness has been limited.

The main portion of this thesis has been obtained from up-to-date publications and bulletins published by the United States Department of Agriculture, the American Meat Institute, the National Livestock and Meat Board, the National Association of Retail Grocers, Swift and Company, and Armour and Company. Each of these organizations was visited and their public relations and agricultural research men interviewed in order to substantiate the validity of the subject matter. Interviews

ブ

and correspondence were also carried on with top meat executives of the Kroger Company, Detroit Branch, the Grand Union Company, American Stores, Wrigley's Markets and the National Tea Company to complete the marketing picture.

First-hand information has also been secured from conversations with various men immediately connected with the distribution of meat. This was accomplished on visits to the farms, livestock auctions, terminal markets in Chicago and Detroit, local slaughtering establishments, major meat packing plants, and their branch houses.

Scope of Study

The substance of this thesis is concerned mainly with the economics of livestock and meat, that is their importance in the production and distribution of wealth. It is concerned with the system of marketing employed in the satisfaction of human needs and desires. The main body of the report is composed of information pertaining to the dynamic business that brings American farm animals to their ultimate consumers. The material has been assembled as nearly as possible to meet the requirements of grocery store personnel in order that they may obtain a broader view of the structure of this large sector of our economy.

The chapters have been organized in a manner that should best give a general view of the components of the marketing system and their importance. It is believed that an extensive treatise on the subject is not necessary for the type of

personnel that this thesis is written. With this thought in mind, these components are made as clear and as meaningful as possible and their positions in the marketing system are definitely established.

The importance of the meat industry and the problems it faces are offered as a prelude to the three main components. The latter are categorized as farmer, meat-packer and retailer. The central markets, direct markets, etc., which might well be considered a prominent component of the marketing system, are linked with the farmer in order to better describe the marketing operation. A chapter on the factors influencing the price of meat is included in order to tie in the relationship between the various components.

The next to last chapter concerns a "look to the future", and includes a discussion of current trends and future problems that the meat industry may have to meet. This is offered to give as complete a picture as possible of the meat marketing system as it is viewed today.

CHAPTER II

THE SIGNIFICANCE OF MEAT

An Important Source of Revenue

The wealth and eminent stature of the United States is dependent to a large extent upon the fertility of its land and the efficiency of its agricultural force. This great country of ours is the best fec nation in the world. Its populace have access to foods of every variety, whether they be in a fresh, canned or frozen state. Large supermarkets have opened a new avenue of availability to potential consumers. The imagination and merchandising techniques of the chain stores, voluntary and cooperative groups, etc. have whetted the appetites of customers to such an extent that the percentage of disposable income spent for food has risen from 22 per cent in 1940 to a remarkable 26 per cent in 1953.¹

Nowadays it is a simple and even enjoyable task for the customer to do her shopping. The modernistic markets of today are replete with a preponderance of high quality products. Highly processed items have provided a convenience to the housewife unheard of ten short years ago. Behind these scenes presented in the store, however, are millions of processing,

^{1.} The Fabulous Market for Food. Fortune. (October 1953), p. 135

٠ -. • 2.... et 2 ••• • • 10-1 Q1. 2. s: ¢ 1 Ć į.
distribution and transportation workers whose efforts contribute to the successful marketing of foods grown hundreds or thousands of miles from the place where they are ultimately consumed.

The most inclusion and complex division of the food industry is the livestock and meat business which takes the meat animals raised on six million American farms and ranches and converts them into the equivalent of 155 pounds of meat consumed per capita in the United States.² This consumption of 25 billion pounds of meat by the American people in 1954 indicates the vastness of one of the largest industries in the world - the meat industry.³

Yet livesteck have always been important to the farmer. Meat animals moved westward with the early settlers in the pioneer and frontier days, and cattle, hogs and sheep have continued to be a mainstay of modern agriculture. Livestock provide most farmers with their largest income. The largest single source of farm income in 1952 was from the sale of cattle for meat (19 per cent). Other sources included dairy products (14 per cent), hog (11 per cent), poultry (11 per cent), and sheep (2 per cent).⁴ For this reason, livestock are raised in every state and on practically every farm.

Utilization of Pasturelands

From neatly fenced pastures in the limited farming sec-

4. Cattle and Calves. Swift and Company. Agricultural Research Department, Chicago, Bull. 15, 1954, p. 7

^{2.} Meat for the Millions. American Meat Institute. Department of Public Relations, Chicago, 1955, p. 1

^{3.} Loc. cit.

tion of the East to the vast open ranges of the West and Southwest, cattle Figge on nature's bounty of grass. Throughout the nation's breadbasket - the sloping, fertile farms of the Midwest - hearty, fat hogs feed on corn and carefully prepared supplements. On desolate mountain slopes, herds of sheep search for lush green grass and similar forage.

These pasturelands are the backbone of the livestock industry and the primary reason for its importance. For meat animals, in their growing and fattening process, consume grasses, grains, mill feeds, and protein feeds. These feeds are rich in nourishment but, except for cereal grains, the general public cannot eat them. Thus, we are dependent on the millions of head of cattle, lambs, and hogs to transform these grasses and other feeds which human beings cannot eat, into highly digestible meat products which are suitable for human consumption.

Were it not for these grazing animals, 779 million acres of the farmhands and uncultivated range hand in the United States would give hittle, if any, food for human consumption. In other words, almost half of all the hand of our nation is only grasshand and cannot be used for growing other foods. Thus, the product of this vast area can be marketed only through hivestock. Over three fourths of the food that beef cattle eat is grass, hay, and foods of this nature. A large proportion of our hambs eat practically nothing else.⁵

^{5.} The Story of Meat Animals. Swift and Company. Agricultural Research Department, Booklet C, p. 9

Besides converting gross and forage crops into meat, livestock put to use many other crops that are contained only in part by humans. An estimated 85 per cent of America's corn crop is turned into meat, &o per cent of the cats and 46 per cent of the barley. Although wheat is grown primarily for human consumption, livestock, by utilizing undergrade wheat and the material left after milling, account for about 40 per cent of this cereal.⁶ Buckwheat, rice and rye are also fed to livestock, and in addition, the by-products of many other crops are utilized. Cottonseed and soybeans, for example, are fed to livestock after the oil has been pressed out of them; the pulp from sugar beets and some citrus fruits is likewise used for this purpose.

The significance of this essential conversion from feed into meat cannot be overemphasized. Its full impact may be better realized in the decades to come as our population increases steadily from year to year. This point, however, will be discussed in the seventh chapter of this thesis. It is sufficient to conclude here that without the resourcefulness of livestock, much of the nourishment contained in inedible forms and so necessary for good health, would never find its way into human consumption.

Nutritional Value of Meat

Still another reason for the importance of meat is that

^{6.} Economics of Livestock and Meat. Armour and Company. Public Relations Department, Chicago, 1954, p. 2

it contains food values of the highest quality for all of us. Extensive research has proved that meat is rich in food nutrients, and as such, it is recognized as a basic food requirement.

To begin with, meat is an important source of high quality protein, which is necessary for the growth and repair of body tissues and for building resistance to disease. And while meat is classified as a protein food, it does furnish energy. Its caloric value varies with the amount of fat it contains. This fat not only supplies heat and energy, but also carries certain fat soluble vitamins.

Meat also provides minerals. It is the richest source of phosphorous which is needed to combine with calcium in building bones and teeth, and with protein and fat in building many body tissues. The iron of meat is present not only in large amounts but also in a highly available form.

Further nutritive value of meat may be found in its valuable contribution of vitamins - thiamine, riboflavin and niacin.

In addition to its food value, meat has many characteristics which recommend it for the diet. Its tempting aroma and distinctive flavor give it universal appetite appeal. Meat makes the meal more satisfying; the housewife forms her meal around it. Finally, it is almost completely digestible - proteins 97 per cent and fat 96 per cent.⁷ Its easy, almost total digestibility is so widely recognized that it is given in £

^{7.} The Food Value of Meat. National Livestock and Meat Board. Department of Nutrition, Chicago, p. 3

specially prepared form with outstanding benefits to babies as early as the second month of life.

Good health and adequate nutrition go hand in hand. Without adequate nutrition, health cannot be achieved or maintained. Meat plays an important role in the balanced dist required for adequate nutrition and has done much to make the United States the vigorous and healthy nation that it is.

The Problem of Marketing Livestock

Marketing, as we know it today, constitutes a distribution of wealth. In the case of meat, it is the way in which a product is moved from the farmer to the consumer and involves services relating to the transfer of ownership of goods and payments between sellers and buyers. It embraces functions relating both to the geographical distribution of goods and to their distribution through time.

Until the start of the eighteenth century, the problem of marketing livestock was hardly noticeable. The majority of people were devoted to the land or else they had easy access to someone who was. For the most part, meat animals were slaughtered on the farm, and the carcasses were exchanged for the goods and services supplied by the various tradesmen. There were no railroads, no refrigerator cars, and no large central markets.

As the population of the country increased and became more widely distributed, it became increasingly more difficult to satisfy the needs and wants of the people. The farmer had become more specialized in his methods of production and he found himself with a surplus that could not be disposed of in his customery "direct to the consumer" menner. The problem for him then was to bridge the gap between himself and the consumer. As a result, specialization of labor was applied to the marketing function as well as to other phases of production. The methods employed at that time have been altered at various intervals due to the introduction of numerous time-saving and labor-saving devices, but the struggle for more efficient distribution methods still goes on.

On January 1, 1955 there were 95,433,000 cattle and calves on the farms of the United States. In addition, there were 55,002,000 bogs and 30,931,000 sheep.⁸ The number of cattle and calves constitutes the greatest total ever recorded in this country. Only the exertion of tremendous technological advances and scientific research, resulting in a saving of erep and feeds, have enabled the farmer to accomplish this feat. Even greater strides must be made in the future if he is to cope with the fabulous population increases predicted for the decades to come. (See Chapter VII).

During 1954 there were over 25 million head of cattle, 12 million calves, 75 million hogs, and 16 million sheep and lambs slaughtered in the United States.⁹ From six million farms and ranches in every state, Federally inspected meat packers in 1954 bought approximately 106,300,000 cattle, calves, hogs, and sheep to make into steaks, reasts, stews, sausage

The Livestock and Meat Situation. United States Department of Agriculture, Agricultural Marketing Service, (March 1955), p. 5

^{9.} Ibid. p. 21

items, and canned meat. They supplied pharmaceutical, sporting goods manufacturers and many others with by-products for hundreds of lifesaving drugs and other items necessary for our national economy. Estimated total meat production for 1954 was 25,575,000,000 pounds while civilian per capita consumption was estimated at 155 pounds.¹⁰

As a result of the continuous presence of a flourishing meat industry from generation to generation, the American people have come to take an ample supply of meat for granted. But such is not the case. From the time they are raised until the time they are consumed, meat animals are involved in one of the more complex systems of marketing in the United States. The situation can be better understood when the areas of production and consumption are explored. States west of the Mississippi account for 62 per cent of our livestock production while those east of the Mississippi only 38 per cent. Moreover 69 per cent of America's meat production is eaten in the heavily populated region east of the Mississippi, while only 31 per cent is consumed in the states west of the Mississippi.¹¹

From these figures, it can be seen that the important livestock-producing areas and the heavily populated, large meat-consuming areas just do not match up. It is the problem of the meat industry to reconcile these differences and thus fulfill the needs of each individual in the United States.

10. Meat for the Millions. American Meat Institute. Department of Public Relations, Chicago, 1955, p. 1

19

^{11.} Facts and Figures about the Meat Packing Industry and Its Products. American Meat Institute, Chicago, 1954, p. 7

CHAPTER III

THE POSITION OF THE FARMER

Reasons for the Geographical Location of Livestock

It was pointed out in the preceding chapter that approximately three-fifths of the livestock in the United States is produced west of the Mississippi, whereas about two-thirds of the meat is consumed east of this area. The main reason for this is that livestock need plenty of space in which to feed and grow. The section west of the Mississippi is ideally suited for production purposes.

The areas in which the various types of animals have settled differs greatly among the species. In general, there has been a tendency for each species to be produced in the region or regions in which it enjoys the greatest comparative advantage or the least comparative disadvantage. This does not necessarily mean that a single species is produced exclusively in a given region. There are many farms suitable for the raising of any combination of animals and very often this is done in order to obtain the maximum potentialities of the land. In the corn belt, for example, hogs and beef cattle are commonly produced on the same farms. Also, there are many hogs kept on dairy farms. However, there are certain regions that are continually dry and consequently inappropriate for both beef cattle and sheep production. The reason for this is that only these two species can utilize the natural feeds of such areas so that the presence of both on the same range would create a decided strain on these feeds.

The location of the crop-producing areas is probably the most important factor to be considered in the situating of livestock. The Corn Belt is a prime example of the natural attraction that such areas contain. The majority of hogs and a great many cattle are raised and fattened on the golden product of this fabulous region. The dairy animal has a natural advantage in those areas where grass and other forage crops are plentiful and where the topography of the land or the fertility of the soil are such that it is unsuitable for commercial purposes. The grazing lands of the West supply the necessary grass for cattle and sheep, and the topography and limited rainfall exclude competition from cultivated crops. Cattle and sheep moving from this region may either be marketed for slaughter or transferred to another area for fattening purposes. In the latter case, such animals would be referred to as "stockers" or "feeders". Farmers buy these animals for the express purpose of feeding them corn and other grains in addition to hay or grass in order to fatten them. Two or three months later they are returned to market for slaughter and sold at a better price.

Areas of livestock production are also influenced by the location of consumers and the availability of markets. This is especially important in the case of dairying. Dairy cows provide a considerable amount of beef for consumption. Also veal, to a large extent, is a product of these dairy farms. Consequently the necessity for locating dairy farms close to the consumer actually determines the sources of meat supplies produced from dairy herds.

The geographical location of livestock supply areas has had an important influence upon the location of markets, method of marketing, and place of slaughter. Under existing conditions, either livestock or meats, or both, have to be moved from the surplus-producing areas of the West to the deficitproducing regions of the East. From a practical standpoint, it has been found to be more economical to slaughter animals in plants located in close proximity to the western regions, to save the by-products, and then to transport the meat in refrigerator cars to the consuming eastern sections than to ship the live animals. Also, there is an acute danger of sustaining a high loss from deaths, injuries, bruises, shrinkage, and freight costs when the animal is shipped live. Following this procedure, a pound of meat will travel on the average about one thousand miles from where it is produced to where it is consumed.

Areas of Production

Beef Cattle

Cattle are generally broken down into two classifications - those raised for beef and those raised for dairy purposes.

^{1.} Cattle and Calves. Swift and Company, Agricultural Research Department, Chicago, Bull. 15, 1954, p. 12

Although beef cattle are raised in every state, the most extensive production takes place in the West and Southwest. Cattle in this area are raised largely on grass and generally are sold as stockers and feeders or as grass-fat cattle. The latter are cattle produced on grass that have sufficient finish to be suitable for immediate staughter. Range cattle usually spend their first summer grazing and at times are held over for a second summer. When the farmer feels they are ready for market, they leave the range area. Most cattle from this region come to market in about three months of the year, September, October, and November. This is natural inasmuch as grass is the main feed of range animals, and while there is plenty of grass in the summer months, it dies off in the fall.

The Corn Belt is also a heavy cattle production area. Many of the livestock shipped out from the range area are bought by farmers located in the Corn Belt. While feeding operations are carried on in all sections, most of it is done in this area where a surplus of feed grain is produced. These feeders and stockers are fattened and along with the original high grade herds of the Midwest reach the markets for slaughter during the spring and early summer months. Texas furnishes the largest number of high-quality feeder cattle to the Corn Belt, with Kansas, Nebraska, and other Great Plains states following. Some of the cheaper grades of feeder cattle come from the Missouri, Arkansas, Tennessee, Kentucky, Mississippi, Alabama, and Louisiana.²

The principal beef-producing areas in the United States

^{2.} Thomsen, F. L. and R. J. Foote. <u>Agricultural Prices</u>. New York, Toronto, London: McGraw-Hill Book Company, Inc., 1952, p. 383



are indicated in Figure 1.

Dairy Cattle

Dairy cattle are extremely important in farming operations surrounding large cities where there is a ready market for fluid milk. Dairy farming is also prominent in areas of heavy grass production where the milk is made into butter, cheese and condensed milk. Wisconsin, New York, and Minnesota are the leading dairy states, but dairying is practiced in most farm communities.³

The significance of dairy cattle should not be underestimated. There were some 24,408,000 dairy cows on the farm on January 1, 1955.⁴ Perhaps a brief resume of the dairy cow would serve to point out their importance. Young female cattle are known as heifers. When a heifer gives birth to a calf, she is no longer a heifer but is known as a cow. This generally occurs when the animal is about two years old. After a heifer has had a calf, she is able to give milk. However, she will usually continue to give milk only for about ten months after the birth of each calf. Cows generally give birth to five or more calves in a lifetime.

The products of a dairy farm are numerous. Dairy animals in America give out about 58 billion quarts of milk a year.⁵ A little less than half of this amount is swallowed up by

^{3.} Ibid. p. 404

^{4.} The Livesteck and Meat Situation. United States Department of Agriculture, Agricultural Marketing Service, (March 1955), p. 5

^{5.} The Story of Dairy Animals. Swift and Company. Agricultural Research Department, Chicago, Booklet F, p. 9

human consumption. The remainder is processed into cheese, butter, ice cream, canned and powdered milk, and some products we use but do not eat. A protein called casein is removed from milk and used as an aid in producing paint, glue, film for cameras, dyes, explosives, and items of that nature.

Calves not needed as replacements for dairy herds are sent to market and these young animals provide much of our veal supply. Older dairy stock, also, are sent to market when their milk producing days are over. These animals yield very lean meat though they do not have the finish or conformation to grade prime and choice. Besides providing a share of the good and commercial meat sold in the rotail outlets, they constitute an excellent meat for making sausage, canned meats, dried beef and other processed meat products.

Hog Production

Although hogs eat some grass, they require grain or other concentrated feeds for proper growth. Consequently, hog production is concentrated largely in one area of the country, the Corn Belt, as shown in Figure 2. Hogs are corn on the hoof, and the production and feeding areas practically coincide with the corn-producing sections. In 1948, Iowa and Illinois produced almost a third of the hogs in the country.⁶

Some areas, including parts of the Dakotas, Minnesota, Missouri, and Arkansas, produce more hogs than can be fed out

^{6.} Thomsen, F. L. and R. J. Foote. Op. cit. p. 366

Page - 27 -



Figure 2. -- Distribution of the hog population and corn production in the United States, showing the close relation between corn and hogs. (Courtesy of U.S. Department of Agriculture, Bureau of Agricultural Economics.) on locally produced corn and ship considerable quantities of feeder pigs to the heavier corn-producing regions, where they are fed to market weights on corn. Also, there is a considerable interchange of feeder pigs between farmers located in the Corn Belt proper. A large portion of these feeders are utilized by farmers who are primarily cattle feeders and who need hogs during certain parts of the year to follow the cattle on feed. Generally, however, the hogs are fed out on the farms on which they are produced.

