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INVESTIGATIONS OF RURAL CONDITIONS
IN BOONE COUNTY, MISSOURI, AS
RELATED TO THE COUNTY
FARM ADVISER

by

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IN BOONE COUNTY, MISSOURI, AS RE-
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G E N E R A L

INTRODUCTION

The agricultural development of the past five years has established in thirty-three states of the union outside of the southern states "County Agricultural Agents" or "Farm Advisers" whose duty it is to live in the county with which they work and assist in every way possible in the betterment of the farm and farm life. It is from the viewpoint of the "Farm Adviser", the man who must diagnose the ills of his county thoroughly before he can prescribe, that this paper is written.

PURPOSE

The primary purpose of this paper, in so far as possible with the limited data at hand, is to learn what we can of the economic and social conditions of Boone County, Missouri, from the viewpoint of Farm Advisers just beginning work, to locate and consider a few of the farm problems in the county, and offer suggestions for their solution.

METHOD OF COLLECTING DATA

The data for this paper were collected from a careful study of the compiled answers to ~~one hundred~~ questions asked ¹⁰⁰ farmers in the county and from the compilation of figures from the Missouri Agricultural Statistics and United States census reports for the past forty years. Also, a general study of the conditions as they actually exist in the field, with a reconnoissance soil survey of the county.

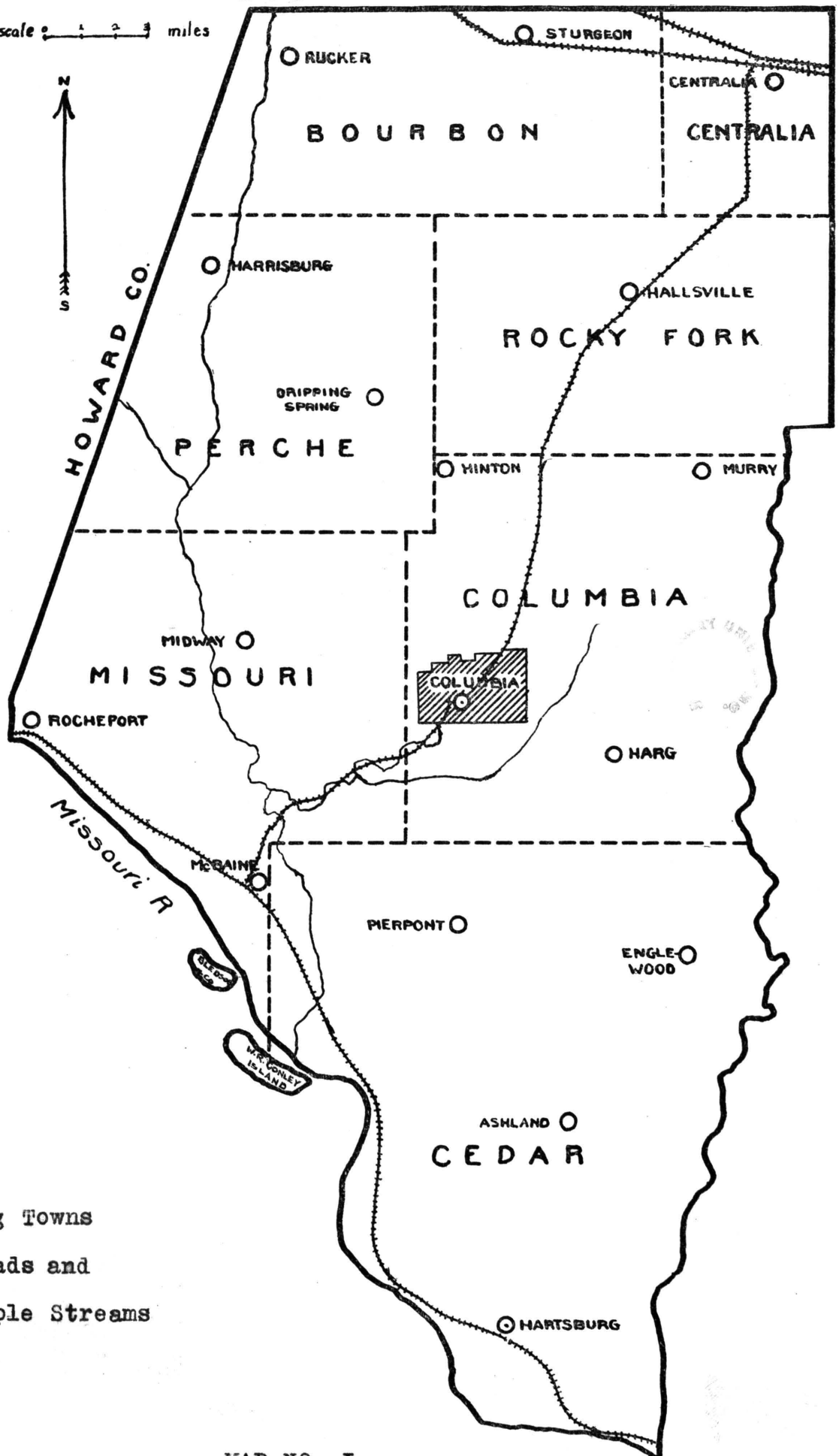
LOCATION AND DESCRIPTION OF BOONE COUNTY, MISSOURI.

Boone County, Missouri, is one of the north central counties of the state. It fronts upon the Missouri River and is very near the center of the state from east to west. It is bounded on the north by Randolph and Audrain Counties; on the east by Audrain and Callaway Counties; on the west by Howard County; and on the south by the Missouri River.

Boone County was organized in 1820, one year previous to the admission of Missouri as a state. Only sixteen counties in the state were organized previous to that date, but ten counties were organized the same year. The county comprises approximately 440,320 acres of land, or 680 square miles. The following map (No. 1) shows the out-

MAP of BOONE COUNTY MISSOURI

scale 0 1 2 3 miles



Map

Showing Towns

Railroads and

Principle Streams

line and location of Boone County, Missouri.

TOPOGRAPHY AND DRAINAGE

As compared with the level prairie regions of the northern and western part of the state, Boone County may be considered rough, although portions of the county are comparatively level. The largest of these level portions extend along the northern border running east to the northeast corner, thence south including about one-fourth of the county until river hills are reached, below Ashland. The largest part of the rough portion of the county extends thru the northwest and west central part comprised mostly of limestone, loess and clay soils. From here the broken country extends down to the river, comprising the River Hill territory on the south and southwest side. ✓

Boone County is well watered and well drained by numerous streams running south to the Missouri River. The principal stream is the Perche.

CLIMATE

The climate of Boone County does not differ essentially from that of other parts of central Missouri. The climate is such that the county is well adapted to the growth ✓

of corn, wheat, oats, clover,^{other} legumes, hay and fruit.

According to the United States Weather Bureau reports, the average date of the last killing frost in spring for twenty years is April 18, the first, in autumn, being October 14.

The earliest date of killing frost in autumn is September 18 and the latest date of killing frost in spring is May 9.

The following table (No. I) compiled from the United States Weather Bureau reports, gives the average direction of winds; the mean, the highest, and the lowest temperature, as well as the precipitation by months for a period of nineteen years in Columbia, Boone County, Missouri.

Months	Columbia - Elevation 784 feet							
	Temperature				Precipitation in Inches			
	Mean	High- est Temp	Low- est Temp	Pre- vail- ing wind direc- tion	Mean	Total amt for dri- est year	Total amt for wet- test year	Aver- age depth snow
Dec.	33	75	-23	S.W.	1.70	2.29	2.28	3.1
Jan.	27.2	74	-16	N.W.	2.46	2.32	2.27	5.0
Feb.	30.1	76	-26	N.W.	2.18	1.79	6.80	5.2
Winter	30.1	76	-26	N.W.	6.34	6.40	11.35	13.3
March	41.4	92	- 6	N.W.	2.91	3.25	3.50	3.5
April	54.3	90	18	S.E.	3.88	2.38	5.60	0.7
May	64.5	91	28	S.	4.83	0.35	10.58	0.0
Spring	53.4	92	-6	S.	11.62	5.98	19.68	4.2
June	74.5	104	42	S.	4.86	1.23	3.60	00
July	77.4	111	45	S.	4.08	2.74	7.62	00
August	74.7	105	42	S. E.	3.58	1.67	3.56	00
Summer	75.5	111	42	S.	12.52	5.64	14.78	00
Sept.	67.8	104	26	S.E.	3.84	1.37	4.50	00
Oct.	54.8	95	19	S.	2.16	1.16	1.87	00
Nov.	42.4	80	5	S.W.	2.15	0.80	2.44	0.6
Autumn	55.0	104	5	S.	8.15	3.33	8.81	0.6
Year	53.5	111	-26	S.	38.46	21.35	54.62	

TABLE NO. I.

The following chart (No. I) shows graphically the comparative monthly temperature for Boone County covering a period of nineteen years.

Showing Mean Temperature by Months for Nineteen Years
Boone County, Missouri
Compiled from United States Weather Bureau Reports

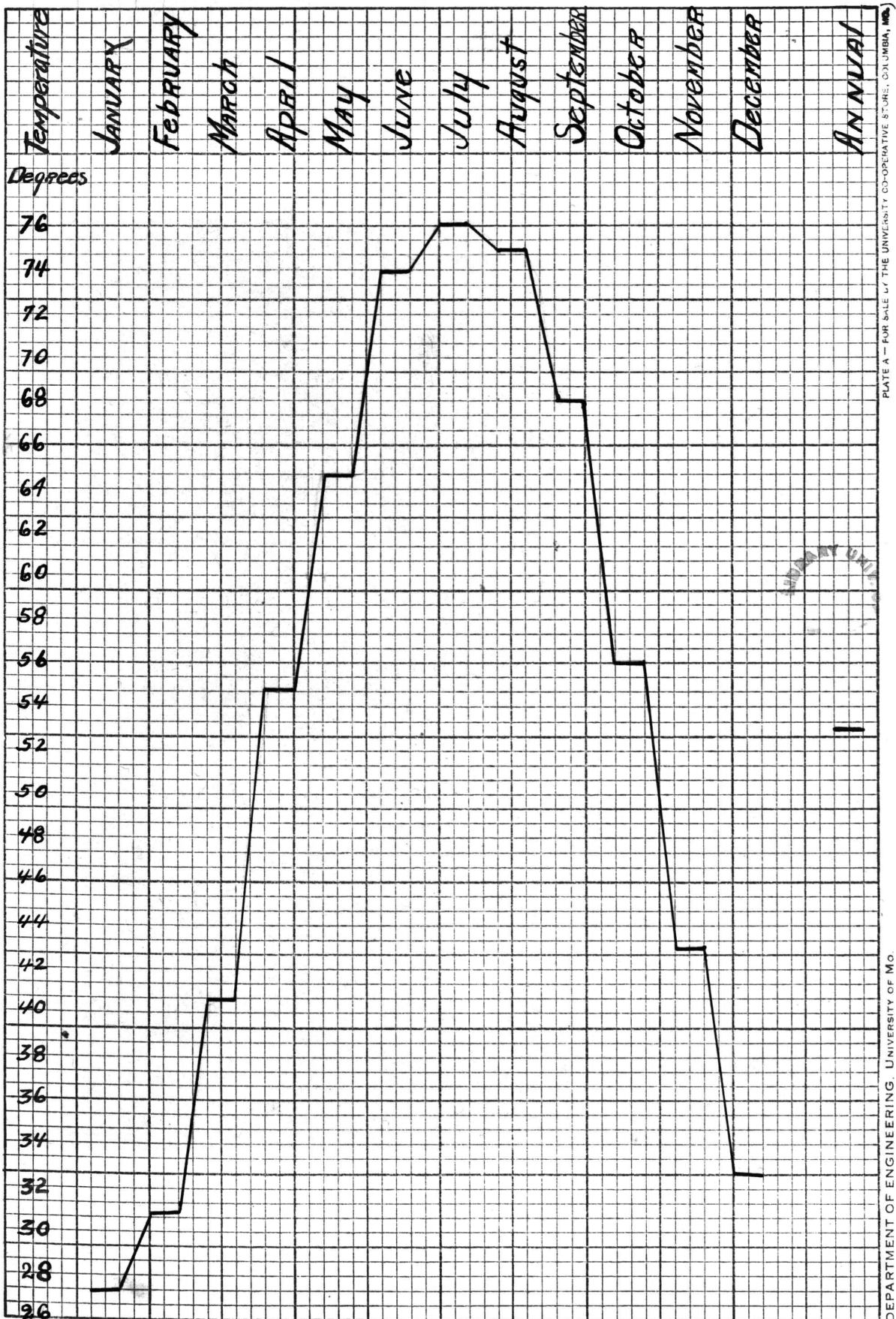


CHART NO. 1.

The following chart (No. 2) graphically shows the comparative monthly distribution of precipitation in Boone County, Missouri, for a period of nineteen years.

Showing Comparative Monthly Distribution of Precipitation
in Boone County, Missouri for Nineteen Years.

