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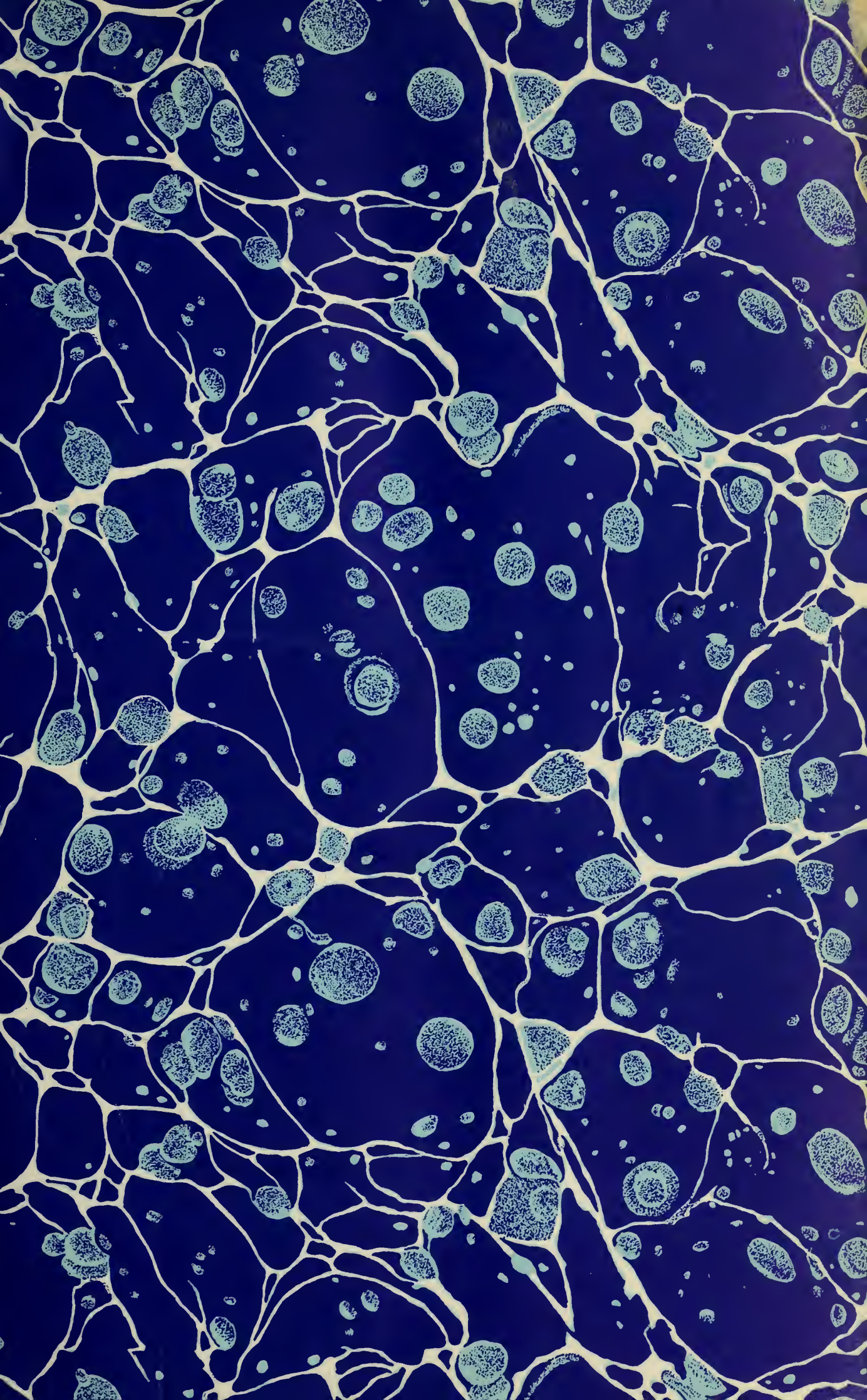
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REPORT OF CHIEF OF BUREAU OF AGRICULTURAL
ECONOMICS.

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF AGRICULTURAL ECONOMICS,
Washington, D. C., October 12, 1923.

SIR: I have the honor to transmit herewith a report of the work of the Bureau of Agricultural Economics for the fiscal year ended June 30, 1923.

Respectfully,

HENRY C. TAYLOR,
Chief of Bureau.

HON. HENRY C. WALLACE,
Secretary of Agriculture.

The first year's accomplishments of the Bureau of Agricultural Economics, a consolidation of three separate bureaus that formerly handled economic subjects, presents conclusive evidence of the increased effectiveness which has resulted from this combination. The benefits have been threefold: The development of new forms of helpful information for agriculture in the present period of readjustment; the expansion of fundamental studies in farm organization, marketing, and crop estimating; and an increased efficiency of the entire personnel through closer cooperation, broadened knowledge, and the stimulation of an enlarged organization.

NEW SERVICES TO THE FARM INDUSTRY.

In the period of agricultural readjustment experienced during the past year it was important for farmers to secure the facts bearing upon current problems that would give them the greatest aid in making the right decisions in planning farm operations and in marketing their products. The first attention of the bureau staff has been directed constantly toward these problems in response to the greatly increased demands upon the bureau for information on the general conditions of supply and demand, price trends, the effect of various factors, domestic and foreign, upon the farmer's returns, and for information bearing upon problems of crop readjustment.

In gathering facts bearing upon these questions, the closer relationship of workers in farm management, marketing, and crop estimating has been especially helpful. By bringing the field services of these three lines into closer contact, the interchange of important information has been facilitated, and research, service work, and extension teaching has been made more effective. The bureau is now in a position to present a complete picture of the economics of agriculture from the problems of the individual farm through the problems of distribution and marketing to the more general considerations of world supply, consumer demand, and foreign competition.

In periods of low and unsatisfactory prices the call for facts concerning prospective supply and demand becomes more insistent. The forecasting of crop and livestock production forms the basis of our knowledge of the future market for farm products. One of the main purposes of the new bureau during the past year has been to strengthen present reporting methods and to supplement them by special types of surveys designed to give a more accurate knowledge of future supplies. Such supplemental surveys were those of intentions of farmers regarding the breeding of hogs and the planting of various crops.

The pig survey, which was first made in June of the last fiscal year, was repeated in December, 1922, and again in July, 1923. These surveys gave an indication of intentions of farmers regarding the production of hogs, and the distribution of the summary of these intentions gave farmers a basis upon which to adjust their plans in accordance with the indicated supply.

FORECASTS AID IN READJUSTMENT.

Intentions of farmers regarding the planting of various crops were gathered in a survey early in the spring and again in mid-season. The distribution of this information concerning preliminary plans of farmers has enabled them to adjust acreage, and, to some extent, to prevent over or under planting of particular crops. These first efforts in this direction have been more or less experimental and future surveys will be improved as our experience grows.

Every farmer must plan in advance and forecast for himself what he expects the future market to be. The two principal benefits to be derived from agricultural forecasting are: First, it will assist the individual farmer in wise planning in production and marketing; second, from a national standpoint, it will tend to promote the right utilization of land and to avoid the losses to producers from excess production and the unusually high prices to consumers which accompany a shortage of production.

The accuracy of the acreage and production estimates for crops, as it has been increased by the adoption of various ideas, aids the ordinary method of observation. Experiments with various measuring systems by the use of automobiles and air photography are under way. In livestock reporting a new step has been made by beginning the estimating of actual supplies for market of cattle and sheep. Estimates of the number of these animals on feed in the Corn Belt and in western States have been made at intervals, accompanied by weekly reports of the movement of lambs and feeder cattle to market from the range. Through cooperation with railroads and other shipping agencies, an accurate measure of the movement of these animals is being attempted.

The influence of world supply and demand upon prices received by American farmers is being more closely studied, and through the development of a world-wide crop and market reporting service the facts concerning probable foreign competition and demand are being made available. This has been accomplished through our agricultural commissioners in England and Europe, through our other representatives in foreign countries, through the International Institute of Agriculture at Rome, and through an improved news service by cable and radio.

OUTLOOK REPORTS INTERPRET THE FACTS.

In order that the relative significance of all of these factors be properly interpreted, the plan of holding a conference of a group of well-known economists and statisticians to examine the facts and prepare a statement on the agricultural outlook was inaugurated in April under the direction of the Secretary of Agriculture. This group considered the entire situation. It then prepared and issued a summary of the data gathered by the bureau and set forth the probable trend of the next few months as indicated by the available data. This conference was designed to interpret the situation for producers and others in brief and specific statements such as those who are untrained in the handling of a large mass of material find it difficult to make. Every resource of the bureau has been drawn upon to make these forecasts as accurate as possible, and to put them in a form that will be of the greatest use to the farming industry in the present period of readjustment.

Special attention has been directed during the year to a study of factors influencing market demand in domestic markets, not only as expressed in the prices and movement of crops but also in consumers' requirements. Special studies of cities and surrounding communities to discover sources of their supplies and possible extension of local production have been begun at several points. Analysis of the supplies flowing into large consumption centers such as New York and Boston have been made with a view to discovering the normal needs of these communities and factors which cause a variation in consumption. Studies of influence upon consumer, demand of methods of marketing, systems of retail distribution, and publicity have been inaugurated to provide a basis for determining the consideration which influence per capita consumption of certain products.

Results of the several years of farm management surveys have been reviewed to secure facts of value in the present readjustment, and the objective has been shifted somewhat from studies with the historical point of view to the current readjustment point of view to aid in meeting the present and forthcoming changes.

During the year there has been a steady growth in the work in warehousing, improved farm finance, and in the study of agricultural cooperation. All of these are factors entering into the improvement of the marketing organization of agriculture, upon which we must first assemble a broad knowledge of conditions and experience before venturing forward in new methods. By utilizing improved means of disseminating this information by telegraph and radio, the bureau has quickened its services and broadened the field of distribution.

RESEARCH COUNCILS ESTABLISHED.

A forward step to the end of correlating various research projects conducted by State and Federal institutions was begun during the year by establishing the New England Research Council on Marketing and Food Supply.

All institutions within the region doing research work on agriculture are represented in this organization. The representatives keep in close touch through a secretary and meet at intervals to compare and correlate projects. Experience has shown that this leads to better division of labor, better results in research work, effects econ-

omies, and develops a broadened viewpoint on the part of all concerned regarding the projects in hand. A similar council has been planned for the Middle West and has been organized since the end of the fiscal year. It is important in the economic field that there be the minimum duplication of effort if all of the important problems are to be covered by the funds available.

EXPANSION OF MARKETING WORK.

The market activities begun in the former Bureau of Markets have been extended along four major lines: Research, standardization, market news, and inspection. During the year market grades have been prepared and distributed either in tentative or finished form for the following products: Hay, wool, tobacco, rice, rye, peanuts, dressed meats, and for certain fruits and vegetables. The research work necessary to the preparation of these standardized grades is being continued in order to perfect them in keeping with market requirements, in justice to both producer and consumer. The market news service on these and other products has likewise been extended, the principal expansion taking place at the end of the fiscal year, when an increase of about \$300,000 in the appropriation by Congress for market news work became available. In preparation for this expansion considerable work was done during the fiscal year under review.

The shipping point inspection service, which brings close to the producer the practical benefits of standard grades, has received particular attention. This work has proved not only of tremendous educational value in training the producer in the requirements of the market, but it has also placed within his reach a Government certificate stating the quality and character of his product, which gives him a new basis for trading with the assurance that disputes concerning the quality of the goods will be minimized and that their character can be established in case of loss in damage in transit. This has led to a new system of marketing which promises to transfer the sale of a larger volume of produce from the terminal market to the primary market and facilitate the distribution of products to various markets with the minimum of gluts or shortages. At the same time the terminal market inspection has not been curtailed but has been strengthened along the regular lines previously followed.

The establishment of universal standards for American cotton through agreement with the European cotton exchanges followed the passage of the United States cotton standards act. The official cotton standards of the United States were adopted with but minor changes. This is further and convincing evidence of the integrity of our standards. The immediate negotiations to this end were begun in the fiscal year under review but were completed at conferences later in the summer. The way has been opened to the establishment of other world-wide standards which may be expected to lead to improved international trade in American farm products.

NEW WORK IN FARM MANAGEMENT.

The creation of the larger bureau has resulted in the extension of specific work in farm management through closer cooperation with all workers in this field with those in marketing and crop esti-

mating. The fundamental lines of research followed for a number of years have been continued and strengthened and many new types of studies have been introduced.

Farm management studies have been expanded to include studies of farm income on various types of farms, farm production in localities adjacent to cities, the organization of cane sugar farms; a special survey of cotton farms in boll weevil districts, studies of the earlier farm management records to develop facts of value in the present period of readjustment, studies of how to measure farm labor efficiency, investigations of the use value of land, and surveys of regions on which studies have been made in previous years to discover important changes in management.

Cost of production work has been continued and expanded along lines which have been followed for a number of years and with a wide variety of crops, including wheat, cotton, tobacco, fruits, sugar beets, and sugar cane. The projects in studies of fattening cattle have been expanded as have been field cost surveys on ranches. These activities have been conducted without in any way restricting the projects previously mentioned, but rather as an aid to them in that the results from the many separate projects previously conducted have been brought together in a manner to be of particular value to the farmer in making readjustments in his business.

The distribution of the field studies has been planned to provide a constantly increasing number of farmers with specific information in terms closely approximating those with which they are familiar, upon which they may base readjustments of their own activities as conditions change, in the light of results achieved by farmers in situations similar to their own. The number of direct contacts with farmers is large. Through example, extension work, and incidental publicity the influence of this work is widespread, though at a given time exact evaluation of its effect may not be possible.

The crop and livestock estimating work has been carefully gone over with a view to making the forecasts of the greatest value to producers in determining future plans. Every effort has been made to preserve the accumulated value of early statistics while adopting the newer methods of forecasting.

THE NEW BUREAU ORGANIZATION.

The first step toward bringing the three related bureaus together was made in July, 1921, when the Bureau of Markets and the Bureau of Crop Estimates were consolidated. While this combination provided for establishing a central administrative control, the proper interrelation of divisions required gradual changes in order to secure a more effective organization. On July 1, 1922, the beginning of the year covered by this report, the Office of Farm Management and Farm Economics was combined with the two bureaus previously united, and the name was changed to that of the Bureau of Agricultural Economics.

In the new consolidated bureau the identity and the organization of the various lines of work formerly handled in the three bureaus has been preserved in the associated divisions under three groups: (1) The production divisions, including farm management, cost of production, and crop and livestock estimates; (2) the commodity marketing divisions, or those having to do with cotton, grains, fruits and vegetables, livestock, meats and wool, hay, feed and seeds, dairy

and poultry products, warehousing, and city markets; (3) the group of general divisions dealing with problems concerning both production and marketing, cost of marketing, statistical and historical research, including foreign competition and demand, agricultural finance, land economics, agricultural cooperation, and farm population and rural life and a division which handles publication and news distribution problems.

The divisions of the bureau and principal sections under each division are shown in the accompanying outline.

ORGANIZATION OF THE BUREAU OF AGRICULTURAL ECONOMICS.

ADMINISTRATION.

HENRY C. TAYLOR, *Chief.*

LLOYD S. TENNY, *Assistant Chief.*

WM. A. SCHOENFELD, *Assistant Chief.*

J. CLYDE MARQUIS, *Director of Economic Information.*

PRODUCTION DIVISIONS.

<i>Farm Management.</i> — H. R. TOLLEY.	<i>Cost of Production.</i> — R. H. WILCOX.	<i>Crop and Livestock Estimates.</i> — W. F. CALLANDER.
Farm Practices and Types of farms.	Farm Records and Ac- counts.	Crop Reporting Board.
Organization of South- ern Farms.	Livestock Costs.	Field Service.
Farm Business Analysis.	Crop Costs.	Tabulating and Comput- ing.
Farm Incomes.	Cost and Price Relations.	Research in Statistical Methods.
Farm Power.		

MARKETING DIVISIONS.

<i>Cotton.</i> —W. R. MEADOWS.	<i>Livestock, Meats and Wool.</i> —C. V. WHALIN.	<i>Grain.</i> —H. J. BESLEY.
Classification of Cotton.	Market News Service.	Grain Investigations.
Preparation and Distri- bution of Official Cot- ton Standards.	Meat Investigations and Standardization.	Milling and Baking In- vestigations.
Future and Spot Market Investigations.	Livestock Investigations and Standardization.	Research Laboratory.
Cotton Testing.	Wool Marketing and Standardization.	Establishment of Grades for Barley and Rye.
Investigation of Cotton Standards.	<i>Hay, Feed, and Seed.</i> — W. A. WHEELER.	Grain Cleaning.
Cotton Marketing Dem- onstrations.	Hay and Feed Market- ing.	Bulk Handling.
Research in Cotton Mar- keting.	Investigations and Mar- ket News Service.	Federal Grain Supervi- sion.
Cotton Handling Investi- gations.	Seed Marketing Investi- gations and News Service.	<i>Dairy and Poultry Prod- ucts.</i> —ROY C. POTTS.
<i>Fruits and Vegetables.</i> — W. A. SHERMAN.	Hay Standardization.	Dairy Products Investi- gations.
Market News Service.	Hay Inspection Service.	Poultry Products Inves- tigations.
Inspection Service.	Broomcorn Market In- vestigations and News Service.	Market News Service.
Grades and Standards.		Dairy Inspection Serv- ice.
Standard Containers		
Research in Marketing.		
<i>Warehousing.</i> — H. S. YOHE.	<i>City Markets.</i> —Washing- ton Center Market.— C. W. KITCHEN.	<i>Cost of Marketing.</i> — A. V. SWARTHOUT.
Grain Warehousing.	Administration.	Cost of Marketing Live- stock.
Wool Warehousing.	Mechanical Section.	Cost of Marketing Grains.
Tobacco Warehousing and Standardization.	Cold Storage.	Cost of Marketing Fruits and Vegetables.
Cotton Warehousing.	Inspection.	Cost of Marketing Cot- ton.
		Retailing Meats.
		Market Business Prac- tices.

GENERAL DIVISIONS.

<i>Agricultural Finance.</i> — V. N. VALGREN.	<i>Agricultural Coopera- tion.</i> —L. S. TENNY.	<i>Land Economics.</i> — L. C. GRAY.
Rural Private Finance.	Economics of Coopera- tion.	Land Resources and Utilization.
Rural Public Finance.	Statistics of Coopera- tion.	Land Reclamation Sale and Settlement.
Agricultural Insurance.	Legal Phases of Coopera- tion.	Farm Labor.
Rural Public Utilities.		Land Tenure.
<i>Statistical and Historical Research.</i> —O. C. STINE.	<i>Farm Population and Rural Life.</i> — C. J. GALPIN.	Land Values.
Foreign Competition and Demand.	Rural Population Statis- tics.	Negroes and the Land.
Production Statistics.	Population Aspects of Rural Community Buildings.	<i>Division of Informa- tion.</i> —J. C. MARQUIS.
Market Statistics.	Farmers Standard of Living.	Editorial.
Agricultural History.		Periodicals and Press Service.
Transportation.		Radio News Service.
Graphics.		Exhibits and Motion Pic- tures.
		Market News Research.

This organization now comprises a Washington office with 990 employees and a field organization including some 148 branch offices of various types in 79 cities including 936 workers. The work of this organization is assembled around the main artery of communication, the leased wire system, which at the end of the fiscal year included 3,300 miles of leased wire extending from Boston in the East, to Minneapolis in the Northwest, and Austin, Tex., in the Southwest. On July 1 this system was extended to include Denver, Salt Lake City, Sacramento, San Francisco, Los Angeles, and Portland in the West, and later to Atlanta in the South.

Together with the movable field forces which include individual investigators, field statisticians, and special survey parties, the bureau now has contacts through its own staff with every important agricultural industry. Through the consolidation into a single bureau, the facilities of the leased wire, formerly utilized for market news only, have been made available for the dissemination of crop and livestock estimate information. Supplementing the leased wire, the system of radio broadcasting, primary and secondary, provides communication with all important agricultural sections of the country. The utilization of this organization is shown in detail in the descriptions of divisional activities which follow.