Hogs are also produced in considerable numbers in certain parts of the South, on the Pacific Coast, and in the East, mostly for local slaughter and consumption. All states except those west of Ohio, north of Kentucky, and east of the Rockies are deficit areas, consuming more pork than is produced.⁷

While pigs are forrowed schewhere in the United States during every month of the year, the bulk of the pig production takes place in the spring and fall. The spring crop is usually considered to include all pigs farrowed from December through May and the fall crop to include those farrowed from June through Movember. Although the proportion varies considerably from year to year, an average spring crop would constitute about 60 per cent of the year's supply and the fall crop would account for the remaining 40 per cent.

From six to ten months ordinarily intervene between time of feeding and marketing, depending on the weight to which the hows are fed, the mothods employed in feeding and

- 7. Ibid. p. 360
- 8. Ibid. p. 378

handling, and weather conditions. The bulk of the spring crop is stanghtered during the following Hovember, December and January while the fall crop is staughtered during April, May and June of the following year.

Sheen and Lamb

Sheep are raised on reaches in the West and Southwest, and, to a lesser extent, on farms in the Midwest, South and East. In 1946, the loading states in sheep and lomb production were Texas and California. The Western region plus Texas produced over half of the United States total.⁹

Lambs are prodigious foragers. They grow quickly if they have ample feed and many are ready for market after one summer of grazing. Those too light for slaughter are sold to feeders who fatten the lambs for three or four months. In the United States there are three distinct systems of sheep production as shown in Figure 3.¹⁰

1. Farm flocks. Many farmers have flocks of sheep ranging in size from a few head to a thousand or more. They are located primarily in the rougher sections of the East and of the Corn Belt, except where dairying predominates. Many of these farm flocks, particularly in the East, receive little care and consequently the lambs coming to market from these districts are generally of inferior guality.

2. <u>Range sheep</u>. The far-Western range country produces about two-thirds of the sheep and lambs raised in the United

9. Ibid. p. 397
10. Ibid. p. 398



States. Vast areas of grazing land make it particularly suitable for their growth. Also the quality of lambs produced in large portions of this area is much above the average for the country as a whole.

3. <u>Feeding lambs</u>. Since about one-half of the range lambs when marketed are not in suitable condition for slaughter, they are finished by feeders in the Corn Belt and other areas. About one third of the lambs are fed in western Nebraska and Colorado, where an extensive feeding industry has been developed. The remainder are shipped mainly to the Corn Belt, where they are fattened in the corn fields and feed lots.

Outlets Available to the Farmer

Every farmer has the opportunity to make his own decision about when to sell and how he should market his livestock. He is the sole judge in determining when he will sell his animals. He also has the choice of a large number of locations and types of markets at which to sell his stock. In addition to the large and small public markets, he can sell to or through local buyers, cooperative associations, livestock auctions and packer concentration yards and plants. Where he sells at any given time depends upon custom, relative prices, convenience, comparable market charges, and his own personal likes and beliefs. The outlet selected often varies with the different species of livestock and among sections of the country. There is also a difference in the methods of marketing slaughter and feeder animals.

A study made in the 14 Corn Belt states reveals that producers in those states sell their livestock to or through 12,000 dealers and truckers, 2,900 local meat dealers who do some slaughtering, 1,000 auction markets, 1,000 cooperative associations, 600 direct buying packing plants, 300 concentration yards, as well as 550 commission firms operating on 26 large public markets.¹¹

Similar marketing opportunities exist in other sections of the country, although there are not as many outlets in areas where livestock supplies are lighter. Figure 4 shows the channels of livestock movement from farms in the Corn Belt region to packing plants, other farmers and other users in 1940. The trend since that time has shown a steady increase in direct marketings with a corresponding decrease in public market receipts. There has been considerable discussion about the merits of this movement on the part of the farmer. Advocates of the terminal markets insist that these direct marketings do not provide the service and the convenience so prevalent in terminal marketing. They say further that the farmer does not obtain the best price when he deals for himself - that the commission firms and cooperative commission agencies more than make up for any additional marketing costs sustained in shipping to the terminal markets through more experienced and efficient handling of their livestock. Whatever the case may be, the uninformed should not underestimate

11. Economics of Livestock and Meat. Armour and Company. Public Relations Department, Chicago, 1954, p. 5



the value of central markets. They are the firm foundation of the entire marketing system and provide a needed regulating and stabilizing influence. In the present trend toward more decentralization, this fact should be recognized for there is a limit to how small a central market may be and yet remain sufficiently strong to exert this regulating and stabilizing influence. The various outlets available to the farmer are listed below.

Local Buyers

These men usually purchase livestock directly from farmers and then ship them on to the central market. It is a highly speculative venture and requires keen judgment and knowledge of market conditions. They make their profit from the difference between the price given the farmer and the price received at the central market. With the increase in the number of improved highways and metor trucks, in addition to the growth of cooperative marketing and direct buying, this type of transaction has diminished.

Cooperative Marketing

Cooperative marketing includes cooperative shipping asseciations and cooperative commission associations.

Local cooperative shipping associations were organized by producers primarily to increase returns from livestock. The early livestock shipping associations were organized at a time when practically all livestock moved to market by rail. The movement was really prompted as a means of circumventing the local buyers who, the producers thought, were either taking advantage of the farmer's lack of knowledge of market conditions or were not paying full value. In cooperative marketing, the producers in a given locality pool their livestock and ship cooperatively so that it is possible for farmers with small lots of livestock to ship at carlcad rates to some convenient market.

There has also been a steady decline in the number of shipping associations. Many economic changes have been responsible for this, including innovations in methods of transporting livestock to market, the increase in the number of available outlets, and improvements in the collection and dissemination of market news. Such declines in cooperative shipping associations and local buyers indicate that large numbers of producers have assumed the responsibility of marketing their own livestock. This implies further that many producers have reached the conclusion that they no longer need the services of the local associations. Here again, there arises the question of whether they are in a position to market their livestock to the best possible advantage or whether they would benefit from the services of a marketing agency.

A cooperative commission association is an agency established by livestock producers for the purpose of selling livestock at a public market. They are similar to commission firms (page 39), differing mainly in the fact that cooperative commission agencies are owned and operated by producers instead of by private individuals. They came about with the expansion of the cooperative movement and because the producers believed

that they were not getting satisfactory service from the established commission firms on the central markets. These commission associations have served the producer well and do much to create a competitive spirit on the public markets. In 1952, about 25 per cent of all commercial livestock sold annually in the United States was marketed cooperatively.¹²

Community Livestock Auctions

The community livestock auction system is a method of selling in which the animals are sold to the highest bidder, either on a per head or a weight basis. Both bidding and selling are open to the public. The sales take place either cutdoors or in large sales barns built specifically for the purpose of selling livestock at auctions. At most of these auctions, all kinds of livestock are handled, including animals bought for slaughter as well as immature and unfinished animals bought for feeding and grazing purposes. At most of these auctions, sales are made of individual animals or of small lots of animals of uniform guality and weight.

Most of the community auctions are owned and operated by an individual or partnership. Some are incorporated and a few are cooperatively owned. There has been a marked growth in livestock auctions since 1932.¹³ The main reason for this has been the growing need for satisfactory outlets for the small producers. Also, there has been a lack of shipping associations in some areas. Finally, it can be traced to

13. Loc. cit.

^{12.} Ensminger, M. E. <u>Animal Science</u>. Danville, Illinois: The Interstate Printers and Publishers, 1952, p. 255

the genuine appeal that the auction methods hold for producers. The latter can now sell near home, observe competitive bidding, recognize comparative market values and visit with their neighbors. In addition, auctions thrive when prices are low because producers are anxious to market near home and at a minimum of out-of-pocket costs.

As in all types of business, there are some practices existing on certain community livestock auctions that are undesirable and serve to create unfavorable impressions. Some auction operators buy producer's livestock before the sale and sell in competition with livestock confined by the farmers. Also, unless due care is exercised, auction yards may be a major factor in the spread of disease and parasites. Public regulation and supervision has been set up in many instances primarily to control these abuses.

Direct Marketing

In direct marketing, slaughter animals are sold direct to meat packers. This does not mean that direct marketing is confined to sales made by farmers and feeders to slaughterers. It also includes livestock bought by packers from such local marketing agencies as local buyers, cooperative shipping associations, concentration yards and assembly points and auctions. The main point is that central markets and commission firms are by-passed by the farmer in his dealings with packer representatives. With stockers and feeders, direct marketing also applies to transfer of ownership through sale other than at central markets. Increasing numbers of

stockers and feeders have been moving direct from the range to feed lots in the Corn Belt States and elsewhere during recent years.

This type of marketing was accelerated by the large nation-wide packers in an effort to combat the influx of small interior packers. The latter constituted strong buying competition for the large packers since they were situated close to the livestock production and livestock feeding areas and purchased practically all of their hogs and large proportions of cattle and sheep by direct marketing. Thus, the large packers resorted to direct buying as a method of striving to regain some of the animals, especially hogs, which were going to the independent plants.

As mentioned previously, direct marketing has increased over the years with arguments pro and con marking its route. Swift and Company in 1951 had direct shipments of cattle amounting to 26.5 per cent, calves 43.6 per cent, hogs 58 per cent, and sheep and lambs 48.2 per cent. This showed an increase from 1939 figures totaling 24.2 per cent cattle, 36.1 per cent calves, 51.8 per cent hogs and 34.1 per cent sheep and lamb.¹⁴ These figures are fairly representative of the overall trend.

Central Markets

A modern central or terminal market is a very complex

^{14.} Discussion with Roy Green, head of Agricultural Research Department, Swift and Company, Chicago.

organization, and the larger it is the more complex it becomes. There are many distinct factions operating on a market, all of which perform a separate function in making up the entire operation. These functions will be described briefly to show how livestock is moved through the market.¹⁵

The stockyards company owns the land, yards, and equipment necessary for unloading, weighing, and handling of livestock while they are being marketed. Employees of this company unload, count, yard and feed and water the stock as directed by the commission company to whom they are assigned. The stockyards company neither buys nor sells livestock. It derives its income solely from a yardage fee, the sale of feed and bedding, and rental of office space.

Commission firms have already been mentioned brackly. Their principal function is to sell livestock assigned to them by farmers, shipping associations and local buyers. They receive a commission on a per-head or a per-carload basis for rendering this service. The stockyards company allots blocks of pens to each commission company based on their volume of business. Commission men who act as the owners agent invite buyers one at a time into the pen to bid on the livestock. Any bid or offer made in the pen is usually cancelled when the buyer leaves if a sale has not been agreed upon. When a buyer and a commission man reach an agreement, the sale is completed, the animals are weighed and payment is made on the basis of weight and the agreed price. Following the sale, the commission company promptly remits to the farmer, or some

15. Ensminger, M. E. <u>Animal Science</u>. Danville, Illinois: The Interstate Printers and Publishers, 1952, p. 261

other marketing agency, the amount received for the animals, minus the cost of transportation and other marketing fees.

There are usually many buyers at the terminal markets. Beside buyers for the local packers, there are order buyers for packers in other cities and speculators who buy with the idea of reselling locally or at some other market.

The livestock exchange, which exists on most of the larger markets, insures fair dealings and integrity on the part of its members. It is chiefly an organization of the commission companies operating on a public market. Special services rendered members and shippers include the collection of claims against carriers for losses in transit and for excess charges. Most livestock exchanges also require satisfactory bonds from members as a guarantee of financial responsibility.

At the larger markets one or more conveniently located banks facilitate prompt payment by the buyer. They also insure the earliest possible remittance to the consignor by the commission companies.

There are various market news services in operation at these central markets. These include the Federal Market News Service, the Corn Belt dailies, and market information supplied by commission men which keep both buyers and sellers well informed regarding supplies and prices.

Federal meat inspectors, functioning under the Meat Inspection Act of 1906, make ante and post-mortem inspections of all slaughter animals. They also enforce sanitary regulations covering both the yards and the packing plants. Federal officials, operating under the provisions of the Packers and Stockyards Act, ascertain that fair and competitive practices are observed by the packers and commission companies. They also make sure that reasonable charges are made for marketing services rendered.

All of the functions listed above are important phases of the market terminal operation. Each is diligently attended and the entire combination results in a high form of efficiency. The central markets have rendered and are rendering valuable services to large numbers of producers, shippers and purchasers of livestock. Their relative importance in the future may be expected to depend upon the services offered and charges made for these services compared with other types of markets and market outlets.

Transportation of Livestock

An important step in the marketing of livestock involves the physical movement of the live animals and their products. Transportation is not a very large item of expense in the marketing of livestock that is slaughtered and consumed near the farms where it is produced. However, where livestock is produced in one area and fed or slaughtered in another area, the problem of transportation is extremely important.

The method employed in transporting livestock to market necessarily depends upon the type or types of transportation that are at hand. When alternative methods are available, the choice will depend on relative costs and convenience. Costs include the actual money outlay for the transportation service and expenses enroute, together with losses from death, crippling, bruising and shrink. This discussion will be limited to the two chief methods utilized by the producer railroads and motor trucking.

Transportation by truck is the most recent development in the livestock field. Improvements in both highways and trucks served to increase this method of transportation. By 1935, trucks were used in transporting more than half of the livestock delivered at the central markets.¹⁶ In market receipts, truck shipments are referred to as "drive-in" receipts in order to distinguish them from rail shipments.

There are wide variations in the proportion of livestock arriving by motor truck at different markets. In general, a higher proportion of hogs and calves than cattle and sheep arrive by motor truck. In a study involving more than sixty leading central markets, it was reported that 71 per cent of the cattle, 74 per cent of the calves, 76 per cent of the hogs, and 44 per cent of the sheep and lambs, were delivered by motor truck in 1949.¹⁷ Rail shipments predominate when long movements are involved, whereas truck shipments are favored for short hauls. The latter point probably explains why a lower percentage of sheep and cattle are transported by truck, for longer shipments are involved for these animals, especially with western range cohsignments.

Table I shows the percentage of total livestock receipts

16. Ibid. p. 239 17. Ibid. p. 240



_

at several loading central markets received by rail versus truck.

TABLE I

PERCENTAGE OF TOTAL LIVESTOCK RECEIPTS OF SEVERAL CENTRAL MARKETS AND OF 66 U.S. MARKETS RECEIVED BY RAIL VERSUS TRUCK, 1948 IS (in per cent)

Truck or rail	Chicago	Omaha	Kansas City	St. Louis	Sioux City	Total of 66 U.S. markets
Rail	37•5	31.9	54.7	21.5	17.4	35.9
Truck	62•5	66.1	45.3	78.5	82.6	64 .1

Accordingly, Sioux City receives most of its shipments by truck, whereas Kansas City is primarily on a rail-shipment basis. The preponderance of rail receipts at Kansas City is due, in part, to the large number of feeder cattle shipped to this market from the ranges of the West and Southwest. The long-haul shipments involved in the latter case require rail shipment as a matter of expediency.

The most common reasons advanced for the marked increases in motor truck shipments are as follows:

1. They are more convenient. Trucks enable animals to be loaded at the farm and moved directly to their destination. Also, in comparison with rail shipments, truck transportation is more elastic from the standpoint of size of loads, routes and schedules. Trucks vary in size from the standard pick-up to the semi-trailer, with a load capacity equal to the standard 36 feet railroad car. In the case of rail shipments, it is

18. Loc. cit.

ordinarily necessary to order the car in advance, to drive the animals from the farm to the shipping point, to bed and load the cars, and to consign the shipment to the designated market. Much of this inconvenience is eliminated in truck transportation.

2. Trucks have a lower transportation cost on short hauls. This is due to the extension of good roads and the improvement in the size and type of motor trucks.

3. They provide greater flexibility of time and place of marketing. Many progressive farmers follow market quotations very closely. Often they are able to ship their livestock by truck after getting an early morning market-news report. Motor trucks can also move in any direction, thus increasing the number of outlets a farmer has at his disposal.

Without going into detail, it is safe to say that truck transportation has had two major effects on the markets. First, it brought about a change in stockyard management since the stockyards had been set up primarily to handle rail deliveries. Consequently, the introduction of trucking on such a large scale demanded the complete transformation of stockyard facilities. Second, it tended to influence farmers to ship to the nearby markets. In this respect, it has been a contributing factor to the decentralization of livestock marketing and slaughter.

In recent years, railroads have granted numerous concessions to livestock producers in an effort to meet motor truck competition. These considerations include local assembly by motor truck, more favorable rates on less than carload-lot shipments, and liberal unloading privileges enroute. Also, to their everlasting credit, the railroads have long supported and advanced progressive livesteck programs, both through their own competent personnel and in cooperation with the state agricultural colleges.

Shrink, Bruising and Crippling of Livestock

An important element in the transportation picture invelves the losses sustained from bruising, crippling and death that occur during the marketing process. They represent a portion of the cost of marketing livestock; and, indirectly, the producer foots most of the bill. For bruises usually cannot be detected until after the animals have been shaughtered, and thus it is not practicable, since livestock are weighed while still alive, to charge the loss to those who are responsible for it. And since packers take probable losses into consideration when they offer prices for the live animals, the burden of loss from bruising is shared by all producers.

Bruising may result from accidents, from improper handling or any number of other reasons. Whatever the reason, losses incurred are surprisingly high and only serve to raise prices for all parties concerned.

The interest of transportation agencies is based on the Possible effect of excessive losses upon future patronage. With the more general dissemination of information on the causes and extent of losses from bruising there has been a tendency for some shippers to avoid the type of transportation that is found to cause excessive braising. For this reason, truckers and railroads have to be cautious in their handling of livestock.

Shrinkage is another important factor. The fact that tissue shrinkage begins early in the period in transit and continues until the animals reach the slaughterhouse is significant to producers, dealers, transportation agencies, slaughterers and processors. It seems reasonable to suppose that the edible portion of the carcass will shrink at a greater rate than the incdible portion. This means that the shrinkage effects the more valuable parts of the animal. It is to the interest of the owners, therefore, to move the livestock from origin to destination in the shortest possible time.

The precoding paragraph enumerates still another of the many considerations that a farmer must view in deciding how and when to market his livestock. This chapter has attempted to give you some of the problems that confront the farmer and certain facts which could aid him in his decision. Each individual farmer has a problem of his own to decide. The progressive and successful farmer is the one who investigates thoroughly and makes an accurate decision on where to raise his livestock, what marketing outlets to utilize and what type of transportation to employ.