Compiled from U. S. Weather Bureau Reports

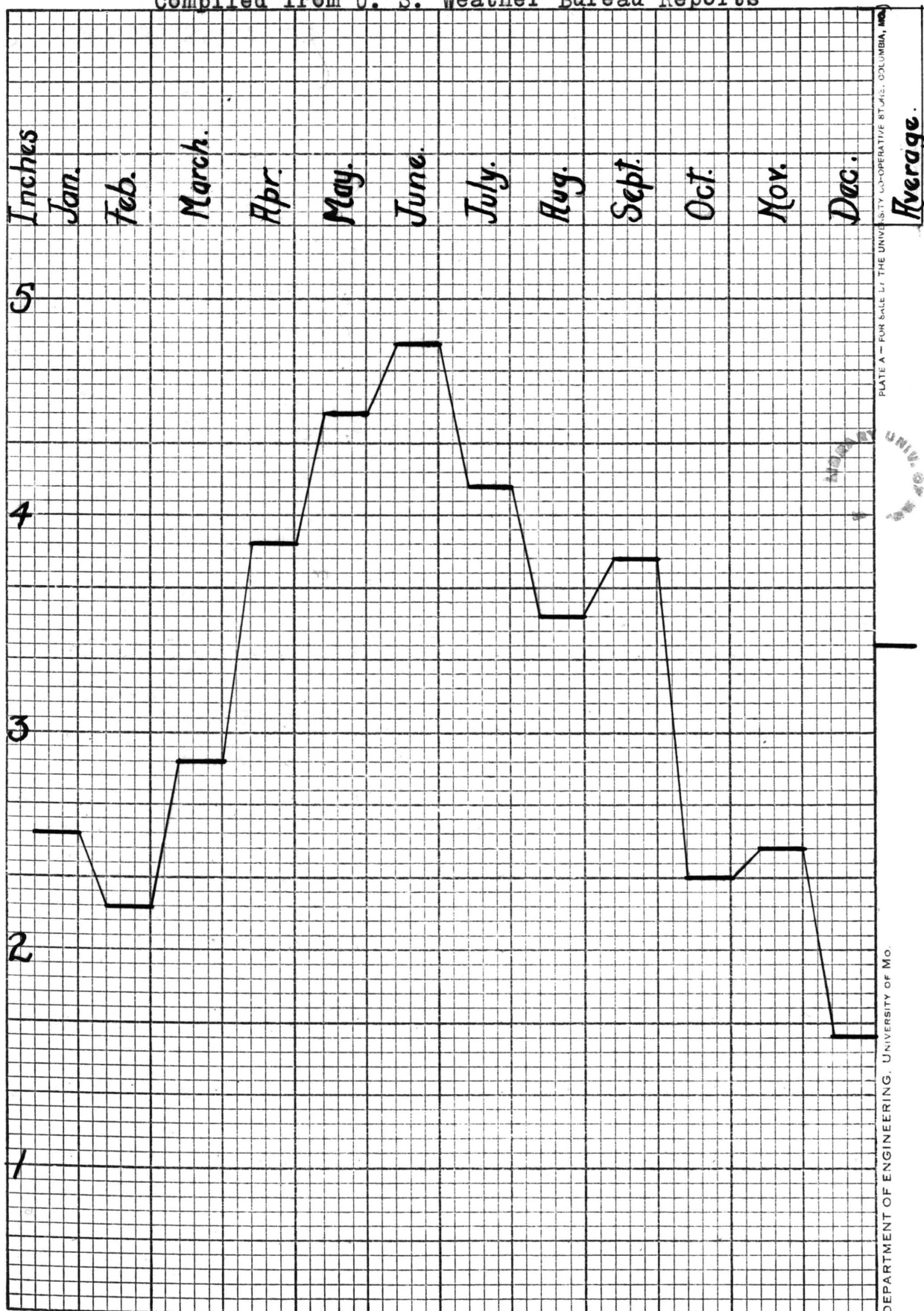


CHART NO. 2

During late spring and early summer the weather is often quite hot, but the rainfall during this season is usually sufficient to prevent injury to growing crops. The late summer and early fall being considerably dryer offers ideal conditions for ripening crops. The winters as a rule are not severe.

As is shown by Table No. 1 and Chart No. 2, the average rainfall for the county is 38.46 inches, almost two-thirds of which occurs during the growing season.

The annual average wind velocity is eight miles an hour with the strongest wind in March blowing at the rate of 10.4 miles. April is a close second, having a 9.9 mile wind rate. The slowest winds are found in August, blowing at the rate of 5.5 miles an hour, and in July with a 5.7 a mile wind rate.

I N D U S T R I A L

NATURAL RESOURCES

The chief minerals of Boone County, Missouri, are coal, building stone and sand. Coal is mined abundantly near Browns Station, Columbia, Harrisburg and Rucker. It is said that 60,000 acres of mineable land is underlaid with this mineral. The seam is found from within a few feet of the surface to a depth of one hundred fifty feet. The vein averages about four feet in thickness and is the same ^{grade as that} found in Macon and Randolph counties. The estimated coal tonnage of the county has been placed at 350,000,000 tons, showing a resource worth at least \$540,000,000. 2450 tons were exported from the county in 1912. ✓

Building stone is found in considerable abundance in the quarries of the county. There are six quarries near Columbia and one at Rocheport. 18,000 tons of stone were exported from the county in 1912.

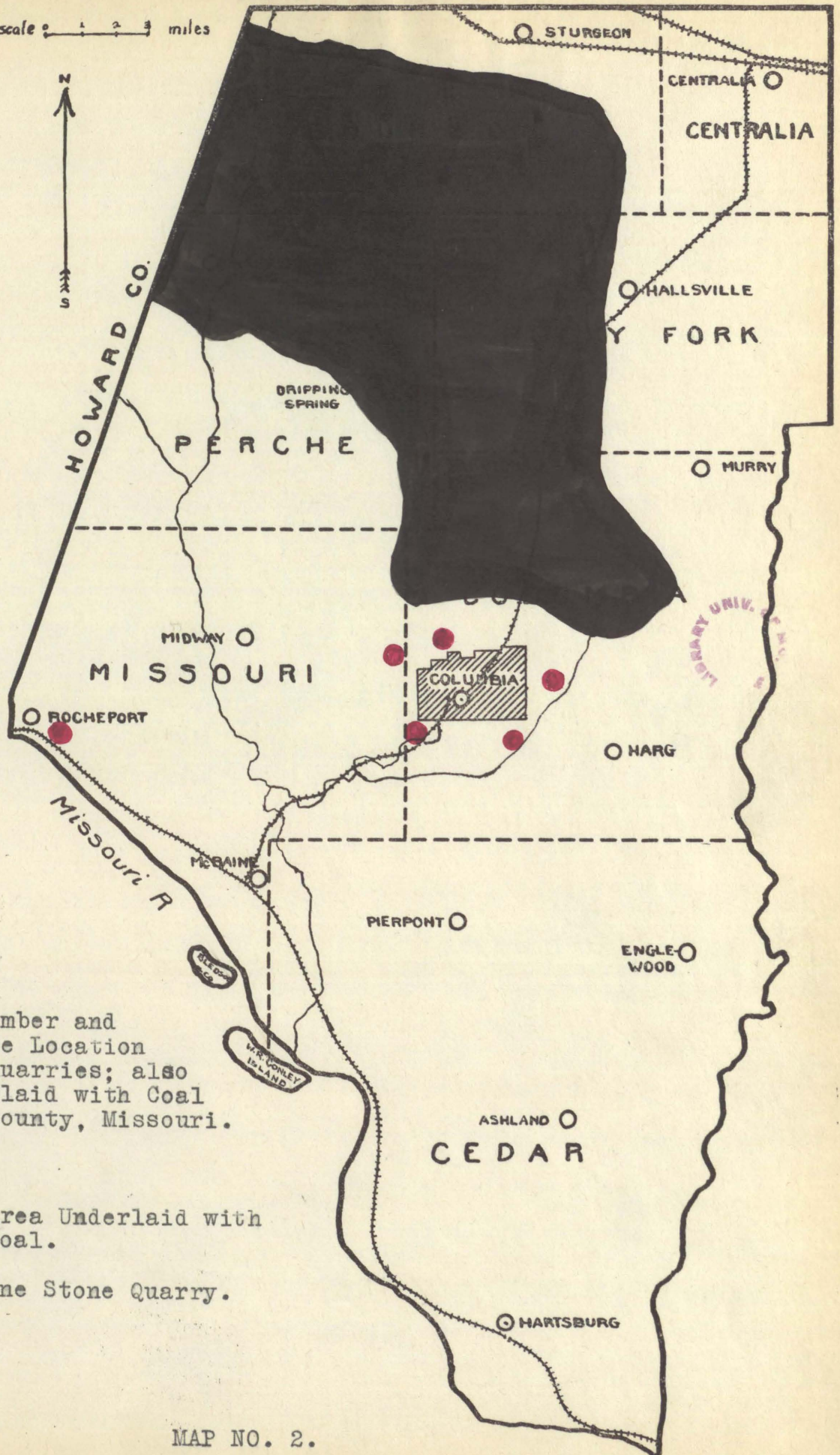
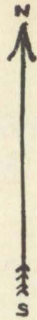
Considerable amounts of building sand and ballast are obtained from the banks of Hinkson Creek near Columbia, 350 tons being exported in 1912.

The following map, No. 2 , shows something of the number and approximate location of stone quarries in the county, also the approximate location of territory underlaid with coal.

Brick clay is mined near Columbia.

MAP of BOONE COUNTY MISSOURI

scale 0 1 2 3 miles



Showing Number and
Approximate Location
of Stone Quarries; also
Area Underlaid with Coal
in Boone County, Missouri.

Legend:



Area Underlaid with
Coal.



One Stone Quarry.

MANUFACTURING

Boone County, Missouri is not a manufacturing center. There is only one flouring mill in the county. Mill exports for 1912 were as follows:

***	Wheat, bushels-----	268,951
***	Flour, barrels,-----	1,185
	Cornmeal, pounds,----	43,238
	Bran, Ship stuff, lbs-	16,150
	Feed, Chops, pounds,--	35,740

The wheat production in Boone County for the year 1912 was approximately 324,000 bushels, the area covered being about 22,000 acres. Of this total production 268,951 bushels were exported, and about 27,500 bushels used for seed. Assuming that none of the wheat was used for stock food, approximately 27,549 bushels were left in the county to be milled.

Since it requires approximately four and three-quarters bushels of wheat to make a barrel of flour a total of about 5800 barrels could have been made. 1185 barrels of flour were shipped out of the county and only 4615 barrels left to be consumed.

Boone County has approximately 5000 families. Considering that each family will consume one and one-tenth barrels of flour in one year, the approximate total consumption would be 5500 barrels. It would then be necessary to import into the county 935 barrels of flour each year to meet the requirements of the people.

*** Missouri Bureau of Labor Statistics.

There is one packing plant in Boone County. Packing house products exported from the county in 1912 are as follows:

*** Hides and pelts, pounds---	263,563
Dressed meats, pounds,---	14,049
Tallow, pounds,-----	16,800
Lard, pounds,-----	945

There is one ice manufacturing plant, two hundred tons of ice being exported in 1912. There is also one shoe manufacturing plant, one glove manufacturing plant and one overall factory. All of these plants, except the overall factory, which is situated at Hartsburg, are located at Columbia.

TRANSPORTATION

Transportation in Boone County is not entirely satisfactory. There are three railroads in the county, but the main line of each road cuts through only one corner of the county. Two of these roads, the Wabash and the Missouri Kansas and Texas, send a spur into Columbia, the county seat. ✓

***Missouri Bureau of Labor Statistics.

Transportation is somewhat of a problem for a large number of Boone County farmers. Many of them are eight and ten miles from a shipping point. Since there are only fifty miles of graveled road in the county, the large majority of farmers are on dirt roads. This intensifies their transportation problem, for in the early spring and winter seasons many of the dirt roads are impassable.

The County Farm Adviser should assist farmers to cooperate among themselves in communities to purchase and operate road drags. In this way much better roads would obtain than at the present time.

Map No. 1 shows the railroads in Boone County.

EXPORTS

The following tables, based on figures furnished by the Bureau of Labor Statistics, show the surplus products of Boone County, Missouri, exported in the decade 1902 to 1912, 1906 excepted, figures not being available for that year.

Showing number of livestock and amount of mill products exported from Boone County, Missouri, during the decade 1902-12.

	1912	1911	1910	1909	1908	1907	1905	1904	1903	1902
Cattle, Head	13,236	16,000	16,800	31,500	25,400	20,800	27,300	25,300	25,900	16,000
Hogs, "	64,000	77,000	67,100	114,400	90,400	90,200	114,200	83,700	71,100	61,900
Horses and Mules, Head	4,200	4,600	2,600	3,100	4,200	3,200	3,500	2,600	2,400	3,600
Sheep	34,200	28,900	25,600	43,000	57,000	80,200	63,300	37,800	22,800	17,000

Based on Figures Furnished By
Labor Bureau Statistics

Table No. 2

	1912	1911	1910	1909	1908	1907	1905	1904	1903	1902
Flour, bbls.	1185	835	715	23,400	2,400	3,200	2000	2000		
Cornmeal, lbs.	43,200	38,500	12,300	412,900	9,400	34,600		2,300	3,200	70,200
Bran - Ship stuff, lbs.	16,150	33,300	32,000	845,900	71,800	44,200		31,000	35,900	243,000
Feed, Chops lbs.	35,700	50,200	89,700	329,400	2,100	38,100				

Table No. 3

Table No. 2 indicates that the exportation of cattle is rapidly decreasing. This may be due in a large measure to the fact that the native pasture lands have been put to grain crops and the older farmed areas have not been reseeded to grass. The actual number of neat cattle has therefore decreased.

Through the encouragement and upon the suggestion of the County Farm Adviser farmers should be persuaded to handle and produce more live stock.

Table number 2 indicates a decided and rapid decrease in the number of hogs being exported. Hog cholera has depleted many herds in the county, and caused many farmers to decrease their investment in hogs. With no available means to check the disease in an entire community, many farmers have hesitated to run further risk with hogs.

The County Farm Adviser could very profitably organize the farmers into anti-hog cholera clubs, and assist them materially to check the spread of cholera, and get back into the hog business with greater safety.

Table No. 3 indicates that the exportation of corn meal, bran, ship stuff and feed chops is increasing. Table No.4 shows a similar condition to prevail with wheat, corn, oats and hay. In other words the exportation or sale of crops and feeds is increasing while the sale of live stock is decreasing.

The production and sale of crops alone decreases the fertility of the soil, while the handling of livestock increases the fertility. The Missouri Experiment Station found that much less fertility was taken from the soil when the crops were marketed through livestock than when the crops were marketed as grain or hay.

The following Table, No. 5 shows the loss of fertility as related to the system of marketing crops.

Missouri Experiment Station Bulletin #30

Crop from one acre	Fertility removed from soil.
<u>Crops sold off</u>	
8 tons alfalfa hay	\$28.42
2 tons clover hay	16.80
50 bushels of corn	14.70
50 bushels of oats	9.70
<u>Crops sold through livestock</u>	
2500 pounds milk	2.50
400 pounds fat cattle	1.90
600 pounds fat hogs	1.87
100 pounds butter	.04

TABLE NO. 5

If the crop production in Boone County is increasing and the production of livestock is decreasing, it is safe to assume that the soil fertility is decreasing. It should therefore be the duty of the County Farm Adviser to encourage and assist farmers to increase the number of livestock handled. The Farm Adviser should encourage the feeding of the crops to livestock, marketing them in that way.

Showing Amount of Farm Crops, Farmyard Products, and Dairy Products exported from Boone County, Missouri, during the Decade 1902 - 1912 Based on Labor Bureau Statistics.

	1912	1911	1910	1909	1908	1907	1905	1904	1903	1902
Wheat, bu.	268,900	202,000	125,400	225,500	394,500	335,500	297,800	536,100	107,000	377,200
Corn, "	150,700	82,200	183,700	185,600	375,700	174,000	96,900	26,400	542,600	146,700
Oats, "	165,600	37,800	170,800	160,900	72,800	103,400	20,600	17,800	22,500	53,800
Hay - Tons	1,476	529	1,100	1,100	704	330	206	700	1,000	
Tobacco, lbs.	80,000	1,900	1,700	1,300	910	30	36,100			100
Clover seed, bu.		60	151	493	378	1900		1,700	140	
Apples, bbls.	20,800	4,400	6	8,600	1,349	1900			5,000	
Potatoes, bu.	2,260	28	15,139	18,100	18,500	1300	3	3	208	501
Poultry, live, lbs.	747,800	514,000	2415000	2100000	2100000	2344500	758,800	2786500	786,500	619,200
Eggs, Doz.	988,800	787,900	3 mill.	1½ mill.	1½ mill.	1½ mill.	1½ mill.	3 mill.	1½ mill.	1¼ mill.
Wool, lbs.	327,100	186,900	135,000	98,000	153,000	62,500	128,000	137,400	124,500	33,100
Butter, lbs.	40,000	43,600	240,300	231,900	1½ mill.	80,500	58,400	27,400	59,900	31,600
Milk and cream, gal.	64,700	11,500	301,400	314,000	144,000	124,600	1,700	725	348	

Table No. 4

A G R I C U L T U R A L

SOIL

A large portion of the land is rolling to rough. At least three-fourths of the county formerly covered by a dense forest is now cleared tillable land.