DIVISION OF FARM MANAGEMENT.

H. R. TOLLEY, *In Charge.* O. A. JUVE, *Cost Accountant.*

Farm Practice, and Types of Farming, W. J. Spillman; Organization of Southern Farms, C. L. Goodrich; Farm Business Analysis, H. W. Hawthorne; Farm Incomes, S. W. Mendum; Farm Power, L. A. Reynoldson and J. W. Tapp.

The Division of Farm Management has studied farm problems with the individual farmer constantly in mind. Its staff is composed of men of broad experience in farm operation. Its field contacts are with individual farmers, whose experience under observed conditions is recorded and analyzed for the purpose of supplying to farmers the most serviceable methods and ideas gleaned from

every available source as well as from their own group experience. Other divisions of the bureau make frequent demands upon the staff for data relating to individual farms or groups of farms, so that no small part of its service rendered lies in its contributions to the more general economic problems directly in the hands of other divisions. Much of its work is done in cooperation with state research organizations, as well as with other divisions of the bureau and of the Department of Agriculture. The problems of farmers are complex, because of changing conditions, so that studies covering extended periods of years are carried on and new ones are undertaken as those in process are completed.

The analysis and presentation of the data which have been collected during the past three years on the cost-accounting routes conducted by the Cost of Production Division was begun. The plan is to make this material available in such form that it can be used by the farmers who contribute the material, and by other farmers similarly situated, in choosing the best enterprises to include in their farm business, and in keeping these enterprises properly adjusted to changing conditions. This work is done in cooperation with the Cost of Production Division.

A comprehensive study of land utilization and farm organization in the northern Great Plains region was inaugurated, with a view to determining as nearly as possible from the experience of those who are farming there just what types of farming are best suited to the different parts of the region. The Division of Land Economics cooperates in this study.

DISTRIBUTION OF TYPES OF FARMING SHOWN.

A series of maps showing the geographic location of different types of farming throughout the country has been prepared. These maps will afford a better basis than has heretofore been available for determining the areas to which the results of its investigations are applicable.

Incomes from farming in 1922, together with the relative importance of different sources of receipts and expenditures in different sections of the country were determined, and reports from over 6,000 farms summarized and published. Plans were made for continuing this project on a larger scale during the coming year.

The problems of agricultural production in areas adjacent to cities was the subject of study with a view of determining the extent to which adjustments in production to meet the local demand can profitably be made. The area adjacent to Altoona, Pa., was chosen as the location for the first study, and plans were laid for making similar studies near a number of other cities during the coming year. In this work the division cooperates with other divisions and institutions.

A study of the management and organization of sugar-cane plantations in Louisiana was arranged in cooperation with the Cost of Production Division and the Louisiana State College. Complete records of the activities of a number of plantations are being kept for the year which when completed will be studied to determine the most profitable methods of producing sugar cane.

A farm management survey of 450 farms in Chester County, Pa., was begun. A somewhat similar study was made in this same area in 1911. The present study was undertaken to determine the changes in the organization and management of farms in this area during the 12 years intervening between the two investigations and to find out as nearly as possible the types of farming which will be most profitable there under present conditions.

An investigation was begun, in cooperation with the South Carolina College of Agriculture and Agricultural Experiment Station, to determine the changes in the organization and management of farms in that State which need to be made to meet the conditions that have developed there since the advent of the boll weevil.

STUDIES IN IDAHO, OHIO, AND FLORIDA COMPLETED.

A three-year study of farming in the irrigated sections around Twin Falls, Idaho, carried on in cooperation with the University of Idaho, was completed.

A six-year study of the management of citrus-fruit farms in Polk County, Fla., and of the organization and management of truck farms in Hillsboro County, Fla., was completed.

A five-year study of the effect of tractors on the organization of farms in northern Ohio was completed.

PROGRESS MADE IN CONTINUATION PROJECTS.

Four projects begun in previous years were continued. For the eleventh consecutive year, farm business analysis records of about 60 farms in Washington County, Ohio, were secured; for the second year, a study of the organization of dairy farms in Vermont; also for the second year, a study of dairy farms in New York State; cooperation was continued with the State colleges of Arkansas, Georgia, and Mississippi on combined research and extension work.

A study of the organization of about 200 farms in the irrigated district of the Yakima Valley in Washington was begun.

INVESTIGATIONAL METHODS IMPROVED.

Considerable attention was paid during the year to methods of collection and analysis of material, with a view toward making the results of farm-management investigations more useful. New schedules were designed for use in most of the work begun and plans were made for using more refined statistical methods.

A special study was made, in cooperation with the Division of Land Economics, to arrive at the best method of determining the use value of land as compared with the sale value.

Another special study was made in an effort to find the best method of determining the relative value of different classes of labor used on the farm.

FARM MANAGEMENT DEMONSTRATION WORK ASSISTED.

In cooperation with the farm management demonstration work, of the States Relations Service, a series of lantern slides for an illustrated lecture on Why Analyze My Business was prepared; a scenario for a moving picture showing the advantages of proper

organization of the farm business was written, and plans were made for issuing a series of demonstration bulletins setting forth in a more direct and striking way than has been done heretofore the results of a number of farm-management investigations which have been made in the past year.

DIVISION OF COST OF PRODUCTION.

R. H. WILCOX, *In charge.* O. A. JUVE, *Cost Accountant.*

Farm Records and Accounts; Crop Costs, M. R. Cooper; Livestock Costs, G. S. Klemmedson and R. D. Jennings; Cost and Price Relations, C. R. Hawley.

This division is working with farmers to help them determine the most productive and profitable types of livestock and crops to produce, the most efficient methods in the management and production of crops and livestock, the cost of producing farm products, and the relation of cost to prices. Showing costs of different farm products is very important, especially just at this time when the farmer is confronted with making readjustments in his production and must have information on costs and relative profitableness of crops and kinds of livestock to aid him in adjusting these enterprises to assure the largest net return. The producer has been rendered valuable assistance through information assembled and sent broadcast by this division covering the most profitable methods and practices in production. Facts have been made available covering the influence of high standards of efficiency in crop and livestock production.

In the study of individual farm products considerable emphasis has been put upon analyzing the different cost factors to determine their relationship to each other and to the total cost. Particular attention is being given at this time to methods in the field and feed lot which will reduce to a minimum the necessity for direct cash expenditures and to substituting, in so far as economic, those enterprises that can be handled by the feed and labor available on the farm. This has led to studies covering the proportion of cash and noncash cost demands made by the important farm products during the course of their production, and has resulted in many adjustments being made by producers to reduce their cash expenses.

In all cost studies there has been determined the amounts of labor and equipment required for the various operations, the seasonal distribution of this labor, the quantities of feed and pasture used in the production of meat and horsepower, and with all farm products just how their demands upon the factors of production influence the organization of the farm of which they are a unit.

The work of this division is grouped into three sections: (1) Farm records and accounts, (2) livestock costs, and (3) crop costs.

FARM RECORDS GATHERED IN MANY STATES.

Farm records and accounts are now being kept on a large number of farms covering the important systems and types of farming throughout the United States. These data depict for each type of farming a day by day record of farm operations, showing the demands made by each crop and kind of livestock for labor, machinery, cash expenditures, farm-grown feeds, and the other elements of production.

The scope of this work was expanded last year by beginning field studies in two heretofore untouched types of farming. Each farmer upon whose farm these data were gathered has been supplied with current reports covering his production and comparing his farm performance with the standards of his community. Information has from time to time been taken back to the communities in which studies are being made by the extension forces of the State colleges who through public meetings have given widespread assistance in helping each community solve its economic problem.

The results of six years' work in this field of investigation in New York State have been published in bulletin form. A second bulletin has been prepared by this division in cooperation with the State of Minnesota covering three years' results from a detailed cost route in Cottonwood and Jackson Counties, Minn. Two additional bulletins have been begun: one covering three years of work in Kansas and the second covering work in Montana.

All of the record and account work is carried on in cooperation with the State colleges and experiment stations, each State rendering financial assistance in the furtherance of this work.

WIDESPREAD STUDIES IN LIVESTOCK COSTS.

Livestock cost figures are now being gathered annually upon the many phases of cattle production and fattening from the ranches of the West, through the feed lots of the corn belt, and ending with the cattle finally at the stockyards ready for slaughter. In this phase of the cost work records are being gathered annually upon more than 100 ranches in Colorado and Texas. These production figures are supplemented with Corn Belt feeding costs each year covering more than 500 droves of western-grown cattle. A portion of the cattle are brought to the grass pastures of Kansas and there cost data are gathered on them until they are fat and shipped to market.

In this livestock work, as in other phases of the cost work, methods and practices are carefully analyzed with a view to determining for the livestock producer currently just the combinations of feed, labor, equipment, and other factors of production that will give him least cost and the largest net return. Data are assembled and given to livestock producers which indicate to them the condition under which livestock production is a profitable enterprise, the proper magnitude of the enterprise under different economic conditions, character of feed and equipment required, amount of labor involved, and the seasonal distribution of this labor, and show the relation of methods of feeding and herd management to efficiency in production. This livestock work is carried on with financial assistance from States in which costs are studied.

A special study has been made during the past year to determine the total cost to the cattle ranchman involved in running his cattle upon the forest reserves. Having these data to compare with costs upon summer grazing in fenced pastures, very considerable progress was made in helping each ranchman determine whether under his particular conditions it was more profitable for him to restrict his production to his own pastures or continue to use the forest reserves. General results obtained from this study have been published. In addition six reports have been issued covering work in livestock costs

in six Corn Belt States. Every farmer cooperating in these cattle studies has been furnished with reports covering the performance of his own cattle, together with data showing him good standards of performance in his community.

COSTS OF HOGS IN 1922.

During 1922 this division has gathered cost figures on more than a quarter of a million pounds of pork produced in the important hog-growing States of the Mississippi Valley. This is the first work of its kind attempted in which not only cost figures were gathered but day by day breeding herd and feed lot practices and methods recorded together with the quantities of feed, pasture, labor, and equipment used upon each individual farm under different management. The results from these differing methods and practices in hog production have been published and give to the hog man just what influence size of litter, differing rations, per cent of death loss, kind of equipment, age of sows, and other factors have upon costs and profits in hog production.

The cost of dairy production in the important butter-producing areas of the United States were covered by this division in cooperation with the agricultural colleges and experiment stations in New York, Wisconsin, and Minnesota. Dairy cost studies were also made in California, New Jersey, and Ohio. In addition to studying the relative costs and profits under different feeding and management, special attention and study was given to relative costs and profits in producing milk of different grades. The demand for high-grade sanitary milk by the principal consuming centers has led to setting up certain sanitary standards with an accompanying guarantee in the form of a price bonus for milk reaching these standards. Study was made in New York to determine whether the price margin of high-grade milk was sufficient to cover the additional expense required to produce milk of high grade. Results of this study are being published in bulletin form.

COSTS ON ALL IMPORTANT 1922 CROPS GATHERED THIS YEAR.

Crop cost figures for the entire United States covering 1922 production were assembled early this year. These figures gathered annually will furnish consumers and producers alike with information whereby they can measure the spreads between costs and prices and with which the economic condition of the crop-producing farmer can be measured currently.

Supplementing this widespread cost study, which shows conditions in agricultural production, local studies were made covering wheat production in sections of Oregon, Idaho, and Washington, and a former study into wheat costs in the principal spring and winter wheat sections of the country was summed up in a bulletin which is now in the hands of the printer. In the cotton cost work approximately 2,000 farm records covering a period of four years' work have been brought together, analyzed, and a publication prepared for distribution throughout the South giving to cotton growers a description of the field practices and methods resulting in the least cost and the highest net return in cotton production.

Investigators have been working with the tobacco growers of Kentucky and Virginia, the sugar-cane growers of Louisiana, the apple

growers of the Shenandoah Valley, the peach growers of New Jersey, the corn growers of Illinois, the wheat growers of Kansas, and the cotton growers of South Carolina, determining and pointing out the important causes for the present wide variation in costs, and showing, as a result of cost analysis, what combinations of the factors of production give the best results.

STATES LEND AID IN COST STUDIES.

Every State, in which cost work is carried on, is cooperating financially in so far as their State funds will permit. This indicates in a measure the importance placed upon these studies by institutions that are continuously looked to for sound advice. During the past year numerous requests have come from these State institutions that the cost work with their State be enlarged to cover types of farming not yet studied. The material gathered cooperatively by this division through farm records and accounts furnishes the background for university instruction in farm organization and management and in agricultural economics.

DIVISION OF CROP AND LIVESTOCK ESTIMATES.

W. F. CALLANDER. *in Charge.*

Crop Reporting Board, W. A. Schoenfeld, Assistant Chief of Bureau, Chairman; Research in Statistical Methods, J. A. Becker; Field Service, C. E. Gage; Tabulating and Computing Section, F. J. Blair.

INTENTIONS-TO-PLANT REPORTS BEGUN.

A new nation-wide inquiry was first made in April of this year covering all important crops to ascertain the acreage that farmers intended to plant to various crops, and from the thousands of reports received a statement was published which attracted a great deal of attention. In some quarters it was felt that the report was too late to permit farmers to change their plans with respect to crops of which the acreage gave indication of being too high or too low. This will be corrected another year. A second special inquiry was made as of August 1 to learn the intentions with respect to the planting of winter wheat and rye for the fall of 1923. This report was published August 15. It has been decided to incorporate intentions to plant reports into the regular system of crop reports, one to be issued in March covering spring-planted crops and one in August covering fall-sown crops.

A NEW SERVICE IN LIVESTOCK REPORTING.

With the material increase in the funds which was made available for the work of the division at the beginning of the last fiscal year, it has been possible to expand the scope of the work of the division so far as it relates to livestock. In developing plans to take care of the new livestock reports it was decided to handle the reports of swine direct from the Washington office, utilizing the rural carriers, and to depend entirely upon the field service for information concerning cattle and sheep.

SPECIAL CATTLE AND SHEEP REPORTS.

Two conferences were held, one at Chicago and Denver, at which the general outlines of the new livestock estimating work in the Corn Belt States were decided upon, and one at Denver, where plans for the range States were drawn up. At these conferences representatives of livestock producers were present. The program decided upon covered not only largely increased information as to changes in livestock production but also information as to probable market supplies to be available at seasonal periods from various States and regions.

While there was available considerable general information as to livestock market supplies, little attempt had ever been made to determine the actual origins of these supplies, either as among different States or different regions of production, and none to localize sources of supply within States as shown by actual marketings. In order to obtain this basic historical information, it was necessary to go to sources that were largely new and compile records that had never been worked up before. This included the records of stockyard companies, packing establishments, railroads, sanitary boards, and other organizations that handle or have authority over the handling of livestock in its marketing processes.

The information secured covered three years, 1920, 1921, and 1922, and involved a vast amount of work in compiling and organizing. With some exceptions this work has been completed in the Corn Belt and Western States, and when it is all done complete information will be available for the first time as to the total marketings of livestock by species from these States, covering the monthly volume, the marketing channels, important contributing areas, the "in" movement of stocker and feeder animals, and the proportion of the total numbers marketed that are raised in each State and that are only finished there. Intelligently interpreted, this information offers a reasonably safe basis for making numerical estimates of probable market supplies. The reports issued during the year covering the Corn Belt and adjacent areas have included estimates of—

(1) Cattle on feed in the Corn Belt on December 1, 1922, as compared to the same date in 1921, with information as to the source and character of the cattle on feed and the indicated time of marketing; with which was combined an estimate of cattle on feed for market in the Western States.

(2) Sheep and lambs on feed December 1, 1922, as compared with the same date in 1921, covering both the Corn Belt and the western irrigated regions separately and combined.

(3) Cattle on feed January 1, 1923.

(4) Sheep and lambs on feed January 1, 1923.

(5) Early spring lamb crop on important areas, principally California, Kentucky, Tennessee, and Virginia, but including also Corn Belt areas as of March 1.

(6) Cattle on feed in the Corn Belt on April 1, 1923, as compared to April 1, 1922, with information as to the character of the cattle and the indicated dates of marketing.

(7) Report on the development and condition of the early lamb crop to April 1.

(8) Report on the condition of the early lamb crop on May 1 and the progress of marketing.

The reports for the 17 Western States made during the fiscal year included:

(1) Monthly estimates of condition of ranges, cattle, and sheep, expressed as percentages of normal condition. These reports, especially the range and

pasture condition figures, were used by stockmen as an index to prospective marketings and condition of livestock.

(2) Numbers of cattle expected to be sold from New Mexico and Arizona for spring delivery and from all Western States for fall delivery; also numbers of sheep expected to be sold for fall delivery from the chief western sheep States.

(3) Calf and lamb crops of the first half of the calendar year 1923, also losses of sheep and cattle for the same period. For some States also marketing and slaughter of cattle and sheep.

(4) Number of cattle and sheep on feed in December, 1922, and January, 1923.

(5) Weekly reports of numbers of fed lambs marketed from Colorado and California during March and April.

Movement of cattle from the Southwest into Kansas, Oklahoma, California, and Colorado, spring of 1923.

Special reports for individual States included: Cattle for market from the Flint Hills section of Kansas; goats and mohair in Texas; pasture condition in each county of California, monthly; percentage of fat cattle for market compared with previous year, for Oklahoma.

SWINE REPORTS INDICATE PRODUCTION OF HOGS.

The special swine reports on the spring and fall production of pigs and intentions to breed which were started in the spring of 1922 in cooperation with the Post Office Department have proved a real success. In the spring of 1922, out of 500,000 schedules sent out to the rural carriers in the 17 States on which to gather information direct from the farmers, nearly 300,000 were returned. Based on the returns of these schedules a report was issued on June 25, 1922, which attracted a great deal of attention and which later developments showed to be approximately correct. Schedules were sent out and another report was issued in December similar to the one issued in June but covering the entire United States, and a third report was issued as of June 1, this year.

These reports have demonstrated their value as an indicator of the number of hogs that may be expected at market months in advance of the time when the report is made. The forecasts of intentions to breed are also of direct benefit to farmers and should become an important factor in stabilizing the supply. As the work develops and the weaknesses in the method are discovered and eliminated, it is believed that the actual number of pigs available for market can be forecasted many months in advance with a high degree of accuracy. The economic value of such information can not be questioned.

MONTHLY LIVESTOCK CHANGES REPORTED.

Another line of investigation in connection with livestock reporting has been actively pushed during the past year, namely, the reporting of changes taking place from month to month in the livestock population on farms. These monthly reports, which cover cattle, sheep, and swine, show the number of each species of livestock on the farm on the first of the month when the reports are made, and for the previous months, and the following information: (a) Births, (b) purchases, (c) sales, (d) deaths, and (e) number slaughtered on the farm. The demands for the results of this inquiry are numerous. So far, reports have been only for the United States as a whole, State details not being given. The data for the past years are now being reworked for the purpose of furnishing the information by geographic divisions as well as by States.

EXPANSION OF PRICE-REPORTING WORK.

The work of the division in reporting farm prices has also been considerably expanded during the year. Not only are prices secured on 68 separate farm products monthly, but a system of reports on what the farmer buys has been established. These were first gathered quarterly but will hereafter be gathered monthly. These cover 69 items grouped under eight classes. Plans have also been made to shift all of the work of gathering prices on farm products to the 15th of the month and combine all items in one schedule. This will insure the more prompt publication of those now gathered as of the first of the month and make a better distribution of the office work. Having a monthly record of prices paid as well as received will afford an excellent basis for establishing a series of index numbers on the purchasing power of farmers. Wages of farm labor and information as to supply and demand will be gathered monthly hereafter, the intention being to establish a monthly index of wages and farm labor supply.

FUNDS INADEQUATE FOR TRUCK-CROP REPORTS.

During the year approximately 375,000 truck-crop schedules were mailed out and 105 reports were issued covering 18 crops. This work was done largely by two field specialists, who make personal surveys of the most important truck-producing regions east of the Mississippi River, and Texas, and Colorado. The field force is inadequate to cover the field properly and the time of the agricultural statisticians located in the various States is too fully occupied with other work to devote much time to truck crops. The addition of two more truck-crop specialists would greatly improve the service.