CHAPTER IV

FACTORS INFINENCING THE PRICE OF MEAT

Interaction of Farmer, Packer, Retailer

While in most commercial fields the ultimate selling price represents the accumulation of expenses plus a profit, in the meat industry the operation works largely in reverse. Generally the price at which meat is eventually sold represents the best price that can be obtained from the consuming public for the supply which is available. These market prices for meat are translated through the meat packer into bids for livestock offered for sale by the producer.

Every segment of the industry watches price trends and market conditions closely. <u>Retail meat men</u> not only watch their own sales but also closely follow livestock and meat supplies and wholesale meat prices. They are constantly on the alert for daily and weekly fluctuations in livestock and wholesale prices. They bargain vigorously for lower prices when they know there is an increased supply of beef. When there is less beef available, retail meat dealers may become aggressive buyers - willing to pay higher prices in order to obtain their beef requirements.

The <u>packer</u> is equally vigilant. He knows at the beginning of each day how much meat he has on hand ready for the
market. He instructs his saleshen to get the best prices possible for that quantity of meat, reminding them that it has to be sold. The packer then follows the market closely, from hour to hour, noting the prices at which his products are being sold.

On the basis of the prices he is able to get for his meat and by-products, and what he thinks he will be able to get in the immediate future, he sends his buyers into the livestock market to make bids for livestock. Here he has to compete with other meat plant buyers, dealers, and speculators, all of whom want to buy livestock. In addition he has to buy from expert salesmen (commission men) who are trying to get the best possible prices for the producers. In the competitive bargeining which takes place, each buyer tries to buy live animals at a price that will enable him to make a profit after the meat and by-products have been seld and manufacturing and distribution costs have been met.

The <u>producer</u> has to decide when and how to move his livestock. Feed supplies, weather, seasons, and how the market looks at a particular time are a few of the factors which influence his decisions. Producers are also concerned about keeping marketing costs as low as is consistent with the marketing services rendered. The cost of transporting livestock to market or to a slaughtering plant must be taken into account. This is true in a case where the producer pays for having the service performed for him and likewise in the event he transports the livestock himself. The cost of transportation, therefore, must be considered in relation to the gross price

1:8

cffered at alternative markets. As mentioned previously, the cost may also be influenced by the type of transportation used.

This is the general procedure employed by the various components of the marketing system in arriving at a price. There are, however, various factors that influence the overall transaction which should be considered. These factors are presented in the following sections of this chapter.

Supply and Demand

Contrary to the opinion held by some, packers do not control livestock and meat prices. Rather, like most commodities, they are dominated chiefly by supply-and-demand forces. That is, fluctuations in livestock prices are due either to changes in the demand for meat or to changes in the supply of slaughter animals.

Basic to the demand for any product is the consumer's desire for that product. The desire of consumers for meat has a very solid background of preferences, habits, and prejudices. It is evidenced by the comparatively small change during the last forty years in the per capita consumption of meat compared with the change in some other items of our diet such as sugar, flour, potatoes and oranges. Government figures show that consumers, year-in and year-out, generally spend about the same per cent of their disposable income for meat. For the past forty years, the percentage has averaged 5.6 per cent.¹

• 27

^{1.} Livestock Prices. Swift and Company. Agricultural Research Department, Chicago, Bull. 44, p. 10

While the <u>desire</u> for meat has probably been very stable over the past half-century, the per capita <u>demand</u> has not. Demand depends not only on desire but also upon the ability to purchase. Changes in the per capita demand have been the result primarily of changes in consumer incomes. Thus the demand for meat has been found to be closely associated with national income. When national income is high, the demand for meat is strong; and, when national income is low, the demand for meat is weak.

The <u>supply</u> of livesteck, on the other hand, is to a considerable extent governed by the cost of production in relation to the prices at which livestock can be sold. If costs are high in relation to prices, the supply tends to decrease, and, if costs are low in relation to prices, the supply tends to increase.

With meat, however, as with most other products of agricultural crigin, the supplies on the market in any one year are almost wholly the result of decisions made by farmers in previous years and of influences which are beyond the control of the farmer. Price has little influence on supplies in the same year. For this reason, the total supply of livestock marketed during a given year is approximately equal to the number produced for market. Because of the perishability of the animals, it is impracticable to retain them on the farm for any considerable length of time after they are ready for market. For short periods of time, however, the market supply of livestock may be somewhat adjusted by holding part

of the supply off the market or by marketing earlier than normally planned. This may be done in response to changes in prices of livestock or to changes in feed prices.

Cyclical Trends

The price cycle as it applies to livestock may be defined as that period of time during which the price for a certain kind of livestock advances from a low point to a high point and then declines to a low point again. The length of time between the peak of one cycle and the peak of the following cycle varies with different species of livestock. Even for a given species the length of time u sually fluctuates over the course of time.

The cattle cycle is more evident in cattle population figures than in cattle prices. For this reason, the cattle population cycle will be discussed <u>along</u> with its relationship to the price cycle.

When cattle prices commence a downward swing, producers in increasing numbers become discouraged and start to liquidate their herds. As the decline continues, a growing proportion of current market receipts (of cattle) is composed of cows and heifers which under other circumstances would be retained for breeding. This liquidation continues after the peak of the actual production cycle has been reached and the cattle population has begun to decline. Finally, this liquidation begins to dry up, as the production adjustments of individual producers are temporarily completed. Market receipts gradually fall, until the price movement is reversed in an unward direction. As prices rise, actual and potential producers become increasingly optimistic, more and more animals are rotained for production purposes, and the cattle population expands. However, the rise in market receipts is delayed due to the retention of cows and heifers for breeding. As the herds are gradually built up, a larger and larger proportion of current production is diverted into the markets, and current slaughter picks up until it is sufficient ence more to start prices downward.

Ţ

Since about 1890, owing to the tendencies discussed in the previous paragraph, the cycle of farm values (price) of cattle has preceded the cycle of cattle population by about four years; that is, the changes in cattle population have lagged about four years behind the changes in value of cattle which have induced the changes in production.²

The cattle cycle in the past has averaged about fifteen years, compared with five years for hogs and seven to ten years for sheep. The greater length of the cattle cycle is a result of the long-time nature of cattle production. For example, in order to increase cattle production, it is necessary to save more heifers for breeding. The first progeny of heifers held back for breeding purposes would ordinarily be ready for market in three to five years. However, many producers are slow to react, and not enough heifers are saved in response to the first improvement in prices to increase population greatly. Several generations of cattle must

Thomsen, F. L. and R. J. Foote. <u>Agricultural Prices</u>. New York, Toronto, London: McGraw-Hill Book Company, Incorporated, 1952, p. 388

be raised to maturity before the number of cattle in the country reaches a maximum.

Livestock production cycles result also from changes in the interrelationship between the volume of livestock, the amount of feed from which it is produced and the price of the feed. When the feed supply is large, prices are low and production increases.

This is especially significant in the production of hogs where corn represents the major item of expense. As the price of hogs rises and falls relative to the price of corn, farmers increase or decrease production.

This relation between the prices of hogs and corn is known as the hog-corn price ratio. This term represents the number of bushels of corn that a hundred-weight of hogs will buy; that is, the price of hogs divided by the price of corn. The influence of the hog-corn price ratio upon hog production and marketings is shown in Figure 5. The dotted lines indicate the influence upon subsequent hog slaughter of hog-corn ratios higher and lower than the average.

It will be observed (Figure 5) that periods of greaterthan-average hog-corn price ratios (the average being 12) are followed by an increase in marketing a year or two later, and that periods of below-average ratios are followed by decreased marketings. The latter, in turn, results in higher hog prices relative to corn prices, which causes an increase in marketings after farmers have had an opportunity to increase production. The increased marketings bring lower hog prices relative to corn prices, and so on, as the sequence of events is repeated. AND

HOG MARKETINGS



- * Average Prices of Packer and Shipper Purchases and No. 3 Yellow Corn
- ▲ 12-Month Moving Average (Centereu) of Federally Inspected Hog Slaughter

U.S.Department of Agriculture Neg. 15242 Bureau of Agricultural Econ.

Figure 5 - Relation between the hog-corn price ratio and subsequent hog marketings, 1901-1949. (Courtesy of U.S. Department of Agriculture, Bureau of Agricultural Economics.) This sequence of self-generating interrelated events is sufficiently regular to be termed a cycle, although frequently it is interrupted or greatly modified by changes in the demand for hogs or changes in the production and price of $corn.^3$

A thorough knowledge and keen analysis of these population and price cycles can be a valuable aid to the wholesaler and retailer of meat. These cycles usually follow a definite pattern so that many times it is possible to judge when there will be a shortage or surplus of any particular species of livestock on the market. Since these shortages or surpluses are accompanied by a corresponding increase or decrease in the price of livestock, meat buyers have a great deal of factual data to aid them in making profitable decisions. Sales programs can likewise be measured with considerable insight on the part of wholesaler and retailer merchandising departments.

Seasonal Variations

Livestock prices tend to vary seasonally, largely because of the seasonal production and seasonal marketing of animals. Seasons of large marketings are usually associated with relatively low prices and seasons of light marketings with relatively high prices. As would be expected, seasonal variations in prices vary with different species of livestock.

3. Ibid. p. 373

For this reason, each will be discussed in turn.

To begin with, it should be understood that the seasonal price movement itself may vary from year to year in response to certain irregular influences, such as the size of the corn crop. Hence, the typical or normal seasonal variation which occurs over a period of years will be explained, followed by a listing of some of the reasons for deviation from this variation.

Cattle

The average seasonal variation in prices of the higher grades of Corn Belt beef steers, as well as the seasonal variation in marketings of Corn Belt beef steers by comparative grades, are shown in Figure 6. It can be clearly seen from these charts how an increase in marketings influences the price of livestock. When the supply increases, the price decreases and vice versa.

Prices of choice and prime cattle are lowest on the average during the spring and early summer and highest in the late summer, fall and early winter. On the other hand, prices of the lower grades of cattle generally are highest in the spring and early summer and lowest in the fall and winter.

There are several reasons for these seasonal changes in the prices of slaughter cattle. During the spring and early summer months, cattle fed during the winter are shipped to market in fairly large numbers. A large proportion of these fed cattle can be graded as choice and prime. With this increased supply of top grade cattle, the price naturally

CORN BELT BEEF STEERS



U.S.Department of Agriculture Neg. 47889-xx Bureau of Agri.Econ.

Figure 6 - Seasonal variation in prices of Corn Belt beef steers at Chicago, by grades, 1922-1945. (Courtesy of U.S. Department of Agriculture, Bureau of Agricultural Economics.)

CORN BELT BEEF STEERS

SEASONAL VARIATION IN NARKETINGS AT CHICAGO, BY GRADES



U.S.Department of Agriculture Neg. 47888-xx Bureau of Agri.Econ.

Figure 6 - Seasonal variation in marketings of Corn Belt beef steers at Chicago, by grades, 1922-1945. (Courtesy of U.S.Department of Agriculture, Bureau of Agricultural Economics.) tends to be lower during these months. It is true that cattle receipts are normally highest during the fall months. However, the proportion of top-grade cattle marketed at this time is smaller than at any other time of the year. Hence, the comparatively small supply during these fall months is accompanied by higher prices for prime and choice cattle.

The lower grade cattle are handled differently. It was mentioned in the preceding paragraph that cattle receipts are highest in the fall months. September and October are usually the months of heaviest cattle marketings. The reason for this is that the farmer must utilize as much grass as possible during the summer months, and consequently leaves his cattle on the range until most of the grass has been consumed. Cattle from these western ranges are then marketed in large numbers during the early fall months. Also, many dairy cows, no longer suitable for breeding purposes, are shipped to market during this period. This action further swells the market receipts. Some of the range cattle are suitable only for feeding, but many of them are ready for slaughter. This tremendous influx of lower grade cattle serves to create relatively lower prices in the late summer and fall months than at any other time of the year.

As stated previously, the month-to-month movement of price in any one year is unlikely to be the same as in the preceding year or as the average for a period of years. The size of the corn crop and pasture conditions are important factors affecting seasonal variation in the beef cattle prices. The influence of corn supplies on seasonal variation in prices of high-grade slaughter steers is shown in Figure 7.



Figure 7 - Seasonal variation in prices of choice steers at Chicago after small and large corn crops. (Adapted from Kan. Agr. Expt. Sta. Bull. 258, p. 12.)

|

In years of large corn crops, competition for cattle arriving at the markets in the fall is keen. Feeders, desiring cattle in order to take advantage of the oncoming crop of corn, are willing to bid high for feeder cattle. This competition not only raises the prices of feeder cattle relative to current and prospective future prices for fat cattle, but also affects the prices for nearly all grades of cattle. Although the corn-fed cattle and the grass cattle shipped in from the West generally constitute two distinct market classes, there is a considerable proportion of so-called "two-way cattle," or those which may be shipped to the country for a short feed and yet carry sufficient finish to be suitable also for immediate slaughter. The good corn prospects encourage competition for this type of grass cattle between both feeders and killers. This reduces the number of cattle available for immediate slaughter and tends to raise prices for slaughter cattle as well as for feeders.

In years of short corn crops, an opposite situation takes place. There is a relatively low demand for cattle from feeders, because of the prospective shortage in feed supplies. Thus, a larger proportion of current fall receipts goes to killers, tending to hold down prices of both feeder and slaughter cattle.

From these two situations, the heavy and short corn supplies, it is easily seen how the trend of livestock prices can be altered. Thus, it is important that every group in the marketing system have an adequate knowledge of the feed situation in order to be better equipped to accurately analyze

<u>Hogs</u>

The so-called typical, or average, seasonal movement of hog prices also corresponds with the alternate periods of light and heavy hog marketings which result from the seasonal nature of hog production. The months of heaviest hog production and slaughter have already been given in Chapter III.

The degree of average seasonal movement of hog prices, however, is much less than that of market receipts. The principal reason for this is that packers place large quantities of lard and pork products in storage during the months of heavy receipts and sell these products during the months of light receipts. This serves as a stabilizing influence on hog prices over the year since the available supply of pork products is adjusted to the relatively stable seasonal demand.

Lambs and sheep

Unlike cattle or hogs, there is a relatively steady seasonal movement of lamb prices. The reason for this is that producers and feeders of lamb have relatively few opportunities to vary their production, feeding and marketing programs in response to changes in seasonal factors, and hence the seasonal distribution of market receipts of lambs is relatively uniform from year to year.

Lambs are marketed at different times during the year depending on the section of the country in which they are produced. These market receipts are highly seasonal, a condition which would indicate an equally wide fluctuation in seasonal prices. However, approximately 20 per cent of the lambs received at public stockyards during the year and up to 40 to 50 per cent received during the fall months (the latter representing nearly 75 per cent of total annual feeder shipments) are reshipped to feed lots.⁴⁴ They are then returned to market during the winter after feeding periods of varying length. These shipments to feeders serve to adjust the slaughter of sheep and lambs at a remarkably uniform rate throughout the year.

The general seasonal movement of lamb prices which results from these conditions is shown in Figure 8. The higher prices for lambs in the spring result not only from the relatively light market receipts, but also from the fact that a large portion of these lambs are of high quality, being either milkfed or well-finished grain-fed lambs. Increased market receipts in the summer, fall, and early winter account for the decline in lamb prices during that period.

The progressive producer is well aware of these seasonal influences on the price of all animals, and plans his production and market operations accordingly. At the same time, these variations in livestock prices are closely associated with fluctuations in retail meat prices, so that the retailer must be equally alert and responsive to both the normal seasonal variations in prices and the deviations which accompany

4. Ibid. p. 400

1 .



them. The better understanding the retailer has concerning them, the better job of buying and merchandising he will be able to perform.

Price Differentials Between Markets

Competition in the meat industry is not restricted to farmors, meat packers, retail meat dealers, or any other individuals who might be interested in buying livestock or meat. There is also a continuous competition for meat that goes on among the markets themselves. Every market is competing with every other market for its meat supplies. The New York market, for example, is in competition with St. Louis, Philadelphia, Trenton, and Detroit as well as thousands of cities and towns located all over the United States.⁵

Because of this competition, the sales organizations of the various meat packing companies are in constant communication with all markets by means of telephone, telegraph or personal contact. In this way they are able to determine just how much each market is paying for meat and arrange the distribution of their supplies accordingly - shipping greater quantities to the high markets and reducing, when necessary, the shipment to the low markets. The object of this procedure is to obtain the best possible price for the supplies of meat they have on hand. It is also through this means that the surplus meat production of the Central West is distributed throughout the entire country.

61!

^{5.} Markets Compete with Markets. Swift and Compeny. Agricultural Research Department, Bull. No. 1, p. 2

As a rule the markets located at the greatest distance from these livestock-producing sections of the Central West pay the highest prices. Markets in the east, for example, must pay a price high enough to make it worth the effort and cost of the meat packer to ship his meat from the cities where his plants are located. Were it not for price differentials of this type, it would not be profitable for anyone to ship meat from the producing to the consuming areas.⁶

When New York City (or any other market) pays more for its meat than Chicago by an amount equal to or above the cost of transportation, then an increased amount of meat will be shipped to this market. This increased supply of meat will bring about a decline in price in that market, and then some other market will become the highest point. The same procedure will be repeated until still another market assumes top prices. In this way prices are in a continually fluctuating status, influenced by demand on one side and leveled off by supply on the other.

This situation also exists for the producer since one of his most difficult tasks is the choosing of the best market outlet. There are often wide fluctuations in the day-to-day price differentials on the same grade of livestock between different private and public markets. If this were not so, the shipper could select his best outlet once and for all. As it stands, the price differential between markets may or may not warrant his shipping to the one offering the highest price. Transportation costs or other factors such as shrink, bruising or crippling may be prohibitive, and thus influence

his decision.

The retail meat man who deals in eventity boying also has to make a decision whether to buy from one packer or another. He must decide whether to buy at the distribution point and pay for the cost of shipping or to buy locally. Many times a particular market may be temporarily oversupplied. Since meat is a periohable product and must be sold within a certain period, very often this condition will force an over-supply into consuming channels at lowered prices. The retail man who is aware of such situations is just one step ahead of his competitor.

Price Spreads Between Live Animal and Finished Product

The question often arises as to why a customer, when purchasing a stock, must pay almost four times as much per pound at retail as the meat packer paid per pound for the live animal.

There are three cutstanding reasons for this condition.⁷ First, only sixty per cent of a choice steer is carcass beef. Second, only a small portion of the carcass is steak. Third, there are many necessary costs between beef on the open range and meat on the kitchen range.