There is a variety of soil, ranging from the deep loess, and alluvium soil of the Missouri river bottoms to a rough white oak ridge soil. Land ranges in price from \$40.00 to \$200.00 an acre. ✓

The following Map, No. 3, shows the topography of the land with general types of soil and their approximate location.

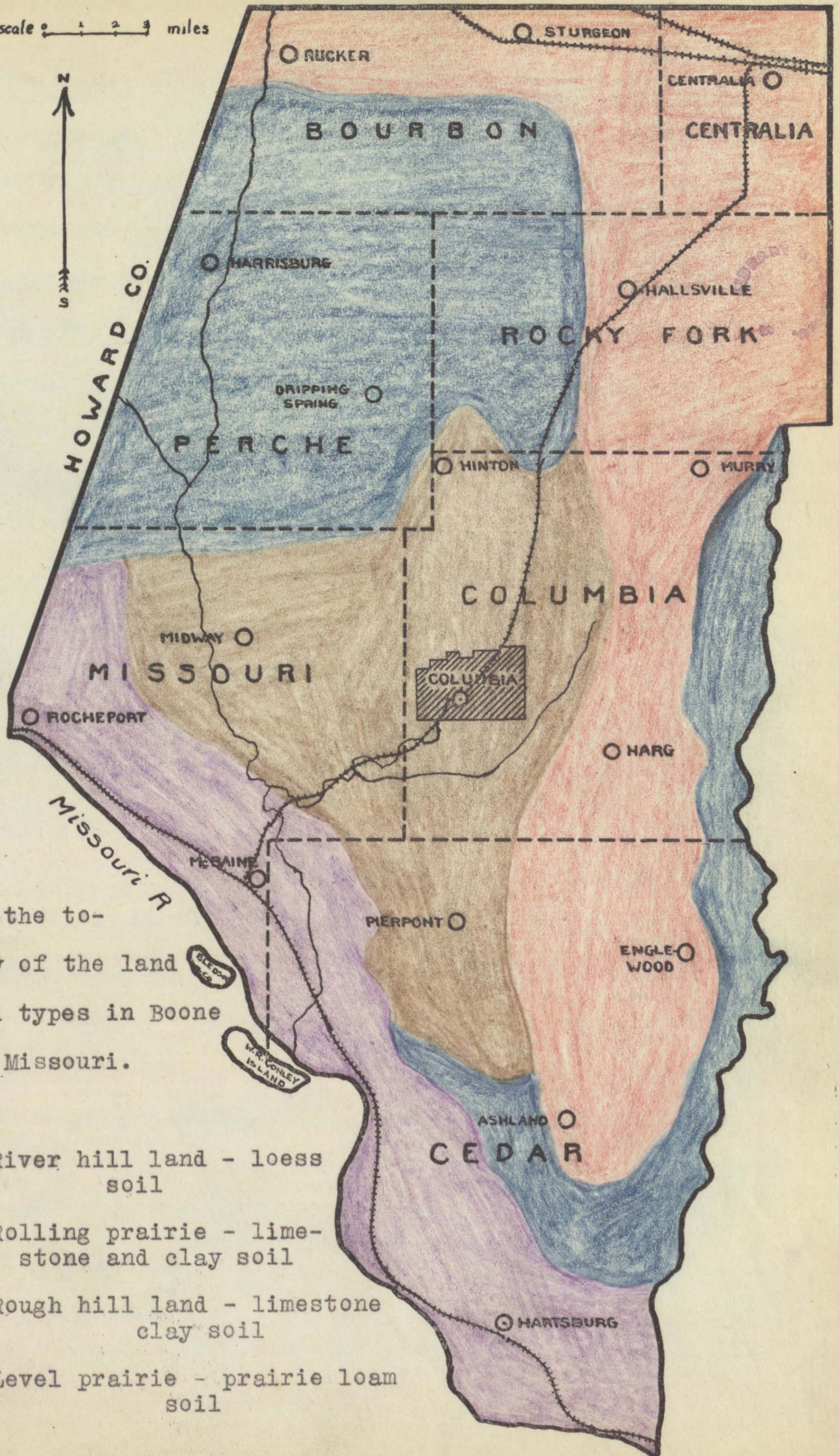
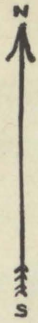
Many farmers of Boone county are depending largely on commercial fertilizers to maintain the fertility of their soil. Comparatively few acres of leguminous crops are grown in the county. The use of commercial fertilizers is increasing. The bulk of fertilizer is used in the fall, very little being used for spring crops.

Mixed and complete fertilizers predominate, very little bone meal being used. An extended use of commercial fertilizers has developed in Boone County in the past seven years. Now its use is distributed fairly well over the county, with the northeast corner, prairie loam soil using most. No home mixing of fertilizers is done.

There are several reasons why so many farmers are depending on the use of commercial fertilizers to maintain the fertility of their soil. Perhaps the most outstanding

MAP of BOONE COUNTY MISSOURI

scale 0 1 2 3 miles



Showing the topography of the land and soil types in Boone County, Missouri.

Legend:

- = River hill land - loess soil
- = Rolling prairie - limestone and clay soil
- = Rough hill land - limestone clay soil
- = Level prairie - prairie loam soil

reason is the lack of farmers making use of the barnyard manure produced. Also the comparative scarcity of live-stock on the farms creates a shortage of the manure needed. This condition, along with grain farming, which predominates has tended to decrease the humus content of the soil to such a degree that the soil washes easily.

In some sections of the county there are large areas which are naturally poorly drained. Without any general or community system of drainage, the soils of such sections are acid and lack humus.

With livestock production decreasing; grain farming increasing; scarcity of leguminous crops; soil subject to washing, and undrained lands, it is quite apparent and reasonable to believe that the soil would lack humus. To supply the decreased humus and fertility farmers are adding expensive commercial fertilizers.

The problem of soil fertility should be one that would demand the most careful and thoughtful efforts of the County Farm Adviser. He should encourage an increase in live stock production, along with the better handling of the manure produced. The Farm Adviser should encourage the production of leguminous crops, and turning the fertility back into the land by pasturing off such crops. He should encourage, in so far as possible, the marketing of all crops through live stock.

In many places the farmers find it difficult to get a stand of clover. These failures are due to a variety of causes, one of which is doubtless the excess amount of acid in the soil. Soil tests that were made in the county indicated that the soils are acid. Acidity is corrected by the use of calcium carbonate or ground limestone. Investigation showed that there is practically no ground limestone being used in the county, notwithstanding the fact that in numerous places in the county the native lime stone rock is outcropping.

The County Farm Adviser could, therefore, profitably organize the farmers in such a way that groups of them could purchase cooperatively and operate portable lime crushers. In this way a cheap local supply of ground limestone could be secured, and the farmers would not hesitate to use it.

CROPS

The principal crops grown in Boone County, Missouri are corn, wheat, oats, clover, timothy, and forage.

Showing the average ten year acreage with average ten year total yield and average ten year acre yield of crops for Boone County, Missouri-based upon Missouri State Board of Agriculture reports, 1905 to 1914 inclusive.

Crop	Acres	County Total Yield Bushels	County Acre Yield
Corn	91,207	2,820,895	31.1
Wheat	21,455	322,357	14.8
Oats	8,755	195,969	22.1
Hay and Forage	40,528	44,780 Tons	1.1

Table No. 5.a

a

Table No, 5/indicates that nine-sixteenths or 56.3 percent of the crop acres of Boone County are utilized for corn production; three sixteenths or 18.7 percent for small grain, and four-sixteenths or 25 percent for hay and forage. Assuming that the hay and forage crops are on tillable land, under the present system followed, each crop acre would be in hay one year in four. This presents a four year rotation with a hay crop on each acre one year in four. While it is a fairly good rotation it could be materially improved if a greater part of the hay crop grown were of the leguminous type.

While the figures presented indicate the presence of a four year rotation, investigation showed a serious lack of systematic rotations on individual farms. This fact offers an excellent opportunity for the County Farm Adviser to assist and encourage farmers in following a more definite system of rotation and to organize individual farms for bigger profits. ✓

Professors Johnson and Foard of the University of Missouri, Bulletin 125, found that it costs \$13.52 an acre to grow and harvest a crop of corn. Table No. 5 shows that the average production of corn in Boone County for the decade 1905 to 1914 was 31.1 bushels an acre. At the ten year average price of 56 cents a bushel, the cash value of the corn crop per acre equals \$17.10, a net profit of \$3.58 an acre.

In the same period the average production of wheat was 14.8 bushels an acre. At the ten year average

price of one dollar a bushel, the crop has an acre value of \$14.80. The acre cost of producing wheat, Missouri Bulletin 125, is \$12.30. The farmers of Boone County are therefore netting about \$2.50 an acre for their work with wheat.

Table No. 5 shows the ten year average production of oats to be 22.1 bushels an acre. Farm Management figures, Bulletin 125, indicate that it costs \$10.87 to produce an acre of oats. The average production rated at the average ten year price of thirty-eight cents a bushel equals \$8.40 or a loss per acre of \$2.47. In these figures no value is placed on the straw.

If farmers are losing \$2.47 an acre on oat production, it might on first thought seem advisable to discontinue its production. It is very doubtful, however, if this should be done. Oats are quite valuable as feed for young stock, and it is difficult and costly to find a suitable substitute. The straw makes valuable roughness and the labor required for production is not great. Oats make an excellent nurse crop for clovers and grasses, and may occupy the land as a wedge crop between corn and wheat. It is possible that the farmers could even afford to lose more than the figures indicate, rather than dispense with the crop.

The County Farm Adviser should assist farmers in handling their oat crop in a way which will increase their yields. The Adviser should demonstrate the best methods for preparing the seed bed, selection and treatment of seed which will tend to increase the yield. He should encourage the production of oats in connection with a crop rotation.

Showing Total Acreage of Corn and Annual Acre Yield
 With Ten Year Average for Boone County, Missouri, from
 1903 to 1911 inclusive.

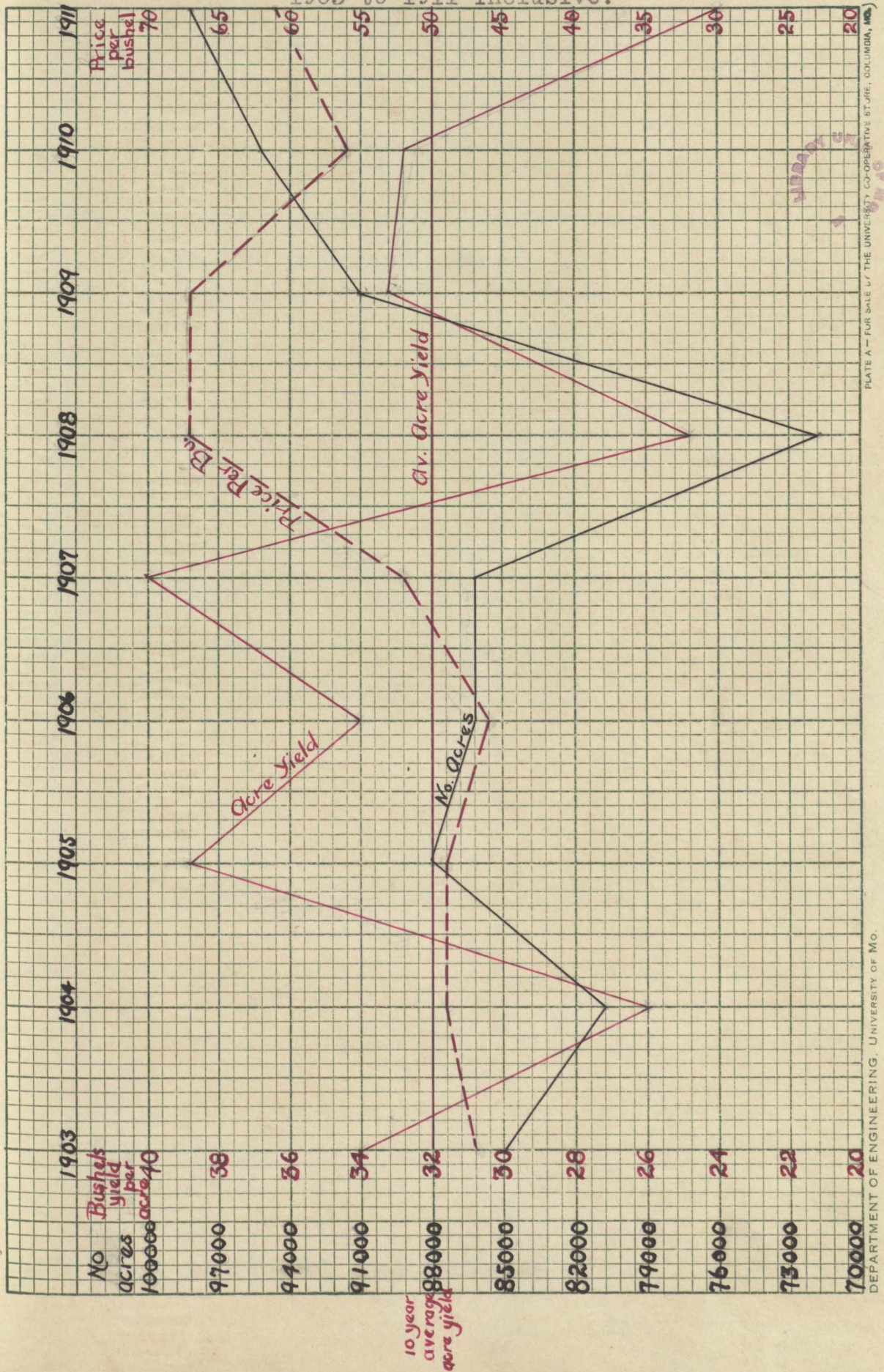


CHART NO. 3

Chart No. 3 indicates that while the acres planted to corn in Boone County are increasing, the yield per acre is decreasing. From Table No. 2 we learned that the production of live stock is rapidly decreasing. This may emphasize the fact that decreased live stock production means decreased soil fertility and subsequent decreased yields.

The County Farm Adviser should point out to Boone County farmers the importance of live stock production and its relation to soil fertility. It is believed that the Farm Adviser should encourage better methods of farming along with increased live stock production, and thus materially increase the acre yield of farm crops.