LARGE VOLUME OF REPORTS FOR PAST YEAR.

Approximately 50,000 separate and distinct estimates of various kinds, including condition figures, yields, acreages, prices, stocks, etc., have been made for individual States and for the United States during the past year.

During the 12-month period ending June 30, approximately 4,838,000 schedules were dispatched from Washington to the regular and special correspondents covering all phases of agricultural production and prices. In addition to the schedules mailed from Washington, about an equal number was mailed from the field offices, making a total of over 9,000,000 schedules sent out during the year.

In order to secure information on the many subjects which are handled by the division it is necessary to maintain a number of separate lists of correspondents, the total number of reporters on all lists of the division now being over 260,000.

IMPROVEMENTS IN METHODS OF ESTIMATING ACREAGES.

Real progress has been made during the past year in the development of new and improved methods of crop forecasting and estimating, especially with respect to the estimating of acreage, which

has always been one of the most serious and baffling problems of the crop estimator.

Probably the most outstanding development has been the extensive use for the first time of what is called the "field count" method of estimating changes in acreage. Briefly, this consists of the counting of the number of fields in each kind of crop along selected routes in a State, the same routes being covered from year to year, a sufficient distance being covered to be typical of the entire State. A further improvement has been made by the development of a multiple speedometer or measuring instrument, which can be attached to the automobile, by which the linear measurements can be made to determine the number of feet or yards in each kind of crop between stated points. A number of these instruments are now being constructed and it is expected that they will be generally used for estimating the 1924 crop. The results obtained by this method indicate that, knowing the total area of land in a given section, it will be possible to estimate rather accurately the distribution of the acreage among the various crops as well as in idle and pasture land. By going over the same routes two or three times during the season, the acreage planted to any crop which has been abandoned or planted to other crops during the season can also be determined.

As the field-count method is a purely objective one, the personal equation is entirely eliminated. It can be used, furthermore, when the field-measurement plan is adopted and the total land area known in estimating one year's acreage independently of any previous year, which should go a long way toward eliminating cumulative errors.

Another method which is extensively used and which through better statistical analysis has been made more useful than formerly is that of securing from thousands of farmers in each State a report each year of the acreage each farmer has sown or planted to each crop, as well as the acreage in idle and unimproved land. The acreage in the various crops for the past year as well as the current year is secured for each farm reporting, making it possible to make a direct percentage comparison with the previous year as well as to determine the ratio of the various crops to each other as well as to the total acres in the farm.

STUDY OF NEW STATISTICAL METHOD.

A section of research has been established in the division during the past year and placed in charge of a thoroughly trained statistician. This section is now completing a study and revision of the department's estimates of acreage, yield, and production of all the principal crops for the various States back to 1866. These revisions will probably be published in the next Yearbook of the department.

Studies are also being made with a view to improving the technic of forecasting, including improvement in the methods of establishing the pars used in interpreting condition figures. Correlation studies of the relation of price and other factors to the acreage, as well as of the relation of weather to yield, are being made, all having for their object the development of a better basis for forecasting.

DIVISION OF COTTON MARKETING.

WM. R. MEADOWS, *In Charge.*

Classification of Cotton, F. W. Knight; Preparation and Distribution of Official Cotton Standards, H. C. Slade; Future and Spot Market Investigations and Cotton Price Quotations, A. M. Agelasto; Cotton Testing, William G. Blair; Investigation and Demonstration of Cotton Standards, George Butterworth; Cotton Marketing Demonstrations, G. S. Meloy; Research in Cotton Marketing, A. B. Cox; and Cotton Handling Investigations, R. L. Nixon.

COTTON STANDARDS ACT MADE EFFECTIVE.

The feature of the year's activities of the Division of Cotton Marketing was the enactment by Congress on March 4, 1923, of the United States cotton standards act, to become effective August 1, 1923. The chief provision of this act is the requirement of the use, in respect to classification as well as to quotations of prices, of the official cotton standards of the United States and their official designations, in interstate and foreign commerce involving any cotton for which standards may be in effect. The use of samples or private types, in good faith and not in evasion or substitution for the official standards, is permitted.

The act provides also for the licensing of cotton classers by the Secretary of Agriculture, for the classification of cotton by officers of the Department of Agriculture, and for the establishment and promulgation, in conjunction with the authorization contained in the United States cotton futures act, of official cotton standards of the United States. Under the terms of this act the standards established under the cotton futures act become effective for the purposes of this act.

Regulations were prepared and hearings were held at which the trade had opportunity to submit suggestions regarding the regulations. These were promulgated on July 21, 1923.

UNIVERSAL STANDARDS ADOPTED FOR AMERICAN COTTON.

The principal cotton exchanges of Europe have entered into an agreement with this department to make the Federal standards the universal standards for American cotton, as the culmination of negotiations covering a number of years. With the passage of the United States cotton standards act on March 4, 1923, the desirability of an international agreement on standards became increasingly evident. Accordingly a conference was called at Washington on June 11, 1923, at which representatives from the leading cotton exchanges of Europe met representatives of the American cotton trade and officials of the Department of Agriculture and reached the agreement that the official cotton standards of the United States for grade and color of American cotton, with some slight modifications, should be adopted as the universal standards.

Arrangements were completed by Lloyd S. Tenny, assistant chief of bureau, and Arthur W. Palmer of this division, who visited the cotton exchanges of Europe this summer for the purpose. Through their efforts, agreements for the adoption of the official standards for grade and color were signed by the Liverpool Cotton Association (Ltd.), Manchester Cotton Association (Ltd.), Syndicat du Commerce des Cotons du Havre, Bremer Baumwollbörse, Centro

Algodonero de Barcelona, Vereeniging voor den Katoenhandel te Rotterdam, and the British Federation of Master Cotton Spinners' Associations. Agreements are pending with the Association Cotonniere de Belgique of Ghent and the Associazione Contoniera Italiana of Milan.

As a result of the adoption of universal standards, international cotton business will be greatly simplified and the cause of disputes largely eliminated. The same standards will now be applied to American cotton throughout its course from the farm to the factory in any part of the world. The adoption of universal standards will shorten the path between the farmer and the spinner, will increase confidence among members of the trade and should reduce handling charges with ultimate benefit to both producer and consumer.

HEAVY DEMAND FOR COPIES OF OFFICIAL STANDARDS.

During the fiscal year 1923, \$30,339.80 was collected from the sale and revision of the practical forms of the official cotton standards and covered into the United States Treasury as miscellaneous receipts. The proceeds of the sales for the fiscal year 1922 amounted to only \$8,603.80. Up to June 30, 1923, copies of the official cotton standards had been distributed as follows: Full white sets, 1,498; fractional white sets, 1,136; full color sets, 295; fractional color sets, 341; American Egyptian sets, 123; Sea Island sets, 20; full staple sets, 48; additional staple types, 2,297. It is expected that the demand for these standards will be very large during the current year.

CLASSIFICATION OF COTTON CONTINUES SELF-SUPPORTING.

All cotton intended for delivery on future contracts is classified by officials of the Department of Agriculture, under an amendment to the United States cotton futures act. During the past year in the regular classification work 60,823 bales of cotton were classified by the Board of Cotton Examiners at New York and 85,278 bales by the board at New Orleans. At New York 3,252 bales were submitted a second time for review and in the review the classification of 396 bales was changed. At New Orleans 1,528 bales were submitted to the board a second time for review and in the review the classification of 352 bales was changed. In addition, in the preliminary sample classification work, 3,871 samples were classed by the board at New York and 1,260 by the board at New Orleans.

The sum of \$45,320.11 was collected as classification fees, including the proceeds from sales of loose cotton during the year, and was deposited to the credit of the revolving fund maintained for the conduct of the work. The classification work continues to be self-supporting and the fees are increased or decreased as the condition of the revolving fund warrants. Only slight changes in the fees were made during the year, the principal one being the elimination of the minimum of \$2.50 for any lot.

TESTS TO DETERMINE SPINNING VALUE OF COTTON.

Investigations were made during the past fiscal year (1) to determine the comparative spinning value of superior varieties of cotton grown under weevil conditions in the Southeastern States, crop of 1921; (2) to determine the spinning value of cotton exposed to country damage; (3) to determine the comparative spinning value of

segregated Pima cotton. American Egyptian cotton was also ginned and pressed under different moisture conditions in order to determine the effect upon its spinning value, tests of which will be made during the next fiscal year.

Laboratory tests were conducted to determine the strength of individual fibers for other bureaus of the department and outside parties, as well as in connection with the spinning tests. Laboratory tests were also made to determine the strength of the yarn spun and to determine the moisture content of the cotton in the various stages of manufacture.

The results of the spinning tests of cotton compressed to different densities and of superior varieties of cotton grown under weevil conditions in the Southeastern States, crop of 1921, have been published as Department Bulletins No. 1135, Spinning Tests of Cotton Compressed to Different Densities, and No. 1148, Comparative Spinning Tests of Superior Varieties of Cotton.

The spinning tests of superior varieties of cotton showed clearly the desirability, from a spinning standpoint, of fiber produced by pure-bred strains of superior varieties of cotton over that produced from commercial seed even when grown in districts in which the reputation for character in cotton is excellent.

Spinning tests of cotton exposed to country damage have been made and the results of these tests show that the cotton, remaining after the country damage has been removed, has not been injured by the method of storing.

CLASSING DEMONSTRATIONS AN AID TO PRODUCERS.

This project is educational in its nature and is conducted generally in cooperation with the extension service of the several States. A cotton specialist is employed and assigned as a leader of the work in each State. It is his duty to assist cotton growers in organizing into community associations. He is also charged with the supervision of the cotton classers who are employed and placed with each organized community. The classification of the growers' cotton is done as a means of instruction. The factors of value in cotton are explained to the growers and methods of marketing and the improving of the grade and character of the cotton produced are explained and demonstrated.

These demonstrations have had a very material influence on the recent efforts to organize State-wide pooling associations. In some instances the classification of cotton of such a large percentage of the growers has been undertaken by these associations, for example in South Carolina, Arkansas, and Oklahoma, that the continuance of the demonstrations seems unnecessary and they have been suspended pending the development of similar work by the associations.

This work has shown most strikingly the need for a more general adoption by communities of single superior varieties of cotton to replace the present diversity of product, the great desirability of better cooperation on the part of ginneries so as to improve the grade and baling, and the need of better facilities for local storage and transportation. Improvement is marked in the average grade and in the character of the cotton produced in communities in which the demonstrations have been conducted for a series of years. The improvement has been commented upon favorably by the cotton dealers as well as by the producers.

During the year a course of illustrated lectures on the production, classification, handling, marketing, and manufacturing of cotton was given at several of the State agricultural and mechanical colleges.

FUTURE AND SPOT MARKET PRICE QUOTATIONS.

The purpose of this work is to secure accurate quotations on cotton and give them the widest possible publicity. The specific objects in view are (1) that cotton of grades other than middling delivered on future contracts, made subject to section 5 of the United States cotton futures act, may be settled for at actual commercial differences in value, to the end that a proper parity may be maintained between prices of future cotton and spot cotton, and (2) that producers, merchants, and others interested in spot cotton may have accurate information as to the prices of cotton, and particularly grades untenderable on future contracts.

The cotton price quotation service has been maintained in the five districts for which Charlotte, Atlanta, Memphis, New Orleans, and Dallas are headquarters. Reports of purchases and sales of cotton are gathered from country buyers, country merchants, dealers, brokers, commission merchants, factors, mills, and others who buy or sell cotton in important country markets and concentration points throughout the belt. On the basis of these reports weekly bulletins were prepared and published, showing the prices at which the various grades of cotton were actually bought and sold. The information contained in the bulletins can be obtained by the telephone and telegraph by any person who will request such service and pay the transmission expense involved. The bulletins are mailed free of charge to anyone requesting them.

Several newspapers and periodicals in the South, having a combined circulation of over a million and a half copies, are cooperating with us in this work by publishing each week reports of sales of cotton and prices at interior markets, which reports are furnished them by our field offices. Thus the quotation service is made available to a very large number of interested persons, all of whom it would be impossible for us to reach direct.

The cotton market in general was broadcasted daily by radio from all the branch offices during the last half of the year in addition to the weekly bulletin information regarding cotton prices. Plans are in the making for the more extensive use of the radio for broadcasting information regarding cotton.

GRAIN DIVISION.

H. J. BESLEY, *In Charge.*

Grain Investigations, E. G. Boerner; Milling and Baking Investigations, J. H. Shollenberger; Research Laboratory, D. A. Coleman; Establishment of Grades for Barley and Rye, J. H. Cox; Grain Cleaning, R. H. Black; Bulk Handling, E. N. Bates; Federal Grain Supervision, E. J. Murphy and G. W. Morrison, Washington, D. C., and R. T. Miles, General Field Headquarters, Chicago; O. F. Phillips, Chairman, Board of Review; F. G. Smith, Inspection Efficiency; C. L. Finch, Enforcement; and B. W. Whitlock in Portland.

REVISION IN WHEAT STANDARDS FACILITATES EXPORT TRADE.

The classes of wheat formerly designated "Common White" and "White Club" in the official grain standards of the United States

for wheat were combined into one general class known as "White." This class was subdivided into three subclasses known as "Hard White," "Soft White," and "Western White." This change was made to facilitate the movement of export wheat from the Pacific coast under Federal standards. The use of the so-called Portland Chamber of Commerce type samples was discontinued on July 1, 1922. In addition, the name of the subclass "Red Walla" of the soft red winter wheat class was changed to read "Western Red."

OFFICIAL STANDARDS FOR RYE PROMULGATED.

During February and March public hearings were afforded all branches of the grain industry, as well as inspectors and State officials, on the matter of official standards for rye. The standards as prepared by this division were heartily indorsed at all of these hearings, and after a few minor changes they were promulgated to become effective July 1, 1923. Urgent requests had come to the department from members of the grain trade in this country for the establishment of Federal standards for rye, and, in addition, foreign buyers made strong recommendations to the department, through the State Department, for their establishment in order that this grain might be upon the same basis as shelled corn, wheat, and oats. This demand by the domestic grain trade, as well as foreign buyers in European countries, indicates a wholesome confidence in the value of inspection certificates issued by the licensees of this department.

REGULATIONS ESTABLISHED FOR UNIFORM LOADING OF VESSELS.

Amendments to the regulations under the grain standards act were made to provide for the uniform loading of cargo grain. The regulation provides that grain not uniform in quality and condition should be segregated for the purpose of inspection, and certificates issued on the separate lots of grain of different grades. The proper observance of these regulations will eliminate complaints from foreign buyers regarding the grade of grain exported from this country.

STANDARDS FOR ROUGH AND MILLED RICE.

United States grades for rough rice and revised United States grades for milled rice were established as permissive standards, effective August 1, 1923, following the completion of extensive studies, and were recommended for the grading and marketing of rough rice and milled rice respectively.

Tentative grades for barley were prepared during the past year and these grades are now being applied in an investigational way to determine whether the grades are properly arranged to meet commercial needs fully. Considerable progress was made in investigations covering brown rice and flaxseed, looking toward the establishment of the United States grades for these commodities.

REGULATION COVERING SHIPMENTS BETWEEN NONINSPECTION POINTS.

Regulations covering the interstate shipment of noninspected grain by grade between noninspection points were promulgated requiring that shippers state on invoices covering such grain that the same has not been inspected by a licensed inspector, and advising the consignees that such grain is subject to the dispute privilege under the

grain standards act. This regulation was deemed advisable in order to correct certain abuses which had developed in this branch of the industry.

FOREIGN MATERIAL NOW SHOWN ON INSPECTION CERTIFICATE.

By direction of the Secretary, licensed inspectors at Minneapolis and Duluth were required to state on all certificates issued by them for hard red spring or durum wheat the principal kinds and quantity of foreign material when this factor determined the grade; and to show on their certificates the grade to which the grain would otherwise be entitled were it not for these factors. This requirement was in the nature of a follow-up of the know-your-own-wheat campaign conducted during the previous year.

NEW TYPES OF GRAIN-CLEANING MACHINES.

Experiments to develop grain cleaning machines and methods for cleaning the foreign material out of the grain at the threshing machine, as part of the threshing operation, were continued. Statistics show that there was approximately 1 bushel of foreign seeds and trash (dockage) in every 23 bushels of spring wheat received at Minneapolis and Duluth during the crop movement ending August 31, 1923. If this dockage had been cleaned out of the wheat and then shipped separately to market, it would have filled over 11,383 freight cars, each containing 40,000 pounds. This represents an enormous agricultural waste. The two types of cleaning machines that were developed during the previous year were redesigned and proved to be very efficient in operation. One of the successful cleaners is especially adapted to conditions in the spring wheat section of the Central Northwest, and the other is more especially adapted to conditions found in the Pacific Coast States. Three additional types of cleaning machines for use in conjunction with the threshing machine, and which can be manufactured at a lower cost, were designed and built and will be tested during the 1923 threshing season to determine their efficiency in operation.

PROGRESS IN FIELD WORK.

Refinement of operating methods on the part of the three projects which comprise the work of the Federal Grain Supervision, namely, inspection efficiency, board of review, and division of enforcement, coincident with increased understanding on the part of district officers of Federal Grain Supervision, inspection departments, and the grain trade, account largely for the higher accuracy of inspection, higher uniformity of inspection between markets, and the apparent greater satisfaction with the services afforded by Federal Grain Supervision. Among the major situations which arose during the past year were: Hearings at Portland and Seattle accorded to licensed inspectors for the misgrading of export cargoes; conferences with the trade and inspection department at Chicago on the subject of unsatisfactory inspection at railroad inspection points; conferences with terminal market operators from Buffalo, Detroit, Cincinnati, Cleveland, and Toledo on the subject of shipment of grain by grade between noninspection points, and the promulgation of regulations providing for the even loading of cargoes.

The merchandising of grain is becoming more specialized and technical, which suggests the necessity of constant improvement in supervision and inspection methods and in interpretations and revisions of standards to meet these developments. The general field headquarter's staff and division and district officers have cooperated with the grain investigations project in the study of the handling, transportation, and storage of grain, and in the examination of specific problems arising out of the regulatory work through the enforcement of official grain standards for shelled corn, wheat, oats, and rye. The outstanding questions in this respect which demand an early solution and to which intensive effort and study are given are: (1) Effectively cleaning grain pursuant to dockage determination under the wheat standards in order to establish the highest numerical grade possible on a given lot of wheat commensurate with its merchandising and processing possibilities; (2) improvement of grain storage on the farm with a view to enabling producers to put on the market grain of a superior quality.

TEST FOR OIL CONTENT IN FLAXSEED.

A simple and accurate test for determining the percentage of oil content in flaxseed was developed, which decreases the time of making a routine quantitative oil test from 24 hours to only one hour. Progress is being made on another method which will further reduce the time to approximately 15 minutes. A quick oil test for flaxseed is important as a grading factor. Several thousand analyses of domestic flaxseed made during the past year show that the oil content varies approximately 6 per cent in different lots.

MILLING AND BAKING INVESTIGATIONS.

Milling and baking investigations were made of the various classes and grades of wheat marketed in commerce, and special investigations were conducted to determine the influence of weed seeds, garlic, and frost and heat-damaged kernels on the milling and baking value of wheat. The data secured in these investigations were used in connection with the solution of problems arising from the enforcement of the United States grain standards act. Investigations of the milling and baking qualities of wheat varieties were conducted for the purpose of securing information which will lead to the development and production of superior wheat. Two manuscripts were prepared and accepted for publication. Our past seven years' milling and baking investigations of wheat varieties is summarized in Department Bulletin 1183, Milling and Baking Experiments with American Wheat Varieties, and in Department Bulletin 1187, Experimental Milling and Baking, is given a statement of the purpose and value of milling and baking laboratory experiments, together with a full description of the method and equipment used in connection with our investigations for the purpose of grain standards.

STUDIES OF METHODS OF PREVENTION OF HEAT DAMAGE IN GRAIN.