The best way to explain these reasons is by way of example. A meat packer performs the initial transaction, purchasing a 1000 pound choice steer at \$25.45 per handredweight. So his original cost is \$254.50 which includes all of the live animal. This includes the hide, head, bone, horns and hoofs, blood, water, paunch, and similar waste materials.

^{7.} Cattle....Numbers Prices Spread. Swift and Company. Agricultural Research Department, p. 3

When this 1000 pound steer is drossed out, there remains 600 pounds of carcass boof (60 per cent). This means that in order for the packer to get back the total dellars paid for the live steer, the carcass must sell for more than $42\%\phi$ per pound. (cost \$254.50 divided by weight 600 pounds equals cost per pound $42\%\phi$).

The week following the purchase of the steer, the cheice carcass beef is sold for $42\frac{1}{2}\phi$ a pound or \$255.00. This total \$255.00 minus the cost \$254.50 leaves the packer with 50 ϕ to help pay the cost of buying, slaughtering, refrigerating, selling, advertising, delivering, processing by-products, shrinkage and still leave him with a profit. It is pointed cut in the following chapter that the value of the animal byproducts generally assures the packer of this profit.

New the carcass beef is in the hands of the retailer. The cost to him was \$255.00, so he must sell it to the consumer for \$310.00 in order to provide a margin wide enough to cover such costs as rent, labor, depreciation on equipment and fixtures, taxes, lighting, supplies, advertising and other . operating expenses, as well as trimming less and **na**tural shrinkage in the weight of the beef carcass when converted into retail cuts.

But the retailer still has a problem. Meat eaters are unwilling to pay as much for some cuts as for others. Thus, he must sell over half the carcass beef for a price below the average price per pound in order to induce the customer to buy. Conversely, he must sell the choicest cuts of meat which the consumer will pay a premium for, at a higher than average price in order to attain his gross margin. Together, this combination of prices makes up the total value of the carcass. Steak, being one of the choicest and more desirable cuts of meat, ends up costing the consumer 95ϕ per pound, almost four times as much as the original $25\frac{1}{2}\phi$ per pound paid for the live animal.

CLAPTER V

THE MEAT PACKING INDUSTRY

Necessary Limitations

The neat packing industry comprises plants of various sizes and slaughterers of various types. A breakdown of these varieties should give a more accurate picture of the industry. In 1952 there were 458 establishments slaughtering under Federal inspection. The number of plants operating without Federal inspection was divided into two groups. The first group included these plants slaughtering over two million pounds live weight per year and totaled 796. The second group included plants whose annual slaughter was less than two million pounds live weight but more than 300,000 pounds. This group totaled 2209. In addition to these plants, there were approximately 11 thousand butchers slaughtering less than 300,000 pounds live weight per year.¹

However, for the purpose of this report, the reference to a meat packing plant will include only those coming within the limits of the following definition.

"This industry comprises establishments primarily engaged in the slaughtering of cattle, hogs, sheep, lambs, calves and other animals, for meat to be sold fresh or

^{1.} Facts and Figures about the Meat Packing Industry and Its Products. American Meat Institute, Chicago, 1954, p. 23

to be used on the same premises in canning and curing and in making sausage, lard and other products."²

This definition <u>excludes</u> a relatively large number of small plants which slaughter only a few head of livestock each year (chiefly for their own sale direct to consumers), locker plants, and similar firms operating on a strictly local basis, as well as slaughter by farmers. However, it includes about 2,000 companies which process approximately 85 per cent of the nation's total meat supply, and which is that portion of the total that normally moves through wholesale channels to retailers.³

There are certain companies that have long been prominent in the meat packing industry. Organizations such as Swift and Company, Armour and Company, Wilson and Company and Cudahy Packing Company at one time provided more than 42 per cent of the total meat obtained from animals slaughtered in the course of a year.⁴ However, as mentioned previously, the trend toward decentralization has gradually reduced this percentage. Many interior plants have sprung up close to the producing areas and have consequently consumed a fair share of livestock that might otherwise have gone to the major packers. Since these major packers are located mainly on the central markets, they have countered this trend through decentralization of their own operations, chiefly through direct buying and purchases of some of the interior plants.

Aside from the major packers, there are many other

i i A

^{2.} Financial Results of the Meat Packing Industry. American Meat Institute. Department of Marketing, Chicago, 1953, p. 2

^{3.} Loc. cit.

^{4.} Ensminger, M. E. <u>Animal Science</u>. Danville, Illinois: The Interstate Printers and Publishers, 1952, p. 253

packers of importance serving particular areas. Figure 9 lists the national and some of the regional packers as well as their beef brands in decreasing order of their grade.

Services of the Meat Packer

The manner in which the producer ships his livestock to any of the various outlets at his disposal has been described. Livestock at this point have completed the first leg of their journey and it is not long before they continue on. This further distribution of the meat supply of the nation is the responsibility of the packers.

It is the undertaking of the meat packing industry to convert the available supply of slaughter animals marketed by farmers and ranchers into meat and other products desired by consumers, and to distribute these products in such a manner as to satisfy most adequately the demand for them. In rendering this service, modern meat packing plants actually perform four distinct functions:⁵

- 1. The production of fresh meats.
- 2. The production of cured and processed meats.
- 3. The complete utilization of by-products.
- 4. The transportation and efficient distribution of fresh and processed meats from areas of production to centers of consumption.

Each will be discussed in turn.

The Production of Fresh Meats

Packing plants may process cattle, calves, lambs and hegs or any combination of these animals. Some packers have killing

5. Ibid. p. 266

FIGURE 9 7

Many packers stamp their boef with verious trade names or brands as an indication of quality. Often the same brands are used on veal and lamb. This is especially true of the first or top brand. The beef brands of the national and some of the regional packers follow in decreasing order of their grade. ARMOUR AND COMPANY - Star, Banner, Crescent CUDATY BROTHERS CO. - Peacock, Jack Sprat, Ce-Be-Co THE CHDAHY PACKING COMPANY - Puritan, Tex, Fancy, Rival, Thrift CIRCLE PACKING CO. - Champion, Blue Ribbon, Red Ribbon, Special D' Q'OIN PACKING CO. - Gov't. grades except on high Commercials. which are branded Tip Top GEO. A. HORMEL & CO. - Best, Merit, Value, Hormel G. H. HAMMOND CO. - Rosebud, Famous, Hammond HOME PACKING CO. - Dependable, Wabash, Home HUNTER PACKING COMPANY - Ace, King, Queen HYGRADE FOOD PRODUCTS CO. - Peerless, Honey Brand, Favorite ILLINOIS PACKING CO. - Francy, Crown, Merit IOWA PACKING CO. - Old Homestead, Famous, Manor JOHN MORRELL & CO. - Special, Evergood, Pride, Xtrafine, Horrell, Allrite KINGAN & CO. - Reliable, Circle, Peerless, Shamrock OSCAR MAYER & CO. - Yellow Band, Capital, Special THE RATH PACKING COMPANY - Steers and Heifers - Blackhawk Delux, Blackhawk, Cornland, Racon, Sunvale, Budget THE RATH PACKING COMPANY - Cows - Crest, Harvest, Sycamore, Club, Economy ST. LOUIS INDEPENDENT PACKING CO. - Mayrose, Tidy, Independent SCHLUDERBERG-KURDLE CO. - Esskay Quality, Highland, Beauties, Sun-Up STAHL-MEYER, INC. - Ace, King, Crown SWIFT & COMPANY - Premium, Select, Arrow WILSON & CO. INC. - Certified, Special, Ideal, Leader, Wilsco

beds which can handle 200 cattle per hour. The entire operation is performed on the style of an assembly linc; one man performs his specific job and then the chimal passes on to the next man. Most of the jobs in the slaughtering and meat packing industry are of a single repetitive nature. For example, the only task of the cattle splitter is to split the beef carcass down the middle after it has been skinned.

Jobs in the meat packing industry fall into categories related to the various operations. Slaughtering of animals, preparation of the carcass, processing of the various cuts, and the sale and distribution of the final product are the principle categories. Killing floor operations are the first step in meat production. In the case of hegs and lambs, workers fasten the animals by a hind leg to an overhead conveyor. Cattle are stunned in narrow pens and then allowed to slide down a few feet on to the killing floor proper, where the hind legs are shackled with chains and the animals are raised up. The animals are dispatched by the stickers and the blood is then drawn from the carcass.

Skinning of cattle and lambs and de-hairing of hogs are also done on the killing floor. Hog de-hairing includes scalding with hot water, scraping, singeing with a blowtorch, washing with water and spraying with steam.

In the skinning of cattle, the skin is locsened from the front legs which are then cut or broken off. The skin is next loosened from one part and then from another until finally the whole hide is removed in one piece. Each of these simple steps is performed by a different worker. When the carcass

has been properly prepared, it goes to the cutting flocr.

Workers in the department where the actual meat cutting takes place are generally on a higher skill level than those on the killing floor. They must know the anatomy of the animals, the various cuts of meat, and how to make these cuts with the minimum amount of waste or damage to the carcass. A high degree of skill is necessary in the use of butchering and boning tools, such as knives, hand or powerdriven saws, and cleavers.

All internal organs are removed except the kidneys. If the plant is federally inspected, the carcass and viscera are examined at this stage in the slaughtering process. The carcass is then split through the center of the backbone and the tail is removed. The split carcass or sides are washed with warm water under pressure. The better carcasses are shrouded tightly with cloth so that they may have a smoother appearance following chilling.

Following slaughter, the sides or carcasses are sent to the coolers where they are kept at a temperature of about 34° F. for a minimum period of twenty-four hours.

They are then processed into wholesale, primal or retail cuts depending on the animal slaughtered. Hogs are processed into retail cuts by the packers. Cattle, having been divided into two equal sides, are further divided into two forequarters and two hindquarters. Veal calves and lamb carcasses are left whole. Because of the high moisture content of veal, the hide is usually left on for the purpose of reducing evaporation. This also produces a more desirable carcass

74

color.

Kosher Slaughter 6

Meat for the Jewish trade must come from animals slaughtered according to the rules of Shehitah (the ancient dietary rules). Although people usually think in terms of beef when Koshering is mentioned; Lamb, mutten, veal, and even peultry are dressed in this manner.

75

In Kesher shaughter the enimal is heisted without stunning and is cut across the threat with a special type of knife. The killing is performed by a rabbi of the Jewish church or a specially trained representative. This method of killing causes more instant death and a rapid, free flow of blood from the enimal. The rabbi also makes an inspection of the lungs while dressing. If the carcass is acceptable, it is marked on the brisket with a cross inside a circle. The mark also gives the date of slaughter and the name of the inspector.

Kosher meat must be sold by the retailer within seventytwo hours after the time it is killed, or it must be washed and reinstated by a representative of the synagogue every subsequent seventy-two hours. A maximum total holding period of 216 hours is allowed following slaughter. For this reason, rapid handling of Kosher beef following slaughter is imperative. Because most of the four million Jewish people in the United States reside in the eastern states, large numbers of live cattle and lambs are shipped from the large markets farther west to be slaughtered in or near the eastern consuming areas.

The Production of Cured and Processed Meats

The majority of the meat slaughtered, dressed end chilled in the packing plants is ready for shipment to branch houses or retailers. Some meats, however, require processing, or curing, before they are ready. Bacon and hams are examples. Pork sides are cut according to need and local customs, but generally it may be said they follow a division comprising hams, shoulders, bacon, and loins.

Curing is of two kinds. In the sweet pickle cure, the pork cuts are immersed in vats of sweet pickle, which is a liquid mixture of salt and sweetening, and are left to absorb the pickle until the requisite cure is attained. In the dry cure, the cuts are packed in layers in watertight containers with sugar, salt, and other curing agents sprinkled between the layers. In the dry salt cure, the pork cuts are laid one upon the other in tiers, with salt sprinkled on and between them. For hans, there are also artery pumping and heavy spray pumping cures. When the sweet pickled and dry-cured meats are sufficiently impregnated, they are smoked over a wood fire. There is also a distinction in the length of time for curing. Long cures sometimes call for from 30 to 40 days. Today, these long cures are seldom used. The short cure, now popular with pork packers, requires anywhere from 2 to 10 days.

The manufacture of many kinds of sausages is an important segment of the meat packing industry. The last government census listed more than one thousand sausage establichments, producing about 1.7 billion pounds of Federally Inspected sausage in 1954.⁷ Sousages consist essentially of chopped meat, generally beef and perk, which is cured, spiced, and stuffed into beef, sheep and heg casings. Sausages may be marketed either raw or cooked. When marketed fresh they are either dried and smeked, or simply air-dried.

There are two main divisions of sausages. One is the dry, or summer type, such as corvelat, thuringer, salami, mortadella and pepperoni, which will keep for a long time without refrigoration if held in a cool, dry, dark place. The other type of sausage is classed as fresh, and includes belognas, frankfurters, head cheese and fresh pork sausage. The latter type should be held in the refrigerator until required for consumption. Some sausages may be eaten as purchased, without additonal cooking while others are cooked for varying periods before serving. Kest sausage plants are closely safeguarded by Federal, State and City health regulations and inspection.

The canned meat business likewise has shown tremendous growth in the last half dozen years. In 1953, the production was 1,447,000,000 pounds. In the seven-year period between 1947 and 1953, the production of canned meats increased 338,000, 000 pounds.⁸ The growth of canned meat consumption by Americans, excluding the Armed Services, is pointed up in that per capita consumption in 1952 was 9.23 pounds compared to 3.53 pounds in 1939.⁹

77

^{7.} Meat for the Millions. American Neat Institute. Department of Public Relations, Chicago, 1955, p. 5
8. Loc. cit.

^{9.} Facts and Figures about the Meat Packing Industry and Its Products. Op. cit. p. 53

One of the main reasons for the rise in canned meat consumption, according to some authorities, is that these products are easy on the pocketback. Canned meats lend themselves well to advertising and other mass merchandising techniques, since the brand name is presented on the can that reaches the consumer. The nation's huge baby population is also contributing to rising demand for canned meats.

About seventy-five companies can meat - ten cr twelve more than were in the business prior to World War II.¹⁰ All of the major packers produce canned meat. A number of others are not in the fresh meat business, but specialize in canned meats.

The Complete Utilization of By-products

The total of the by-products of the American meat packing industry runs into a large volume and value and forms a considerable portion of total production. Various by-products require different methods of processing, refrigeration, storage, packaging and transportation before being useful to mankind.

Without the aid of science the packer would never have been able to work cut methods of saving the different byproducts of cattle. These products benefit the human race in many ways. Many ailments are relieved by extracts from cattle glands. The discovery of insulin for relief of diabetes and the use of liver products for permicious anemia are well-

10. Loc. cit.

**

known. To make one pound of pure, dry insulin requires materials from the penereas of about 100,000 hogs or 60,000 cattle.¹¹ Nest meat packers sell the glands which they produce to laboratories manufacturing insulin and other finished pharmaceuticals.

Another important point to consider is that the utility value of by-products increases the price which the cattleman receives for his animals and reduces the cost of beef to consumers. In many years the revenue from these by-products is sufficient to pay the expense of slaughtering the cattle, transporting the beef from meat packing plants to retailers, refrigeration, sales expense, taxes, similar operating costs, and still leave a profit.

It should be remembered, however, that their contribution is by no means the most important one. While it is true that the returns from the manufacture of by-products are very large in the aggregate, due to the immense volume, the total return is minor compared to that derived from the sale of the main product of the meat packing industry, namely meat.

The relationship of the value of by-products to the total value of meat and by-products varies with the kind of livestock. Table II shows the approximate average percentage distribution over a period of years of the total meney received by meat packers for meat, by-products, and hides or pelts obtained from lambs, hogs, calves, and cattle.¹²

II. Meat for the Millions. Op. cit. p. 6

12. Lamb By-products. Swift and Company. Agricultural Research Department, Chicago, Bull. 10, p. 1 1-1

TABLE II¹³

	Careass Lent	Hide or Pelt	Other By-products	Total
Cattle Lambs Calves	85.0 75.1 77.9	6.4 15.2 13.6	8.6 9.7 £.5	100 100 100
Hogs	96.3(includes lard)		3.7	100

It should be understood that the percentage return from meat and the different kinds of by-products varies from year to year. In addition, sharp declines in the value of important by-products can be an important factor in bringing about lower prices for steers. In December, 1952, a 1000 pound steer was worth \$16 less to the packer than it was in 1950 because of a 70 per cent decrease in the value of tallow and a 54 per cent decrease in the value of hides. Tallow, of which a 1000 pound steer yields approximately 40 pounds, dropped from nearly $15\frac{1}{2}$ cents per pound to $4\frac{1}{2}$ cents per pound in these two years. Hides, which average about 60 pounds for a 1000 pound steer, dropped from 36 cents per pound to $15\frac{1}{2}$ cents per pound during the same period.¹³ Situations of this nature serve to reduce the return to the producer and raise the price to the consumer.

Transportation and Distribution of Fresh and Processed Meats

The channels of movement of meat and meat products from packing plants to consumers and other users are shown in Figure 10. Only the two principal methods of distribution will be discussed; namely, branch house service and refrig-

^{13.} Facts and Figures about the Meat Packing Industry and Its Products. Op. cit. p. 44

MEAT AND MEAT PRODUCTS CHANNELS OF MOVEMENT OF MEAT AND MEAT PRODUC FROM PACKING PLANTS TO CONSUMERS AND OTHER USERS, BASED ON VALUE OF PRODUCTS, 1939



U. S. DEPARTMENT OF AGRICULTURE

NEG. 45696 BUREAU OF AGRICULTURAL ECONOMICS

erator car route service.

Branch bouses are solling agoncies located in the larger towns and cities. The typical branch house of a meat packer is a combination warchouse, wholesale market and refrigerator. The branch house is usually located on a railroad siding and also has truck-loading platforms. Each house has refrigerating facilities, expert meat cotters and handlers, an accounting and credit organization, a sales force, and delivery equipment to carry the meats to the retailer. These branches receive their supplies daily, or several times weekly. Deliveries are made in refrigerated cars and the cks directly from the packing plants.

Each house has a manager whe works on salary. Some products are purchased on a definite price basis while others, usually carcasses, are hondled on a commission basis. The commissions are applied to pay for operating the house. In this way responsibility is placed on the manager to make the house "pay". Thus, the branch house manager and his staff must censtantly be on the alert to perform their duties efficiently. Retailers may buy from salesmen over the telephone, or on inspection while visiting the branch house. Many retailers like to see the meat they buy and will "shop around", visiting several packer branch houses where they can compare quality and price and bargain for the best terms. This competition challenges the ability of the branch house manager and his staff.