The following Chart, No.4 shows the total acreage of wheat and annual acre yield with ten year average; also yearly price of wheat for period 1903 to 1911 inclusive.



DEPARTMENT OF ENGINEERING, UNIVERSITY OF MO.

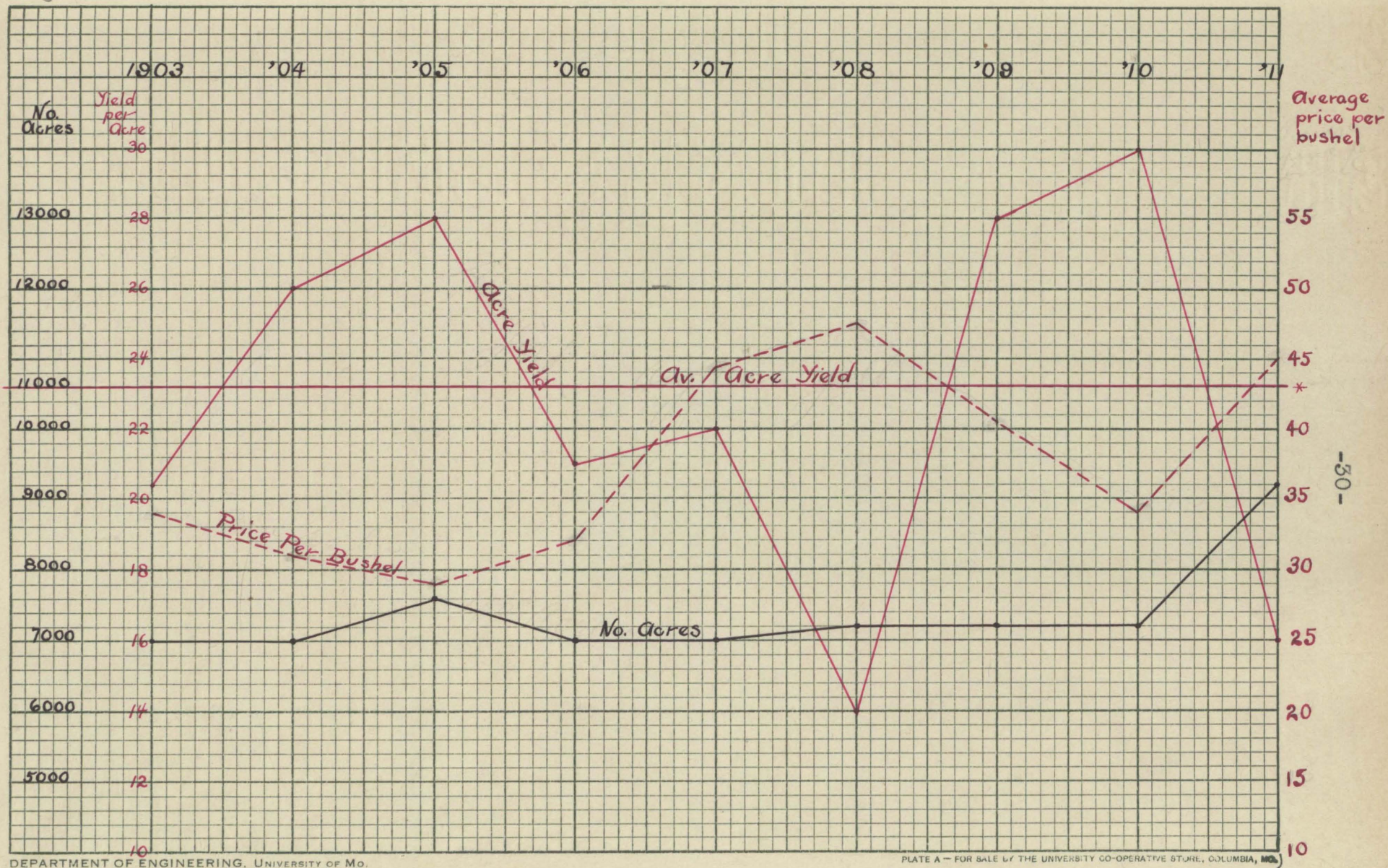
PLATE A - FOR SALE BY THE UNIVERSITY CO-OPERATIVE STORE, COLUMBIA, MO.

Showing Total Acreage of Wheat and annual Acre Yield with ten year average,
also average yearly price of wheat on St Louis Market, for Boone
County, Missouri 1903 to 1913 inclusive

CHART NO. 4

Yr. Ac
Acre Yield *

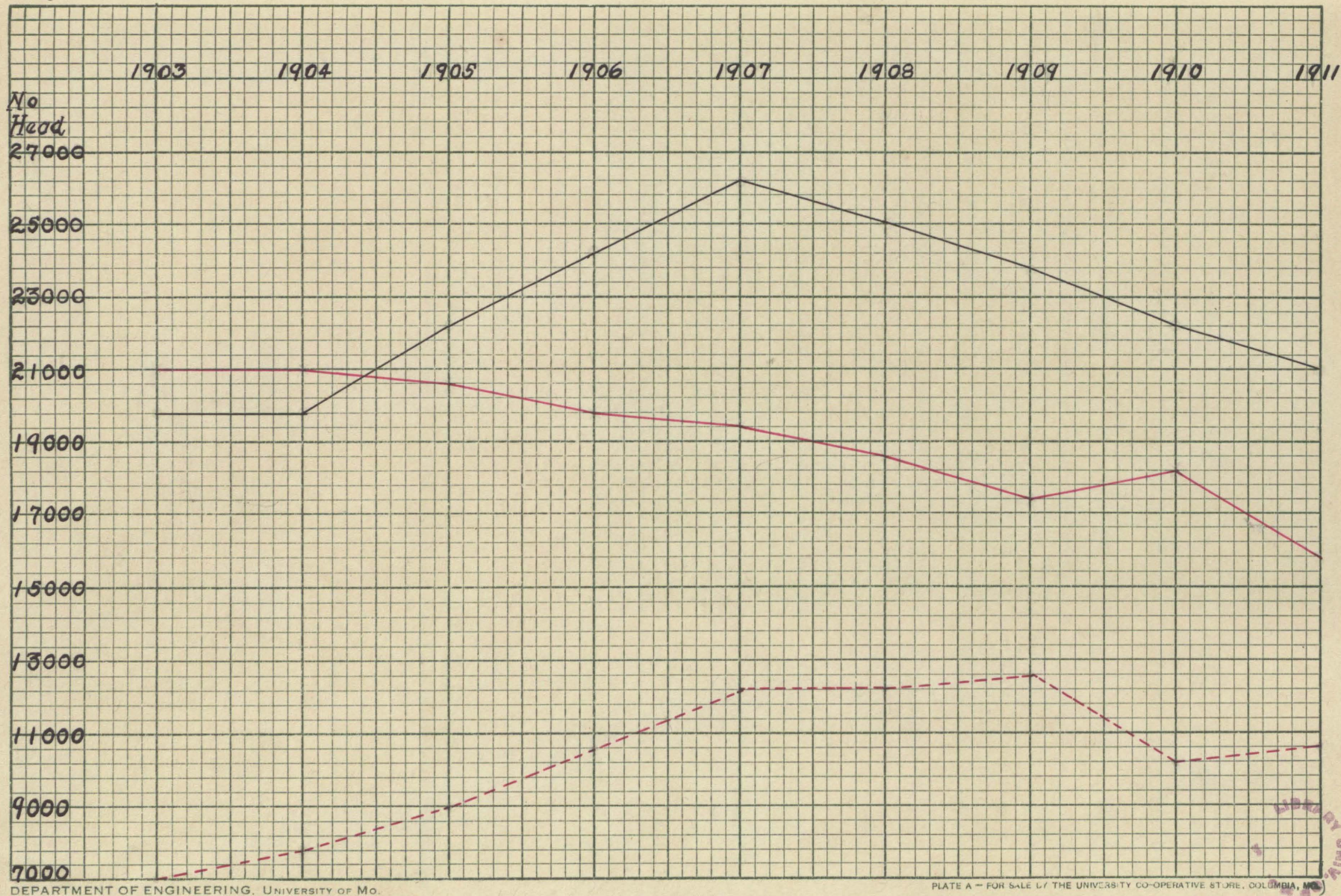
Yield per acre
No. of acres
Avg. price per bushel
St Louis Market



Showing Total Acreage or Oats and Annual Acre Yield with ten year average, also average price per bushel for Boone County, Missouri= from 1903 to 1913 inclusive

LIVE STOCK

The following Chart, No. 6 shows the number of head of Neat Cattle, Hogs and Sheep for Boone County, Missouri for the period 1903 to 1911 inclusive.



Showing Number of Neat Head of Cattle, hogs and Sheep in Boone County,
Missouri for the period 1903 to 1911 inclusive

In order to make a definite comparison of live stock on various farms in a community, Profs., G. F. Warren of Cornell and O.R. Johnson of Missouri used what they called "Animal Units" as the basis of comparison. All animals on the farm are grouped and classified according to the amount of feed consumed and manure produced. Using the cow as the basis, the following values shall be used in this paper to ascertain the number of Animal Units per farm:

<u>Animal</u>	<u>No.</u>	<u>Animal</u>	<u>Units.</u>
One cow	1	animal	unit
One mature horse	1	"	"
Two Yearling colts	1	"	"
Four yearling cattle (calves)	1	"	"
Five mature swine	1	"	"
Seven sheep	1	"	"
One hundred hens	1	"	"

The following table No. 7 shows the total number of live stock in Boone County, Missouri and the average number of each class per farm.

Class	Total No.in County	Avg.No. per Farm	Average No. Animan Units
Mature Horses	11,500	3.38	3.38
Yearling Colts	1,100	.32	
All cows and Bulls	15,677	4.6	4.6
Yearling Cattle	6,207	1.8	.4
Mature Mules	4,891	1.3	1.3
Yearling Mules	1,388	.4	
Asses and Bur- rows	385		
Mature Hogs	38,253	11.2	2.2
Mature Sheep	15,684	4.6	.6
Mature Goats	785		
Poultry	268,161	78.0	.8
Total	364,031	105.6	13.28
Without Poultry	95,870	27.6	

TABLE NO. 7.

The average Boone County farm has 50 crop acres. Table No. 7 indicates that there are 13.28 Animal Units for each farm, or an average of an Animal Unit for every 3.7 acres. Boone County farms produce enough crops to easily support 20 Animal Units per farm or one Animal Unit for every 2.5 acres. This indicates that the farms are understocked.

The table indicates that less than one farmer out of three are raising colts. There are no stallion laws in the county, consequently the field is open to unscrupulous breeders to flood the county with grade sires. This doubtless has a depressing effect upon colt production.

It should be the duty of the County Farm Adviser to encourage farmers to increase their live stock production. Better methods of handling and breeding mares should receive consideration.

The following Table No. 8 shows the annual loss to Boone County farmers due to excess work Stock, based on U. S. Census Reports.

Total No. Work Stk.	Total crop Acr	No.Acre: per Unit: of Work Stock	No.Acre One Horse should handle **	Excess: Number: Work Horses	Cost of Keeping Excess Work Horses
16,445	169,257	10.2	26.2	9985	\$881,975

TABLE NO. 8

** Missouri Farm Management Investigations 1914.

Table No. 8 indicates that the work animals of Boone County Missouri are handling less than half as many crop acres as they might handle. According to the table they are handling 10.2 acres when they might be handling 26.2 acres apiece. This places an excess of 9985 work animals over and above those required to farm the available crop acres.

The Farm Management Department of the University of Missouri has found that it costs \$88.36 to keep a horse one year. The excess horses used therefore sustains an annual loss to the county of \$881,975.

The Farm Adviser should assist farmers in a more economical use of thier work stock.

Table No. 9, indicating the financial standing of the Dairy Animals in Boone County Missouri based on U.S. Census Reports.

No. Cows on Farms Reporting Dairy Products to the U.S.Census Bureau	Value of Dairy Products Sold Excluding Home Use of Milk and Cream	Feed Cost to keep Dairy Cow One Year **	Annual Loss To the Co. Thru Dairy Cows
7822	\$158,827	\$27.**	\$52,367

TABLE NO. 9.

**--Missouri Farm Management Department.

The figures in Table No. 9 do not take into account the labor, interest, rent, insurance, taxes, depreciation, and other costs for keeping a cow one year. They take account only of the feed cost.

The Missouri Farm Management Dept has found, from actual records kept on six farms, that the total cost per year to keep a cow is \$48.14 and is distributed as follows:

	Feed-----	\$27.
	Labor-----	18.06
	Interest	
	(Taxes	
	(Bedding up-	3.08
Miscell-	(keep	
aneous	(Vet. Fees	
	(Medicine	
	Total cost---	<hr/>
		\$48.14

This shows the feed cost to be but little more than half the total cost of keeping a cow one year. From figures computed on the feed cost alone the table shows that farmers of Boone County are paying annually for the butter and cream used in their homes \$52,367

If all costs of keeping a cow are figured it is found that the farmers are paying \$216,629 for their butter and cream. This is \$62. for each farm.

This apparent loss is due^{to} the method of handling the cows and the quality of the animals. It should be the duty of the County Farm Adviser to assist farmers in developing and following a better system of caring for cows.

The Farm Adviser should demonstrate the approved method of testing cows and assist farmers to eliminate the unprofitable animals.

Table No. 10 indicating the amount received from Feeds sold and the amount paid for feeds purchased based on U.S. Census Reports.

Farms Reporting	Amount expended for feeds	Receipts for sale of feeds
1261	\$263,077	\$239,410

TABLE NO. 10.

The County Farm Adviser should assist and encourage farmers to produce the feeds they use and to market such feeds through their live stock.

ECONOMIC

Boone County, Missouri, is free of debt.

In 1913 Boone County, Missouri, had an assessed valuation of twelve and one-fourth million dollars, the assessments being based on one-fourth actual value.

Taxes Paid and Sources - 1913

Real Estate and Personal -----	\$178,658.30
Merchants -----	9,160.89
Railroads -----	21,365.84
Delinquent and Back Taxes -----	17,172.62
Licenses -----	2,318.70
Total Taxes received -----	\$228,676.35

Taxes Received 1913 for

State Revenue -----	\$24,348.11
County Revenue -----	50,391.69
Courthouse -----	187.87 Bldg. Fund
Special Road and Bridge -----	30,333.14
Road Tax -----	19,676.97
School Tax -----	102,618.12
Town from Railroads -----	1,120.45
Total -----	\$228,676.35

The county tax on one hundred dollars assessed valuation is forty cents. The school tax on one hundred

dollars valuation varies in different districts, averaging for the county fifty-four cents.