The subject of heat damage in grain was extensively studied. Investigations were conducted in the Southwest wheat-growing sections to determine the cause of heat damage in wheat on the farm, and experimental ventilators of various designs were installed in

farmers' grain bins. The experiments are not yet completed, but the results so far obtained indicate that heat damage resulting in low-grade wheat can be prevented through proper ventilation. Milling, baking, and chemical tests on samples of wheat in various degrees of heat damage were made and the data were assembled for use in connection with the enforcement of the United States grain standards act.

IMPROVED METHODS OF HANDLING GRAIN.

Much assistance was rendered to the grain industry in the Pacific Northwest in connection with the movement that is going on in that section of changing over from the sack method to the bulk method of handling grain. Investigations to determine the savings effected in the handling, storing, smutting, and grading of grain in bulk were conducted, and the results were made available to the grain trade, including the producers.

IMPROVEMENTS MADE IN GRAIN-GRADING EQUIPMENT.

Improvement was made in the design of grain-grading equipment; plug gauges were developed for determining the accuracy of the dockage testing sieves; a mold was developed for testing the accuracy of moisture flasks; gas-pressure governors were installed on the moisture testers in the offices of Federal grain supervision located in the Corn Belt and at the export market; and a new steel probe for sampling grain in cars was developed. Specifications for improved grain-grading equipment were prepared for use in securing uniform apparatus and the specifications were made public.

APPEALS FROM GRADE ASSIGNED BY LICENSED INSPECTORS.

During the fiscal year a total of 25,501 appeals were taken from inspections performed by licensed inspectors. Of this number 573 went to board appeal. Approximately 45 per cent of appeals filed on all grains were sustained; that is, the inspector's grade was changed and superseded by Federal-appeal grade certificates. In the case of sustained appeals no charge is made to the appellant, but in the remaining 55 per cent of appeals called which were not sustained fees were assessed and the sum of \$32,471.16 was covered into the Treasury as miscellaneous receipts.

VIOLATIONS OF THE GRAIN STANDARDS ACT.

Fifteen cases of violation of section 4 of the law were filed by the United States attorney at Nashville against five defendants who pleaded guilty to the informations filed against them. A case involving 22 specific violations of the law is now pending in the Department of Justice awaiting prosecution. Five cases involving violation of section 5 of the act, which covers the misrepresentation of the grade of grain, as well as alteration of inspection certificates, were concluded during the year, and the Secretary published his findings, which is the penalty provided by law. In addition, the facts were published in connection with the plugging of several carloads of wheat with low-grade grain in the bottom of the cars. So-called plugged-car cases continue to come to our attention, and considerable effort has been spent during the year to break up this

fraudulent practice. The work done by the enforcement division in placing before the public the facts regarding violations of section 5 of the law has been highly commended by the best element of the grain trade. At the last meeting of the Grain Dealers' National Association a resolution was adopted calling for the expulsion from the association of any member found guilty of violating section 5 of the grain standards act.

DIVISION OF HAY, FEED, AND SEED.

W. A. WHEELER, *In Charge.*

Hay and Feed Marketing Investigations and Market News Service, G. A. Collier and G. C. Wheeler; Seed Marketing Investigations and Market News Service, G. C. Edler; Hay Standards, E. C. Parker; Hay Inspection Service, K. B. Seeds; Broomcorn Marketing Investigations and News Service, G. B. Alguire.

HAY STANDARDS PROMULGATED.

As the culmination of several years of intensive research work Federal grades for timothy, clover, timothy and clover mixed, mixed grass and timothy, and grass mixed hay were promulgated by the department in November, 1922. Schools for training inspectors were held in Alexandria, Va., and Auburn, N. Y., and 16 men were licensed by the department to inspect hay.

Field studies were made to determine the effect of time or stage of cutting and of soil types on the color of timothy hay when field cured or cured in the shade. Samples of hay were collected for exhibits and for use in training inspectors.

Urgent demand has been made in the West for standardized grades for alfalfa hay. Toward the close of the fiscal year steps were taken to shape investigational work toward the recommendation of alfalfa grades in the near future.

HAY INSPECTION INAUGURATED IN SEVEN CITIES.

Federal inspection of hay was inaugurated during January, 1923, in New York City, Auburn, N. Y., Chicago, Boston, Philadelphia, Richmond, and Washington, D. C. The Chicago Hay Exchange and nearly all dealers in Chicago not members of the exchange voluntarily agreed to have all the hay received or shipped by them Federally inspected. The New York State Hay and Grain Dealers Association adopted the Federal grades and is cooperating with the department in establishing Federal shipping point inspection throughout the State. The National Hay Association passed a resolution at its annual meeting in 1923, pledging "its united support to the Department of Agriculture in devising a workable system of inspection and practical grades," and instructing and empowering its grades committee to "advise with the Department of Agriculture in the work of Federal inspection and grades and assist them in establishing grades that will promote the best interests of all concerned in the producing, handling, and consuming of hay."

HAY-MARKETING METHODS STUDIED.

Methods of marketing hay employed by shippers and dealers both in producing and distributing sections were studied and a manuscript has been prepared for publication. Use has been made of the

information obtained in replying to special requests for such information from shippers and dealers throughout the country.

CLEANING COTTONSEED FOR PLANTING.

Effects of delinting and recleaning on the agricultural and commercial value of cottonseed for planting purposes were studied during the fiscal year. The relation of the rate of delinting to the appearance of the seed, the percentage of seed cut by delinter saws, the time required for and total percentage of germination and weight per measured bushel or volume of 30 pounds were determined. Detailed results of these studies are incorporated in Department Bulletin No. 1219, *Delinting and Recleaning Cottonseed for Planting Purposes*, now in press.

Progress made by seed dealers in installing delinting and recleaning machinery is being closely followed and suggestion and assistance given whenever requested. More dealers are delinting and recleaning cottonseed each season and the use of recleaned, delinted seed is being extended with gratifying results on the part of growers. This question is of world-wide interest and inquiries upon the subject of delinting and recleaning cottonseed have been received from government agencies in India and New South Wales.

MARKET NEWS SERVICE ON HAY, FEED, SEED, AND BROOMCORN.

The market news service has been continued along the same lines as in former years. The feed and hay news service was materially extended during the year. At the request of marketing agencies of several States, feed and hay information was furnished them several times each week and feed and hay reports were issued by the States and this department cooperatively. Information on prices, supplies, demand, movement, etc., is obtained from approximately 20 of the principal markets of the United States. The commodities covered include timothy, alfalfa, and prairie hay, straw, bran, wheat and rye middlings, cottonseed and linseed meal, hominy, gluten feed, peanut and velvet bean meal, dried beet pulp, broomcorn and all the important kinds of clover, grass, millet, and sorghum seeds.

Hay and feed information is disseminated through the daily marketgrams and fuller reports as well as reports on seed are published in *Weather, Crops, and Markets*. In addition to the regular weekly reviews of seed trade conditions, reports on the outlook, movement, shipment, and prices of seed were issued throughout the summer and fall when the seed crops were moving from grower to distributor.

DIVISION OF LIVESTOCK, MEATS, AND WOOL DIVISION.

CHARLES V. WHALIN, *In Charge*.

Livestock Market Investigations and Grade Standardization, C. A. Burmeister, Purebred Livestock Market Investigations, L. B. Burk; Meat Market Investigations and Meat Standardization, W. C. Davis; Wool Market Investigations and Wool Standardization, G. T. Willingmyre; Market Information, C. E. Gibbons; Livestock Market News, E. W. Baker; Meat Market News, J. A. Burgess.

At the beginning of the fiscal year this division had branch offices with leased wire connections for reporting the wholesale meat

trade in Boston, New York City, Philadelphia, and Chicago, and the livestock markets in Chicago, St. Paul, Kansas City, East St. Louis, Omaha, and St. Joseph.

The market reporting service and the methods of operating it have been practically standardized, hence there is little in the way of new accomplishments to report each year, except when extension is made to other markets. Every effort has been made, however, to refine and improve the service and to utilize the most modern methods of news dissemination as they are devised.

HOW LIVESTOCK REPORTERS FOLLOW MARKETS.

A brief description of the day's routine in one of the division's branch offices at a livestock market will outline clearly the kind of service rendered by the bureau in reporting the livestock markets. A day's work at the Chicago office, located in the midst of the world's largest livestock market, is representative, in a general way, of the service rendered at all the offices.

At 4 a. m. the employee who prepares the estimates of the number of livestock to be received for the day's trading reports for duty and calls by telephone the various railroads entering Chicago for detailed report of livestock by cars expected to arrive during the day. By 6 a. m. his reports are assembled, the results tabulated, and the estimate of the number of each species due to arrive is ready for release. These estimates are posted on bulletin boards in the exchange building and throughout the yards, filed with commercial telegraph companies, and transmitted over the bureau's leased wires to all the branch offices, and sent out to a number of agencies.

At 8 a. m. the meat market reporter telephones the wholesale markets and branch houses for information regarding meat supplies, trade conditions, market trends, and detailed prices. This information is assembled in a report which is forwarded at 9 a. m. by leased wire to the other branch offices. The reporter then proceeds to the wholesale and branch houses, where he observes trading and gathers first-hand information to use in preparing his detailed report of wholesale meat-trade conditions and prices. This report, together with the reports which have been received by leased wire from the branch offices in Boston, New York, and Philadelphia relative to trade conditions in those cities, is mimeographed and released to a mailing list of those who are especially interested.

By 8.30 a. m. those reporting the hog market have made their early rounds through the hog yards, observing trading, and are ready to send out the first market flash over the commercial and leased wires, giving the opening hog market. At 9 a. m. the cattle and sheep market reporters start on their rounds through the yards. At 9.15 a. m. the second hog flash giving development of the market to that hour is sent over the leased wires and is followed by the cattle and sheep flashes at 10 a. m. By 10.30 a. m. the reporters are ready to release a complete report with prices on all classes and grades of livestock. This report is transmitted by wire to all the offices. It pictures as nearly as possible what has transpired in the market up to that hour. At 11 a. m. the employee responsible for the preparation of the estimates releases the advanced estimates of

the number of livestock due to arrive the following day, which he has prepared in a similar manner to that released at 6 a. m.

DISTRIBUTION OF FINAL SUMMARIES.

The closing market report is prepared at 12.30 p. m., giving any changes that may occur after the 10.30 detailed report. In this final report each market reporter prepares a written summary of his particular market, giving detailed description of what has transpired during the day. This final report, together with summaries and detailed quotations from the other leading central markets, is mimeographed and distributed to a large mailing list.

It is usually 2.30 to 3 o'clock before the day's work of reporting the market is completed. The remainder of the day is utilized in conducting special studies and doing research work. The meat market reporter prepares special reports and prices for Washington and the eastern offices: he also writes monthly and weekly summaries of conditions in the wholesale meat trade and compiles reports on retail market conditions and prices. The livestock market reporters prepare special reports, weekly summaries, and weekly reviews for the branch offices located in eastern meat consuming centers and for agricultural and trade papers. Reviews and other items are also prepared for *Weather, Crops, and Markets*, the official market publication of the department, published in Washington.

The Postal Telegraph Co., the Western Union Telegraph Co., the Associated Press, the Illinois News Bureau, and the Illinois Agricultural Association are news-disseminating agencies which take part or all of the various reports released by the Chicago office in furnishing news to their subscribers. Complete reports of the Chicago and other principal markets are prepared for broadcasting from three radio stations operating in or near Chicago. In addition, several special market wires are prepared each day for individuals and commercial concerns interested in only certain features of the market.

MEAT REPORTS FOR THREE PRINCIPAL EASTERN CITIES.

Wholesale meat-trade information secured in three principal eastern markets is collected and disseminated in the same manner as that outlined under livestock market reports above. In addition to preparing mimeographed reports covering conditions at his market, the reporter releases a number of miscellaneous reports prepared in Washington and in the other branch offices which are of particular interest to the livestock and meat industries. He is always ready to respond to special requests for information and at some of the offices he prepares reports for radio broadcasting and for publication in trade and commercial papers.

The representatives at the three eastern markets also compile information desired by the Washington office regarding imports and exports of livestock, meats, wool, and other animal products. In addition they compile records showing the volume of western dressed and local slaughtered meats received in their cities.

Under a cooperative agreement with the State authorities in Missouri, a branch office was maintained at St. Joseph, Mo. The reports of the St. Joseph market were transmitted by leased wire to Jefferson City, where they were broadcasted by radio, in addition

to the usual dissemination through the press and to individuals requesting the reports. It was necessary to close this office on account of lack of appropriation, although the service was very popular and many protests were made when the distribution of these reports was discontinued.

LOS ANGELES AND SAN FRANCISCO RECEIVED SERVICE.

A local livestock-market reporting service was established at Los Angeles and San Francisco, through a cooperative agreement made with the State division of markets of the California Department of Agriculture, in response to requests from California cattlemen. Every effort was made to obtain the widest dissemination through the press, the radio, and through producers' organizations. Daily reports were furnished the press association and the metropolitan newspapers, and weekly summaries were prepared for country newspapers and farm journals.

REPORTS ON CALIFORNIA LAMBS ASSIST PRODUCERS AND TRADE.

California, on account of its strategic location, is the first early large commercial lamb-producing district in the United States, and probably the most distant from the larger centralized livestock markets. Early in the season the San Francisco representative attended a meeting of the producers and of the executives of the leading railroads traversing the districts having transcontinental connections to the large livestock markets to work out a fast service schedule which would put California lambs on the Omaha market in seven days and to Chicago in eight days. Through the cooperation of the shippers with the carriers this service was maintained throughout the season and resulted in moving 1,970 carloads of spring lambs during the period of March 15 to June 3 out of the State.

As the spring-lamb season progressed a drought developed in the San Joaquin Valley which promised to curtail production by the loss of thousands of lambs. This lack of rain cut down pastures and prevented the young lambs from becoming fat enough to find outlet for immediate slaughter, thus producing a larger number of thin lambs suitable for a short turn on green pastures in other sections of the State and for feeding purposes in other States.

A quick detailed survey was made and telegrams dispatched to all local offices of the bureau through the Washington office, which resulted in considerable inquiry from Texas, Colorado, Nebraska, and territory contiguous to Chicago as to the quality, average weights, range in weight, and prices f. o. b. cars in the San Joaquin Valley, while local publicity given the situation resulted in moving these lambs to other counties in the State. The gravity of the situation was presented to the railroad companies, which in turn published feeder rates and drought rates for the movement over the various railroads and resulted in a one-way rate within the State from points in the San Joaquin Valley on the round trip. The movement saved many ewes which otherwise might have been lost to potential production. The exact number of cars moved can not be definitely determined, but officials of the railroads stated that the movement was large in the aggregate.

OFFICE OPENED AT FORT WORTH.

On December, 1922, a branch office was located at Fort Worth, Tex., and a news service begun for the benefit of the local trade. Reports are also disseminated through the press, commercial telegraph companies, and by radio.

A limited service was given on livestock at Atlanta through cooperation with the Crop Estimates Division. During the present fiscal year a more complete service will be possible at this and other points.

NEWS SERVICE ON WOOL BEGINS.

Weekly reports on wool conditions throughout the range States were secured through the bureau representatives for the producing areas during April, May, and June of this year. This information was assembled and transmitted by wire to the division's branch offices for mimeographed release and for general publication. A mimeographed publication, Wool Notes, has been issued on the first of each month. This carries information on conditions and prices in the United States and abroad, a review of wool conditions in the farm and range States, a summarized statement of monthly consumption of wool, and detailed figures on imports of wool at Boston and Philadelphia. Quarterly stock reports were continued, showing the stocks of wool in the hands of dealers and manufacturers.

WIDE PUBLICITY FOR CURRENT INFORMATION.

Without additional cost to the Government a very much wider dissemination of the information on prices and market conditions has been secured. Special reports are prepared by this division for both the United Press and the Associated Press to send to the various newspapers subscribing to their service and for the Western Union and the Postal Telegraph companies as a special feature in their Commercial News Dispatch service, commonly known as the C. N. D. service. Radical changes were made during the year in the form of the reports furnished these press associations, and it is generally accepted that the reports have been greatly improved. Branch offices prepare special weekly reviews of livestock market conditions for the Associated Press. The distribution of these reports through the press associations makes it possible for practically every newspaper reader in the country to have access to the bureau's market reports without delay.

LIVESTOCK STANDARDS WELL RECEIVED BY TRADE.

Results obtained during the year in connection with the development of standard grades for livestock were gratifying. Standardization of grades for these products has been given attention since the inauguration of the livestock market news service in 1917, but did not attract attention of producers and the trade until the past year. Not only have many inquiries been received regarding the work being done, but there has been a demand for literature and demonstrations to show how the standards might be applied in actual practice. Leading trade journals have manifested an active interest in the subject and one of them conducted a vigorous campaign for the purpose of educating its leaders as to the need of a standard

classification and as to the merits of the one worked out by the bureau.

The bureau's market classification for livestock was revised and practically all objectionable features eliminated. The revised classification, modified and elaborated to make it suitable for all possible conditions in various parts of the country, is without doubt the most complete classification for meat animals ever available, and constitutes a long step forward in standardization. The demonstrations conducted for the purpose of educating producers regarding the practicability of the standard classifications for livestock and wool have aroused such keen interest that the demands for further demonstrations are greater than can be met with the force available.

CLASSES AND GRADES FOR DRESSED MEATS PROVE VALUABLE.

The work of standardizing classes and grades of dressed meats has fully paralleled that done with respect to livestock. A bulletin on Market Classes and Grades of Dressed Beef was submitted for publication. Another step along the line of promulgating grades for dressed meat and demonstrating their practicability was taken when complete specifications covering beef, veal, lamb, mutton, pork, and miscellaneous meats were prepared and distributed among public institutions, interested organizations, and individuals. These specifications describe the different classes and grades so clearly that firms contemplating entering bids for meat contracts have no difficulty in understanding precisely the grade of meat required, and institutions making such purchases are in a position to enforce their wishes by requiring that all meats supplied conform to the specifications outlined. The specifications have met with virtually universal approval and it is expected that when they become generally distributed and understood they will do much toward simplifying trading in meats.

The standardization program was extended to include methods of cutting meats. Methods of reducing meat carcasses to wholesale and retail cuts vary widely. This leads to considerable waste, not only of edible meats but of time, effort, and money, and makes it practically impossible to compare prices prevailing on the various markets. The elimination of this confusion and waste can be accomplished only by establishing standard cutting methods throughout the country. In order to accomplish this, Department Circular 300, Commercial Cuts of Meat, illustrated with charts showing methods of cutting recommended, has been prepared for publication.

ECONOMIES EFFECTED FOR UNITED STATES SHIPPING BOARD.

The practical value of standard classes and grades and standard methods of cutting meats was fully demonstrated when the United States Shipping Board requested the bureau to ascertain why the meats delivered to its various steamships on contract were unsatisfactory. Investigation disclosed that most of the trouble was due to lack of standard specifications. The Shipping Board then requested the bureau to inspect all meats, poultry, and fish offered to the United States lines on contract and require that they comply with the specifications drawn up by the bureau and adopted by the Shipping Board as the standards on which such products would be

purchased. The inspection service resulted in great economies to the Government. Furthermore, it increased the competition on the part of dealers for the business and eliminated wide price spreads, which had prevailed before the inauguration of the inspection service.

WOOL STANDARDS PROMULGATED.

Establishment of official wool standards of the United States for grades of wool was effected after several public hearings at which leading representatives of all branches of the wool industry, including producers, merchants, and manufacturers, were invited to offer their suggestions and recommendations based on the tentative wool grades. Specifications defining the grades were prepared and published as Service and Regulatory Announcement No. 75, Official Wool Standards of the United States for Grades of Wool. Studies are now being made to determine the correlation between the grades of wool and the different breeds of sheep, and plans are being made to determine the amount of shrinkage from scouring in the various grades and in the wool produced in different sections.

Steps have been taken looking toward the establishment of universal standards for wool. Mr. G. T. Willingmyre, of this bureau, was sent to Europe to confer with members of the wool trade in an effort to work out standards for wool which will be universally acceptable. Advices as to prospects are encouraging.