The branch house sells fresh meat, and fresh meat will not keep indefinitely. In a relatively short time the meat
will lose its block and customers will not wont it then at any price. The branch house managers, therefore, must adjust their prices so as to keep their entire stock of fresh meats clearing promptly into consuming channels. If the meat cannot be sold at a profit, then it must be cold for what it will bring; to hold it means deterioration and greater less.

Dealers within the branch house sales territory are called upon by company salesmen. These salesmen travel along regular routes in company-ouned cars and take or phono their orders to the branch house. Some of the dealers, however, prefer to see the meat before they buy and make a regular practice to call at the branch house, where they personally select the products which they require for their trade.

These branch houses provide a direct and conomical method of marketing a meat packer's products. They are distributing units, properly equipped to supply the varied demands of thousands of retail stores. They provide the refrigeration facilities so essential for the proper marketing of meats. Through their delivery systems they make frequent deliveries to individual stores. The wide line of products handled and the large volume of business reduce selling costs to a minimum. Branch houses are a necessary part of any complete nationwide meat soles organization.

However, the branch house can be operated economically only in those cities which are sufficiently large to furnish a large volume of business. The thousands of smaller towns, which extend out in all directions from the most plants and which are not large enough to support branch houses, are reached by refrigerator car rantes. Once or twice a week, or oftener, a colescent goes to those terms in order to call on the retail most declars. Orders are taken and cout back to the mest plant or branch house.

The refrigerator cars follow definite routes on provicusly established schedules, delivering the orders which the company's sclearen have secured. There are usually about 20 towns on each route. The refrigerator cars are leased at the packing plant or large branch warehouse and routed through the towns in succession until they return to the plant for releading on another trip. The orders are packed into the cars in the order of delivery; the orders for the first town being placed nearest the dear, the orders for the second town behind these, and co on. This arrangement not only facilitates the unleading but also means that the dears of the cars are open for a minimum amount of time.

Improved bighways and the increased use of refrigerated trucks have reduced the importance of the route car in the distribution system. Delivery by refrigerated motor truck, however, is limited to a radius of approximately 100 to 150 miles from the plant, so that there are many towns that still require route service.¹⁴

At headquarters the sales organization of a meat-packing company with a national distribution system is usually divided on a product basis. Each product, such as boof, park, lamb, veal, canned meats, hides, or scap, has its own sales department in the office at headquarters. These departments maintain

 $\{24\}$

^{14.} Swift's Service to Producer and Consumer. Swift and Company. Agricultural Research Department, Chicago, Bull. 6, p. 12

direct communication with the bronch bounds, and the main relea office boops in close touch with the begans in the control market in order that the latter may bid for livestack arrivals at a price which reflects the rotail demand.

The efficiency with which these meat packing companies distribute meat and other products is shown by a report of a Committee of the National Distribution Conference, which found that out of seventeen principal whelesale trades investigated, meat processors' branch houses had the lowest cost of operation. In Swift branch houses, meat products are handled at a cost of about 5 per cent of sales compared with a cost of 10 to 20 per cent in most wholesale trades. The cost of providing refrigorator car service is about the same as that of branch houses.¹⁵

Meat Inspection

The Federal government requires supervision of establichments which slaughter, pack, render, and prepare moats and most products for interstate shipment or forcign experts. The respective states have the responsibility of enforcing legislation governing the slaughtering, packaging, and handling of meats shipped intra-state. The most inspection laws do not apply to farm slaughter for home consumption, although most states require inspection if the meat is sold or transported away from the farm.

Ment inspection is conducted under the direction of the

15. Loc. cit.

Secretary of Agriculture in decordence with the regulations of the United States Gevernment East Inspection Division. A majority of the "ederal Gevernment inspectors are graduates of a "our-year course in a voteriment college approved by the Covernment. They must pass a rigid civil service examination. The remainder are mon expert in the science and technique of ment packing. They are assigned to duty, transferred, premated and paid by the Federal Gevernment. When an establishment works eventure, the inspectors' eventure wares are gaid by that company.

The purposes of the Meat Inspection Act of 1906 are:¹⁶ (1) to sefeguerd the public by eliminating diseased or otherwise unwhelesone meat from the food supply; (2) to enforce the sanitary proparation of meat and meat products; (3) to guard against the use of harmful ingredients; and (^h) to prevent the use of false or misleading names or statements on labels. There are two types of inspection performed under this Act, ante-mortem and post-mortem.

Ante-Mortem

The ante-mortem inspection is conducted in the holding pens of the official establishment. The animals are observed as they are driven into the pens and again while at rest. Any animal plainly showing a condition that would cause its condemnation on post-mortem inspection is tagged "U. S. Condemned", and is not permitted to be brought into the plant. Such animals may be held for treatment if their owner so desires; otherwise they are dispatched cutside the plant and

16. Ensminger, M. E. Op. cit. p. 266

£6

their correspond in the inedible tarks. An inspector accompanies the encode to the same to make sure of its disposition.

Animals which are suspected of being affected with any disease or condition that might cause condomnation on postmortem are tagged "U. S. Suspect". They are hold apart from other animals, slaughtered separately and given special postmortem scrutiny.

Post-Mortem

This inspection takes place at the time of slaughter. Immediately after the head is severed, the lymph glands are out into, as the lymph system is among the first tissues to show evidence of disease. It is by this method that the incipient stages of disease are detected. Any animal showing evidence of disease in any degree is marked "U. S. Netained".

When the animals are eviscerated, the viscera are observed, examined and, when necessary, dissected. These parts showing evidence of disease - together with the carcasses are tagged. After the carcasses are split, they pass another inspector who observes them both on the inside and cutside.

All animals tagged, together with the viscora, are held separate and are examined in all parts by a final inspector who determines the disposition of the carcass - whether it shall be passed for food or condemned. These animals which on final inspection are passed for food are allowed to proceed to the cooler. These condemned are placed, under supervision, in the rendering tanks together with sufficient denaturing material to prevent the rendering product from being used for edible purposes. The bottom and top of these tanks are sealed with government seals and the contents destroyed as far as use for human food is concerned.

Plant Inspection

In addition to the anto-mortem and post-mortem inspections referred to, the government meat inspectors have the power to close a plant that is not sanitary in every respect. In order to conform with the requirements laid down by the Government, the floors and tables in a plant must be washed every day, tools must be thoroughly sterilized, and workmen must have clean garments. Ample lavatory facilities, wash basins and dressing rooms must be provided so that the work may be carried on in a most sanitary manner.

The same minute attention is given to the handling and care of meats on their way to market. Before a refrigerator car or truck is loaded, it is thoroughly scalded with steam and het water. About three tens of ice and eight hundred pounds of salt are put into the ice chambers to cool a refrigerator car, the salt causing the ice to melt and absorb the heat. It takes about this quantity to get the refrigerator car chilled before the meat is put in, and the car must be iced again when the meat is loaded. In order to keep the temperature cool and even throughout the overland journey, icing stations are maintained at various points along the railways so that ice and salt may be replenished every twentyfour hours. Motor trucks generally utilize mechanical refrigoration.

Summary

In this chapter it has been pointed cut how the meat packing companies purchase live animals, process them, and provide transportation facilities for their customers. It is cortainly an efficient component of the marketing system and a special guarantee to the consuming public that their meat supply will always be available in the freshest and safest condition possible.

CHAPTER VI

FUNDAMENTALS OF REPAIL MANAGEMENT

Chain store organizations have definite ways in which they operate and definite company policies which must be followed at each operational level. These policies are communicated through the various levels of command to the market managers. Consequently market managers have a definite set of rules to follow and are limited in certain phases of operation.

Most operators seem to feel that standardized cutting methods are of vital importance for successful meat merchandising and operating in a chain company. For this reason, they have established definite cutting methods, and, in many cases, have put them in writing (manuals). This report will not be concerned with any meat-cutting principles or methods, since they are clearly presented in these chain store operating manuals.

In addition, there is a wealth of valuable material contained in these manuals which is at the disposal of all store personnel. Such items as the selection, training and supervision of personnel, customer service, expenses, equipment, pilfering, records, safety rules, and similar data are included, as well as store level receiving, cooler arrangement, displays, selling material and even cooking methods. None of these tepics will be discussed, at least not directly.

The contents of this chapter will be aimed rather in outlining some of the activities engaged in above store level in order to provide store personnel with a background knowledge of the overall chain store meat operation. Such knowledge could be extremely useful, both in enabling an employee to better understand his own position in the operation, and in preparing him for future positions requiring a more extensive coverage of the meat industry.

Sources of Supply

One of the prerequisites of the chain store operator is to have a reliable source of supply. Good relationships with suppliers are of vital importance. Not only do regular sources "pay good dividends in the pinches", but also in day-to-day negotiations during normal times. Mutual confidence relationships between chains and suppliers make it easier to buy, assure more uniform quality, regular delivery schedules and other advantages.

While some companies recommend "getting a good supply source and staying with it", others feel that it is necessary to spread sources because if one source fails temporarily, as in the case of a war, it is practically impossible to get supplies. Policies on selecting the source of supply vary with different companies. F

1

1...

Buying

The buying of meats is an important undertaking in the chain store operation. The perishability of the product necessitates careful analysis and accurate decisions. In order to make these decisions the buyer must have a thorough knowledge of market conditions. Valuable market information may be obtained through various daily, semi-weekly or weekly publications and bulletins published by the United States Department of Agriculture as well as reports issued by private concerns interested in livestock marketing. The analysis of these reports is tied in with a record of past sales and associated with the current retail price structure in formulating plans for purchasing the necessary supply of meat for a certain period. There are, of course, other guides at the disposal of the buyer, such as store orders and competitive conditions, which may influence his decisions. It is the jeb of the buyer to evaluate this information and coordinate his decision with that of the meat sales department in arriving at the best sales program possible.

Sales Planning

The sales department likewise has the task of selecting the most attractive items to feature in its weekly advertising. The sales force must consider market conditions as well as the buyer. Seasonal variations in price can be of extreme importance in reaching a decision. The supply of livestock on the market, reflected in consumer demand at retail level,

92

6.

is a very important factor. Must operators have a somewhat similar procedure. It includes careful watching of the markets, the season, the supply and demand situation, and, particularly, studies of the needs of the consumers in a particular area to enable them to vary their diets and provide for their special regional and seasonal requirements.

Many companies practice advance sales planning to varying extents. One of the objectives of this type of planning is to find and correct mistakes before they are made. Another is to get the best possible realistic estimates of velume - tonnage and dollars for each cut.

The proximity of stores to a meat packing area has an influence on the nature and timing of advance sales planning. Companies located in the heart of these areas do not have to contend with transportation and time of travel difficulties. Consequently, they can plan their sales closer and are more flexible in adjusting to market conditions. Programs are scheduled anywhere from four days to thirteen weeks, although the average is probably somewhere between three and four weeks. The meat buyers representing chains located a considerable distance from the packing plants, generally negotiate with these packers about ten days prior to the date of delivery. Since the price is established on the date of purchase, there is a possibility of intervening fluctuations which may influence the sales plan. Where the chain stores are situated in a meat packing area, or where buying is performed on a local basis, negotiations can be made within several days of the delivery date and consequently the chance of price reduc-

tions or advances is reduced.

Most companies plan and operate on a classification basis, that is, they arrive at a sales quota for each item. They decide what gress profit each item will bring in a particular week and develop a sales program to achieve balanced selling that will provide the overall gress profit desired. On judging the final results, and the tolerances allowed, most companies seem to feel that "circumstances alter cases." If results are unsatisfactory in a particular store, it may be due to the area in which it operates, or heaviest sales may be on items with the lewest gress, or there may be other reasons. Whatever the case, steps are taken to correct the situation as quickly as possible. District managers and meat specialists are responsible for these trcuble areas, and in some cases, special consideration must be given to individual stores in order to solve the problem.

Distribution

There is considerable difference of opinion concerning the manner in which meat should be distributed from meat packer to retailer. One of the main distinctions centers about the use of company-owned meat warehouses. Some large chains operate their own warehouses and are constructing new ones as they are needed, while other chains prefer the use of packer branch houses or local distributors. One of the largest chains in the country has only three meat warehouses at the present time, and barring a change in plans, will cease warehouse operations completely. The major factor in

74

É

either case, of course, is cost. Where the cost of distribution is shown to be less in one instance, that particular method will be used.

The chain operating its own warehouse will generally buy in carload lots in order to take advantage of lower transportation costs and possible lower market prices. These carloads, shipped from packer to warehouse rail siding, usually constitute the bulk of the chain's meat requirements. Company-owned or leased refrigerated trucks then deliver the meat to the retail stores. Supplementary ordering may be done through local slaughterers, local distributors, or local branch houses. On some occasions, veal or lamb may be purchased locally due to consumer preference for a particular type of meat or to market surpluses and resultant lower prices.

Without a meat warehouse, a chain has to depend on the local slaughterers, local distributors, packer branch houses or local packing plants. Chains using this method are generally located in the midwest where the sources of supply are plentiful. Handling costs on the part of company employees are eliminated except at retail level since one of the distributors mentioned will deliver the meat orders directly to the store. However, transportation costs are liable to be higher without carload rates and the market price is likely to be higher since the cost of transporting the meat to the branch houses and local distribution points will have to be included in the price.

The final decision depends on these factors: the cost of distribution, the difference in market prices, the radius of

95

of deliveries to the stores, and the service that is given by the parties concerned. In addition, it is necessary for a chain to have sufficient volume to handle carload lots in order to make warehousing pay. Finally, warehouse control is generally considered to be an important factor in controlling retail shrink. One operator summed it up: "control is best through the warehouse, but warehousing and delivery are not always practical".¹

Store Oraering

Ordering is based on the previous weeks' records kept by the meat department manager in his store, modified by evaluation of prices, seasonal demand, holidays and inventory. Many different practices are followed in establishing schedules and procedures for ordering. Generally, orders are taken from stores one week to ten days or more in advance, with adjustments and fill-in orders made nearer the time of actual delivery. Orders from stores may be evaluated at district or division level by meat specialists or even by order clerks, who call attention to "cut of line" orders. General practice, however, is to permit changes only when the situation has been reported to a supervisor, who then discusses the matter with the store manager or meat manager. Several companies use a telephone ordering system so as to bring orders and delivery one day closer together.

96

F

Meat Merchandising and Operating. National Association of Food Chains. Washington, D. C. Summary Report, 1952, p. 12

Inventory Control

It is generally conceded that while inventory control is necessary, it should not be emphasized to such a point where it interferes with sales. As one meat executive expressed it, "it is better to have a large inventory on Saturday night than to be out of business on Monday morning".² It should be pointed out that a flat standard of Saturday night inventory to weekly sales can be very misleading. It is important to have a balanced inventory and this is the joint responsibility of meat managers and supervisors.

Companies differ in setting up standards for inventory. Several companies represented at the National Association of Food Chains Meat Clinic reported as follows:

"20 per cent of sales tonnage is a good figure but it tends to get up to 25 per cent; 20 per cent of all fresh meat is one company's standard, but it generally reaches 23 per cent with a 25 per cent figure on provisions, based on net cost of merchandise with five deliveries a week; another company reported an average 26 per cent carryover with variation depending on when the store gets its first delivery the next week - lower if Monday, higher if Tuesday. Still another company reported a 30 per cent carry-over brought about because of long distances to stores, and need for having inventory to avoid loss of early week sales; one company regarded inventory as being excellent if less than 25 per cent of weekly sales, good if 30 per cent, fair if 35 per cent, poor if 40 per cent; formula for one company was 2,000 lbs. of inventory for up to \$10,000 weekly meat sales."³

Regardless of what percentage is used as a guide, the goal should be to carry as little meat as possible over the weekend without running short. Accurate inventory control

^{2.} Loc. cit.

^{3.} Loc. cit.

will help reduce natural shrinkage, the number of markdowns, and also help store managers in both ordering and merchandising.

In connection with inventory control, it should be pointed out that most companies are as concerned about stock overages as they are about stock shortages. They feel that "stock overages" in the long run mean loss of business and loss of customers. "Stock shortages" are the result of numerous deficiencies such as poor ordering, improper cutting methods, inefficient receiving methods, and usually are corrected by a conference between a line supervisor and meat manager, with the aid of the meat specialist, if there happens to be one.

Information Available to Meat Manager

More and more companies are adopting the policy of giving the store managers a greater amount of information concerning sales and other important items. The belief is that managers should be informed of coming events. Many chains feel that giving managers the whole story brings them in on management, inspires them with confidence and puts more responsibility upon them. Information may be communicated to the meat manager through the use of bulletins or imparted verbally by way of supervision.

Companies in general do not seem too concerned about leaks of advance planning to competitors. They are interested primarily in achieving an efficient operation, and if they consider it sufficiently important to keep managers well informed, that is the policy they will follow.

98

f

Integration of Meat Packer - Retailor

99

1

Two of the largest retail chain companies in the United States own and operate their own meat packing plants. Although this is no innovation in the food industry, it is nevertheless a distinct form of integration at the present time. During the war years when meat supplies were scarce, many of the large chains employed their own packing plants. However, following World War II, the supply of meat increased and the majority of companies departed from the meat packing business to concentrate on retailing. American Stores Company and the National Tea Company retained their plants and have maintained a successful operation through the years.

American Stores Company has two meat packing plants located in Lincoln, Nebraska and Pueblo, Colorado. Slaughtering is confined to cattle and lambs and the plants are operated the same basically as the major packers. The selection of livestock at the central markets, concentration yards, and similar outlets is performed by buyers employed by the company. Range fed cattle and lambs are shipped to company-owned feed yards and fed out to meet the specifications of the company. All carcasses dressed out in the packing plants are government graded.

Distribution methods resemble those of the major packers. Carcasses are shipped by rail to any of nine company-owned warehouses located in Philadelphia, Pa., Allentown, Pa., Philadelphia, Pa. (#2), Forty-Fort, Pa., Baltimore, Md., Kearny, N. J., Johnstown, Pa., Syracuse, N. Y., and Buffalo, N. Y. From these points the carcasses are moved by refrig-

^{4.} Information received in response to questionnaire.



erated truck to all stores in the company (approximately 845). This initial shipment, however, only represents about 55 per cent of total store shipments. The remaining 45 per cent is purchased from packer branch houses or other local distributors. Until now, there is no prepackaging done at the meat plant level: all packaging is performed in the stores.

The National Tea Company operates in essentially the same manner with a few exceptions. They own two meat packing plants, one located in Denver, Colorado and the second in Fergus Falls, Minnesota. The company has its own livestock buying department and buys both slaughter and feeder cattle and hogs. These cattle and hogs are fed to the specifications of the company with all carcass beef graded by United States Government employees.