The following Table No. 11 gives the average Value of Farm Lands, plus buildings, per acre for thirty years in Boone County, Missouri, in comparison to State and United States, as based on ninth, tenth, eleventh, and twelfth United States Census Reports

Year	United States	Missouri	Boone County
1910	\$39.60	\$49.61	\$54.84
1900	19.80	24.82	25.15
1890	21.31	20.33	18.48
1880	19.02	13.47	11.36

TABLE NO. 11

Table No.11 indicates that land values increased one hundred twenty-five percent in Boone County, during the decade 1900-1910. A greater increase in land values has occurred during that decade than in the twenty years previous to that time.

The following Table, No.12 gives the average value of all farm property per farm for thirty years in Boone County, Missouri, as compared to the State and United States, based upon ninth, tenth, eleventh and twelfth United States Census Reports.

Year	United States	Missouri	Boone County
1910	\$6444	\$7405	\$7860
1900	3563	3626	3629
1890	3523	3304	3115
1880	3038	2271	2321

TABLE NO. 12

Table No. 13 giving the average Value of land and buildings and mortgage indebtedness per farm in Boone County, Missouri, 1910

	United States	Missouri	Boone County
Average value per farm-----	\$6289	\$6083	\$6055
Average Indebtedness per farm--	1715	1758	1832
Percent of indebtedness--	27.3	28.9	30.3

TABLE NO. 13

The following Table indicates that mortgages are increasing in Boone County, Missouri and in the U. S.

Place	Percent of Farms Mortgaged	
	1910	1900
Boone County	50.8	44.9
Missouri	46.3	42.4
United States	33.7	31.2

TABLE NO. 14

The average farm value of all property on Boone County farms is surprisingly close to that for the state and United States. The farm value for the county has increased more rapidly in the past thirty years than in either the state or United States.

Table No. 13 indicates that the average Boone Co., farm is more heavily mortgaged than the average for the state or United States, while Table No. 14 shows that mortgages are increasing more rapidly in Boone County than in either the state or United States. The increase in the ten years - 1900 to 1910 for the county was 5.9% while that for the state was 3.9% and that for the United States 2.5%.

A number of influences working together have brought about this condition. The previous Tables have shown the greater total investment per farm and the marked increase in value of farm property in Boone County. Both conditions have tended to increase farm mortgages.

Table No. 15, which follows on the next page shows live stock production to be decreasing; yield per acre of crops to be decreasing; tenancy to be decreasing, and land values increasing. Consequently mortgage indebtedness is increasing.

Tenancy is decreasing probably as a result of numbers of the tenants becoming owners. Many of them are at first able to make only a part payment on the farm and are forced to mortgage it for the balance.

The low financial condition of farmers, caused largely by decreased live stock production, decreased yield per acre, and added investment due to increased value of farm land, is largely responsible for the steady and rapid increase in farm mortgage indebtedness.

The County Farm Adviser should study and analyze this condition carefully and urge farmers to increase their production of live stock, and by proper methods increase their yield of farm crops.

The Following Table gives the most direct clue to the cause of a rapidly increasing Farm Mortgage Indebtedness in Boone County, Missouri

	1910	1909	1908	1907	1905	1904	1903	1902
Cattle ex- ported	16800	31500	25400	20800	27300	25300	25900	16000
Hogs ex- ported	67100	114400	90400	92200	114200	83700	71100	699000
Sheep ex- ported	25600	43000	57000	80200	63300	37800	28800	17000
Horses and Mules ex- ported	2600	3100	4200	3200	3500	2600	2400	3600
Corn Acre Yield	32	33	25	40	39	26	34	
Oats Acre Yield	30	28	14	22	28	26	30	
Wheat Acre Yield	10	15	13	17	15	10	10	

Tenancy decreased 1.5 percent

Land Values increased per acre 125 percent

Farm Mortgages increased 5.9 percent

TABLE NO. 15

The following Table No. 16 shows the source of loans, number to whom loans were made, principal, amount interest for one year and average rate of interest in 486 mortgage loans in Boone County, Missouri.

Compiled from Investigations on Farm Loans, Conducted by J. H. Hursh, University of Missouri

Source of Mortgage Loans	Number	Principal	One Year's Interest	Rate of Interest
Individual Lenders	231	\$438,208	\$27,798.60	6.34%
Banks	186	391,626	27,274.77	6.96%
Mortgage and Loan Companies	38	94,515	5,599.32	5.92%
Insurance companies	17	44,100	2,509.50	5.69%
State School Fund	14	8,410	504.60	6.00%
	486	\$976,859	\$63,686.79	6.52%

Table No. 16

The following Table No. 17 shows the relation of interest rate to amount of loans in Boone County, Missouri, from investigation conducted by J. H. Hursh, University of Missouri.

Amount of Loan	Individuals	Banks	Mortgage & Loan Co's.	Insurance Co's.	State School	All Sources
1000 and under	6.91%	7.30%	6.46%	7.09%	6.00%	7.00%
1001 - 2000	6.51%	7.30%	6.00%	5.50%	6.00%	6.77%
2001 - 3000	6.33%	6.95%	6.19%	5.50%		6.48%
3001 - 4000	6.42	6.89%	5.82	5.50%		6.49
5000 and over	5.91%	6.68%	5.75%	5.50%		6.18%

Table No. 17

This Table shows the smaller borrowers to be paying more interest than the larger borrowers. The interest rate apparently decreases in proportion to the increase in amount of loan. The small borrower is usually the individual who needs the loan the most; who finds it more difficult to secure; and who can obtain it for only a short time. He is forced to pay the maximum rate of interest.

Cooperative farmers organizations, brought about through the assistance of the Farm Adviser, through which the combined credit of a community could be used, would tend to relieve this situation. Such an organization would establish the credit of individuals within it, and enable them to secure loans more readily, for a longer period of time, and with a lower rate of interest.

Although the interest charge is of considerable importance in a mortgage loan, it falls short of showing the real total expense of the loan to the borrower.

Table NO. 18, compiled by J. H. Hursh of the University of Missouri, shows the costs, other than interest charges on farm loans

	Abstract of Title	Exami- nation of Title	Draw- ing up Mort.	Record- ing Mort- gage.	Not- ary fee	Com- mis- sion	Re- new- als
Usual cost	\$10-\$25	\$5.	\$1.80	\$1.75	.50	2% for 1st yr	\$20.a Mo.
High	\$50	20.	1.80	3.50	.50	2½% yr.	25. Mo.
Low	1.50	2.50	1.80	.80	.50	1¼ yr.	1.

From Tables 17 and 18 it seems apparent that the borrower secures his loan for from $5\frac{1}{2}\%$ to 7% interest. However if all costs that he pays are figured in, as in Table No. 18, it is found that he is actually paying for the mortgage loan around $7\frac{1}{2}\%$ to $8\frac{1}{2}\%$ percent interest.

Table No. 19 shows the receipts per farm from crops and live stock

	Receipts from Crops	Receipts from Livestock
Boone County	\$455,680	\$2,637,102
Per Farm	132	766

TABLE NO. 19

This table indicates that about three-fourths of the farm receipts are derived from livestock. No credit is given here to poultry, eggs, butter and cream consumed in the farm home.

The low financial condition of Boone County farmers may be due to inefficient methods of feeding livestock. In Farm Management surveys conducted in Missouri it was found that many farmers were receiving less than \$100 return for each \$100 worth of feed used.

Such farmers were feeding at a loss. It is very ~~clear~~ clear therefore, that if three-fourths of thier income were derived from feeding livestock, as indicated in Table No. 19, an increased net income from crops would have been required to offset the loss sustained from live stock.

The Farm Management survey also found farmers who were receiving from \$100 to \$150 for each \$100 worth of feed fed. Such farmers were feeding at a profit and their financial conditions were correspondingly strong.

The County Farm Adviser can do a great deal to assist farmers in balancing thier livestock rations and to more ecomomically and profitably feed livestock.

Table No.20 giving the receipts and expenses per farm in Boone County, Missouri.

Total Receipts per farm	:	Approximate Total Expenses per farm	:	Dif- ference
	:	Labor	:	
	:	Fertilizer	:	
	:	Feed	:	
\$898.00	:	\$73.	:	\$748.
	:	\$1.00	:	
	:	\$76.	:	

TABLE NO. 20

These figures do not include farm products consumed in the farm house. Taxes, insurance, remt, depreciation, and other general expenses are not included.

Investment in all Farm Property and its Distribution in Boone County, Missouri

	Total Invest all farm property	Invest in Land	Invest in Livestock	Invest in Bldgs & Improvements	Invest in Mch. & Tools
All County	\$27,055,742	18,756,772	4,026,971	3,813,165	638,834
Percent Investment for all county	100	68.7	14.9	14.1	2.4
Amount invested per farm	6229	4227	927	878	147
Percent investment per farm	100	68.6	14.8	14.0	2.3
Total investment for state	\$2,052,917,488	1,445,982,389	285,832,108	270,221,997	50,873,994
Percent of total investment for state	100	70	13.9	13.2	2.5

Table No. 21

This table indicates that there is practically as much money invested in buildings and improvements, unproductive capital, as there is invested in livestock, productive capital. Boone County has a higher percent of investment in livestock than the state's average, but it is very probable that the livestock investment for the county is too low.

Percent Investment in Various Classes of Livestock
in Boone County, Compared with that for State

	All Livestock		Dairy Cattle		Other Cattle		Swine		Sheep		Work Stock	
	Total Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
State	273,366,662	100	24,294,555	9	48,589,109	17	31,937,573	11	788,887	3	140,000,000	51
Boone County	3,866,121	100	302,362	7.5	604,735	15	480,646	12	124,497	3	2,055,625	55
Average per farm												
Boone County	1123	100	88	7.8	176	15	140	12	36	3	598	54

Table No. 22

Boone County has a lower percent of the total investment in Dairy Cattle and other cattle than the average for the state, and a higher percent in swine and work stock. Over one-half of the total investment is in work stock

Labor and Machinery Equipment per Farm
in Boone County, Missouri

	Boone County	Surveyed area in Missouri *
Average size of farm	118	138
Average crop acres per horse	10.2	26.2
Average number of acres per \$100 of implements and machinery	50.5	59.2

TABLE NO. 23

Table 23 shows that in Boone County, one horse is tending only 10.2 acres while on 669 farms surveyed in Johnson county, Professor Johnson, Missouri bulletin number 25, found one horse to be caring for 26.2 acres. This indicates that in Boone County the farmers are not using their horses as efficiently as might be done.

Boone County farms are very likely under-equipped. Results of Farm Management surveys indicate that farms thoroughly equipped, depending on the size, make larger labor incomes.

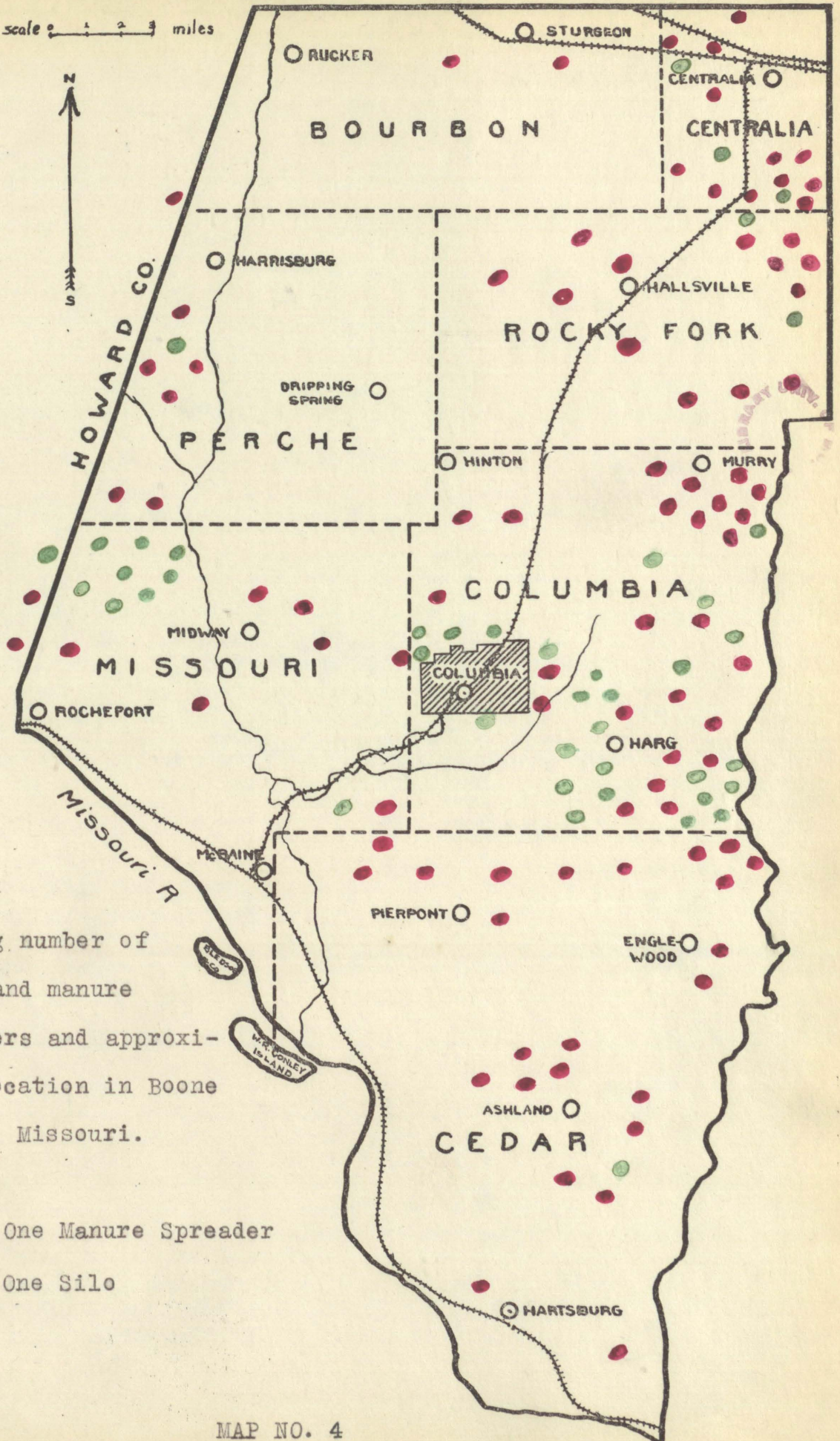
In New York Dr. Warren found \$100 worth of machinery on every 25 acres of land, on farms ranging in size from 101 to 150 acres. In Boone County ~~the-e~~ farms of the same size have 50 acres for each \$100 invested in machinery. More machinery in Boone County, if it were properly handled, would doubtless increase farm efficiency and profit.

The County Farm Adviser should study this problem carefully, and in so far as possible assist the farmers to handle sufficient machinery to make the highest net profit from their farms.

The following Maps, Numbers 4 and 5 show the number of silos and manure spreaders, cream separators and gas engines in Boone County, Missouri in 1914, with their approximate location.