Progress was made in the collection and analysis of market data needed in the development of plans for the more orderly marketing of livestock. The data obtained show the principal sources of supply of the different classes and grades of meat animals, the final disposition, the seasonal marketings, and such other information as will be needed in forecasting probable future supplies of meat animals and market movements.

PRICES OF PUREBRED ANIMALS ANALYZED.

Semiannual surveys were inaugurated to obtain information regarding the prices and number of purebred animals sold at auction and private sales. The first survey was made to cover the calendar year 1922, some 15,000 producers being sent schedules and requested to report the number, sex, and age, and the maximum, minimum, and average price received for the different classes of breeding animals sold. The results of these surveys are being tabulated and analyzed for publication and will provide the first authentic information regarding actual prices paid for purebred stock. This information will tend to check the exploitation of the purebred industry and should encourage the use of better breeding stock, thereby increasing the value of all the livestock in the country.

BETTER LAMB MARKETING DEMONSTRATED.

Complaints regarding violent fluctuations in lamb prices at the Jersey City livestock market resulted in an investigation to determine the reasons therefor and the working out of plans to encourage raising of better lambs by the use of improved methods and better breeding stock and development of more orderly marketing. A campaign was conducted among eastern sheep raisers urging the

elimination of "bucky" lambs. Material results can not be expected in the course of one year, but the interest manifested by producers was gratifying and reports indicate considerable progress.

DIVISION OF DAIRY AND POULTRY PRODUCTS.

Roy C. Potts, *In Charge.*

Dairy Products Investigations, D. L. James and C. W. Fryhofer; Poultry Products Investigations, J. M. Borders and R. B. Slocum; Market News Service, L. M. Davis; and Dairy Inspection Service, C. W. Fryhofer.

DEMAND INCREASES FOR MARKET INFORMATION.

The market news service reports on dairy and poultry products were in greater demand by the dairy and poultry industry than ever before. These reports contain accurate and reliable information on supply, demand, movement, and prices, and are now furnished to a mailing list of more than 20,000 firms. The value of these reports in giving greater stability to market conditions, thereby eliminating the sudden fluctuations so ruinous to shippers and dealers, is obvious and accounts largely for their increased demand. At the four markets, Chicago, New York, Philadelphia, and San Francisco, the compilation of statistics on receipts has been abandoned by the trade organizations, in recognition of those compiled at the branch offices of this department. Further confidence in these reports was evidenced by the fact that many firms used them as a basis for prices on which settlements were made on contracts with country shippers.

Two bulletins, designed to aid in efficient marketing, Farmers' Bulletin 1377, Marketing Poultry, and Farmers' Bulletin 1378, Marketing Eggs, were written during the year and are now in press.

BUTTER INSPECTION MAINTAINED AT SIX MARKETS.

The butter inspection service maintained at Boston, New York, Philadelphia, Washington, Chicago, and San Francisco was received with increased favor and confidence in 1923, as evidenced by an increase in the number of inspections made and especially by the use of the service as a basis for settlements with shippers on contracts which specified Federal inspection for the determination of quality. This service also was used by a number of firms which desired to obtain butter of satisfactory keeping quality for storage.

WORK TOWARD STANDARDIZING EGGS.

The need of standardized grades for eggs has long been recognized. Studies in egg standardization conducted by the bureau resulted in the publication of a circular outlining tentative standards including classes and grades. The importance of quality in eggs was emphasized in a circular entitled "Build a Reputation for Quality Eggs."

EXTENSION WORK IN EGG HANDLING.

An egg standardization campaign was conducted in the State of Missouri in cooperation with the Missouri State Marketing Bureau. During this campaign demonstrations of proper methods of candling, grading, and packing eggs for market were made at more than 400

local markets and the importance of quality in eggs emphasized. An awakened interest in the production and marketing of better quality eggs was developed, and egg shippers and dealers in Missouri reported considerable decrease in the percentage of seconds and lower quality eggs marketed by farmers.

An extensive survey of egg-marketing methods and practices in the State of Virginia was started during this year. This was preliminary work leading up to the organization of egg producers for marketing purposes. The purpose of this survey was to ascertain the possible volume of eggs which might be offered for sale through a cooperative association, and to ascertain the extent of the interest actually taken in the proposed cooperative plan by producers themselves. As a result of this survey, the Virginia Poultry Producers Cooperative Association was enabled to adopt a marketing program.

DIVISION OF FRUITS AND VEGETABLES.

WELLS A. SHERMAN, *In Charge.*

Market News Service, Edwin W. Stillwell; Inspection Service, F. G. Robb; Grades and Standards, H. W. Samson; Standard Containers, H. A. Spilman; Research Studies, H. W. Samson.

MARKET NEWS SERVICE EXTENDED TO SOUTHWEST.

An important extension of the leased-wire news service on fruits and vegetables made during the past year was from Kansas City to Fort Worth and Austin, Tex. While branch offices were maintained in 12 cities, the leased-wire service was made available at a number of other points through cooperative arrangements with various States.

Thirty-eight temporary field stations were operated in important producing sections during the heavy movement of crops in addition to the 12 market stations. A list of these market stations and field stations, together with the number of mimeographed reports issued from each, is as follows:

MARKET STATIONS AND REPORTS ISSUED.

Washington -----	2, 169, 760	Boston -----	227, 477
Los Angeles -----	529, 606	St. Louis -----	167, 294
New York -----	467, 636	Pittsburgh -----	142, 624
Philadelphia -----	429, 972	Baltimore—reports released from Washington.	
Chicago -----	406, 823	Fort Worth—reports re- leased by radio.	
Minneapolis -----	373, 032		
Kansas City -----	326, 145		
Cincinnati -----	238, 378		

FIELD STATIONS AND REPORTS ISSUED.

Presque Isle, Me -----	296, 907	Kearney, Nebr -----	39, 889
Grand Rapids, Mich -----	246, 202	Sanford, Fla -----	30, 472
Idaho Falls, Idaho -----	231, 422	Brawley, Calif -----	22, 297
Waupaca, Wis -----	213, 205	Fort Valley, Ga -----	22, 039
Spokane, Wash -----	187, 994	Hastings, Fla -----	21, 084
Rochester, N. Y -----	173, 950	Macon, Ga -----	17, 237
Greeley, Colo -----	77, 567	Monett, Mo -----	16, 082
Alliance, Nebr -----	65, 835	Thomasville, Ga -----	16, 052
San Benito, Tex -----	61, 820	Hammond, La -----	15, 244
Benton Harbor, Mich -----	60, 105	Laredo, Tex -----	14, 474
Caldwell, Idaho -----	53, 631	Jacksonville, Tex -----	11, 182
Monte Vista, Colo -----	44, 097	Judsonia, Ark -----	10, 949

Ocala, Fla.....	10,759	Cornelia, Ga.....	4,917
Rocky Ford, Colo.....	10,071	Aberdeen, N. C.....	4,663
Elizabeth City, N. C.....	9,936	Bowling Green, Ky.....	4,198
Sulphur Springs, Tex.....	9,687	Crystal Spring, Miss.....	3,951
Charleston, S. C.....	9,289	Kennett, Mo.....	3,678
Crystal City, Tex.....	8,785	Phoenix, Ariz.....	3,277
Chadbourn, N. C.....	7,225	Hempstead, Tex.....	2,090

SUMMARY OF ALL FRUIT AND VEGETABLE REPORTS.

Total regular market reports issued from market stations.....	5,075.100
Special reports issued from market stations.....	463,647

Total reports of all kinds issued from market stations.....	5,478.747
Total regular market reports issued from field stations.....	2,042.262

Grand total of all reports issued from all stations during year. 7,521.009

Communication was maintained with these various field stations by commercial wire directly from Washington or by relay from the nearest market station. Waupaca, Wis., was connected with the Minneapolis leased-wire circuit. In a large number of producing sections assistance has been given by State agencies or by growers' and distributors' organizations in meeting the expense of this service. Although there were no funds available for the extension of the service, except to Fort Worth, as mentioned above, a material increase was made in the usefulness of this service through the cooperation of the various States.

Cooperative arrangements were continued with Pennsylvania, New Jersey, Ohio, and Wisconsin, and for a part of the year with Nebraska and Texas. These States cooperated with the Federal bureau in securing as well as distributing important items of market information on various crops, thus aiding materially in widening the dissemination of the daily market reports. This work is done largely through the daily press in these States and through mailing lists in the various localities. In addition, many of the States broadcast the reports by radio.

NEW REPORTS ON CAR-LOT SHIPMENTS BY CARRIERS.

An important improvement was made in the system of securing reports from the carriers on car-lot shipments of fruits and vegetables. Formerly these reports were received from 1,275 division superintendents and other officials reporting about 500 lines. This necessitated a large number of commercial telegrams and consequently a heavy expense to the bureau. A system was devised whereby the division superintendents render their daily reports to the general superintendents, who consolidate the information and send it to Washington in one wire for the entire railroad or for a particular region. Thus far 35 railroads have adopted the new method of reporting their shipments. These daily reports show the number of cars forwarded from each State of origin, the information being segregated by products. Temporary field stations receive copies of the reports from division superintendents, showing the primary destination of all shipments in that region. In some cases the reports of diversions also are obtained for field stations. Shipment information is distributed daily from Washington by leased wire, by radio, and in mimeographed form. Market and field sta-

tions, in turn, distribute it to a wide circle of interested persons. The complete national shipments of the commodities on which each field station is issuing reports are telegraphed to that station for the information of growers and shippers.

Monthly reports showing stations of origin are received on 37 products from about 14,000 local freight and express agents. These statistics are especially valuable because they show the exact sources of supply.

UNLOAD REPORTS FROM TWENTY ADDITIONAL MARKETS.

Daily reports on the unloads of the principal fruits and vegetables from railroads and express companies, and similar information is secured from boat lines in a large number of important central markets. During the past year arrangements were effected with agents of the transportation companies in twenty additional markets and these reports have been received regularly on the following commodities:

Apples.	Onions.	Sweet potatoes.
Cabbage.	Peaches.	Tomatoes.
Cantaloupes.	Strawberries.	White potatoes.
Celery.		

The unload statistics for the past few years have been mimeographed on separate sheets for each city and have been used in the preparation of bulletins. They are in great demand by transportation lines, members of the trade, growers, and shippers, as the figures show the total annual supply and the sources of supply for these markets, as well as the unloads by months throughout the year.

SHIPPING-POINT INSPECTION SERVICE ESTABLISHED.

The outstanding development in the inspection service during the past year has been the inauguration of the shipping-point inspection service.

Congress authorized the shipping-point inspection work by amending the law under which this service is rendered, but provided no additional appropriation to carry on the work. It was necessary, therefore, to inaugurate this work through cooperation with State agencies which had funds at their disposal or authority to use the fees collected as a revolving fund for carrying on the work. Cooperative agreements covering inspection at shipping points have been entered into with the following States:

California.	Missouri.	South Carolina.
Colorado.	Montana.	South Dakota.
Delaware.	Nebraska.	Texas.
Florida.	North Carolina.	Utah.
Georgia.	New Jersey.	Virginia.
Idaho.	New York.	Washington.
Illinois.	North Dakota.	West Virginia.
Maine.	Oregon.	Wisconsin.
Massachusetts.	Pennsylvania.	

The larger part of this work has been done in a few States having laws under which the fees collected for the work can be used as revolving funds. It has been impossible to start the work in many States, as no authority exists.

The total number of shipping-point inspections for the fiscal year 1923 was 72,666. Colorado led with 24,815 inspections; California, Idaho, and Washington followed with 17,778, 13,338, and 8,917 inspections, respectively. It should be noted also that of the 72,666 inspections only 61 requests for reinspection were made, and of this number 34 inspector's reports were reversed as to grade.

COOPERATION WITH THE STATES.

Although detailed arrangements for shipping-point inspections have differed in almost every State from those of almost every other State, the prevailing type of cooperative agreement has provided that the State collect and disburse the fees. The State has also hired the inspectors, while their training and supervision has been left to this department. A small share of the fees collected has gone to the Federal Treasury to offset this cost of supervision.

In some cases the best arrangement which could be made with the State has been unsatisfactory, but every means has been resorted to in order to place the service within the reach of the largest possible numbers of shippers.

Some of the economic results of the shipping-point inspection service have been spectacular in the swiftness of their movement and bid fair to leave a lasting impress on the fruit and vegetable industry. By bringing the lessons of proper grading and standardization home to the growers it seems evident that production methods in many districts will be profoundly affected. Jealousy and suspicion, which too often attach to the work of the inspector employed by the local cooperative association, does not attach to the work of the Federal inspector. The certificates thus issued have been found a new and satisfactory basis for pooling by organized growers who have never been able to solve this problem in the past. The shipper was furnished with a new basis upon which he could offer his product to the purchaser in the distant market and was able to have in hand when the car left his station prima facie evidence that he had made a good delivery. The purchaser on the other hand has been given a new method for specifying exactly what the shipment shall be, and if he buys demanding "Government certificate attached to bill of lading" he can be sure that an impartial agency has passed upon the quality of the goods which will be shipped him.

NEW METHODS OF SELLING HAVE RESULTED.

Capitalizing this situation, enterprising business men have established auctions in eastern and western cities, the sole business of which is to sell cars in transit on the strength of the Government inspection certificate. The auctioneer in Pittsburgh, for instance, had in hand a telegraphic summary of the result of the Government inspection on a car of California products which left the shipping point the evening before. The car is offered for sale on this description. The buyers purchase on an f. o. b. shipping-point basis with no other evidence of what the car contains than that carried in this telegram.

The car is sold, purchase price is transmitted to the shipper by wire, and the transaction is completed within less than 48 hours after

the car is loaded. It proceeds at once to its destination without indirection or delay when neither auctioneer nor purchaser has ever seen even a sample of the goods. Furthermore, the buyers need not attend these auctions in person, but houses in cities hundreds of miles away can do business at these auctions through resident buying brokers by stating the size, variety, and grade of the product desired and the character of the containers in which packed.

On the first 500 cars of California cantaloupes thus sold there was a net saving in commission to the shippers of 10 per cent of the f. o. b. price of the goods.

The first year's experience in shipping-point inspection, which of necessity has been largely experimental, although developing a volume of business more than twice as great as that done in all of the markets combined, indicates that when this service is fully developed it is likely to call for the services of not less than a thousand inspectors per annum, although many of them may be part-time men. Every State in which the work is being conducted successfully on a large scale is using the fees to support the work, and it is believed that in no other way can the Federal service be given the elasticity and be put upon a correspondingly self-sustaining basis. If this is not to be done it will be necessary eventually that appropriations be made of not less than \$1,000,000 per annum, upon which the department can draw to finance this work as may be required.

It is noteworthy that while the inspection work at terminal markets had reached a point in the fiscal year 1922 where five-sevenths of the appropriation was returned to the Treasury in the form of the fees the combined market and shipping-point inspection work, for the fiscal year 1923 has returned to the Treasury six-sevenths of this appropriation, notwithstanding the fact that the introduction of a new service of this sort has inevitably resulted in a small net cost to the Government in far more than half of the States. The substantial excess of fees over expenditures in certain territory indicates clearly the possibility of extending this work on a self-supporting basis to a very large proportion of the shippers of the entire country whenever the department is given a freedom approximating that of other business institutions in financing the enterprises for which they are responsible.

RECEIVING-POINT INSPECTION SERVICE.

During the fiscal year ending June 30, 1923, inspections were made by Federal inspectors with offices located in 32 important markets. Inspections were made, however, at a total of 296 unloading points, covering a total of 28,169 inspections at terminal markets. Compared with the fiscal year 1922 this shows an increase of 2,291 inspections of fruit and a decrease of 5,329 vegetable inspections.

The decrease of 3,038 cars in the total number of inspections made in 1923 is due chiefly to the loss of inspections for the railroads in some cities. This loss has been due, first, to the inability of the small inspection force of the bureau to handle the work requested by the railroads within the necessary time; second, the objection of the railroad to the payment of the regular fee for such a large number of inspections, as they believe that this fee is excessive for their

work, because in many cases there is nothing wrong with the shipments and they wish the inspection merely as a protection against possible unjust claims.

An important change in the food-products inspection law for the past fiscal year made it possible for the bureau to inspect shipments at points other than designated markets. This allowed inspections to be made at many small terminal markets, which has been a great convenience to many shippers.

NEW GRADES AND STANDARDS.

Tentative grades were prepared during the past year for prunes, apricots, boxed pears, and boxed apples, and studies were made looking to the formulation of grades for sweet peppers. The grades formerly recommended for barreled apples were slightly revised and have now been adopted as the official standards in five of the leading apple States. Investigations have been made with a view to establishing grades for canned tomatoes.

The principal efforts of this project were devoted to the practical use and adoption of the various recommended grades throughout the States. Working closely with the inspection project at shipping points, much headway has been made in getting growers and shippers to see the fundamental importance of proper standardization of fruits and vegetables and their containers. Generally recognized and acceptable standards for the different products are essential to an intelligent and successful system of inspection at shipping points.

In connection with the shipping-point inspection service standardization studies have been carried on in a number of States and grading-demonstration work has been conducted on a number of products. Exhibits and demonstrations of grading were made at a number of State fairs and conventions.

In cooperation with the Bureau of Entomology bee-culture laboratory color determinations were made for the purpose of fixing definite color standards for honey.

RESEARCH IN MARKETING FRUITS AND VEGETABLES.

A study begun last year of the records of 21 fruit-auction companies has been completed. This study aims to bring out facts concerning the ownership, control, methods, and position held by auction companies in the present scheme of distribution. A report covering this study is being prepared.

Preliminary reports have been submitted covering the study made of the methods of financing the production of fruits and vegetables. These reports cover the production of peanuts in the Virginia-North Carolina and Georgia-Alabama districts, and the following Florida crops: Cabbage, celery, citrus fruits, cucumbers, lettuce, strawberries, tomatoes, and white potatoes.

A survey was made of the harvesting, handling, and marketing methods employed in the cabbage-producing sections of western New York, northern Ohio, and Wisconsin. The data collected are in process of preparation for publication and will furnish valuable information regarding the proper methods of preparing cabbage for market.

STANDARD CONTAINER ACT IS EFFECTIVE.

The enforcement of the standard container act met with little serious opposition and in general has received the hearty cooperation of the manufacturers during the past year. In securing this cooperation, however, it has been necessary to visit the various factories and make tests of a very large number of containers. Visits were made during the year to 67 factories and an examination made of 3,613 sample containers. In 1922, 2,284 containers were tested and in 1921 only 466. The great increase in the receipts of samples to be tested makes one of the greatest problems the handling of this work with expedition. Effort is being made to work out more definite specifications for the use of the manufacturers, and suggestions regarding methods to be used to safeguard capacity have been sent to all manufacturers.

Of baskets directly affected by the standard container act; namely, climax baskets, berry boxes, and till baskets, the percentage of those tested found to be standard increased from 62 per cent in 1920 to 80 per cent in 1923. Of baskets indirectly affected by the act, namely, hampers, round stave baskets, and market baskets, the percentage rose from 40 per cent in 1920 and 1921 to 59 per cent in 1922, but dropped back to 49 per cent in 1923. Taking the two classes as a whole, the percentage of those tested found to be standard has increased from 53 per cent in 1920 to 76 per cent in 1923. The subject of standard crates and boxes for fruits and vegetables should be given more attention than has been possible to give it under the very limited appropriation available. There is a genuine interest in this subject in many quarters and a need for standardization.

COLLECTION AND DISTRIBUTION 1918 EXCESS WOOL PROFITS.

WELLS A. SHERMAN, *In Charge.*

W. L. EVANS, *Assistant.*

During the fiscal year 1923 the Domestic Wool Section has directed its efforts particularly toward the settlement of pending cases and the distribution of excess profits to woolgrowers. The total amount of ascertained excess profits made on wool during 1918 is \$1,478,793.57. Of this amount \$734,235.92 has been collected and \$381,275.13 has been distributed to woolgrowers, of which \$66,115.75 was mailed to woolgrowers during the past year. Total collections during the year aggregated \$112,571.27.