Unlike American Stores Company, hogs are slaughtered along with cattle (no lamb slaughtering) and the distribution system is set up differently. All meat leaving the packing plants is transported by refrigerated truck. There are no rail shipments. Although they do operate their own warehouses, ^a great deal of the meat never leaves the refrigerated trailers and is delivered direct to the retail stores. The reason for this is that all branches of the company, excluding Chicago, only receive approximately 20 per cent of their beef supply from the Denver Packing plant, and approximately 10 per cent of their pork and smoked meats from Fergus Falls. In the Chicago branch (285 stores), however, approximately 75 per cent of the beef is supplied from their Denver Packing Plant, ^{and} 25 per cent of their pork and smoked meats from their



Fergus Falls Packing Plant. The remainder of their cattle and hogs and all lamb and veal are purchased from cutside packing plants.

Both American Stores Company and the National Tea Company operate their packing plants in an efficient manner. Like any integrated operation, however, there are certain problems that exist. The operation of a meat packing plant requires a different type of personnel than the typical retail food chain. Management as well as manual workers must be well informed in their positions. The processing itself requires a certain amount of specialization and mechanization and only experienced men can be entrusted with the job of planning, analyzing and coordinating the complete operation. It is for these reasons that many companies have preferred to remain strictly in the business of retailing.

A Comparison of Meat Cutting Tests

Meat cutting tests are performed by companies and utilized by them as a guide in arriving at retail prices. It is not necessary to perform such tests frequently since they are usually established as standard cutting procedures. Unless there is a radical change in the cutting techniques of a company or there is a departure from the customary type of carcasses handled (differing in weight, conformation and finish), there would be no need for conducting such tests very often.

A cutting test establishes two basic things: the weight of the individual primal cuts received from a carcass and the

percentage of the carcass which these primal cuts represent. Using Figure 11 as an example, it will be noted that "short ribs" weigh three pounds, six ounces and represent 1.4 per cent of the carcass, the "plate and navel" weigh fifteen pounds, three ounces, representing 6.2 per cent of the carcass, and so on down the line. The total weight (244 pounds, 4 ounces) of the side naturally equals 100 per cent.

When the per cent of carcass of any one of the primal cuts is multiplied by their respective retail price per pound, the resultant figure represents the return in dollars that each primal cut should bring. The total dollar return of the whole side is computed by adding up the individual dollar returns from the primal cuts. Since the cost of the side is known, it is a simple matter to subtract the cost from the total retail value of the side in order to arrive at a final gross profit dollar figure. More will be said about this procedure in the following section of this chapter.

The purpose here is to point out the difference in cutting methods, percentages of carcass and gross profit percentages obtained in different sections of the country. Figure 11 and 12 illustrate New York and Chicago style cutting tests in that respective order. Many comparisons can be made from these charts, especially from the hindquarter.

The greatest distinction lies in the utilization of the round. New York merchandises boneless top, bottom and eye round separately, whereas the Midwest prefers a round steak (bone-in) composed of all three of these cuts. Rump roasts are a popular seller in the Midwest while attracting little f

NEW YORK STYLE STANDARD CUTTING TEST 5

SIDE OF BEEF

ITEM - FOREQUARTER	WEIG LB S .	HT 0Z.)∻ OF CARCASS	RETAIL PER LB.	EXT.
SHORT HIBS PLATE & NAVEL (BONE IN) SKIRT STEAK BRISKET, BONELESS CROSS RIB, BONELESS SHIN, BONELESS CHUCK ROAST (BONE IN) RIB ROAST NEWPORT ROAST STEW BEEF SALISBURY STEAK CHOPPED BEEF SHOP FAT BONES	$3 \\ 15 \\ 1 \\ 6 \\ 9 \\ 4 \\ 26 \\ 11 \\ 4 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 $	63299623672856	1.4 6.2 2.7 3.9 1.8 10.9 4.6 1.7 5.1 3.4 5.0	.35 .25 .62 .45 .65 .65 .65 .65 .65 .65 .65 .65 .65 .02	\$ 49 155 269 269 512 290 151 332 111 230 27 10
TOTAL FOREQUARTER	132	4	54.0		\$2417
ITEM - HINDQUARTER					
TOP ROUND (BONELESS) EYE ROUND (BONELESS) BOTTOM KOUND (BONELESS) SIRLOIN STEAK PORTERHOUSE STEAK TOP SIRLOIN FLAMK STEAK SHIN, BONELESS CHOPPED MEAT SALISBURY STEAK KIDNEY COD FAT SHOP FAT SUET BONES	10 4 9 21 14 9 1 3 1 10 38 4 10	10 22 12 51 16 1 24 14 1 86	4.4 1.7 3.9 5.9 4.6 1.34 4.1 1.3 3.8 2 4.2	79 79 79 755 755 755 755 755 755 755 755	\$ 348 134 292 667 443 316 39 18 267 13 267 13 268 08
TOTAL HINDQUARTER	112		46.0		\$2658
TOTAL SIDE	24 4	4	100.0		\$ 507 5
COST					4150
GROSS PROFIT					¥ 925
GROSS PROFIT PER CENT					18.2%

103

ſ

.

5. Meat Cutting Test received from a large Eastern food chain.

FIGURE 11

NEW YORK STYLE STANDARD CUTTING TEST 5

SIDE OF BEEF

ITEM - FOREQUARTER	WEIG 18 5.	811 0 2 .) OF CARCASS	RETAIL PER LB.	EXT.
SHORT HIBS PLATE & NAVEL (BONE IN) SKIRT STEAK BRISKET, BONELESS CROSS RIB, BONELESS SFIN, BOMELESS CHUCK ROAST (BONE IN) RIB ROAST NEWPORT ROAST STEW BEEF SALISBURY STEAK CHOPPED BEEF SHOP FAT BONES	3515 16942614121212	6 32 900 6 2 36 7 2 8 5 6	1.4 6.2 2.7 3.9 1.8 10.9 4.6 1.7 5.1 5.1 5.1 5.1 5.1 5.1	.35 .25 .62 .45 .65 .65 .65 .65 .65 .65 .65 .02 .02	49 155 33 167 269 81 512 290 151 332 151 230 230 27 10
TOTAL FOREQUARTER	132	ц.	54.0		\$2417
ITEM - HINDQUARTER					
TOP ROUND (BONELESS) EYE ROUND (BONELESS) BOTTOM KOUND (BONELESS) SIRLOIN STEAK PORTERHOUSE STEAK TOP SIRLOIN FLAMK STEAK SHIN, BONELESS CHOPPED MEAT SALISBURY STEAK KIDNEY COD FAT SHOP FAT SUET BONES	10 4 9 21 14 9 1 3 1 10 38 4 10	10 22 12 51 11 6 1 2 14 1 8 6	4.4 1.7 3.9 5.9 5.9 4.6 1.3 4.1 4.3 3.8 2 4.2	79 79 79 75 75 75 75 45 55 45 5 38 65 38 65 08 00 02	\$ \$
TOTAL HINDQUARTER	112		46.0		\$2658
TOTAL SIDE	244	4	100.0		\$5075
COST					4150
GROSS PROFIT					¥ 925
GROSS PROFIT PER CENT					18.2%

5. Meat Cutting Test received from a large Eastern food chain.

1

CHICAGO STYLE CUTTING TEST⁶

SIDE OF BEEF

ITEM - FOREQUARTER	WEIG LBS.	HT 0Z.	% OF CARCASS	RETAIL PER LB.	FXT.
7" RIB STEAK CHUCK BLADE CHUCK ARM ENGLISH CUT BONELESS NECK BRISKET SHORT RIBS PLATE TRIMMINGS	9 31 10 8 11 9 6 12 27	13 8 7 13 11 8	4.1 12.7 4.3 3.4 4.5 3.9 2.7 5.1 11.1	•79 •49 •53 •53 •59 •29 •33 •19 •33	\$ 326 621 226 179 266 113 90 365
TOTAL FOREQUARTER	126	12	51.8		\$2283
ITEM - HINDQUARTER					
PORTERHOUSE STEAK SIRLOIN STEAK ROUND STEAK (BONE IN) SIRLOIN TIP FLANK STEAK RUMP ROAST HEEL OF ROUND KIDNEYS	13 13 17 7 1 95	3 12 12 3 7 15 15	5.4 5.6 7.3 3.2 3.8 2.4	.98 .89 .89 .99 .95 .69 .69 .19	\$ 531 498 652 320 47 259 168 07
TOTAL HINDQUARTER	69	12	28.6		\$2482
FATS BONES SHRINK	28 17 2	8 4	11.7 7.1 .8	.005 .005	06 04
TOTAL SIDE	244	4	100.0		\$47 7 5
COST					3950
GROSS PROFIT					\$ 825
GROSS PROFIT PER CENT					17.3%

6. Meat Cutting Test received from a large Western food chain

. . attention in the New York area because of the abundance of top, bottom, eye and crossrib roasts. The reason for these differences, of course, is that demand for various cuts differs in certain sections of the country.

The differences in per cent of carcass are attributable to this variation in cutting methods. For example, the rump roast prepared in the Midwest is composed of portions that make up the round, sirloin and sirloin tip in New York. Therefore, the per cent of carcass of these three cuts will be less in the Midwest than in New York.

Before going any farther, it should be pointed out that the difference in gross profit shown on these charts is not the direct result of any cutting methods. Market conditions and pressure of competition as well as the financial and marginal backlog accumulated by a company over a previous period may have an effect on the gross profit figure. In addition, the figure is a flexible one and will fluctuate from week to week in relation to the meat tonnage and retail prices maintained. Competition from other companies and other products will also have its effect. It is the combination of all these factors which enables the meat merchandiser to arrive at a given overall gross profit figure.

It should be pointed out further that it is not practical to compare prices since the two tests were taken in separate years and the cost of the beef was not the same. It is, however, possible to transpose these figures into gross profit percentages for each individual primal cut. This is done by computing the cost of an item and subtracting the cost from

its extended dollar return at retail so as to arrive at a gross profit in dollars for the item. The gross profit in dollars divided by the dollar return at retail will decide the gross profit percentage. As an example, in Figure 11, the top sirloin constitutes four per cent of the carcass. Since the total cost of the carcass is \$41.50, the cost of top sirloin would be \$1.66 (\$41.50 × .04). The known return at retail minus the cost leaves the gross profit in dollars (\$3.16 - \$1.66 = \$1.50). This gross profit in dollars (\$1.50) divided by the dollar return at retail (\$3.16) will give the gross profit percentage of the single item, top sirloin $\frac{1.50}{(3.16)} = 47$ per cent). Figure 13 lists the gross profit percentages made on all primal cuts listed under New York and Chicago style cutting methods. By computing these percentages, it is now possible to show the contrast between the two methods.

From the chart in Figure 13, it can be clearly seen how consumer demand affects the price that can be placed on retail cuts of meat. In the New York area, the forequarter provides a 22 per cent gross profit. Only the plate and short ribs are sold at a loss while the remaining items, excluding chopped beef and boneless shin, are sold at a respectable margin. The Midwest market sells the plate, short ribs, brisket and trimmings at a loss. The only items that sell at a high margin are the chuck and the rib and the overall gross profit for the forequarter is only 10 per cent.

The reverse is true of the hindquarter. Gross profits ranging from 42 to 61 per cent permit the Midwest to obtain 55 per cent overall. The New York market can only obtain 44

FIGURE 13

GROSS PROFIT PER CENT MADE ON VARIOUS CUTS OF MEAT (FAT AND BONE ARE NOT CONSIDERED HERE)*

FOREQUARTER

NEW YORK STYLE	GRO SS PROFIT %	CHICAGO STYLE	GROSS PROFIT 🕼
SHORT RIBS PLATE & NAVEL SKIRT STEAK	- 18% -66% 26	SHORT RIBS PLATE	- 19% -107%
BRISKET CROSSRIB, BONELESS SHIN BONELESS	33 40 7	BRISKET Chuck Arm	- 36% 25
CHUCK ROAST (BLADE) RIB ROAST NEWPORT ROAST	12 34 52	CHUCK BLADE 7" RIB STEAK	19 50
STEW BEEF SALISBURY STEAK	36 36	BONELESS NECK	33
CHOPPED BEEF	3	TRIMMINGS	- 20%
TOTAL FOREQUARTER	22%		10%

HINDCUARTER

47	ROUND STEAK (BONE IN) 56
47	HEEL OF ROUND	43
47	RUMP ROAST	42
45	SIRLOIN STEAK	56
44	PORTERHOUSE STEAK	60
47	SIRLOIN TIP	61
36	FLANK STEAK	57
-8		
6		
36		_
- 31%	KIDNEY	- 129%
44%		55%
	47 47 47 45 44 36 36 - 31% 44%	47 ROUND STEAK (BONE IN 47 HEEL OF ROUND 47 RUMP ROAST 45 SIRLOIN STEAK 44 PORTERHOUSE STEAK 47 SIRLOIN TIP 36 FLANK STEAK 8 6 36 - 31% KIDNEY 44%

* If fat and bone were included, total gross profit percentages would be lower. The purpose of the chart is to show gross profit percentages for individual items.

These figures have been computed by the writer from the cutting tests shown in Figures 11 and 12.

per cent gross profit.

These figures disclose certain facts. The consumer in the Midwest is evidently ready and willing to purchase the choicest cuts of meat but will only accept the less desirable items at a very low price. For this reason, the meat department must obtain a high gross profit percentage on the choicest cuts in order to arrive at the desired overall percentage.

Percentages are spread more evenly in the New York area since many of the less desirable cuts will be accepted by the consumer more readily. Brisket, for example, can be sold at a gross profit of 33 per cent whereas the Midwest retailer must sell it at a loss. The question of whether a domand can be created for these less desirable items is a debatable one. Changes in the location of population may create this demand as people retain there likes and dislikes when they move from one place to another. Consumer education is another possibility.

In comparing the two styles of cutting, it is evident that the New York method offers more in the way of variety and value. Variety can be a big selling point. The New York method has all the items offered from the Chicago style and then some. Additional items include chuck steaks, boneless brisket, flanken, boneless crossrib roasts, Newport roasts and Yankee Pot Roast from the forequarter and boneless top, bottom and eye round roasts, boneless top round steaks, short steaks, and top sirlein roasts from the kinaquarter. The reference here is to meat items that are <u>displayed</u> in retail meat departments. With this variety, a housewife has a chance to vary her servings in beef

shaped different and it can be cocked differently.

The consumer receives a better value since the choicer cuts of meat do not have to provide as high a margin as in the Midwest. A person desiring and purchasing choice cuts of meat will consequently pay less over the course of time and still be eating the meat that he desires most.

From the viewpoint of the retailer, however, it would be easier to work under the Chicago style of cutting. The consumer is willing to pay high prices for the choicest cuts of meat. The meat man does not have to put as much work into merchandising the forequarter (although his margin could be increased if he did). Labor costs could possibly be lower since the New York style demands more time and effort in preparing this greater variety.

The intention in this camparison has not been to show a preference for one method or the other, but merely to point out some of the differences and the advantages and disadvantages contained in them.

Establishing the Retail Price

The methods of establishing the retail price vary with the company although all employ the same general procedure. The method to be described is merely a guide and is not compulsory in the particular company in which it is used. Most companies use some form of guide, but few follow it exactly. The reason for this is that the pricing system must remain flexible in order to cope with changing market conditions,

competition, and variations in demand brought about by nationality or locality factors.

Figure 14 shows a beef pricing guide used by a large Midwest chain. Similar pricing guides are also available for lamb, veal and pork. Column I lists the Wholeselc Cattle Costs per hundredweight, Column II the Net Weight Cost per pound while both are listed in a corresponding ratio. For example, when cattle costs (46.50 to \$47.00 per hundredweight, the net weight cost per pound would be \$.60 (costs of transportation, handling, etc. are included in this figure).

Column III lists the percentage weight of the primal cuts to the side. These are the figures computed from company cutting tests (see page 101). Column IV denotes the various cuts. Column V lists the cents per pound mark-up to be added to or subtracted from the net weight cost in order to arrive at the selling price. For example, using the same net weight cost \$.60, the selling price of the sirloin would be \$.98 $(\pounds.60 + \pounds.38)$. Now the job is simply to extend the figures in the same manner as shown in the cutting tests. For instance, the percentage weight to the side of sirloin (5.1 per cent), multiplied by the selling price (\$.98), would give the dollar return at retail. This procedure would be followed down the line until the total dollar return at retail is calculated (\$54.83). Once again, the mark-up is arrived at by subtracting the known cost (\$47.17) from the retail total (\$54.83). In this case, the mark-up would be \$7.66.

As mentioned previously, these guides are available for all kinds of meat so that advanced reports can be made estimating

FIGURE 14

BEEF PRICING GUIDE7

COL I	COL II	COL III	COL IV COL V
Whclesale Cattle Costs Per Cwt.	Net Weight Cost Per Lb	% Weight . to Side	¢ Per Lb. Mark-up to be added to net weight to arrive at C U T selling price.
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	32 334567890 3234567890 3234567890 3234567890 60123 555555555555555555555555555555555555	5.1% 5.3 5.3 4.0 1.9 6.6 3.6 1.3 4.6 1.6 9.7 3.0 3.8 6.2 2.5 2.1 2.0 4.5 3.3 4.3 1.6 $77.8%$ 11.2 9.2 1.8 22.2 1.8 22.2 1.8 22.2	Sirloin .38 Porterhouse-3" .60 Flank Steak .38 Beef Kidney41 Rump Rolled .33 Back End Round .05 Round Steak .38 Round Tip .38 Shank Meat .17 Trimmings .15 Round Swiss .35 Sq. Cut Chuck .01 Arm Roast .10 Neck Boneless .05 7" Rib Roast 5 Ribs .23 Brisket Boneless .05 Shank Meat .15 Short Ribs .25 Navel (Bone In) .31 English Cut .10 Trimmings .15 Rib Roast 6/7 Rib .01 Fat Bones Waste & Shrink .47.17
48.75 49.25 49.50 50.00 50.25 50.75 51.00 51.50 51.75 52.50 52.75 53.25 53.50 54.00 54.25 54.75 55.00 55.50 55.75 56.25 56.50 57.00 57.25 57.75 58.00 58.50	63 64 65 66 68 69 70 71 72 73 74 75	100.0% This calcu	47.17 ulation based on: \$47.17 Cost \$54.83 Retail \$ 7.66 Mark-up

7. Beef Pricing Guide received from a large Midwestern food chain.

the production of the complete meat department operation (See Figure 15). Estimates are made for total pounds to be sold during the week, expected mark-up cents per pound and expected total dollar gross profit.

After the week has ended, these estimated figures can be compared with the actual figures (See Figure 16). In this way a company can estimate how many gross profit dollars it expects to make and by comparing the estimates with actual figures, can determine whether the operation is going according to plan and, if not, what circumstances have altered it and what action, if any, must be taken to remedy any discrepancies.

