

## Transactions of the Kansas State Board of Agriculture, 1873

### Section 9, Pages 241 - 270

This annual report from the Kansas State Board of Agriculture includes information on livestock and other agricultural topics. Also covered are county statistics for population, acreages, productions, live stock, and assessed valuation of property. Information on the Ninth Annual State Fair and the Transactions of the Sixth Annual Meeting of the Academy of Science is also included.

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KANSAS  
HISTORICAL  
SOCIETY

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### ANNUAL REPORT OF THE

#### OTTAWA COUNTY AGRICULTURAL SOCIETY.

By A. B. Crosby, Secretary.

The first annual fair of this society was held on the 22d, 23d and 24th of October, 1873, and the following premiums were awarded:

DIVISION A—HORSES, MULES AND JACKS.		DIVISION F—FLOWERS.	
Amount of first premiums awarded.....	\$6 50	Amount of premiums awarded.....	
Amount of second premium.....	2 50		
DIVISION B—CATTLE.		DIVISION G—ARTS AND MANUFACTURES.	
Amount of first premiums awarded.....	\$2 00	Amount of first premiums awarded.....	\$4 25
Amount of second premiums.....	1 00	Amount of second premiums.....	50
DIVISION C—SHEEP, SWINE, POULTRY AND BIRDS.		DIVISION H—YOUTH'S DEPARTMENT.	
Amount of first premiums awarded.....	\$10 50	Amount of first premiums awarded.....	50
Amount of second premiums.....	1 75	Amount of second premiums.....	
DIVISION D—GRAINS, VEGETABLES AND FRUITS.		DIVISION I—DISCRETIONARY.	
Amount of first premiums awarded.....	\$2 25	Amount of first premiums awarded.....	\$2 00
Amount of second premiums.....	1 50	Amount of second premiums.....	25
DIVISION E—SUGAR, PRESERVES, CANNED FRUIT AND PANTRY STORES.		DIVISION J—MISCELLANEOUS.	
Amount of first premiums awarded.....	\$3 50	Amount of first premiums awarded.....	\$6 00
Amount of second premiums.....		Amount of second premiums.....	50
		Total amount.....	\$45 50
Total amount of fees in hands of Treasurer.....	\$189 00		
Total amount of donations to Society.....	6 00		
Total amount of disbursements for all purposes.....	70 50		
Number of acres in fair grounds.....	13		
Amount paid for fair grounds, per acre.....	10 00		
Amount due on same.....	130 00		
Total funds on hand above expenses and indebtedness, minus.....	5 50		

#### OSBORNE COUNTY AGRICULTURAL AND HORTICULTURAL ASSOCIATION.

By P. J. O'Neil, Secretary.

##### OFFICERS FOR 1873.

A. M. Fritchey .....	President	A. W. Gowan.....	Treasurer
A. B. Farwell.....	Vice President	P. J. O'Neil.....	Secretary

The Association has sixty-seven members in good standing, and held its second annual fair at Osborne City, Osborne county, Kas., September 17th and 18th, 1873.

The premium list of the Association embraced the following classes:

A—Cattle.	I—Horticultural and floral.
B—Horses.	J—Fine arts.
C—Sheep.	K—Textile fabrics.
D—Swine.	L—Natural history.
E—Poultry.	M—Plowing.
F—Agricultural implements.	N—Honey.
G—Mechanic arts.	O—Equestrienne.
H—Farm produce.	



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Number of entries made .....	292
Number of premiums awarded.....	152

This fair was a success in all respects, and shows a decided gain over last year.

Financially the Association stands as follows:

Received by membership .....	\$33 50
Received by donation.....	53 50
Received from all other sources.....	131 65
Total receipts.....	\$218 65
Disbursements.....	163 90
Balance in treasury .....	\$54 75

### POTTAWATOMIE COUNTY AGRICULTURAL SOCIETY.

BY THOS. HUEY, PRESIDENT.

OFFICERS FOR 1873.

Thomas Huey, President.....Louisville | C. E. Chandler, Treasurer.....Wamego  
E. Walker, Secretary, St. George.

The third annual fair was held at Louisville, September 16th, 17th and 18th, 1873, at which premiums in cash to the amount of \$408, and one hundred diplomas, were awarded and paid. Receipts from all sources, \$1,015; expenses, exclusive of premiums, \$600. The show of stock, especially of cattle and horses, was very creditable; of grains, vegetables, etc., not so good.

The agricultural interests of the county are in a prosperous condition. Orchards are being planted very extensively. Large tracts of virgin soil are broken up and put in cultivation each year.

### REPUBLIC COUNTY AGRICULTURAL SOCIETY.

BY I. O. SAVAGE, SECRETARY.

OFFICERS FOR 1873.

R. P. West.....President | V. Vantrump.....Treasurer  
W. H. Pilkenton.....Vice President | Isaac O. Savage, Bellville. ....Secretary  
S. W. Skeels, Librarian.

BOARD OF DIRECTORS.