Of the amount yet to be collected \$596,000 is due from 43 dealers whose cases have been referred to the solicitor for collection through legal procedure. During the past year four cases have been tried and three decided in favor of the Government. Judgment has not yet been rendered on the fourth case. The right of the Government to collect excess wool profits has been sustained by the Federal courts in eight judicial districts.

DIVISION OF WAREHOUSING.

H. S. YOHE, *In Charge.*

Grain Warehousing, H. K. Holman, jr.; Wool Warehousing, C. Nagel; Tobacco Warehousing and Standardization, F. B. Wilkinson.

The year 1923 marked the greatest progress in the licensing of public warehousemen under the United States warehouse act for the storage of agricultural products since its passage in 1916.

During the past fiscal year the licensed capacity of cotton warehouses increased from 1,210,000 bales to 2,639,200 bales, grain from 14,450,000 bushels to 20,297,047 bushels, wool from 27,500,000 pounds to 32,100,000 pounds, tobacco from 68,400,000 pounds to 219,475,000 pounds. Thus the licensed capacity for cotton has been more than doubled; the tobacco capacity has been more than trebled. A substantial increase has also been made in the licensed grain-storage capacity.

Much of the progress made is attributable to the attitude taken by growers' cooperative associations and bankers toward receipts issued under the law. A number of cotton and tobacco growers' cooperative associations adopted rules that they would not place cotton or tobacco with any warehousemen unless they were licensed by the department. The attitude of bankers is shown in the following resolution adopted on June 25, 1923, by the New Orleans Clearing House Association:

Resolved, That the New Orleans Clearing House Association, recognizing that Federal bonded warehouse receipts are preferable for collateral purposes, and that the safeguards offered by the Federal warehouse system through its selection in admitting warehouses into the system, its supervision and inspection of warehouses, and the bonded responsibility of the warehousemen are to the interest of financial institutions handling warehouse collateral as well as the patrons of such warehouses, including producers and merchants, hereby expresses itself as favoring the licensing of warehouses under the United States warehouse act and urges upon warehousemen in the State of Louisiana to operate their warehouses under this statute.

Similar resolutions were adopted by other clearing-house associations. The Federal Farm Loan Board, in administering the intermediate farm credits act of 1923, in its preliminary rules and regulations included a rule reading as follows:

Intermediate credit banks will accept the receipt of any warehouse licensed and bonded under the Federal warehouse act.

WAREHOUSING AS AN AID IN COOPERATIVE MARKETING.

The formation of cooperative growers' associations, the War Finance Corporation, the Federal intermediate credits act, and the attitude of large banks are all encouraging the producer to hold his crops for a longer period after harvesting and thus encouraging more orderly marketing. The Federal warehouse act has clearly demonstrated its value in this movement.

The supervisory work of the department in administering this law is proving of value to patrons of the warehouses as well as to insurance interests, as evidenced by the fact that during the year the underwriting associations in the Pacific Coast States have extended a credit of 10 per cent in insurance rates on both the warehouses and the contents stored therein.

Until February 23, 1923, the act applied only to cotton, grain, wool, and tobacco. On that date the law was amended to apply to such agricultural products as the Secretary might consider properly storable under the act. Already the department has received requests from a number of sections for licensing warehouses for the storage of beans, eggs and other cold-storage products, apples, potatoes, peanuts, pecans, canned goods, broomcorn, onions, cottonseed, cane and maple sirup, flour, sugar, hay, and other products. As fast as the necessary trained men can be added to the staff, warehouses for the storage of products other than the four staples originally covered by the act will be proclaimed licensable.

STEPS TOWARD TOBACCO STANDARDS.

In the field of tobacco standardization, much progress has been made. Tentative standards have been established covering the dark-fired, flue-cured, and sun-cured types of tobacco of Virginia and the Carolinas, and the dark-fired tobacco of Kentucky. These standards were used by the cooperative associations of those States in the past year.

Tentative standard lengths for cigar leaf tobacco were also established and have been used by the Cigar Leaf Tobacco Growers Association in Wisconsin. Standard lengths and grades have been developed covering the principal cigar leaf tobacco produced in the Connecticut Valley. These will be used by the Connecticut Valley Tobacco Growers Association for the 1924 crop. It is estimated that two-thirds of the total tobacco production for the country will be marketed in 1924 under the tentative standards prepared by the Department, despite the fact that less than three years ago there was a general feeling that standards could not be developed for tobacco.

Special investigations were made covering the classification of cotton in the hands of one of the cotton growers' associations. Special investigations were also made relative to the delivery of products contrary to the law and regulations. As a result of these investigations one case has been turned over to the Department of Justice for prosecution.

Investigations have been started to secure data preliminary to drafting regulations for the storage of peanuts, broomcorn, and potatoes.

DIVISION OF COST OF MARKETING.

A. V. SWARTHOUT, *In Charge.*

Information on costs of marketing livestock has been gathered, and mimeographed pamphlets have been issued from time to time covering the costs of marketing livestock. As this information covers a period of one year only, positive statements as to costs and trends can not yet be made. It was found that a large number of variable factors which influence cost were not easily measured and in many cases were not possible to ascertain. Much valuable information has been secured, however, and it is planned to issue a complete report on the cost of marketing livestock in the Corn Belt States in the near future. In cooperation with the State of Ohio, a study was made of the operations of eight county-wide associations

in the State of Ohio for the year 1922. These data are now in process of tabulation.

COSTS OF RETAILING MEAT.

In cooperation with the bureau of business research of Northwestern University a system of accounting was devised for retail meat stores. This system is now being actively installed in Chicago, Cleveland, and New York City and monthly reports are being received by the joint office in Chicago from approximately 150 retail meat dealers. It is planned within the next two or three months to issue a report based on reports for six months.

Questionnaires are being sent to 20,000 retail meat dealers asking them to submit profit and loss accounts for the year ending December 21, 1922. These should furnish figures which can be used for comparison with the 1923 data. The work in New York City will be continued on a somewhat less extensive scale until about April, 1924, when there will be available a complete year's record, by months, of the operations of this group of dealers. These data will furnish fundamental facts relating to the retailing of meats.

COSTS OF MARKETING POTATOES OBTAINED.

Representatives of the division visited the Maine shipping area and collected detailed figures from such organizations as had records suitable for the purpose. In all, dealers were covered who handled about 20 per cent of the Maine crop. Probably the most difficult thing encountered was to secure data on the quantity of potatoes handled and the general economic environment of the organizations. Information secured covers the crop years 1920-21 and 1921-22. The material has been tabulated and a preliminary mimeographed pamphlet of tentative results has been published. The final manuscript is being prepared. A similar study has been made covering the costs of marketing Minnesota potatoes.

MARKETING NORTHWESTERN BOXED APPLES STUDIED.

Data were collected from some of the largest shipping organizations in the Washington apple area. Attention was given to the outline of costs, to assignment of the reasons for variations in cost, and to securing the background of the picture into which the cost data must fall. Data were secured which will point out interesting and helpful lessons in the marketing of the northwest apple crop, particularly the wisdom of some of the practices of that section with respect to storage at eastern or western points, the penalty incurred for failure to get particular varieties on the market when they are in prime condition, and some of the reasons for failure. This material will be prepared for publication promptly.

COSTS OF MARKETING KANSAS WHEAT.

Examination was made of the records of 66 elevators in north-central Kansas in cooperation with the Kansas State College. Every effort was made to secure such complete information that it will be possible to point out some of the principles on which the efficiency of elevator operation is based and to develop the informa-

tion relative to the efficiency of various methods of purchase and sale. The material is almost tabulated and the preliminary release about ready for publication.

ANALYSIS OF COTTON MARGINS.

Collection of data which will enable us to compute and analyze the margins received by various functionaries in the marketing of cotton and cotton cloths is now under way with the cooperation of the Division of Cotton Marketing. The field work has been completed and a preliminary publication is about ready for release. This publication will discuss the margins of the various agencies for the period beginning 1915 and ending in 1922. A great deal of interest has been manifested in this forthcoming report, and a large number of inquiries have been received concerning it. Additional margin studies which are now in progress will be continued. Included in these is the margin study in connection with the operation of Center Market, Washington, D. C.

TERMINAL MARKET CONDITIONS AFFECT COSTS OF MARKETING.

Probably the most important work undertaken by the division during the year is the study of marketing fruits and vegetables in New York City, with special reference to the factors which control the costs of distribution. One mimeographed report has been issued, entitled Terminal Conditions in New York as They Affect the Costs of Marketing Fruits and Vegetables. It is planned to publish further information on this subject in the near future. These studies are conducted in cooperation with the Port of New York Authority.

ADMINISTRATION OF CENTER MARKET.

C. W. KITCHEN, *Superintendent.*

Administration, C. H. Walleigh; Mechanical Section, C. R. Mullen; Cold Storage, W. J. Capner; and Inspection, L. A. Delwig and G. A. Anthony.

Operation of Center Market was undertaken by the department on April 1, 1922, pursuant to an act of Congress approved March 4, 1921. The appraisal commission appointed by the President under the provisions of this act filed its award on March 31, 1922, in the amount of \$960,250, covering the purchase of the buildings and improvements at Center Market which had been made at the expense of the Washington Market Co. Upon the date of filing the award, 75 per cent of the amount was paid to the Washington Market Co. and 25 per cent held, with interest at the rate of 5 per cent per annum until paid, pending settlement of an appeal which was immediately noted by the company. Briefs have been prepared and filed by both sides with the Court of Appeals of the District of Columbia, but the case has not yet been heard. Information obtained from the Department of Justice indicates that the case will be set for hearing some time in October of this year.

COLD-STORAGE WAREHOUSE AND REFRIGERATION SERVICE.

Refrigeration is furnished by the Center Market power plant for approximately 600,000 cubic feet of space. Slightly more than

300,000 cubic feet of this space is used as a public cold-storage warehouse in Center Market, while the remainder is private space. The cold-storage warehouse is operated on a commercial basis, with the single exception that loans of public funds are not made on goods accepted for storage and held as collateral, as is done by most commercial warehouses. In some instances, particularly in connection with such products as apples, this restriction has made it difficult to meet competition. The difficulty is partially overcome by issuing negotiable warehouse receipts, which can be used as collateral for loans from the banks.

Business of the cold-storage warehouse during the past year has been normal. While new accounts are sought wherever obtainable, the Center Market cold storage is intended and operated primarily for the convenience of Center Market dealers and supply firms serving dealers in the market and surrounding market district. Because of the factor of advantageous location, the competition in Washington has not been felt as keenly as might be expected.

Practically all classes of food products placed in cold storage are handled at the warehouse. Much of the business is in small lots, which adds to the cost of handling and increases the liability of error in delivery. More than 9,000 warehouse receipts, covering more than 7,000,000 pounds of foodstuffs, were issued during the past year. The amount of work and care involved in handling an extensive small-lot business is evidenced by the fact that more than 20,700 delivery tickets were issued during the year covering goods delivered from storage. Despite the increased liability for error in handling rather extensive small-lot business as compared to carlot business, our claims for loss and damage during the past year were almost negligible.

FEW CHANGES IN MARKET TENANTS.

Regulations promulgated by the Secretary when this property was taken over were revised during the past year in some particulars and published in printed form. Generally speaking, the regulations have been adequate to meet the various situations that have arisen. While some rather persistent violations of the regulations, mostly minor in character, have been encountered, their enforcement has been accomplished with a minimum of opposition. The spirit of cooperation manifested by the majority of the lessees in the observance and enforcement of rules has been very gratifying. Little dissatisfaction with Government operation and methods is apparent. No difficulty has been experienced in keeping stands continuously occupied. Only eight changes in tenants occurred during the year. There are at present in our files 102 applications for stands inside the market and 87 applications for farmers' spaces on the north side of B Street set aside for the use of farmers.

PUBLIC HEALTH GUARDED BY STRICT INSPECTION.

Promulgation of regulations covering the inspection of meats, to protect the public against the sale of impure or unwholesome meats in Center Market, and the employment of a meat inspector to enforce these rules, have been beneficial. In a few instances it has been necessary to condemn meat as unfit for food and order its immediate

removal from the market, but the fact that an inspector is on duty in the market tends to minimize the necessity for such action. The successful dealer recognizes the importance of satisfied customers and strives for quality in service and products.

IMPROVEMENT IN SANITARY CONDITIONS.

The inspectors are constantly working with the dealers to improve sanitary conditions. Improvement in that direction is apparent and has had a tendency to increase confidence on the part of the public in the market. The enforcement of regulations, particularly with reference to sanitation, is carried on with the hearty cooperation of the dealers.

PARKING ACCOMMODATIONS IMPROVED.

Careful consideration was given to the problem of providing additional parking space for the automobiles of market patrons early in the past year. The situation was particularly discouraging to patrons on Saturdays, when streets in this area were badly congested. Through the cooperation of the District Commissioners, a police regulation was put into effect limiting the parking of passenger-carrying vehicles around the market to one hour. This regulation has produced good results and added materially to the convenience of the public in trading at Center Market.

BUSINESS IMPROVED THROUGH ADVERTISING.

A three months' campaign of institutional advertising was conducted during March, April, and May of this year in an effort to increase business in the market and to acquaint the public with the facilities available at Center Market. Advertisements were placed in the four largest newspapers in Washington, space being divided equally among them. While it is difficult to measure the results obtained from such advertising, it is believed that it produced good results and warrants continuation, perhaps in modified form. The cost of the advertising was met entirely by the dealers, this office aiding in furnishing material for use in the preparation of copy. A fund of approximately \$2,800 was raised for this purpose by about 125 of the 173 dealers.

RETAIL MARGINS STUDIED.

Retail prices are collected weekly on several classes of products from a selected list of dealers in cooperation with the Cost of Marketing Division of this bureau. These prices are used in a study of retail margins in conjunction with similar studies in progress in other cities. In connection with the cost of retailing studies, statements of business done in Center Market during the calendar year 1922 were required from all tenants. These statements show gross sales, cost, and expense. The reports are of general value in the operation of the market in addition to their value in connection with cost studies, although their value in the first year is somewhat impaired by the inadequate records kept by some of the smaller dealers.

The rendition of these annual statements is a permanent part of our program, and all dealers were warned at the beginning of the

present calendar year of the importance of keeping adequate records of their business transactions in Center Market. Inadequate cost records are believed to contribute largely to the hazards of retailing, and it is felt that this requirement will be helpful to the dealers in addition to furnishing useful data to the department.

As an indication of the importance of Center Market in the distribution of foodstuffs in this city, these reports show that gross sales, wholesale and retail, during the calendar year 1922 aggregated \$14,594,984. This amount does not include sales made by approximately 200 farmers using spaces on the farmers' line. No record of their sales is obtainable.

MODERN EQUIPMENT REPLACING OBSOLETE STANDS.

Nine stands were remodeled at a cost of approximately \$5,000 during the past year. A fish stand and bottled-goods stand were constructed, and a wholesale meat stand enlarged and remodeled. Four bakery stands, modern in every respect, and requiring the display of bakery products under glass, were recently completed. Replacement of depreciated and obsolete market stands with modern equipment will probably form the chief item of expense in the permanent improvements at Center Market in the next few years. It is planned to install this much needed equipment as rapidly as earnings warrant expenditures.

MAKES FAIR RETURN ON INVESTMENT.

From a financial viewpoint, the operation of the market has been successful and a fair return upon the investment has been returned to the Federal Treasury.

DIVISION OF AGRICULTURAL FINANCE.

V. N. VALGREN, *In Charge.*

Rural Private Finance, G. F. Cadisch; Rural Public Finance, C. O. Brannen; Rural Public Utilities, H. S. Beardsley.

AID IN FORMULATING CREDIT LEGISLATION.

Information and assistance was given to Congress during the year in formulating and promoting the agricultural credit legislative program which resulted in the agricultural credits act of 1923. This act, based on very wide study, is of great benefit to farmers, as it makes available personal credit at reasonable costs and for periods of time needed to cover the relatively slow turnover of crop and live-stock production.

AID IN IMPROVING STATE RURAL CREDIT LAWS.

General studies of agricultural credit and insurance have been made in South Carolina in cooperation with Clemson College. In connection with this work practical assistance has been given in improving rural credit conditions in the State by proper amendment of the laws, and the organization of additional farmers' fire insurance companies in counties where none had hitherto existed. Similar work has been carried on in a number of other States.

MUTUAL FIRE INSURANCE COMPANIES ENCOURAGED.

Summarizing of State insurance reports for farmers' mutual fire insurance companies was continued in order to have on hand up-to-date information concerning the growth and achievement of this class of insurance institutions in the various States. Press releases on this subject have been issued from time to time to encourage the extension of this practical and economical form of insurance in States where it is as yet largely or entirely lacking and with a view to encouraging improvement in methods and plans of existing companies. Information on this subject has also been extended through correspondence and a few public addresses.

CROP INSURANCE INVESTIGATED.

Assistance was given to the Senate Committee on Crop Insurance in arriving at sources of information and also by direct contributions to the hearings of the committee. An extended article on the subject of crop insurance was contributed to the October and November issues of the *Journal of Insurance and Financial Statistics*. Addresses on the problem of crop insurance were delivered before the National Association of Mutual Insurance Companies at Atlantic City, before the State Association of Mutual Insurance Companies of Indiana, at Indianapolis, and before the graduate students and members of the faculty at Cornell University.

TAXATION OF FARMERS' REAL ESTATE STUDIES.

Taxation of farm real estate involving taxes levied, capital value, assessed value, gross and net income from land, and the changes in these various factors over a series of years form the subject of a study begun during the year. Material for this study was obtained in part from county records and in part through a questionnaire to owners of cash rented farms, as this class of farms offers a peculiar opportunity to obtain gross and net income from the ownership of land.

DIVISION OF AGRICULTURAL COOPERATION.

LLOYD S. TENNY, *Assistant Chief, in Charge.*

Economics of Cooperation, A. W. McKay; Statistics of Cooperation, R. H. Elsworth.

Three projects, namely, (1) economics of cooperation, (2) legal phases of cooperation, and (3) statistics and history of cooperation, have formed the work of the Division of Agricultural Cooperation during the fiscal year.

ECONOMIC PHASES OF COOPERATION STUDIED.

Five technical employees, with headquarters in the Washington office, have studied the economic phases of cooperation and rendered service to members and officers of associations, or projected associations, for the greater part of the fiscal year.

Work undertaken by this project included a comprehensive study of the California Fruit Growers' Exchange. Results of this study

are now in manuscript form and will be issued as two bulletins of the department. The first treats of the organization of the exchange, describing the structure of the organization, as a whole, with a brief description of the functions of the component parts. It discusses the development of the system, the marketing difficulties that led to organization, and the economic factors that have affected the development of the exchange during the past 30 years. The second bulletin will cover the operating methods of the exchange, and includes considerable data regarding the expenses of packing and marketing oranges and lemons through the exchange agencies.

CAUSES OF FAILURE IN COOPERATION DETERMINED.

An investigation of the causes of failure of cooperative marketing associations was begun during the year. Data assembled include replies to questionnaires sent to officers and members of defunct organizations, information secured by correspondence and by detailed personal studies, and analysis of the records of the more important organizations.

At the same time less comprehensive studies have been made, in so far as funds and men available permitted, of the cooperative movement in various sections and for the marketing of various commodities. A survey was made of the operations of the Dark Tobacco Association at Hopkinsville, Ky.; of the Dairymen's League Cooperative Association, Utica, N. Y.; the New England Milk Producers; and other organizations.

ASSISTANCE GIVEN IN ORGANIZING ASSOCIATIONS.

Service has been given to producers, State bureaus of markets, and State extension officials in connection with the organization of cooperative associations. Information was furnished such persons constantly throughout the year by correspondence and by conferences in the Washington office. At the request of the Minnesota Cooperative Creameries (Inc.), two investigators met the board of directors in a conference in Minneapolis and offered suggestions, based on a study of the association's problems regarding its reorganization and marketing problems. Personal visits were made, on request, to discuss the organization of a vegetable association in Florida and a farmers' county exchange in Georgia. Further assistance was also given the Vermont Maple Products Cooperative Exchange, which had organized in accordance with the recommendations of the division.

COOPERATION IN FOREIGN COUNTRIES STUDIED.