Such procedures are necessary in order to maintain efficiency. Meat specialists or supervisors must follow-up when a store goes out of line.

It is with this view in mind - to help the merchandiser in the performance of his buying and sales programs - that pricing guides and various other reports are instituted and maintained.

Consumer Education

At the present time there is a great need for consumer education. The average housewife knows little about meat, outside of cooking methods perhaps. The increasing number of self-service cases will only serve to enhance this need. Consumers are simply not aware of the many cuts of meat available to them. They are not cognizant of the differences in grade and quality which exist in meat. They buy the same items week in and week out with little variance in their diet. This

FIGURE 15

ADVANCE MEAT CLASSIFIED REPORT⁸

Branch_____

Week Beginning_____

Commodity	Estimated Total Pounds to be Sold (1)	Expected Mark- up Cents Per Pound (2)	Expected total dollar Gress Profit (3)
la Carcass Beef			
1b Beef For Grinding			
2 Veal			
3 Lamb			
4 Pork Loins			
5 Fresh Pork Shoulder			
6 Smoked Hams			
7 Bacon			
8 Smoked Picnics			
9 Sausage			
10 Miscellaneous Meats			
11 Poultry			
12 Seafoods			
TOTAL FRESH MEATS			

E. Report received from a large Midwestern food chain.

113
FIGURE 16

PERIOD MEAT MERCHANDISING RESULTS⁹

Branch_____

Period_____19____

ESTIMATED		ACTUAL					
Retail Val Mark Mark-up of Del's 🖇 💱 on Del's	Commodity	Lbs % of Cost Estimated Del'd Total Per Mark-Up Mt lbs.lb. ¢ Per Lb.					
	<pre>la. Carcass Beef lb. Beef For Grinding 2. Veal 3. Lamb</pre>						
	TOTAL RAIL STOCK						
	 4. Pork Loins 5. Fresh Pork Shoulders 6. Smoked Ham 7. Bacon 8. Smoked Picnics 9. Sausage 10. Miscellan Meats TOTAL PORK PRODUCTS 						
	<pre>11. Poultry 12. Sea Foods</pre>						
	TOTAL MEAT (1 thru 12)						

9. Report received from a large Midwestern food chain.

makes it more difficult for the retailer who must sell all of his meat, not just certain popular items. Consumer education could go a long way towards increasing the sale of his less desirable cuts.

The next decade is certain to create an even greater need for consumer education. The following chapter outlines two of the methods being perfected in preserving meats. The adoption of either one of these methods will leave the consumer even more in the dark than she is now. Freezing and cold sterilization of meats are technical subjects and much will have to be done in explaining these processes if the consumer is going to accept them. Time is now an important factor. One of the major packers in the United States expects to have a full line of frozen meats for sale in retail outlets by 1958.¹⁰

The problem of educating the consumer does not rest with the packer alone. Every component of the meat industry must do its part if the consumer is to continue to accept meat as the basis for her meal. She must be assured of quality and instructed in the proper methods of handling the product. Above all, she must be instilled with confidence in her purchases. Consumer education, in this respect, is a necessity.

The majority of chain store organizations have done little in furthering consumer education. What work has been accomplished has been performed mainly through the medium of

^{10.} The Detroit Branch of Kroger Company is already morchandising a full line of frozen moats packaged by Swift and Company.

advertising. Institutional advertisements concerning the cuality of meat have goined some prominence in the daily and weekly newspapers. Much more will have to be done if the meat department is to retain its share of total sales. There is a story to be told about meat, an interesting one, and people want to hear that story. It remains for some progressive, imaginative company to tell the story.

The National Livestock and Meat Board has probably done more along this line than anyone else. This organization is unique in that every major group within the meat industry is represented. Their twenty-two man board is comprised of thirteen representatives of livestock growers and feeders, four representatives of livestock marketing agencies, three representatives of the meat packing industry, and two representatives of the nation's meat retailers. In addition to conducting an ambitious and effective education program in behalf of meat, the National Livestock and Meat Board finances much worthwhile fundamental research in the field of meats at selected colleges and universities throughout the United States.¹¹

The latest venture of the National Livestock and Meat Board is an extensive television program which will be presented in forty-two states over a period of months. The program runs for four days and is titled "Meat-The New Look". Some of the information that is presented includes the story of meat as it was yesterday and how it is today, the "new look and design of meat," how to prepare meats, how to handle frozen meats, how to carve meats, and the "modern manner in meat today". Figure 17 outlines the schedule for one day of the week. The

11. Ensminger, M. E. <u>Animal Science</u>. Danville, Illinois: The Interstate Printers and Publishers, 1952, p. 286

"IEAT - The New Look" - Tuesday 12

MEAT - Yesterday and Yoday

Yesterday's Beef on the Ranch (Photos) Today's Beef on the Ranch Yesterday's Steak <u>HEAT</u> Today's Steak Steak of the ruture

MEAT CUTS TO BE USED:

BEEF

Line and Design of "The New Look"

Steaks and Chops Sirloin Loin Rib

Tailoring "The New Look"

Beef Short Loin Porterhouse T-Bone Club

Preparing "The New Look"

Broiling Pan-broiling

"The New Look" in Freezing Meat -Demonstrate drug store wrap

Moisture-proof, air-tight wrap Label and date

<u>Carving - The Coronation of "The</u> <u>New Look"</u>

Porterhouse Steak Ham Slice

The Modern Manner in MEAT Today

Have the steak cut at least 1" thick for breiling. Turn steaks only <u>once</u> during cooking. One of every six men like steaks cooked rare. Take off veight with safety and comfort with lean meat in the diet. Infants need meat as early as six weeks of age. Rib Steak Porterhouse Steak T-Bone Steak Club Steak Sirloin Steak Ground Beef

VEAL

Rib Chop Loin Chop Sirloin Steak

PORK

Rib Chop Loin Chop Sirloin Chop Center Ham Slice

LAMB

Rib Chop Loin Chop Sirloin Chop

12. Received from Mr. A. R. Ring, National Livestock and Moat Board.

same subjects are discussed on the other days but in a different light.

The program will not stop here. Plans are being made to present a nationwide weekly program telling of the usefulness and necessity of meat in a series of actual life stories. It is hoped that the interest generated in this venture will provide the incentive needed for other organizations and companies to enter the field with the same necessary vigor and enthusiasm.

CHAPTER VII

A LOOK TO THE FUTURE

Preservation of Meats

The food industry today is keeping a sharp eye on the progress of scientists and research specialists in the field of meat preservation. At this time the two major methods in the process of experimentation are through freezing and through the use of cold sterilization. If and when either of these methods is perfected, the food industry will have taken a giant stride in eliminating both expense and loss through spoilage.

The merchandise handled in food stores today consists of a high percentage of perishable items with a life expectancy of only a few days at most. The job of transporting these goods rapidly and safely is an extremely expensive one. The products must be in the hands of the consumer in as short a period as possible in order to retain the freshness and quality so essential to continued sales. The fabulous loss incurred through spoilage is another burdening expense. Under the present system, spoilage and high expense are a necessary part of the marketing system. Consecuently, these factors are reflected in a higher price to the retailer and ultimately to the consumer. Advocates of meat preservation are confident that they have the ability to remedy this situation by means of their own respective methods.

Frozen Meats1

The acceptability of frozen meats has had a firm increase in the past few years. More and more people are purchasing home-freezers or utilizing the freezing units of their refrigerators. The majority of consumers do not hesitate to buy fresh meats and then freeze them in their homes. They have discovered that frozen meats are just as palatable as fresh meats.

But when it comes to selling frozen prepackaged meats, the retailer is confronted by considerable reluctance on the part of the consumer. For in this situation the consumer has not had the opportunity to view the meat in its fresh state and consequently is somewhat skeptical when purchasing it sight unseen. Like self-service meats, the consumer must be <u>convinced</u> of the merits of this innovation.

The question also arises as to whether a frozen meat operation is scientifically sound for large scale distribution. The answer is definitely "yes" if processor, distributor, retailer, and consumer, all understand three important factors: (1) meat must be quick frozen; (2) frozen meats must be protected at all times by freezer temperatures of zero or below; (3) proper packaging is essential.

In order to protect the fresh beauty and maintain the bright appearance of meat, it must be quick frozen at below zero temperatures. Such freezing protects the flavor and

^{1.} Carlin, G. T. Frozen Meats. <u>National Food Conference sponsored</u> by Swift and Company. Report of Proceedings. Florida, 1955, p. 96

goodness of the meat and the loss of meat juices on thawing is small. Slow freezing, on the other hand, produces a dark colored meat which lacks eye appeal and worse yet, when thawed, meat juices are lost sacrificing flavor, juiciness and food nutrients. The eye appeal of the quick frozen meat means satisfied customers and is in sharp contrast to the slow frozen product.

Yet, quick freezing in itself is only part of the story. The bright color of quick frozen meat must be protected by below zero storage temperatures. In freezer storage the red color of beef remains bright over a period of six to eight months or more at below zero temperatures. At 10° above zero the meat becomes dark and unattractive in a matter of four months. If held at 25-28° F. the product, though still hard, changes to a reddish gray or gray-green color in less than a month's time.

Together with quick freezing and low temperature storage, proper packaging is essential. Materials that permit loss of moisture cause an orange-red color to develop on the meat surface. The meat becomes sponge like in appearance. This "freezer burn" condition damages the appearance and causes an actual loss in weight of the meat. Consequently a tight wrapper is essential. Also, frost and ice crystals will form inside a loosely wrapped package.

The industry has already seen how vacuum packaging protects against discoloration of cured meats. Exposure to light causes a rapid fading of the bright color of sliced ham in a non-vacuum package, while sliced ham in a vacuum package will retain its original color for some time. Similar vacuum packages used on fresh meats will eliminate "freezer burn" and ice crystals and will help to protect against loss of flavor. Comparable materials may serve the purpose as long as the meat is protected by a skin-tight transparent film.

The exact manner in which frozen meats will develop is uncertain, but one thing is definite. The industry and the consumer will have to be educated concerning certain fundamental principles. Observations made by specialists in the field have disclosed five main areas for the food industry to concentrate on:

1. Economics of frozen meat packages. In frozen meat packages, the homemaker will buy 100 per cent edible meat. Fat content will be just enough to give flavor, juiciness and protection during cooking. Excess fat and bone will no longer be shipped to the retailer and back to the renderer.

Without bone and excess fat in the package, it would hardly be possible for frozen meats to compete on a price per pound basis with fresh cut "bone in" meats. However, once the housewife realizes that the true value of meat is the cost of the actual servings that the family eats, she will be a steady customer.

2. Convenience. The pressure of modern day living makes convenience a real selling point. This is the fundamental principle of all frezen foods and it must be a basic characteristic of frezen meats. Boneless cuts of meat are easy to carve, slice uniformly and serve simply.

3. How to cook. Many housewives are uncertain about frozen meet cookery. They must be told how simple it is. She has her choice to thaw and cook or cook frozen. But above all, she must be educated to prepare frozen meats properly.

4. Packages. It is a known fact that a fine display of a given product is the best possible salesman. Thus when frozen meats are wrapped, each package becomes its own salesman and that means colorful, appetizing pictures are a necessity.

5. Quality and Proper Handling. Since repeat sales come with uniform high quality, frozen packages must be made from a cuality product, and since customers today desire tenderness, flavor and juiciness, these features must be included in the product.

But quality does not end here. Everyone, including the consumer, must hold frozen meats at temperatures of zero or lower to make certain that the original cuality of the meat has been maintained.

This concludes a brief outline of the essential prerequisites of frozen packaged meats. These packages may be the meats of tomorrow. The tremendous growth of the frozen food industry indicates that the consumer wants frozen foods. Perhaps the time has come for frozen meats to take their proper place in the rapidly expanding food industry.

Cold Sterilization²

The process of cold sterilization is a simple one - foods

are morely exposed to the right amounts of gamma radiation rays. Experiments have shown that these rays kill the food spoilage bacteria without doing much to the food. No heat is developed. Hence the term cold sterilization and consecuently, there is no cocking. Haw meat when irradiated remains raw.

Meat that has been subjected to this process will remain in a normal state indefinitely. There will be no spoilage and it will continue to look fresh. It is a process which destroys spoilage bacteria and apparently leaves the food as it was. In eliminating the bacteria, a major obstacle is removed. Meat can then be preserved and consequently, the problem of perishability and loss from spoilage removed.

The process, itself, takes only a few seconds. The product can be in its final package, even in the shipping container. The possibilities of minimizing expenses in this situation are enormous - it will simply be a matter of exploiting them.

The Armed Forces are extremely interested in cold sterilization and its application to their needs in supplying better foods to the nation's soldiers and sailors, and have joined in the research and experimentation connected with it.

Several recent articles have been printed regarding the Army's experience in this matter. Excerpts from these articles follow:

"Nine Mennonite conscientious objectors Monday began a diet of atomic-treated food in Denver, which eventually could make refrigerators obsolescent and

put power firms into the grocery business.

"The experiment was disclosed before a joint Congressional atomic subcommittee.

"The group is locking into the Army's plan for preserving food without refrigeration by "shocting" it with atomic rays. The process would have important battlefield benefits.

"The Mennonites began a two-to-three month diet of the atomic-treated food. They volunteered in lieu of being drafted for military service against their religious beliefs.

"All the food they eat - raw, cooked or frozen will be "shot" with atomic rays. The process kills decay-causing bacteria and permits the food to be kept for several months without refrigeration. The food can be treated after being canned or packaged.

"Major General K. L. Hastings, quartermaster general, said the Army plans by 1958 to have its first pilot plant to treat 1,000 tons of feed a month."3

"The officers, one after another, told the Joint Atomic Energy Committee the details of their program to make food keep where it wouldn't before, except under refrigeration. Major General R. F. Hertford talked about a new horizon in the food industry; he said the first pilot plant for widespread irradiation of estables would be in operation in 1958.

"He demonstrated how the process left a chuck of beef tenderloin unchanged in taste and appearance, while standard thermal sterilization literally cooked it.

"Colonel W. D. Jackson said the rays turned raw meat gray, except when it was frozen first. Then it stayed red. After that the experts explained the various methods, all akin to the X-ray, which they are trying on foods.

"These rays can be taken from present atomic wastes; they will be particularly plentiful as a by-product of the atomic electric plants which even now are being built.

"The implication was that some day the electric company may take the fresh raw meats and vegetables, put them in small boxes, run the latter through the ray machine on a conveyor belt, and ship them to the grocery store, where presumably they'd stay good on the shelf for months."

Up to this point, this discussion has dealt with the

advantageous possibilities of cold sterilization. Unfortu-

3.	Article in	The	Detro	it F	ree	Press.	John	s.	Knight	Publi-
-	cation,	Vol.	125,	No.	6,	(May 10,	, 1955	5),	p. 26	

4. Othman, F. C. Oh, Boy, Atomized Steaks! <u>The Detroit Free</u> Press. John S. Knight Publication, Vol. 125, No. 8, (May 12, 1955), p. 8 nately, this is not the entire story. Nothing is perfect it seems and even this seemingly wonderful method for preserving foods has a fault - a serious fault - one which so for has prevented its use.

While the primary reason for eating foods is to satisfy hunger and to secure nutrients, an all important consideration is their taste and appearance. Unfortunately, irradiation produces an undesirable flavor change and this, coupled with changes in appearance in certain cases, makes irradiated foods unacceptable. If cold sterilization is to be used, a way must be found to overcome this obstacle, for no one will eat foods having a foreign flavor. The irradiated flavor resembles a kind of scorching.

While much effort has been expended to date to work out a means of overcoming this difficulty, and while the research continues in many laboratories, no satisfactory way to solve this problem has been found.

This is the situation as it stands today. Research scientists know how to destroy the spoilage bacteria but do not know how to secure a normal taste in irradiated foods. The question of how long it will be before a solution is found and irradiated foods will be sold can only be answered sometime in the future.

The Relationship between Meat Production and Population Increases

"The nation's livestock and meat industry faces the tremendous task of stepping up meat production almost a million pounds a day over the 7,305 days constituting the next two decades in order to keep consumption in pace with

1.26

population growth.

"The neat requirements for California alone have nearly doubled from 1940 to 1954 and they probably will double again during the next 20 years if the present rate of population growth continues.

"Our nation's human population now is more than 164 million, but twenty years from now - that is, in 1975 it is expected to be more than 200 million, possibly even 225 million. In order to maintain the present meat consumption rate of around 190 pounds per person, by 1975 our present national meat production will have to be 27 per cent greater than it is today."?

These words were spoken by Wesley Hardenbergh, president of the American Meat Institute, before an Animal Husbandry Livestock Day gathering sponsored by the College of Agriculture, University of California, Davis.

In examining this much-debated question of whether livestock and meat production will be able to cope with the rapidly rising requirements of our nation's population, the fact that American agriculture has done very well up until now should not be overlooked. Although production, and consequently consumption, of different meats have had ups and downs through the years, the trend has been definitely upward in the total per capita consumption of beef, veal, pork, lamb, fish and poultry during the last forty years.

This is a contradiction of the Malthusian Theory which, in effect, states that the proportion of meat in the average diet must decline as humanity continues to mount in numbers. It can be shown that the per capita consumption of all meats plus fish and poultry has actually risen, rather than declined, between 1910 and 1952.

However, the years to come may prove the Malthusian

^{5.} Speech by Wesley Hardenbergh, American Ment Institute. University of California, Davis, (January 29, 1955).

^{6.} Meat Consumption Trends. <u>Armour's Analysis</u>. Vol. 1, No. 10, (January-February 1953), p. 3

Theory to be not far from the truth. Studies move in 1926 show that per capita meat consumption was 178.7 pounds annually in the decode 1830-39, and reached a high of approximately 184 pounds in the decades 1850-59 and 1890-99.⁷ If these reports are accurate, three things may be assumed: (1) that the per capita consumption of meat has actually decreased over the past 120 years in accordance with the Nalthusian Theory; (2) in view of the fact that population in the United States has more than doubled since 1900, that animal agriculture has been grappling with a task of tromendous proportions and has performed wonders in actually raising the per capita consumption of meat during this period (1900-1955); (3) that on even greater effort will have to be made in order to maintein the current per capita consumption.

There are certain reasons to establish the validity of this third conclusion. Although per capita concumption of beef has shown a firm increase currently over the average for the period 1910-50, total cattle numbers, while increasing approximately 35 per cent, have not matched the 64 per cent rise in human population during the same time interval.⁸ Improved breeding, better feeding, marketing at younger ages, and a more rapid turnover have helped to offset this widening gap. The question now is whether cattle producers can possibly equalize the even greater increases in population predicted.