MAP of BOONE COUNTY MISSOURI

scale 0 1 2 3 miles

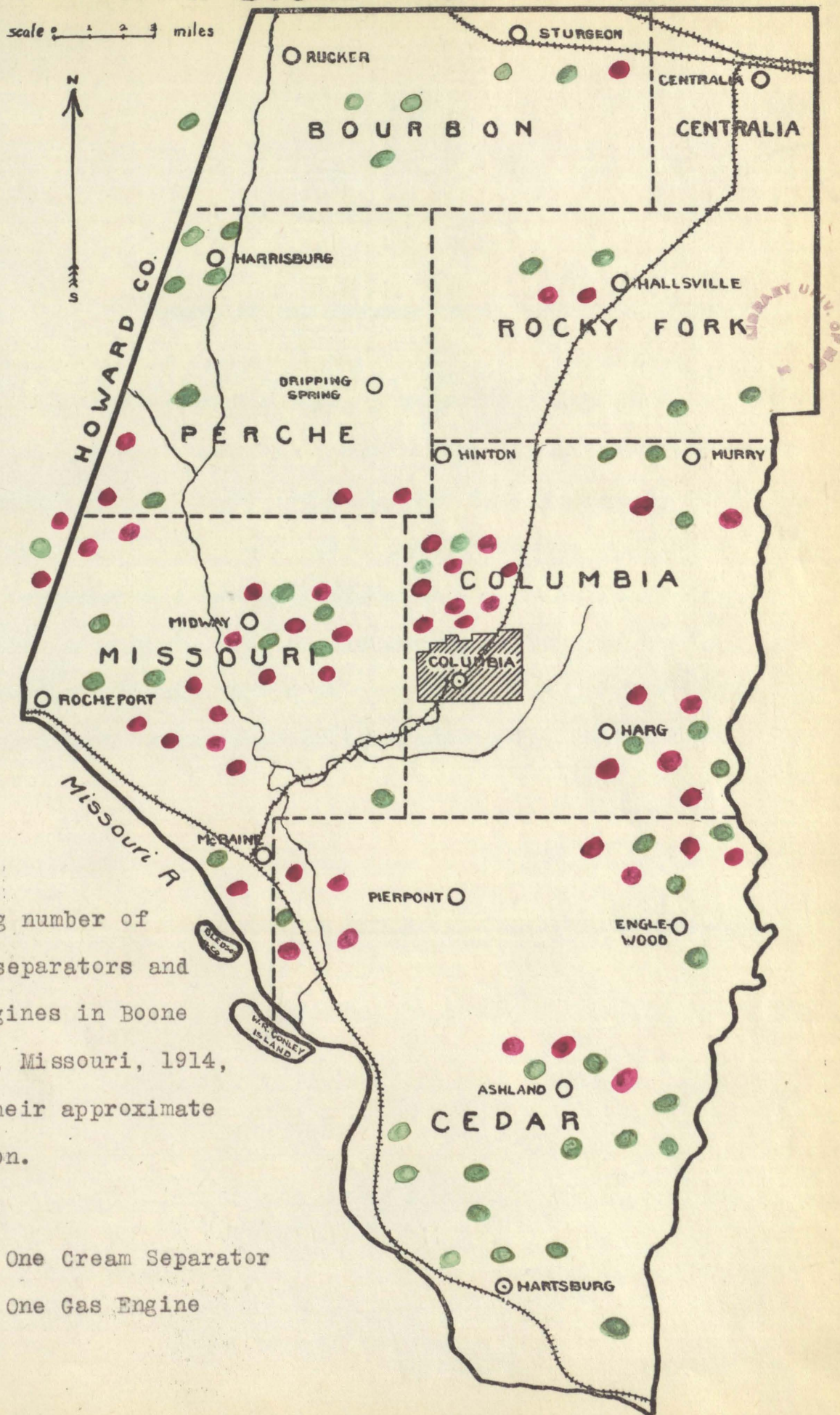


Showing number of
silos and manure
spreaders and approxi-
mate location in Boone
County, Missouri.

Legend:

- = One Manure Spreader
- = One Silo

MAP of BOONE COUNTY MISSOURI



Showing number of cream separators and gas engines in Boone County, Missouri, 1914, with their approximate location.

Legend:

- = One Cream Separator
- = One Gas Engine

Boone County farmers have but comparatively few silos and manure spreaders. It should therefore be the duty of the County Farm Adviser to demonstrate the economic advantages of these things and encourage their widespread use. Every effort should be made to get farmers to haul their barn yard manures to the fields. The Adviser should assist farmers in the selection and erection of a silo. He should encourage farmers to cooperate among themselves in communities in the purchase and operation of ensilage cutters and in filling the silo.

S O C I A L

POPULATION

The total population of Boone County, Missouri increased 6.6 percent in the ten years 1900-1910, while the state's increase for the same period was six percent. Boone County is contributing to the state's population 1645 persons in excess of her share as an average county. The population per square mile for the whole county in 1910 was 44.4 persons. The rural population for the same period was 30.3 persons.

According to the 1910 census reports, the urban population increased 71 percent during the period 1900 to 1910, while the rural population for the same period decreased 9.2 percent. The negro population is decreasing while the white population is increasing. In foreign nationalities the Germans lead, with the English second and the Irish ranking third. ✓

Out of every twenty-four persons in Boone County, Missouri, 1.6 can neither read nor write. Twenty-eight percent of the negro population is illiterate.

The following chart, No. 7 shows the steady increase in population in Boone County, Missouri, for a period of eighty years.

Graphically Showing Increase of Population
by ten year Periods in Boone County,
Missouri for eighty years, based
on United States Census re-
ports.

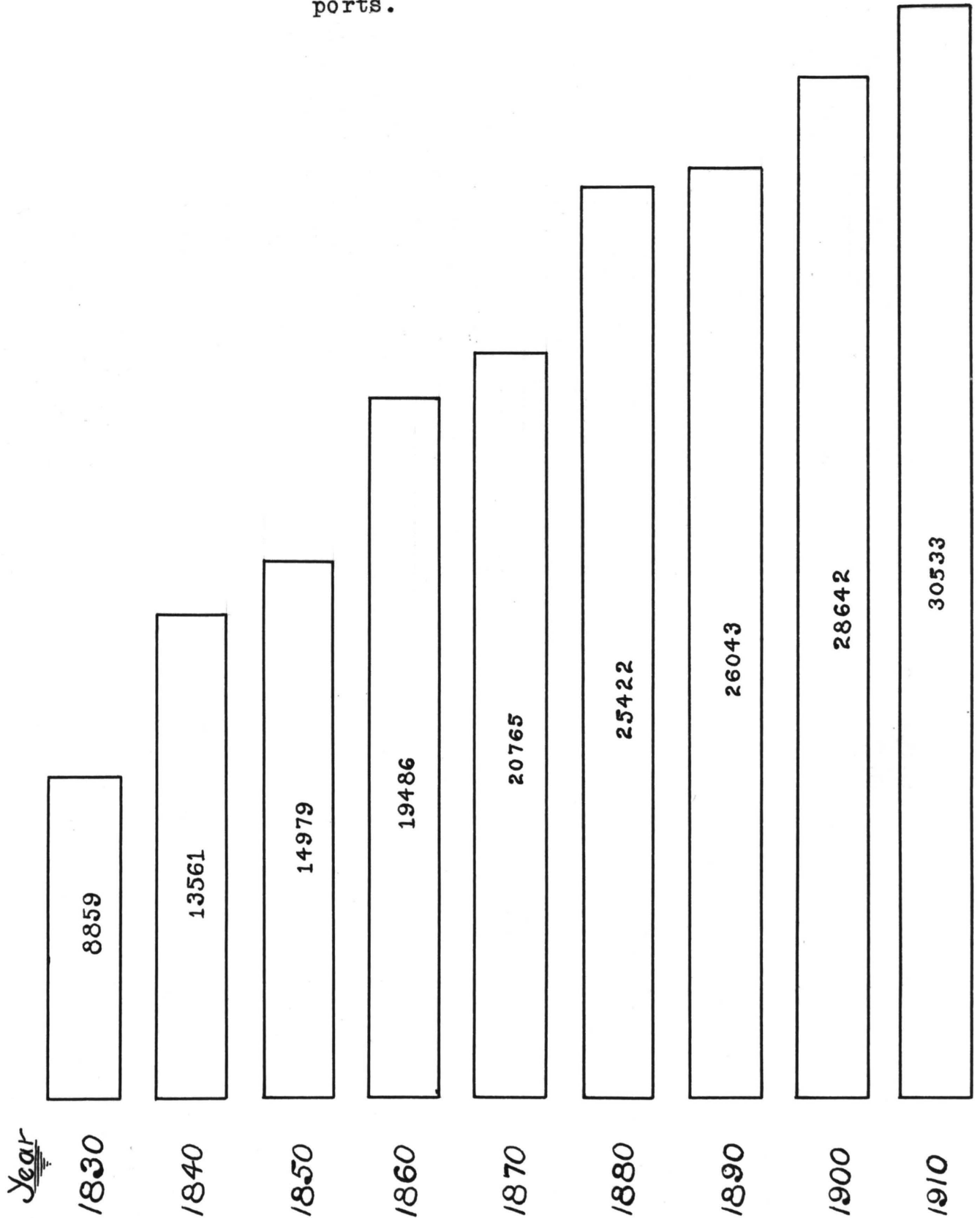


CHART NO. 7

The following Map No. 6 indicates the increase and decrease in urban population by townships for the period 1890 to 1900. Map No. 7 indicates the increase and decrease in rural population for the same period.

SCHOOL

There are 106 schoolhouses for white children and sixteen for colored children in Boone County, Missouri. They furnish 173 schoolrooms for white, and twenty-four schoolrooms for colored pupils.

The following table No. 24 shows the total enumeration, total enrollment and total number of white and colored children of school age who are not attending school, also the number of teachers employed.

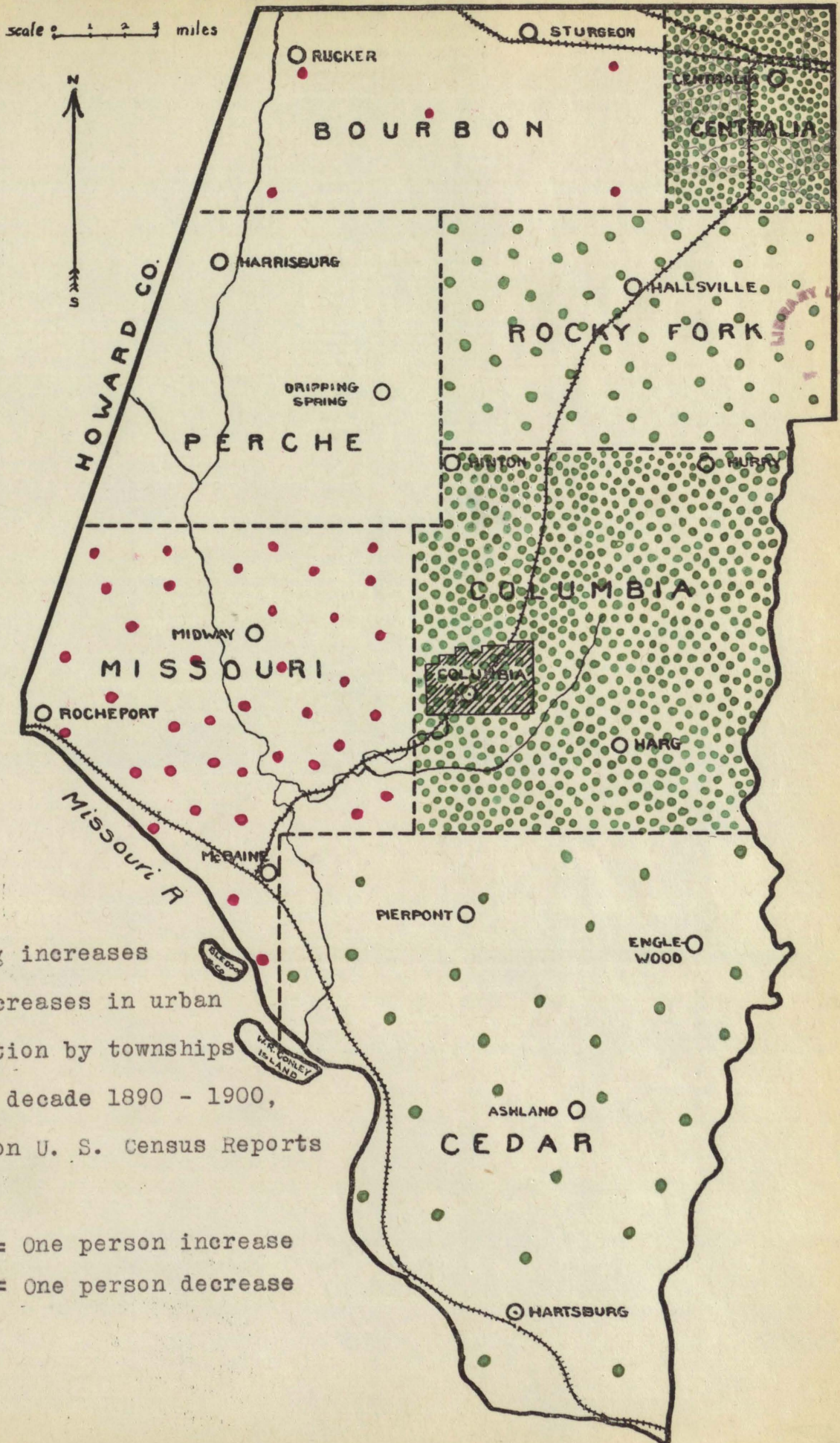
Compiled from Figures Furnished by
County School Superintendent

	: White : Male	: White : Female	: Total : White	: Colored : Male	: Colored : Female	: Total : Colored	: Grand : Total
Enumeration	: 3531	: 3349	: 6880	: 520	: 566	: 1086	: 7966
Enrollment	: 2907	: 2920	: 5827	: 436	: 480	: 916	: 6743
Number eli- gible but not attending school	: 624	: 429	: 1053	: 84	: 86	: 170	: 1223
Percent eli- gible but not attend- ing	: 17.6	: 12.8	: 15.3	: 16	: 15	: 15.6	: 13.4
Number teach- ers employed:	: 33	: 142	: 175	: 5	: 19	: 24	: 199