Studies have been made of cooperation in foreign countries. The division has increased the number of its foreign correspondents during the past year and has amplified considerably the statistical material available regarding the status of the cooperative movement abroad.

Up to December 1 an investigator of the division was in Denmark and other Scandinavian countries studying the cooperative movement in agriculture in those nations. Most attention was paid to cooperation in Denmark, and the result of this study will be made available in a bulletin. The economic conditions which led to the extensive organization for cooperative marketing, the underlying

conditions of rural life and education which have strengthened the cooperative movement, the extent of the movement, and its influence on Danish agriculture are presented in detail.

A somewhat similar study has been made of Russian cooperation from original source material. Statistical data regarding agricultural producer and consumer cooperation up to the beginning of the Bolshevik régime can be secured in considerable detail from published reports, and material regarding the more recent movement is more fragmentary and must be gathered from a number of sources. A great deal has been obtained by correspondence with the large Russian cooperative societies. Since it has been released from Soviet restraints, the cooperative movement in Russia has developed rapidly. Especially along the lines of cooperation for credit, the experience of the Russian cooperators is of value to the movement in this country. The report on Russian cooperation will be in final form shortly.

LEGAL PHASES OF COOPERATION.

Department Bulletin 1106, entitled *Legal Phases of Cooperative Associations*, appeared last October. This bulletin discusses the legal problems which arise in the organization and incorporation of cooperative associations. An exhaustive search was made of court records for decisions with a bearing on the activities of cooperative associations, and the references given are the most extensive to be found on the subject. The large demand for the bulletin made it necessary to issue a reprint six months later.

STATISTICS AND HISTORY OF COOPERATION.

Names of 30,000 farmers' associations were received from 60,000 crop reporters during the year. Each name submitted was given careful consideration, and, if of a functioning organization, an effort made to get a report regarding its recent activities. Extension workers, county agents, postmasters, and business men in the State or locality were called upon for definite information when an association failed to respond to a series of questionnaires, or when mail addressed to the organization was returned unclaimed. A complete list, it is estimated, will contain information regarding about 10,000 organizations. The associations are being classified according to farm products handled, type of enterprise (as shipping association, packing-house company, processing plant, distributing company, etc.), State and city in which located, and the activities of the association regarding collective purchasing. On April 1, 5,000 names and addresses of farmers' business organizations were issued in mimeograph form for the use of those interested in agricultural cooperation.

Reports received continuously from farmers' business organizations in this and foreign countries were studied, classified, and arranged so as to be available for those directly concerned with the development of farmers' organizations. The information obtained was classified as to associations, as to commodities handled, as to types of enterprise created, etc. Classified lists and geographic lists of the associations reporting have been compiled. Much of the information has been punched on tabulating cards that it may be available for intensive studies. A classified addressograph list of

the associations reporting has also been compiled and is frequently used.

DIRECT REPORTS FROM COOPERATIVES.

The collection of special statistics relating to the associations marketing dairy products, and poultry and poultry products, was undertaken in cooperation with the commodity division of the bureau. Special statistics regarding fruit and vegetable cooperative marketing organizations were also secured and will be compiled for the use of the project on the economics of cooperation. The original reports from thousands of associations have been arranged as the basis of a source library on agricultural cooperation.

Definite statistical and historical information regarding cooperation has been given to other Government organizations, to teachers in universities and colleges giving courses in marketing; graduate students preparing theses bearing upon cooperation; State extension workers preparing bulletins, circulars, lectures, etc., for field use; officers and employees of State divisions of markets; editors of farm journals and writers of agricultural articles; officers of farmers' organizations; bankers; chambers of commerce; officers of women's clubs; rural teachers, ministers, and farmers. This service has been rendered in connection with visits made to the bureau, in response to mail requests, and by means of mimeographed circulars and newspaper releases.

A mimeographed circular, Agricultural Cooperation, has been issued semimonthly since January, 1923. The circular contains information regarding the current activities of farmers' associations in more than 40 States. It is sent in response to specific requests from more than 500 bankers, association managers, extension workers, and economists.

DIVISION OF LAND ECONOMICS.

Dr. L. C. GRAY, *In Charge.*

Land Resources and Utilization, O. E. Baker; Land Reclamation, Sale, and Settlement, R. P. Teele; Land Tenure, C. L. Stewart; Land Values, C. R. Chambers; Farm Labor, J. C. Folsom; and Negroes and the Land, W. S. Scarborough.

NATIONAL LAND POLICY PLANNED.

Establishment of a national land policy has been the objective of many general activities on the part of the department, and to these activities the Division of Land Economics has contributed a large share. The economist in charge of this division has been chairman of the department committee on land utilization which has been considering the probable future land needs of the United States and a general classification of the land of the United States with reference to its adaptability to meet those needs, to serve as a basis for formulation of land policies for the future. A preliminary report has been prepared and a summary will appear in the 1923 Yearbook.

GREAT PLAINS AND SPRING-WHEAT REGIONS SURVEYED.

Surveys in the Great Plains and spring-wheat regions have included both the physical and the economic conditions. The physical surveys have been made mostly by the Soil Survey, Weather Bureau,

Bureau of Plant Industry, and Land Classification Board of the United States Geological Survey, Department of the Interior, the Division of Land Economics serving as coordinating agency. The economic surveys have been carried on in North and South Dakota, Montana, Colorado, and Kansas jointly by this division and the Division of Farm Organization of this bureau, in cooperation with the agricultural colleges in the States involved. Results will be published in a series of bulletins dealing with the utilization of the land and the agricultural situation in these regions. Problems of farm organization and land utilization in these regions are very serious, particularly those relating to size of farms and system of farming adapted to the variable climatic conditions. The purpose of these surveys is to help in the solution of these problems.

TREND OF LAND UTILIZATION STUDIED.

Increasing population and changes in domestic consumption and in European demand are exerting a powerful influence upon the use of the land for crops, pasture, and forest, and upon the selection of crops and systems of farming. Safe advice to farmers must be based on knowledge of these trends. Studies of the trend of land utilization in the United States as affected by increasing population, changes in consumption tastes, and the European situation have been summarized for publication in the 1923 Yearbook of the Department of Agriculture. A preliminary study appeared in the January, 1923, issue of the Geographical Review.

CENSUS STATISTICS ON USE OF LAND TABULATED.

Six questions on crop land harvested, crop failure, and idle crop land, pasture land suitable for crops, woodland pasture, and other pasture land were included at our request in the 1920 census schedule. The data obtained are now being tabulated and compiled, by townships, by this division in cooperation with the Census Bureau. They will be published jointly by the Departments of Commerce and Agriculture, and will probably be presented in map form in the Great Plains bulletins referred to above, and in similar publications for other regions. These statistics provide a basis for the study of land utilization in the United States and the possibilities of increasing production.

RECLAMATION POLICIES REVIEWED.

A report on land reclamation policies in the United States was undertaken and completed. In this the history of Federal and State policies of the past is reviewed and recommendations as to the future are made. This report should be useful in formulating future governmental policies as to land reclamation.

A report on farm lands available for settlement was completed and published as Farmers' Bulletin 1271. This has proved to be very useful in answering inquiries as to opportunities for settlement.

A report on the buying of farms in undeveloped regions was prepared and submitted for publication as a Farmers' Bulletin. This report points out the advantages and difficulties to be met in undeveloped regions, and should be helpful to those who contemplate purchasing farms in such regions.

A report has been prepared on methods of land settlement on cut-over lands in the Lake States, which is based on earlier field studies of the methods employed by colonization agencies and of the progress of settlers who have gone onto such lands. This will point out practices that have proved successful and those that have failed, and should serve as a guide to prospective settlers in locating under favorable conditions and in avoiding settlement under conditions in which they have little chance of success.

COST OF ESTABLISHMENT ON RECLAIMED LAND.

During the year work was begun in cooperation with the Bureau of Public Roads on a project for determining the cost of establishing going farms on reclaimed land. The object of this study is to obtain adequate data for determining the feasibility of land reclamation in different sections. Too often judgment in this matter has been based on the assumption that the cost of reclamation is the only capital investment on which returns should be obtained. This work is going forward in the current fiscal year. It involves a study of the methods adopted by land-settlement agencies in placing people on the land, particularly of the extent to which they prepare land for farmers in advance of settlement, and the terms on which lands are sold.

SUPERVISION OF LAND SETTLEMENT NEEDED.

Much attention has been given to the public control, supervision, and direction of land settlement, both as to existing State activity along this line and as to the field for possible or desirable Federal activity. During the current year a field study of State activity is being undertaken, and a report will be prepared. This should be useful in pointing out the most desirable and most effective systems of State supervision or control and in showing the field for Federal supervision. There is great need of some public supervision that will prevent fraud; and, at the same time, there seems to be need for public direction along right lines.

INCOMES FROM IRRIGATED FARMS STUDIED.

A special tabulation of the values, cash rents, and mortgages for irrigated and nonirrigated land was made from the farm schedules obtained by the Bureau of the Census in 1920 in connection with the subject of land reclamation and in cooperation with the Colorado Agricultural College. Results of this tabulation will be digested and a report prepared during the current year. This should throw light on the subject of the value of irrigation in sections where it is possible to farm without it.

OWNERSHIP AND TENANCY OF FARM LAND STUDIED.

To throw light on methods of renting farms in dairy regions, in July, 1922, Farmers' Bulletin No. 1272, Renting Dairy Farms was issued. A report on the changes in farm occupancy, ownership, and tenancy occurring during the year ending December 1, 1922, was issued in April, 1923. The press story of this report and the companion report entitled When Do Farm Tenants Move? were widely reprinted. Field studies of certain special ownership and tenancy

problems were made in North Carolina in cooperation with the Division of Farm Population and Rural Life and the State Experiment Station, and a similar study was made in Kansas in cooperation with the Kansas State Experiment Station. Some of the results of previous studies of farm ownership and tenancy have been summarized, illustrated by graphs, and will be published as an article in the Yearbook for 1923.

Studies of the progress of negro land owners made in previous years was continued during the last year, and a report on this subject was begun. This should help to determine when success is most likely in the progress of negroes to land ownership.

RELATION OF LAND INCOME TO LAND VALUATION STUDIED.

The work on land valuation for the past fiscal year consisted in the preparation of a bulletin entitled Relation of Land Income to Land Value, and in the collection of further data from county records and from farmers. It is a statistical study of the rate of return on investments in farm lands. It should be of considerable value in framing rural-credit policies and developing land appraisal.

New research projects in land valuation begun last year consisted of two surveys to measure the effect of different factors on land value, such as yield per acre, distance to market, road type, etc. One of these surveys was completed in Indiana last November and the tabulation of this material is now nearing completion. The other was begun in Iowa last April in cooperation with the Bureau of Public Roads and the Iowa Agricultural College. Data from these surveys are to be used in connection with all other available data to work out a scientific method of land appraisal and in determining the influence on land values of various types of roads.

This division has also been collecting data on the trend of land values in order to study the effect on land values of changes in the prices of farm products, rates of interest, improvements, etc.

CONDITIONS OF FARM LABOR EMPLOYMENT.

A survey of truck-farm labor was made in New Jersey by a field party in the summer of 1922. Practically 1,100 schedules were collected, mostly by canvass, a few by mail. Most of the tabulation of this material has been completed and the manuscript is under way.

DIVISION OF STATISTICAL AND HISTORICAL RESEARCH.

Dr. O. C. STINE, *Acting, in Charge.*

Foreign Competition and Demand, L. G. Michael.

Production Statistics, Perry Elliott; Marketing Statistics, L. B. Flohr; Agricultural History, N. A. Olsen; Transportation, J. G. Cross; Graphics, G. C. Haas.

G. B. L. Arner, Consulting Statistician.

The main objective of this division is the assembling of statistics and facts on the domestic and foreign production and stocks of the agricultural commodities, the trend of production, imports and exports movements, and other data relative to the domestic demand and prices. The data laid before the committee on agricultural outlook

were assembled by the division and special graphic charts prepared to aid in analyzing the data.

A large part of the statistical section of the Yearbook was prepared in this division. Receipts, shipments, cold-storage holdings, market prices, foreign production, international trade, and foreign prices were included. Contributions were made to the text of the Yearbook articles on trends of production, yields and prices, shifts in production, and foreign competition and demand. All charts and graphs were prepared in the graphics and statistical analysis section of the division.

FOREIGN COMPETITION AND DEMAND STUDIED.

Work in the field of foreign competition and demand has been strengthened by extending and improving the foreign crop and market reporting service, by adding men in the Washington office to analyze and interpret the information received, and by adding to and improving the means of disseminating the information received and the results of the analysis and interpretation.

BEGIN WORLD CROP AND MARKET SERVICE.

The exchange with foreign countries and with the International Institute of Agriculture at Rome of telegraphic information on crop conditions, estimates, and forecasts has been maintained and the service greatly improved. Arrangements have been made with the naval radio service to transmit reports from Rome, Berlin, and London without expense except the cost of commercial wire connections. To economize further on cable and radio service the Bentley code and the cable address "Agrecon" have been adopted.

Canada, India, Norway, and our agricultural commissioners in London and Berlin send information direct by cable or radio. The International Institute sends bimonthly radiograms on crop conditions in different countries and, as soon as received, crop and livestock estimates and forecasts of each of the foreign countries which report to the institute. The State Department has cooperated through the Consular Service by making reports on the agricultural situation and market conditions, and plans were started for more extensive cooperation in developing a supplementary reporting system through the Consular Service. The Department of Commerce has cooperated by submitting reports of the trade commissioners, and plans have been made for securing regularly through a commercial attaché reports on the cotton crop of China.

REPRESENTATIVES AT LONDON AND BERLIN.

The work of an agricultural commissioner has been continued in London. The function of this office is to investigate the demand for agricultural products, report on market conditions, and assist in the development of markets for American agricultural products in Great Britain, Ireland, Holland, Belgium, and France, and to make agricultural and market surveys and develop plans for special investigations. The office is also charged with making personal contacts with government officials and with heads of large business organizations for the purpose of securing necessary information. Constant contact has been maintained by radio relative to current situations.

During the apple-marketing season the prices of American apples in the most important British markets were cabled weekly. Material bearing on all phases of market conditions, production, and demand has been collected in London and forwarded to Washington at the rate of two large pouches per week throughout the year.

The representative stationed at Berlin has made a special investigation of conditions affecting the market for meat and animal products in middle Europe, in addition to keeping the department in touch with current agricultural and market conditions.

It was possible to maintain the representative in South America for only a part of the year, but if funds permit, a representative will be returned to Buenos Aires during the coming year.

CLOSER RELATIONS TO INTERNATIONAL INSTITUTE AT ROME.

A representative spent some time devising ways and means for increasing the value of the work of the institute to the United States Department of Agriculture. He made a study of the crop-reporting methods of all the governments adherent to the International Institute of Agriculture, giving particular attention to the crops covered in their reports, the method by which the data are collected and estimates compiled, the system of reporting crop conditions, and the dates upon which area and production estimates and condition reports are made public. He visited the statistical departments of Austria, Czechoslovakia, Germany, Denmark, and England, where he made personal contacts with those in charge of the offices which compile the crop statistics of those countries and report them to the International Institute of Agriculture. This paves the way for improving statistical methods in order to make international crop statistics more uniform, timely, and comparable.

BEGIN WORLD SURVEY OF AGRICULTURE.

A survey of the agriculture of those regions of the world that compete with our agricultural products in the foreign field and of those markets that look to the United States as a source of their supplies of foodstuffs and raw materials was begun during the latter part of the fiscal year 1922.

Completion of the investigation in the Danube Basin, begun in the fiscal year 1922, is the first contribution to the world survey. Results of this survey were published in five mimeographed reports. These reports were later combined and will be used as one section of the world report.

A survey of the agriculture of France, with special reference to the changes caused by the war, was planned. Work was begun on surveys of Denmark, Germany, and Poland. Plans were made for a survey of the fruit-growing regions of the Mediterranean Basin. The representative who was located at Buenos Aires as agricultural commissioner made a survey of the agriculture of Chile and Peru. A preliminary survey was made of agricultural conditions and of agricultural production in Manchuria, and some data were collected relative to the agriculture of China.

ANALYSIS OF FOREIGN MARKETS AND PRICES.

Analysis of international trade and prices for all agricultural commodities has been started. International trade practices, tariffs,

and ocean rates are also being studied in relation to the marketing of agricultural products. Several special investigations and reports have been made, including a study of the handling and reporting of export shipments of Canadian wheat to and through the United States, and of corresponding movements of American wheat to and through Canada. The purpose of this study was to explain the statistics of exports and imports as published by the two countries. A beginning has been made in the analysis of the demand for specific products in specific countries in a study of the consumption of wheat in the United Kingdom and Italy, and the competition of other countries in supplying the needs of these countries.

FOREIGN CROPS AND MARKETS NEWS WIDELY DISTRIBUTED.

Weekly reports of weather and crop conditions during the critical season are sent to the international institute by naval radio. The current foreign situation is given publicity through press releases and radio several times weekly, and is summarized in *Foreign Crops and Markets*, and selected materials appear weekly in *Weather, Crops, and Markets*.

Foreign Crops and Markets, a mimeographed circular, issued weekly since March 1, 1922, contains the latest information available on foreign crops and livestock, international trade in agricultural products, prices of agricultural commodities, farm wages, and statistics on consumption and other economic factors that enter into supply and demand for agricultural commodities in foreign countries. It has been used as a means of making available promptly statistical and other information on foreign competition and demand. About 700 copies are circulated to agricultural economists, the press, farm, and market organizations, agricultural colleges, libraries, and research institutions.

STATISTICS ON MOVEMENTS AND MARKET PRICES COMPILED.

In the Market Statistics Section statistical data have been compiled, and a report is being printed covering the movements and market prices, and in the case of a few commodities retail and import prices, of the principal farm products, such as butter, cheese, cotton, eggs, fruits, vegetables, grain, hay, feed, hides and skins, livestock, meats, milk, poultry, seeds, tobacco, and wool. Some work has been done on compiling statistics on canned goods, sugar, drug plants, nuts, and silk.

PRICE TRENDS STUDIED.

In a broad way these studies involve study of relation of production to price, measurements of demand in relation to price, trends of prices, and the interrelation of the problems of agriculture and transportation.

To furnish a scientific and objective basis for price forecasting a new project was begun. A large part of the uncertainty attending present forecasts of prices arises from the imperfections of our knowledge of price relationships. Price changes and the series indicating changes in the supply and demand factors are as a rule not synchronous but occur with lags. To determine the degree of these relationships and their lags is the ultimate object of this analysis.

The study will supply for each of the major agricultural products the series of economic data indicating conditions of supply and demand which anticipate or forecast price movements. In addition a quantitative measure of the accuracy of each series as a forecaster and of all the series considered in a combined relationship will be calculated.

The practical purpose of the price-analysis work is to give the farmer the benefit of a scientific analysis of his problem, so that he may be able to make the best estimate possible with the facts available. Considerable progress has been made in the analysis of hog and cotton prices, and the study of feeder-cattle prices has been started. The results which have been obtained so far are very encouraging.

DEVELOPING MORE ACCURATE INDEX NUMBERS OF FARM PRICES.

This project involves the development of more accurate index numbers of farm prices, market prices, and freight rates. Subindex series for grains, fruits, vegetables, livestock, livestock products, and miscellaneous products are also being constructed. Satisfactory progress has been made on this project. Work was begun on reconstructing index numbers of farm prices. A tentative selection has been made of commodities and groups of commodities to be used. Weights of monthly marketings have been compiled and some computations have been made.

DIVISION OF FARM POPULATION AND RURAL LIFE.

Dr. C. J. GALPIN, *In Charge.*

Rural Population Statistics, V. B. Larson; Population Aspects of Rural Community Buildings, W. C. Nason; Farmers' Standard of Living, E. L. Kirkpatrick.

STANDARDS OF LIVING AMONG FARMERS.