7. Ibid. p. 1

8. Loc. cit.

One of the greatest deterrents in reaching the meat production goals of the future is the static nature of our available crop acreage. Very little has been added during the past 30 years. Another factor in the distant future if and when the stockmen reach the limit of their output is whether there will be meat surplus countries to supply us with ever-increasing quantities of meat. Meat imports rese from 1.5 million pounds in 1900 to approximately 529 million in 1952. This increase can be misleading, however, for meat imports represent only 2⁴sper cent of domestic production and there is some doubt whether this figure can be increased appreciably.⁹

Current farm conditions can be misleading also. From a glance at the current United States farm surplus, one might conclude that science and mechanization have lured the farmer into overproduction. This is far from the truth. The embarrassing pile-up of wheat, corn, butter, etc. may soon vanish.

One good drought could do it. In any case, it will soon be eaten away as the population boom adds 2.5 million mouths a year to the national stomach.¹⁰ If these mouths are to be fed, farmers must become much more scientific than even the best of them are today.

Up until now, only the unfavorable factors have been discussed. The situation is not all bleak. There are many

^{9.} Ibid. p. 2

things that have been done and are being done to preserve the well-rounded diet of the American people.

The United States, which was an important meat exporting country at one time, has reduced its exports to one-tenth its former volume in an effort to meet industrial development and rapid population increases. Many misunderstandings or notions unfavorable to meat have been clarified or discredited. Erroneous beliefs that older people should reduce their meat quotas, that meat was not a proper food for infants, or that meat coused various physical ailments, have been exploited by research. These triumphs have widened the meat cutlets and worked to the advantage of the entire livestock industry. Canned meets and meat preparations, as pointed out in a previous chapter, have had a phenomenal development. A higherquality product plus vigorous promotions have helped to pepularize canned meats and thus increase the consumption of meat.

Agricultural research scientists have contributed greatly through the introduction of improved products and processes. Just one activity in this area is the exploration by workers in the American Meat Institute Foundation at the University of Chicago of the possibility of curing hides with less salt and dehydrating them so that shipping costs (an important item in the industry) may be reduced. If these studies can be developed and applied connercially, savings of millions of dollars a year will be possible.¹¹

^{11.} Speech by Wesley Hardenbergh. Op. cit.

Atomic fission, as a means of improving the keeping qualities of most so that its shelf life and life in the home may be prolonged, is under constant experimentation.

The Meat Foundation has also clearly demonstrated the value of adding fat to feed for poultry and dogs, and the same thing has been demonstrated to be true in the case of beef animals. Just how far these developments may go is not known, but at the present time they are providing a new outlet for fat at the rate of nearly a guarter of a billion pounds annually.¹²

The American farmer has also had a change of heart and has participated heartily in the research efforts of the scientists. As one Iowa farm manager expressed it:

"Before the war, the county agent needed several seasons to put across a proven point on soil care or insect control. Most farmers would wait for the fellow down the road to try it first. Today, it's the other way around. A farmer snoops around an experiment station, then rushes back to try some discovery that the scientists haven't half tested."

For the 1955 season, this science-minded farmer has a bumper crop of fresh wonders to keep his eye on.

A Midwest experiment station is about to release a strain of corn with husks so tough a bird will not be able to penetrate. It will also fend off its old enemy, the borer.¹⁴

Since January, American cattlemen have been feeding a female sex hormone, stilbestrol, to 2 million steers in order to make them bigger quicker on less feed (an operation, scien-

13. Food: Not Less, but More. Op. cit. p. 110

14. Loc. cit.

^{12.} Loc. cit.

tists say, that will not affect a steak-lover's manhood).

Breeders also are talking seriously of impregnating 200,000 cows with the frezen semen of a single prize bull.¹⁵

Another current development is the work being done with antibiotics, the versatile wonder drugs which alone may prove a potent factor in easing the problem. Startling feats are being performed in making an animal transform more of what it eats into good lean meat.

Antibiotics were initially used on animals to knock out bacterial infections. However, scientists have discovered that, in small doses, they also make the animals grow faster. First fed to chickens and pigs, they have been supercharging cattle and sheep to a profit doubling extent in the last two years. In Terre Haute, Indiana, the Pfizer Research and Development Farm, which feeds and weighs experimental cattle, now serves a special antibiotic - and hormone cocktail that is setting fantastic new records for induced growth.¹⁶

Further utilization may develop in the antibiotic preserving of meat, dairy products and vegetables. This may soon compete with radiation sterilization of foods which is still some years away. Dr. F. E. Deatheridge, head of the Ohio State biochemistry department, embalms fresh-killed steers simply by pumping an antibiotic through their arteries. According to him, the meat will then keep through three hot summer days and acquire in the process a delicate aged flavor.

15. Loc. cit.

16. Ibid. p. 112

Similarly, by pumping brine and smoke flavor into a slaughtered hog, Dr. Deatheridge thinks he can put han and bacon on the table in three days instead of three weeks.¹⁷

To some experts - the ones who can see beyond the misleading mountains of today's surpluses - such advances are deceptive. They assert that they are not nearly enough to assure that United States agriculture will continue to get its job done.

One of these men, Dr. Byren T. Shaw, farm research chief of the United States Department of Agriculture, estimates that, if the average American is to continue to have as much meat to eat as he did last year, all acreage that is currently idle will have to be back at work by 1960. By 1975, even if all marginal lands are used, there might be a deficit of more than 100 million acres. To meet this, livestock production alone will have to be doubled on the land at hand.¹⁸

Scientific research has come a long way and has done a tremendous job in maintaining our per capita meat supply, but the biggest test lies in the future. Technological advances on the farm have been rapid, but there is still much to be done. Mechanized as farming is, the farmer still spends an estimated 65 per cent of his day shoveling, lifting and toting.¹⁹ A variety of radical labor-saving devices are needed. The marketing system must also be streamlined to keep up with increased production. The tight water supply over most of the

- 17. Ibid. p. 114
- 18. Ibid. p. 112
- 19. Ibid. p. 115

.

.

nation will grow even tighter as population increases so that stricter conservation and more research are essential.

The question also arises as to whether or not research will be granted sufficient funds to carry on their work properly. Henry T. McKnight, president of the Council for Agricultural and Chemurgic Research, is alarmed by the fact that industry's investment in research is five times that of agriculture. He maintains that:

"It seems pretty shortsighted when you consider that the \$15 million spent to develop hybrid corn now brings in more than \$1 billion a year."^{2C}

To keep the United States diet as rich as now in protein, McKnight figures that the \$300 million spent last year for farm research will have to be doubled within five years.²¹ This is still another problem that the farmer must face in his efforts to provide for the tremendous population increases to come. The answer to this perplexing problem lies somewhere in the future.

21. Loc. cit.

^{20.} Ibid. p. 112

CHAPTER VIII

SUMMARY

This report has been written for the benefit of grocery store personnel interested in acquiring a knowledge of the production and distribution of meat. It is the opinion of the writer that such information is often found lacking in grocery <u>store</u> personnel and consequently in young executives moving up from store level positions. It is felt that an understanding of the fundamental methods employed in producing and distributing meat is important to anyone seeking executive status in the grocery chain store field, not only because of the significance of meat in the food industry, but also due to the need for developing men with "well-rounded" backgrounds who will one day be better qualified to assume the responsibilities of management.

With this purpose in mind, an outline has been presented of the foremost components of the meat marketing system. Any one of these constituents would provide an extensive subject for research. The intention of the writer has been to present only that information which would be of value or interest to grocery store personnel.

The importance of meat cannot be over-emphasized. Its nutritional value alone is instrumental in assuring the health and vitality of human beings everywhere. Farmers receive much of their revenue from neat and almost half the land in this country is utilized by livesteck converting grass and similar forage into feeds cuitable for human consumption. The marketing of this highly desirable product is not performed without its problems, however. Since two-thirds of the nation's livestock is raised west of the Mississippi River and two-thirds of the people live east of it, distribution is an important factor in satisfying the demond.

Livestock is raised in certain areas of the country in order to take advantage of the available feed and climate and because the topography of the land prohibits commercial cultivation. Marketing facilities have kept pace with an increased production of livestock. Producers can market their cattle in many different ways through such agencies as the public markets, local buyers, cooperative associations, auctions and concentration yards.

Livestock marketings not only vary widely from month to month but from week to week and day to day. This situation brings about a seasonal influence on the price of meat as does the duration of beef, hog and lamb cycles. Supply and demand conditions which result from these factors have a definite effect throughout the industry. A heavy supply tends to lower prices while a low supply tends to raise them. Demand depends on the desire of the purchaser and his ability to pay. Thus, when national income goes up, per capita consumption of meat tends to go up and vice versa.

To meet the demand for fresh meat, the meat packing

business is geared to slaughter, process, and distribute meat on a high-speed time-table. On the average, meat travels about 1,000 miles from producer to consumer.

Dressed meat is chilled and usually ready for local sale or movement to distant markets within two days after livestock are slaughtered. From that time on, until the meat is sold to the rotailer, the meat is maintained at 32-34 degrees temperature. About four to five days are usually needed to move the meat from midwestern meat packing plants to distant meat packers' wholesale branch houses or company-owned meat warehouses. Another few days are needed to move the meat to the retailer so that approximately ten days after the livestock has been slaughtered, the meat has been purchased by retailers throughout the nation for their customers.

From this point on, it is the responsibility of retail meat merchandisers to sell the product to the consumer. This is accomplished through the establishment of competent buying and merchandising departments, efficient distribution systems, proper store ordering, effective inventory control and similar methods of management. Meat cutting tests are performed to provide a standard procedure and pricing guides used to help establish retail prices. The consumer must then be told about the advantages of meat and subjected to an appealing display in retail meat cases.

The future of meats is contained in the persistent efforts of scientific research to develop a method of preserving meats and thus eliminate the danger of perishability. Frozen meats and the process of cold sterilization are two prominent possi-

bilities and will probably play an important role in the formation of new morchandising techniques in the years to come.

The problem of population increases adversely affecting the consumption of meats is an important one, particularly for personnel associated with the food industry. It will require the concentrated effort of all members of the meat industry, with an invaluable assist from scientific research programs to enable meat production to keep pace with rising population, and consequently, to maintain the average per capita consumption of meat.

This concludes a brief summary of the material which has been presented in this thesis. It is the opinion of the writer that this type of information is important to store personnel. The broadening of the scope of store managers has created a need for "well-rounded" men and indications are that this trend toward developing highly competent men to perform the duties of store manager will continue. The objective of this thesis has been to fulfill part of that need; to present the essentials of meat production and distribution in order that an individual may attain a background knowledge of the meat industry.

The conclusion is that all of these essentials are a fundamental part of the food industry and play an important role in the successful operation of a chain. It is also concluded that specific information of this nature can be continually utilized by the retailer; that it is important to know about the significance of meat in a community; to under-

stand the problems and actions of the meat producer; to be able to analyze the various factors influencing the price of meat and plan accordingly; to be familiar with the operation of the meat packer who is the immediate source of supply for the retailer; to understand the fundamentals of retail management and consequently achieve better overall performance; and to have an up-to-date knowledge of current events and future possibilities.

Since the essentials of meat production and distribution are fundamental to the food industry and necessary for successful operations, the final conclusion is that a great deal should be done to familiarize store personnel with this type of information.

APPENDIX

Questionnaire

Now many most packing plants do you operate?

Where are they located?

What type of animals do you slaughter? Cattle?_____ Calves?_____ Hogs?____Lamb?

Are your meat packing plants operated the same basically as the major packers?

Do you employ your own buyers to select livestock or do you utilize order buyers?

Do you purchase any feeders or stockers and feed them to your own specifications?

Are your carcasses government graded or do you grade them yourself?

How do you transport your carcasses from packing plant to retailer?

Do you operate your own branch houses or warehouses? If so, how many and where are they located?

How many of your retail stores are supplied with meat from your plants?

Do you buy any other meat to supplement your own supply? If so, what percentage of meat do you supply for your packing plants, and what percentage do you buy elsewhere?

Do you do any processing into retail cuts and prepackaging on a centralized basis? (excluding pork and smoked items)

Is your Company conducting any form of consumer education programs? If so, how are they conducted?

BIBLIOGRAPHY

Books

- Anon. <u>By-Products of the Meat Packing Industry</u>. Chicago: Institute of Meat Packing, 1950, 418 pp.
- Bull, S. <u>Meat for the Table</u>. New York, Toronto, London: McGraw-Hill Bock Company, Inc., 1951, 240 pp.
- Clawson, M. <u>The Western Range Livestock Industry</u>. New York: McGraw-Hill Book Company, 1951, 400 pp.
- Devce, G. P., W. A. Ross and W. M. Peters. <u>Raising Livestock</u>. New York: McGraw-Hill Book Company, 1950, 540 pp.
- Dovell, A. A. and K. Bjorka. <u>Livestock Marketing</u>. New York and London: McGraw-Hill Book Company, Inc., 1941, 534 pp.
- Ensminger, M. E. <u>Animal Science</u>. Danville: The Interstate Printers and Publishers, 1952, 1096 pp.
- Hinman, R. B. and R. B. Harris. <u>The Story of Meat</u>. Chicago: Swift and Company, 1947, 289 pp.
- Jensen, L. B. <u>Meat and Meat Foods</u>. New York: The Ronald Press Company, 1950, 218 pp.
- Moore, F. G. <u>Manufacturing Management</u>. Homewood, Illinois: Richard D. Irwin, Incorporated, 1954, 832 pp.
- Peters, W. H. and R. H. Grummer. <u>Livestock Production</u>. New York: McGraw-Hill Book Company, 1951, 520 pp.
- Thomsen, F. L. and R. J. Foote. <u>Agricultural Prices</u>. New York, Toronto, London: McGraw-Hill Book Company, Inc., 1952, 509 pp.
- Working, E. J. <u>Demand for Meat</u>. Chicago: Institute of Meat Packing, 1954, 130 pp.
- Ziegler, P. T. The Meat We Eat. Danville: The Interstate Printers and Publishers, 1953, 376 pp.

- 1. Branch House Service. Swift and Company, Chicago. 7 pp.
- 2. <u>Cattle and Celves</u>. Swift and Company, Chicago. 1954. 16 pp.
- 3. Cattle By-Products. Swift and Company, Chicago. 4 pp.
- 4. <u>Cattle...Numbers Prices Spread</u>. Swift and Company, Chicago. 6 pp.
- 5. Easy Does It. Swift and Company, Chicago. 16 pp.
- 6. <u>Economics of Livestock and Meat</u>. Armour and Company, Chicago. 1954. 13 pp.
- 7. Facts and Figures About the Meat Packing Industry and Its Products. American Meat Institute, Chicago. 1954. 59 pp.
- 8. <u>Financial Results of the Meat Packing Industry 1953</u>. American Meat Institute, Chicago. 1954. 35 pp.
- 9. <u>Freezing of Meats</u>. American Meat Institute, Chicago. 1954. 4 pp.
- 10. <u>How to Plan the Meat Department Invertory</u>. National Association of Retail Grocers, Chicago. 1952. 3 pp.
- 1]. Lamb By-Products. Swift and Company, Chicago. 4 pp.
- 12. Livestock Prices. Swift and Company, Chicago. 12 pp.
- 13. <u>Markets Compete with Markets</u>. Swift and Company, Chicago. 4 pp.
- 14. <u>Meat and the Mississippi River</u>. Swift and Company, Chicago. 20 pp.
- 15. <u>Meat for the Millions</u>. American Meat Institute, Chicago. 1955. 8 pp.
- 16. <u>Meat Inspection</u>. Armour and Company, Chicago. 1953. 9 pp.
- 17. <u>Meat Merchandising and Operating</u>. National Association of Food Chains, Washington. 1952. 23 pp.
- 16. <u>Meat Retailing Operations</u>. National Association of Retail Grocers, Chicago. 1952. 33 pp.

- 19. <u>Modern Meat Retailing</u>. National Association of Retail Grocers, Chicago. 1946. 52 pp.
- 20. <u>Pricing Retail Meat Cuts</u>. National Livestock and Neat Board, Chicago. 20 pp.
- 21. <u>Self-Service Meats</u>. National Association of Retail Grocers, Chicago. 1951. 120 pp.
- 22. <u>Swift's Service to Producer and Consumer</u>. Swift and Company, Chicago. 28 pp.
- 23. <u>Technical Aspects of Prepackaged Meats</u>. American Meat Institute, Chicago. 1950. 9 pp.
- 24. The Food Value of Meat. National Livestock and Meat Board, Chicago. 8 pp.
- 25. <u>The Significance of Jewish Holidays to the Livestock</u> <u>Producer</u>. Swift and Company, Chicago. 8 pp.
- 26. <u>The Story of Dairy Animals</u>. Swift and Company, Chicago. 15 pp.
- 27. The Story of Meat Animals. Swift and Company, Chicago. 12 pp.

Government Publications

- Livestock Market News Statistics. United States Department of Agriculture, Agricultural Marketing Service, Livestock Division, Washington, Statistical Bulletin No. 143, June 1954. 61 pp.
- 2. Marketing Margins for Beef. United States Department of Agriculture, Agricultural Marketing Service, Washington, December 1953, 30 pp.
- 3. Retailing Prepackaged Meats. United States Department of Agriculture, Production and Marketing Administration, Marketing Research Branch, Washington, December 1949. 28 pp.
- 4. The Livestock and Meat Situation. United States Department of Agriculture, Agricultural Marketing Service, Washington, March 1955. 25 pp.

Periodicals

1. Faught, M. C. The Need for Executive Versatility. <u>Dun's</u> <u>Review and Modern Industry</u>. (October 1954), pp. 31, 66-76.

- 2. Food: Not Less, but Mere. <u>newswock</u>. (April 29, 1955), pp. 110-115.
- 3. Noat Concurption Frends. <u>Arnour's Analysis</u>. (Jonuary-February 1953), pp. 1-4.
- 4. Othman, F. C. Oh, Boy, Atomized Steaks. <u>The Detroit</u> <u>Free Press</u>. John S. Knight Publication. Vol. 125, No. 8, (May 12, 1955), 30 pp.
- 5. Refrigerators' Doom? <u>The Detroit Free Press</u>. John S. Knight Publication. Vol. 125, No. 6, (May 10, 1955), 34 pp.

Speeches

- Hardenbergh, W. "The Task of Stepping Up Meat Production" Animal Husbanary Livestock Day, University of California, Davis, January 1955.
- 2. Hicks, P. "Meat Supervisors" Conference of Operation, Incorporated, Chicago, October 1951.

•

ROOM USE ONLY

A 1 20 10 g \$* Nov 19 '56 Nov 20187 0CI 20 1001 i.m. 361 1 8 198

.