TABLE NO. 24

MAP of BOONE COUNTY MISSOURI

scale 0 1 2 3 miles

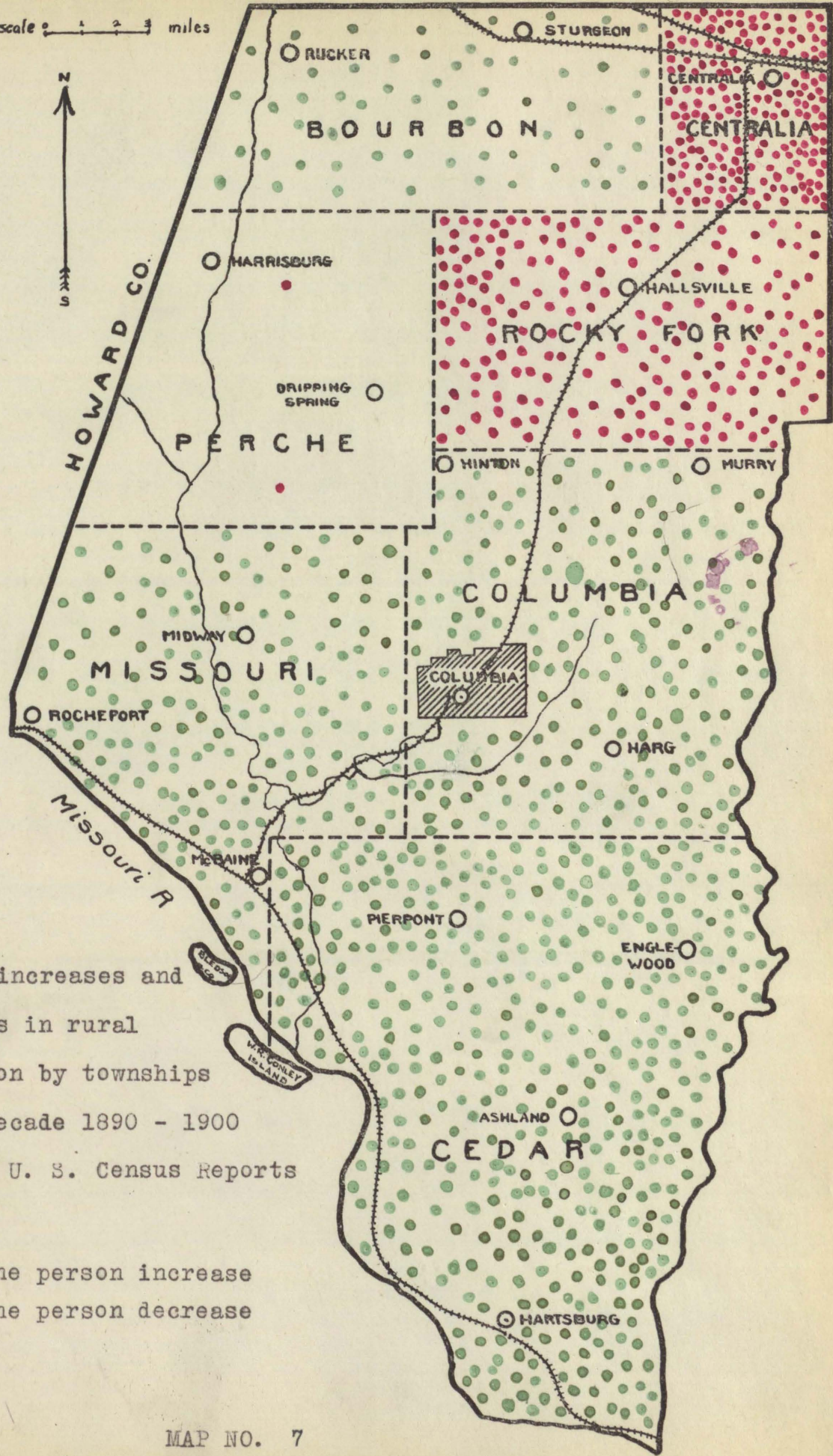
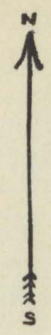


Showing increases
and decreases in urban
population by townships
in the decade 1890 - 1900,
based on U. S. Census Reports
Scale:

- = One person increase
- = One person decrease

MAP of BOONE COUNTY MISSOURI

scale 0 1 2 3 miles



Showing increases and decreases in rural population by townships in the decade 1890 - 1900
Based on U. S. Census Reports
Scale:

- = One person increase
- = One person decrease

This table indicates that 1223, or 13.4 percent of all boys and girls of school age in Boone County are not attending any school. It indicates that a higher percent of colored males are in school than white males. Also, that a higher percent of white females are attending school than of colored females.

The table shows that three out of every four white school teachers are females, while the total number of colored female teachers exceeds the males by only five.

The following table No. 25 shows the number of pupils graduating from common and high schools; also, number enrolled in High Schools in Boone County.

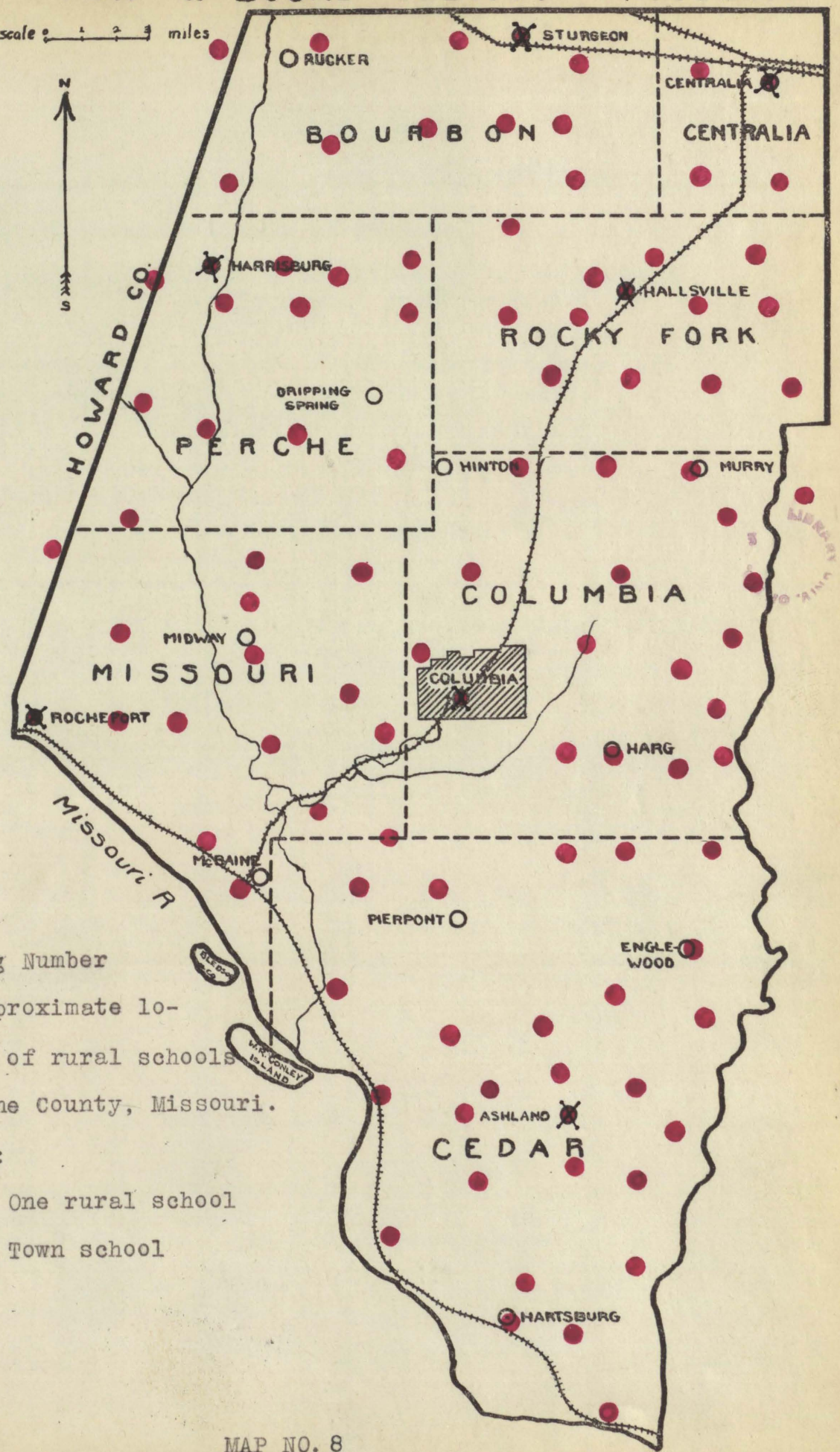
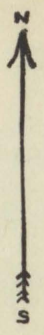
Compiled From Figures Obtained From
County School Superintendent

	Male	Female	Total
Number pupils graduating from common schools	37	41	78
Number enrolled in High School	232	328	560
Number Graduating from High School	35	80	115

TABLE NO. 25

MAP of BOONE COUNTY MISSOURI

scale 0 1 2 3 miles



Showing Number
and approximate lo-
cation of rural schools
of Boone County, Missouri.

Legend:

- = One rural school
- ⊗ = Town school

The following tables Numbers 26 and 27 show the grades of certificates, general education and experience of teachers in Boone County Missouri.

Compiled from Data Furnished by Geo. F. Porter,
County School Superintendent

Certificates Held by Boone County Teachers

State Certificates		Normal Certificates		County				
Total Number Teachers	For Life	Five Years	Normal Diplomas	Elementary	1st Grade	2nd Grade	3rd Grade	Special
199	29	4	13	8	50	32	55	8

Table No. 26

Education and Experience of Boone County Teachers

	High School				Normal School				Experience									
	1 yr.	2 yr.	3 yr.	4 yr.	8 wk.	16 wk.	32 wk.	2 yr.	None	1	2	3	4	5	6-9	10	7	
Number Teachers	26	23	33	77	24	25	25	32	37	22	23	26	13	16	29	33		

Table No. 27

Table No. 26 indicates that a larger number of Boone County teachers have third grade certificates than any other kind. About half as many have life certificates and only one-fourth have a Normal Diploma.

Table No. 27 indicates that a larger number of Boone County's teachers are teaching their first term than those having had from one to ten years experience.

Tables Nos. 28 and 29 showing value of Schoolhouses, grounds, and Equipment; Assessed Valuation and Average Levy, also Salaries of Teachers in Boone County, Missouri. Compiled from Figures Gathered by County School Superintendent.

	Value of Schoolhouses				School Sites and Bldgs.	Assessed Value	Present Indebtedness	Average levy on \$100.00 assessed valuation for all school purposes
	Less than \$300	300 to 600	600 to 1000	Over 1000	Est. Total Value	Value all School Property	1914	
Number	20	64	28	10	333,700	21,262	125,396	166,356
								.523¢

Table No. 28

Salaries of Teachers				
	Elementary Schools		Secondary School	
	Men	Women	Men	Women
Less than \$200	5	19		
\$200 to \$299	7	24		1
\$300 to \$399	5	38	1	
\$400 to \$499	14	42	2	2
\$500 to \$599	4	12		7
\$600 to \$699	2	2		7
\$900 to \$999			2	
\$1200 to \$1299			1	
\$1500 to \$1599			1	
\$1900 to \$1999			2	

Table No. 29

Tables Nos. 30 and 31 show the average attendance, length of term, modern improvements and school libraries for Public Schools in Boone County, Missouri.

Compiled From Figures Furnished By
County School Superintendent

	District Attendance					Average	Length of School Term			
	Less than 10	10 to 15	15 to 25	25 to 40	More than 40	School Term Months	4 to 6 months	6 to 8 months	8 months	More than 8 mos
						5				
Number Schools	11	10	40	33	11	Months	10	50	42	3

Table No. 30

	Modern Improvements			School Libraries			
	Heat and Ventilating	Modern Lighting	Dists having Lib's.	Total Vol-umes	Total Value	Volumes added 1914	Amt. spent for Libraries 1914
Number Schools	4	2	75	7868	\$4172	\$1124	\$798

Table No. 31

Table No. 30 indicates that the highest percent of Boone County Schools have an average attendance of fifteen to twenty-five pupils. It shows the average length of school term to be five months, about fifty percent of the schools having six to eight months and only three schools having more than eight months.

Table No. 31 shows four schools to have a modern heating and ventilating system, while two schools have a modern lighting systems. Sixty-one percent of the schools have libraries with an average value of \$54.00.

There are no centralized or consolidated schools in Boone County, Missouri.

The Following Table shows a group of some of the conditions prevailing in Boone County Schools.

Total No. Sch.houses	No.Teach-ers Employed	Total Sch. enumeration	Total En-rolled	Total No. Graduates one year.	Teachers Having no Experience
122	199	7966	6743	115	37
Third Grd Co. Certf held	Salaries received: Elementary School: Less than \$200. to \$500	No.houses: valued at: less than: \$300. to \$600.	No.Houses: valued at: \$300. to \$600.	Dist. Attend.	
				Less than 10	15 to 25
55	24	56	20	64	11 40
Avg length School term. months	Schools with Modern Heat light and ventilating	Districts having Libraries	Amount spent for Libraries in 1914.		
5	6	75	\$798		

TABLE NO. 32

The facts presented in Table No. 32 should inaugurate an investigation looking to the cost and advisability of building a number of consolidated schools in Boone County. The establishment of consolidated schools would, it is believed, centralize the resources of the consolidated district sufficiently that better salaries could be paid, and consequently a higher grade of teachers obtained. Many of the teachers now holding only third grade certificates, and teaching without previous experience would be eliminated. Many of the school buildings valued at less than \$300 each would be abandoned, as also would those having an attendance of less than 10 pupils.

Under a consolidated system the school term could be lengthened and modern equipment could be enjoyed by many schools not at present having it. A large portion of the money spent for libraries scattered throughout the county could be centralized in fewer places.

There are only ten school houses in the county with an investment of over \$1000 each. Parents permit their children to spend over one-half of the daylight hours in places not as good as their homes.

The average total investment in each school child in Boone County is \$44. This is about the cost of two brood sows or two common calves. The average investment in the rural districts is even less than that, for the more prosperous city schools will increase the average of the whole lot.

CHURCH

There are sixty-seven rural churches and twenty-four town churches in Boone County, Missouri. There are too many country churches. It is agreed among students of rural life that an area about seven miles square may be called a rural community, for all general purposes. If there were only one church in such a community it would serve the whole community, establish and maintain a common community spirit and have a distinct unifying effect. However, this is not the condition in Boone County. The average farmer lives within easy driving distance of anywhere from four to a dozen rural churches. There is one church to every forty-

six farm families in the county. One-fourth as many churches would serve the religious needs of the country people much better.