A study of the standards of living among farmers in Livingston County, New York State, is in press as Department Bulletin 1214. Studies are in progress in four other States, Iowa, Kansas, Kentucky, and Ohio. The field work is completed or nearly completed and tabulation commenced. These studies are in cooperation with the Bureau of Home Economics. In cooperation with the Division of Land Economics a tabulation is being completed of the data from 860 families in Kentucky, Tennessee, and Texas. Arrangements have been made with the States Relations Service for schedules from home demonstration agents in various States, which should give reports from 2,000 families without the customary cost of field work to our division.

FARM POPULATION STUDIED.

Our study of eight counties will be published by the Bureau of the Census in the form of a monograph on farm population, this monograph to contain also such farm-population material as the census has tabulated. This is expected to reach publication by the end of 1923. The population data of the 1920 census for 34 villages in Maryland, New York, and Pennsylvania have been run into the machine count sheets, and are now ready for final table making. It is

confidently hoped that our contact with the Bureau of the Census will finally result in a decennial volume on farm population in which the tabulation will be by counties for the whole United States.

ANALYSIS OF COUNTIES INTO PRIMARY GROUPS.

Five counties in different States have been analyzed. Two of these studies have been published by the State colleges cooperating. The study of Boone County, Mo., is now complete, and has been submitted to the Missouri Experiment Station for bulletin publication.

FUNCTION OF FARMERS' TRADE AND SERVICE CENTERS.

Three studies have been under way in Louisiana, Minnesota, and Wisconsin regarding the function of farmers trade and service centers. Two are finished, Louisiana and Minnesota. The Louisiana study is published as a research bulletin of Tulane University under the title "Some Factors in Town and Country Relationships." The Minnesota study has been submitted to the Minnesota Agricultural College for a bulletin under the title "Distribution of Goods in Rural Communities." The Wisconsin study has been extended in scope and will continue during the year 1923-24.

STUDY OF RURAL INSTITUTIONS IN A STATE.

Three studies of rural institutions have been in progress during the year in Arkansas, Texas, and Virginia. The study in Arkansas is completed and published as a bulletin of Hendrix College under the title "Rural Life in Arkansas at Its Best."

MOVEMENTS OF FARM POPULATION.

A small beginning has been made in Wisconsin in a study of 100 families who moved from the farm to town. The field study has just been completed and tabulation begun. A study in Kansas has been projected in a county which has lost farm population heavily. It is hoped to make during the next two years a major project of the study of movements and migration of population to and from farms. Nothing short of a United States chart of the seasonal, annual, and periodic migratory movements of population to the farm and from the farm, so as to show the regular currents of population in direction and extent, can finally satisfy the requirements of this project.

LIVING CONDITIONS OF FARM TENANTS.

The study of 1,000 farm families in North Carolina, in cooperation with the North Carolina governor's commission, has been completed and reached publication, in part, in a University of North Carolina Extension Bulletin, Volume II, No. 6, How Farm Tenants Live. The study of 1,000 farm families in Nebraska has culminated in three bulletins of the agricultural experiment station of the University of Nebraska: Bulletin 180, Reading Matter in Nebraska Farm Homes; Bulletin 186, The Nebraska Farm Family, Some Land-Tenure Phases; Bulletin 191, Nebraska Farm Homes, a Comparison of Some Living Conditions of Owners, Part Owners, and Tenants. The study of 400 farm families in the Sikeston area of Missouri has been completed.

COUNTRY COMMUNITY CENTERS.

Farmers' Bulletin No. 1325, entitled "Rural Planning, the Social Aspects," was issued in July, 1923, in an edition of 30,000. A manuscript for a second Farmers' Bulletin, entitled "Rural Planning: Recreation Places," has been submitted. A third manuscript, entitled "Rural Planning: The American Farm Village," is in process.

The study of rural community buildings has been completed. Three Farmers' Bulletins have been printed and reprinted and have gone through several editions, aggregating over 200,000 copies.

AWAKENED INTEREST IN RURAL POPULATION PROBLEMS.

The growing popularity of courses in rural sociology is a good index to the broad national interest in the progress of American rural life as a whole. Six hundred American educational institutions—normal schools, colleges, universities, and theological seminaries—gave severally one or more courses last year on this subject. Forty of the 48 State colleges of agriculture were among the 600. Fifteen of the 40 State colleges employed instructors to teach rural sociology full time. Ten years ago not more than 20 of these 600 institutions gave any course touching on the social or human side of farm life.

This amazingly rapid growth in the demand for instruction in the fundamental aspects of rural society creates a correspondingly urgent demand for facts to teach. This division has aimed to furnish a body of trustworthy facts of a basic character to these institutions for their instruction in rural life, rural institutions, and rural development. This division has followed the policy of making its studies known to these instructors and supplying them with information. In the absence of any other national agency for research upon the social facts of farm population and rural life, a heavy responsibility rests upon this division to make its basic researches wide enough to meet the demand.

DIVISION OF INFORMATION.

J. CLYDE MARQUIS, *In Charge.*

Editorial Statistician, S. W. Mendum; Editorial, Miss C. B. Sherman, Miss K. G. Rice; Periodicals, A. B. Genung, Miss C. M. Viehmann, Miss H. L. Bonebrake; Press Service, F. George, Jr.; Radio Market News Service, J. C. Gilbert; Exhibits, B. L. Perkins.

The assembling of related facts bearing on the farmer's market questions, as provided by the work in the various parts of the bureau into concise practical statements of particular value to farmers, has been the main objective of this division during the past year. It has supplied an increasing demand for information bearing on the changing agricultural conditions to the press, agricultural writers and editors, investigators, legislators, and farmers. The effort has been to get facts from widely separate sources which have a bearing on one question and to make this information effective by putting it into clear and concise form.

The new, united bureau has proved the means of establishing a center of information on the economics of agriculture such as has not heretofore been available. The bureau is now generally known

and recognized as such a center, and its bulletins, periodicals, and other publications are meeting with constantly increasing demand. An outstanding evidence is the extent to which business organizations that deal with the farm industry are utilizing the crop and market information provided by the bureau. Leading news-distributing agencies such as the press associations and syndicates are giving more and more attention to economic subjects. Cooperative relations have been cultivated with these organizations until their widespread channels of distribution have been made available for economic material.

INCREASED USE OF THE PRESS.

Through press releases distributed to daily and weekly newspapers the more timely results of work of the bureau gets its widest distribution. During the past year the volume of material released in this manner has been steadily increased, both in quantity and variety of topics covered. A large number of special articles designed for special localities or branches of farm industry have been prepared and distributed.

Special articles on various phases of the bureau's work have been placed in a large number of weekly and monthly magazines and trade journals, thereby promptly reaching a large number of those most interested. During the year more than 300 news stories and items of economic character ranging from 100 to 2,000 words each have been distributed and have been published in periodicals with aggregate circulation of millions of readers. This material has been reproduced in so many forms that there is no adequate means of measuring the extension of its distribution.

MARKETGRAM SERVICE EXTENDED.

The daily marketgram has been distributed throughout the year from seven offices on the leased-wire system, which are Washington, New York, Cincinnati, Chicago, Kansas City, Minneapolis, and Omaha. This marketgram is distributed daily over the leased wire and is mimeographed in the several offices and mailed at once to daily and weekly newspapers. Through cooperation with the agencies that distribute plate services to newspapers, this daily summarized market review now reaches over 2,000 weekly newspapers with an aggregate circulation of several millions of readers.

EXPANSION OF RADIO NEWS SERVICE.

Radio broadcasting as a means of disseminating market information has been given a thorough trial during the past year and has fully demonstrated its value. Through the cooperation of the Navy Department, the high-powered radio stations at Arlington, Va., Great Lakes, Ill., and San Francisco, Calif., have been used in transmitting market information which has reached a large portion of the country.

Secondary broadcasting by radio telephone has been further developed, and now any farmer who has an adequate receiving set may get full market reports from the air in practically every part of the United States. An inquiry among county agents showed that

the number of receiving sets on farms is rapidly approaching a quarter of a million, and that through the distribution of these reports by local schools, farmers' organizations, business houses, etc., our market information is becoming available to a large proportion of our farmers.

NEW BULLETIN SERIES STARTED.

The regular publication work of the bureau has been marked by two new developments. The first is the beginning of a series of manuscripts, to appear later as commodity bulletins, in each of which the methods of marketing a single commodity are portrayed against a comprehensive background that gives the student the essential facts regarding amount of commodity produced, sources of supply, channels of trade through which it passes, quantity, and place of consumption. At least two of the farmers' bulletins that have appeared this year relating to the marketing of potatoes follow this outline of treatment to a certain extent.

Inauguration of a new series of statistical bulletins constitutes the second development. Several manuscripts of this series were prepared before the close of the fiscal year and one was issued shortly after the end of the year. Each bulletin of this series will give in comprehensive form the essential statistics regarding the commodity or related commodities which it treats. This series will include statistics on cold-storage holdings of certain food products; statistics on horses, mules, and tractors; sheep, lamb, and mutton, and wool; vegetables; seeds; fruits; potatoes; carlot shipments of fruits and vegetables; wheat; tobacco, rye, oats, barley, rice, buckwheat, grain sorghum, and flax; cotton; hay and feed; cattle, calves, beef, veal, hides, and skins; hogs and pork; corn; dairy and poultry products.

Progress has been made toward standardization of practices in both statistical and graphic methods used in publications of the bureau, and increased attention has been given to questions of make-up and distribution.

WEATHER, CROPS, AND MARKETS EXPANDED.

The weekly periodical, *Weather, Crops, and Markets*, although a department publication, has been assembled and edited in this division. All of the material used in this publication, excepting that relating to weather and a weekly list of publications of the department, originate in various divisions of the bureau. The volume of this material offered for publication has been steadily increasing, which necessitates a close condensation in order to keep the size of the publication within the limits of funds available for its printing. Early in the year a distinct change in the character of tabulated material was made, giving more emphasis to trends and comparisons than market prices. The typographical arrangement of the publication was modified and several new factors were introduced, such as a review of the market week on the first page and the introduction of articles giving summaries of the agricultural situation with respect to various products.

The several mimeographed reports which appear regularly have been edited in this division and their distribution has been directed to those who appear most interested in the work. The Bureau of

Agricultural Economics News has been extended as a house organ for the personnel to give a complete record of the organization's work, administrative changes, field service activities, and other personnel matters essential to the regular work of the bureau. The weekly report, State and Federal Marketing Activities, has been continued as a means of keeping our workers in the field of marketing thoroughly familiar with progress in the States.

The monthly review, The Agricultural Situation, was issued regularly and distributed to county agents and other workers in the economic field and has aided greatly in spreading the fundamental phases regarding agricultural affairs to extension workers, and extracts from it have been reprinted freely in the general press. This publication has been supplemented by charts and statistical summaries sent out at frequent intervals, as well as copies of reports of primary importance on production, consumption, movement, and prices. Through this office a large volume of information has been furnished to extension workers and leading economists in fields relating to agriculture and to editors which has been used as a basis for much important discussion.

EXHIBITS AND MOTION PICTURES.

There is a growing demand for exhibits which present the results of work of the department in a form suitable for display at fairs, expositions, farmers' meetings, etc. During the year the exhibit section aided in the preparation of the displays for the National Dairy Show and the International Livestock Exposition as well as special displays for numerous meetings of lesser importance. A large collection of lantern slides has been assembled and furnished to the extension forces. A large quantity of illustrated material in the form of photographs from the bureau files has been distributed to periodicals and book publishers and individuals engaged in general educational work.

During the year one complete motion picture, The Golden Fleece, was completed and released for general showing and scenarios have been prepared for several other motion pictures which are now being made.

The staff of the photographic laboratory has been enlarged to take care of the increased volume of photographic work required by the enlarged bureau. The extensive photographic files of the former Bureau of Markets and Office of Farm Management and Farm Economics were consolidated and a new system of filing introduced to make this material, both old and new, more readily available to all workers.

MARKET NEWS RESEARCH.

Experimental studies of the effect of various forms of publicity upon consumer demand for farm products were inaugurated during the year. The purpose of this work is to develop methods of measuring the effectiveness of various forms of news distribution as an aid in determining the causes for changes in consumer demand for farm products.

PUBLICATIONS ISSUED DURING THE FISCAL YEAR 1923.

DEPARTMENT BULLETINS.

- No. 1034. Farm Management and Farm Organization in Sumter County, Georgia. 1922.
No. 1068. Farm Management and Tenancy in the Black Prairie of Texas. 1922.
No. 1070. Farm Management in Catawba County, North Carolina. 1922.
No. 1083. Farm and Terminal Market Prices, Wheat, Corn, and Oats. Crop Movement Year 1920-21. 1922.
No. 1086. Shrinkage of Soft Pork under Commercial Conditions. 1922.
No. 1095. Producers' Cooperative Milk Distributing Plants. 1922.
No. 1106. Legal Phases of Cooperative Associations. 1922.
No. 1109. Sales Methods and Policies of a Growers' National Marketing Agency. 1923.
No. 1124. The Marketing of Mill Feeds. 1922.
No. 1135. Spinning Tests of Cotton Compressed to Different Densities. 1923.
No. 1144. Cost of Milk Production on Forty-eight Wisconsin Farms. 1923.
No. 1148. Comparative Spinning Tests of Superior Varieties of Cotton. 1923.

FARMERS' BULLETINS.

- No. 1245. Farmers' Telephone Companies: Organization, Financing and Management. 1922.
No. 1265. Business Methods for Marketing Hay. 1922.
No. 1271. Farm Lands Available for Settlement. 1922.
No. 1272. Renting Dairy Farms. 1922.
No. 1274. Uses of Rural Community Buildings. 1922.
No. 1287. Foreign Material in Spring Wheat. 1922.
No. 1289. Distribution of Types of Farming in the United States. 1923.
No. 1290. The Bulk Handling of Grain. 1922.
No. 1291. Preparation of Fresh Tomatoes for Market. 1922.
No. 1292. Organization and Management of Cooperative Live Stock Shipping Associations. 1923.
No. 1295. What Tractors and Horses Do on Corn-Belt Farms. 1923.
No. 1296. Changes Effected by Tractors on Corn-Belt Farms. 1923.
No. 1297. Cost of Using Tractors on Corn-Belt Farms. 1923.
No. 1298. Cost of Using Horses on Corn-Belt Farms. 1923.
No. 1299. Shall I Buy a Tractor? 1923.
No. 1300. Choosing a Tractor. 1923.
No. 1308. Marketing the Cowpea Seed Crop. 1923.
No. 1316. Marketing the Early Potato Crop. 1923.
No. 1325. Rural Planning—The Social Aspects. 1923.

SERVICE AND REGULATORY ANNOUNCEMENTS (AGRICULTURAL ECONOMICS).

- No. 71. Complete Lists of Warehousemen, Classifiers, Inspectors, Graders, and Weighers—under the U. S. Warehouse Act. 1922.
No. 72. Establishment and Replacement of the Official Cotton Standards of the U. S. 1922.
No. 73. Official Grain Standards of the U. S. for Rye. 1923.
No. 74. Rules and Regulations of the Secretary of Agriculture for the Management and Control of Center Market. 1923.

OFFICE OF SECRETARY CIRCULARS.

- No. 157. Handbook for Use in the Inspection of Whole-Milk American Cheese under the Food Products Inspection Law. 1923.
No. 158. Regulations for Cotton Warehouses under U. S. Warehouse Act. 1922.
No. 159. Regulations of the Secretary of Agriculture under the U. S. Cotton Futures Act. 1922.
No. 160. Rules and Regulations of the Secretary of Agriculture under the Food Products Inspection Law. 1922.

DEPARTMENT CIRCULARS.

- No. 228. Live Stock Industry in South America. 1922.
- No. 236. Defects in the Quality of Butter. 1922.
- No. 238. United States Grades for Potatoes. 1922.
- No. 245. United States Grades for Grain Sorghums. 1922.
- No. 246. United States Grades for Rye. 1922.

MISCELLANEOUS CIRCULARS.

- No. 6. Crop and Live Stock Estimates, 1910-1922. 1923.

YEARBOOK SEPARATES.

- No. 867. Imports and Exports of Agricultural Products. 1921 Yearbook.
- No. 868. Statistics of Grain Crops. 1921 Yearbook.
- No. 869. Statistics of Crops other than Grain Crops. 1921 Yearbook.
- No. 870. Live Stock. 1921 Yearbook.
- No. 871. Miscellaneous Agricultural Statistics. 1921 Yearbook.
- No. 872. The Corn Crop. 1921 Yearbook.
- No. 873. Wheat Production and Marketing. 1921 Yearbook.
- No. 874. Our Beef Supply. 1921 Yearbook.
- No. 876. Cost Data for Farm Products. 1921 Yearbook.
- No. 877. The Cotton Situation. 1921 Yearbook.
- No. 878. A Graphic Summary of American Agriculture. 1921 Yearbook.

PRELIMINARY REPORTS ISSUED DURING THE YEAR.

- The Business Analysis of 100 Truck Farms, Hillsboro County, Florida. October, 1922.
- Incomes and Profits of 100 Fruit Farms, Polk County, Florida. August, 1922.
- Returns from Farming on 6,094 Farms. June, 1923.
- Farming in Northeastern Montana. January, 1923.
- Farm Occupancy, Ownership, and Tenancy, 1922. April, 1923.
- When do Farm Tenants Move? April, 1923.
- Sources of Supply and Conditions of Employment of Harvest Labor in the Wheat Belt. June, 1923.
- Conditions Affecting the Demand for Harvest Labor in the Wheat Belt. July, 1923.
- Cost of Producing Apples and Farm Business Analysis for 48 Orchard Farms for Five Years. 1916-1920. September, 1922.
- Cost of Fattening Cattle in Nebraska. (Winter 1921-22.) 122 Doves—4,222 Cattle. Bureau of Agricultural Economics and Bureau of Animal Industry Cooperating. November, 1922.
- Cost of Fattening Cattle in Illinois. (Winter 1921-22.) 106 Doves—4,202 Head. Bureau of Agricultural Economics and Bureau of Animal Industry Cooperating. January, 1923.
- Cost of Fattening Cattle in Iowa. (Winter 1921-22.) 117 Doves—4,717 Cattle. Bureau of Agricultural Economics and Bureau of Animal Industry Cooperating. January, 1923.
- Cost of Fattening Cattle in Missouri. (Winter 1921-22.) 101 Doves—4,914 Head. Bureau of Agricultural Economics and Bureau of Animal Industry Cooperating. February, 1923.
- Cost of Fattening Cattle in Indiana. (Winter 1921-22.) 117 Doves—4,877 Head. Bureau of Agricultural Economics and Bureau of Animal Industry Cooperating. June, 1923.
- Cost of Producing Winter Wheat and Incomes from Wheat Farming, Sherman County, Oregon. 1920-21. May, 1923.
- Cost of Producing Virginia Dark Fire-Cured and Bright Tobacco. Charlotte and Adjacent Counties Crop Year 1922. Virginia Agricultural College and Polytechnic Institute and Bureau of Agricultural Economics Cooperating. June, 1923.
- Bookkeeping Records for Retail Meat Dealers. Northwestern University School of Commerce, Bureau of Business Research and the Bureau of Agricultural Economics Cooperating. 1922.

- Cost of Marketing Livestock in the Corn Belt, 1921. Partial results of the tabulation of data collected from 237 Cooperative Livestock Shipping Associations by the Cost of Marketing Division. February, 1923.
- Cost of Marketing Cattle in the Corn Belt, 1921. Partial results of the tabulation of data collected from 237 Cooperative Livestock Shipping Associations by the Cost of Marketing Division. March, 1923.
- Terminal Conditions at the Port of New York as they affect the Cost of Marketing Fruits and Vegetables. Bureau of Agricultural Economics and the Port of New York Authority, N. Y. City, Cooperating. March, 1923.
- Cost of Marketing Sheep in the Corn Belt, 1921. Partial results of the tabulation of data collected from 237 Cooperative Livestock Shipping Associations by the Cost of Marketing Division. April, 1923.
- A study of the Retail Meat Trade in Five Wisconsin Cities, 1921. June, 1923.
- Cost of Marketing Maine Potatoes by Country Shippers in Aroostock County, Maine. Seasons 1919-20, 1920-21, and 1921-22. June, 1923.