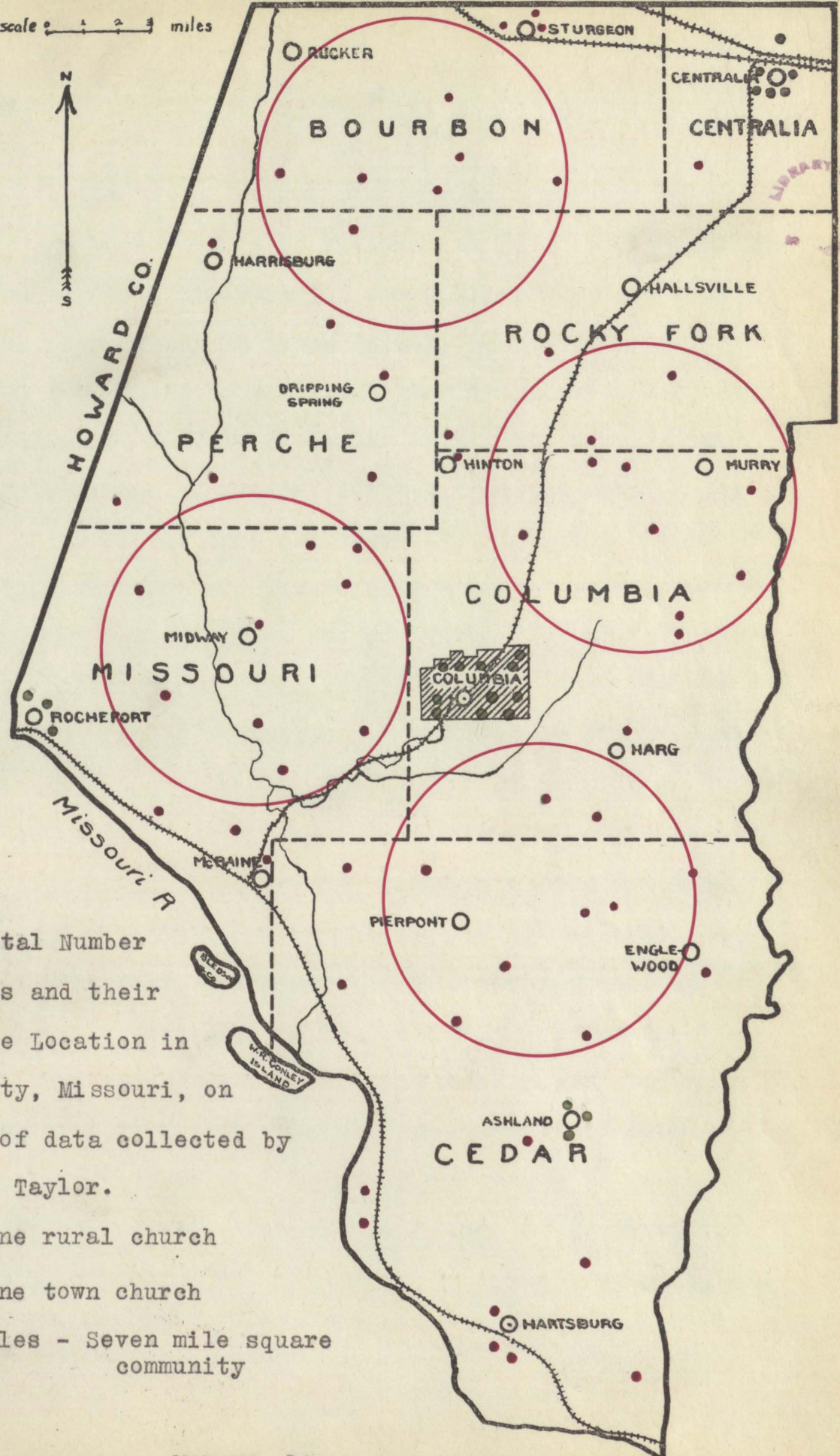
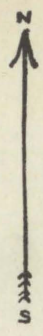
Rev. A. W. Taylor, who has carefully investigated the church conditions in this state said of Boone County: "Up to January 1, 1915, there was not one of the sixty-seven rural churches of Boone County with more than quarter-time preaching and only one of them had a minister living in the same neighborhood with the church to which he ministered. Two-thirds of these churches are Baptist and Disciple and between them the only differences are in the non-essentials of tradition and in theological opinion. It is safe to say there are four times as many rural churches as are needed. It follows that the uniting of the churches would quadruple finances and bring resident pastors and give the rural church the same chance for efficiency that the city church possesses."

The following map No. 9 compiled by Rev. Taylor indicates the excess number of rural churches in Boone County, Missouri. The large red circles represent a community of seven miles square. The map shows these communities as having from seven to ten churches when one church would be more efficient.

The surveys made by the Presbyterian Department of Church and Country Life, covering districts in half a dozen states from Pennsylvania to Missouri, show that not

MAP of BOONE COUNTY MISSOURI

scale 0 1 2 3 miles



Showing Total Number
of Churches and their
Approximate Location in
Boone County, Missouri, on
the basis of data collected by
Rev. A. W. Taylor.

Scale ● = One rural church
● = One town church

Large Circles - Seven mile square
community

more than one-third of the rural churches are in a healthful condition.

Chart No. 8 shows the average condition of rural churches from Pennsylvania to Missouri as found by the Presbyterian Country Life Department. These conditions are very similar to those found in Boone County, Missouri.

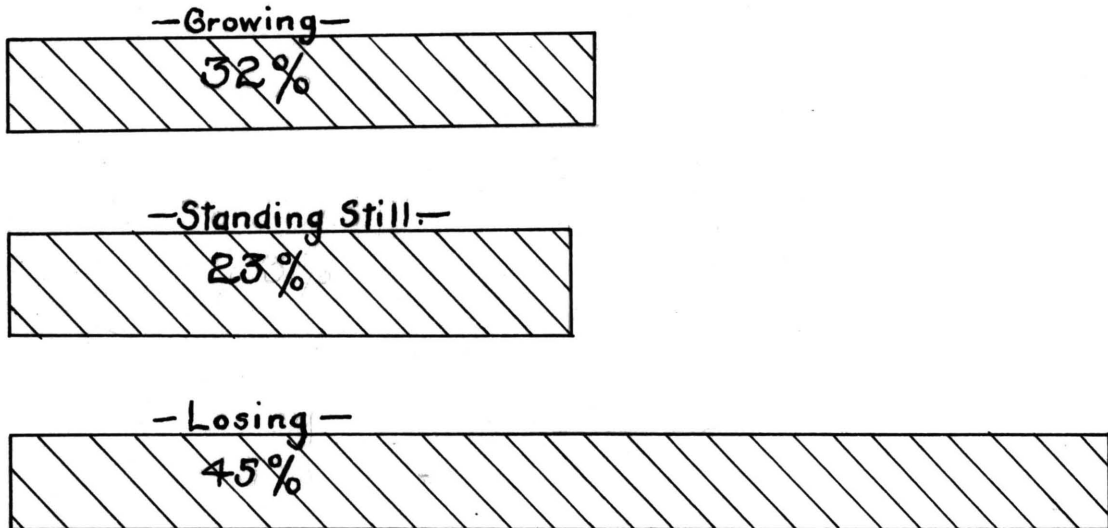
Commenting on the rural church condition in Boone County, Missouri, Rev. A. W. Taylor said, "The rural church needs more finance. A greater liberality would make it possible to enjoy better pastoral oversight. A great number of quarter-time churches are financially able to support half time preaching. The farmers are prosperous beyond the average for the entire population of the nation. They are not penurious when taught stewardship. The need is for leadership."

HOME

In rural Boone County, Missouri, there are 3443 farms and approximately 5000 families. Of these farms, 24.1 percent are operated by tenants and 75.9 are operated by the owners. Tenancy decreased in the decade 1900 to 1910 - 1.5%.

The tenant houses are as a rule in bad condition and almost totally devoid of modern conveniences. However, there are a great many fine homes in the county on farms operated by the owners. The following Map No. 10 shows the number of farm homes in Boone County, Missouri, having modern

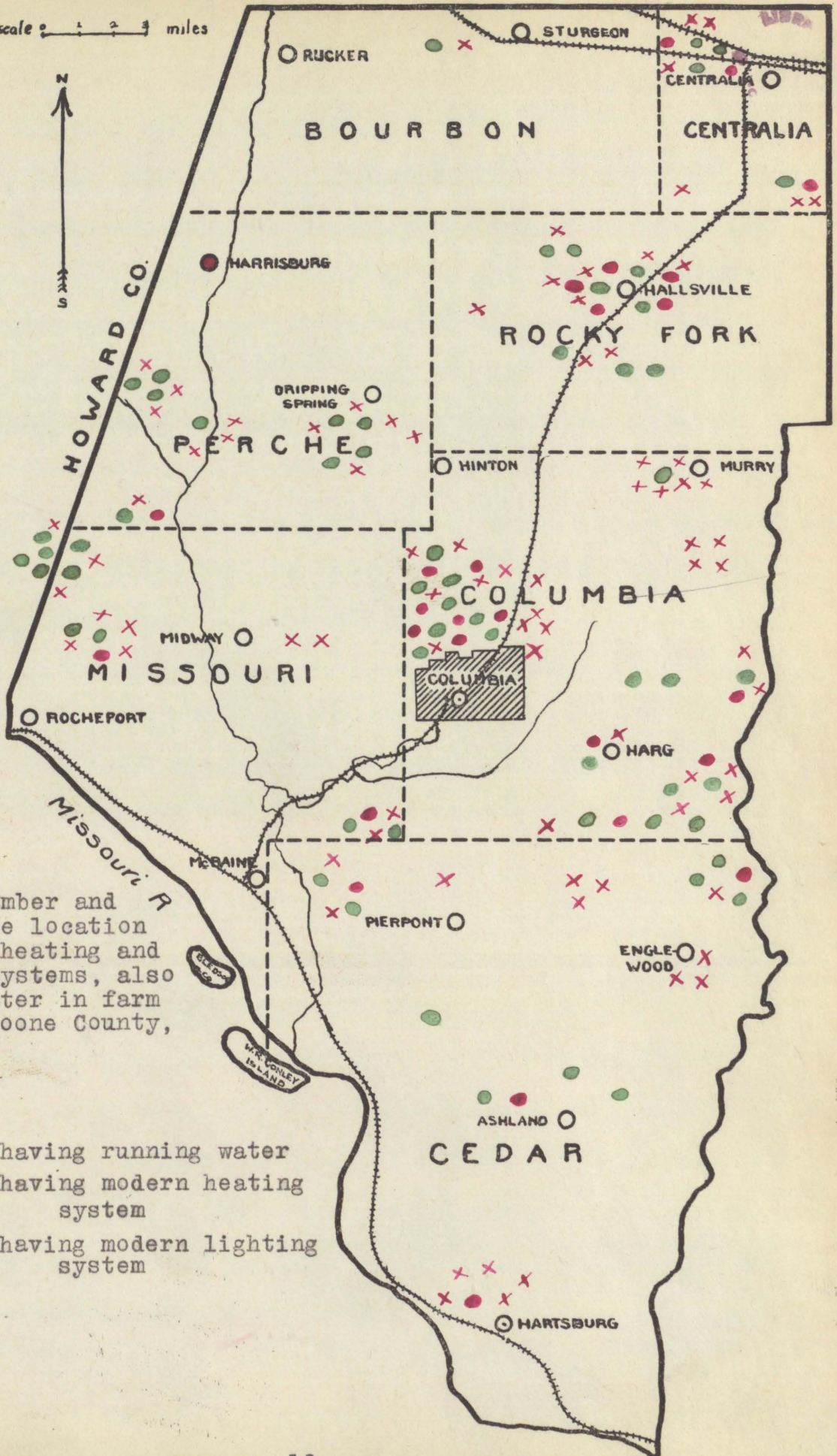
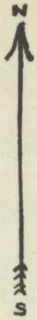
Chart Showing the Condition of Rural Churches in Half
a Dozen States from Pennsylvania to Missouri.



Compiled from Survey of 2000 Churches by Presbyterian
Country Life Department of New York City.

MAP of BOONE COUNTY MISSOURI

scale 0 1 2 3 miles



Showing number and approximate location of modern heating and lighting systems, also running water in farm homes in Boone County, Missouri.

Legend:

- = Home having running water
- = Home having modern heating system
- × = Home having modern lighting system

heating, lighting and water systems.

This map, No. 10 , indicates that thirty-three farm homes in Boone County, Missouri, have a modern heating system, ninety-one have a modern lighting system and seventy-two have running water in the house. This leaves approximately 4800 families in the rural districts using the old fashioned heating and lighting systems and carrying their water from wells or springs.

The following table, No. 33 , based on United States Census Reports, shows the predominate forms of tenancy in Boone County, Missouri.

Share Tenants -----	527
Share-Cash Tenants -----	62
Cash Tenants -----	221
Tenure not Specified -----	19
Color and Nativity of Tenants:	
Native White -----	761
Foreign Born White -----	6
Negro and other non-white ---	62

The usual tenant system is that of a one year's occupancy. Under such a plan it seems to be to the tenant's interest to crop the land as heavily as possible that year, for he expects to go to another farm the following season. Such a practice is depleting the soil's fertility, running down the farm improvements, and is not permanent.

LABOR

According to the United States Census Reports of 1910, 1435 Boone County Farmers hired additional labor, paying \$198,966 wages and \$50,209 for rent and board. The average wage for day labor in Boone County, Missouri is \$25.00 a month. It ranges from \$18.00 and board to \$30.00 and board a month.

RURAL ORGANIZATIONS

There is a distinct lack of rural cooperative organizations in Boone County, Missouri. There is a Farmers' Mutual Telephone and Insurance Company which is prosperous and is well established. In several places the farmers cooperate in the filling of silos and road dragging, but there are no real cooperative associations organized for this purpose.

Other associations have been started but for lack of leadership have failed. The "Cooperative Lamb Marketing Association" of Columbia is an example of such organization.

S U M M A R Y

The first problem of the County Farm Adviser is to study his county, and become acquainted with its resources, problems and local conditions.

The average temperature for Boone County for nineteen years was 53.5 degrees. The highest temperature during the period was 111 degrees and the lowest temperature was minus 26 degrees. The direction of the prevailing winds is south.

The average precipitation for Boone County for a period of nineteen years was 38.46 inches. The total precipitation during the driest year was 21.35 inches while that during the wettest year was 54.62 inches.

The number of livestock and livestock products exported from Boone County are decreasing. The total number of cattle, horses, sheep, hogs produced on Boone County farms are decreasing. Acreage production of corn, wheat and oats are increasing, but acre yields of the same crops are decreasing. Reduced fertility in Boone County soils is largely due to the decrease in livestock production.

Boone County farmers are probably not handling enough livestock. The average number of animal units per farm is 13.2 or an average of one animal unit for every 3.7 acres of land. The crop production is sufficient to support 20 animal units or one for every 2.5 acres of land.

Boone County farmers are inclined to sell crops and feeds whereas such feeds should be marketed largely through livestock.

Work stock in Boone County, Missouri are handling an average of only 10.2 crop acres, whereas one work animal should handle 26.2 crop acres. There are 9985 excess work animals in the county. Cost of keep of excess work stock amounts to an annual sum of \$881,975.

A higher percent of Boone County farms are mortgaged than the average percent for state or United States. Farm mortgages are rapidly increasing in Boone County.

Lack of any form of cooperative or community credit makes it difficult for small borrowers to secure money. Higher interest rates are charged for small loans, and the loans are hard to secure.

There are too many rural churches in Boone County, Missouri. The church support is divided up among too many units. Consequently the majority of rural churches are barely alive. Many are actually dead.

There is a need for consolidated schools in Boone County, Missouri.

Finis.