O. A. A. Gardner,      A. J. Hill,      Wm. H. Boyes,      Wm. Hughes,  
A. Kindy,      W. G. McBride,      J. M. Ryan.

In accordance with the provisions of "An act for the encouragement of agriculture," approved February 19th, 1872, I herewith transmit my annual report:



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The Republic County Agricultural Society was organized February 27th, 1871. The first annual fair was held October 4th and 5th, of the same year. The fair grounds (thirty acres) are favorably located a quarter of a mile from Bellville, the county seat. Living water is found on the grounds, furnishing an ample supply for all purposes. A fine half-mile track has been graded, and a permanent building, 20 by 30 feet, erected.

The third annual fair was held October 1st, 2d and 3d, 1873, and premiums were offered and awarded for the improvement of stock, tillage, crops, implements, mechanical fabrics, and articles of domestic industry.

The past year has been a very successful one for agriculture and horticulture in this county, and a decided improvement from former years is everywhere apparent.

### RILEY COUNTY AGRICULTURAL SOCIETY.

By J. Q. A. SHELDON, SECRETARY.

Cash received at last fair.....	\$1,364 45
Orders drawn and paid.....	1,015 48
Balance in treasury.....	\$308 97

### SEDGWICK COUNTY AGRICULTURAL, MECHANICAL AND STOCK ASSOCIATION.

By R. L. WEST, SECRETARY.

The association held its first annual fair on Sept. 30th, Oct. 1st, 2d, 3d and 4th, and awarded premiums as follows:

Class A—Cattle.....	\$43 50	Class C—Sheep.....	\$15 00
Class B—Horses.....	90 00	Class D—Swine.....	54 00
Trial of speed.....	450 00		

In addition to the above there has been about \$50 awarded in cash premiums, and diplomas to the number of 236 on all other articles which were accounted worthy.

#### ABSTRACT OF TREASURER'S REPORT.

Amount received from assessment.....	\$960 00
Amount received from gate receipts.....	1,282 54
Total.....	\$2,142 54
Amount disbursed.....	2,089 25
Amount in hands of Treasurer.....	\$52 29



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### SMITH COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION.

By GEO. W. BUCKLEY, SECRETARY.

#### OFFICERS FOR 1873.

M. E. Wells, President.....	Smith Centre	E. R. Fowler, Treasurer.....	Gaylord
M. Phillips, Vice President.....	Smith Centre	Geo. W. Buckley, Secretary.....	Pawnee

#### BOARD OF DIRECTORS.

M. E. Wells,	Montroville Phillips,	E. R. Fowler,	Geo. W. Buckley,
A. Robinson,	J. H. Trevett,	Z. Gates.	

The Smith County Agricultural and Mechanical Association was chartered in July, 1873. Books were opened, and fifty shares of five dollars each were subscribed. The fair grounds of said Association were located at Smith Centre, Kansas.

The first annual fair was held on the 8th and 9th days of October, 1873. Premiums were offered and awarded for the improvement of stock, grains, household and domestic industry, fine arts, fowls, agricultural implements, crops, speed, &c., &c.; and premiums were so graded that small as well as large farmers and artisans could compete for the same. Forty-seven premiums were awarded.

The following is the Treasurer's report:

	Cr.
Amount of assessments on stockholders paid.....	\$40 00
Entries and tickets sold during fair.....	33 25
Total receipts.....	\$73 25
	Dr.
Amount of premiums paid.....	\$16 50
Amount paid for work and incidentals.....	15 00
Total expenditures.....	\$31 50
Amount in treasury.....	\$41 75

Smith county is one well adapted for agriculture. It is well watered by living springs and streams of pure water. The first settlements were made in Smith county in 1870, but were few in numbers until 1872. The county is rolling; soil rich and deep, and adapted to the growth of nearly every kind of grain and fruit.

Hogs, as a general thing, are No. 1. It does not pay to ship poor breeds out here. Horses are below the common standard. They are mostly ponies and small horses.

Winter wheat was a failure last season; that is, the winter having killed the most of it. The prospect is good for next year's crop. Spring wheat was excellent. Corn will average, this year, on second sod, about forty-five bushels per acre. Early potatoes were half a crop. Late potatoes were good. Oats were good and a heavy crop.

It is estimated that five thousand acres of land were broken last season. Smith county has improved in agricultural attainments at least twenty-five per cent. during the year of 1873.

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### SUMNER COUNTY—ARKANSAS VALLEY AGRICULTURAL ASSOCIATION.

BY CHARLES TILTON, SECRETARY.

Our Society is now in full working order, having seven directors, a president, and a secretary.

I have to report that we have an authorized capital stock of ten thousand dollars, divided into one thousand shares of ten dollars each.

The Society did not deem it expedient to attempt to hold a fair the present year, because of the new condition of our county—the first “sod” having been broken only two years since.

The Society is negotiating for suitable grounds for fair purposes, and will essay to hold a fair the coming year, when we hope to be able to make a good display of field and garden products. Of stock we are able even now to make a very fair exhibit. Of fruits we shall have to wait two years yet before we can expect to produce any, and then only peaches.

The two past crop seasons have proved beyond reasonable doubt that the soil of the Arkansas valley (and especially that portion of the valley lying in Sumner county,) is well adapted to the production of cotton, corn (Indian), broom-corn and castor beans; winter wheat thus far has also done remarkably well.

My monthly reports for the ensuing year will be sufficiently in detail to give you more accurate ideas, both of the growth and products of this new section.

### WABAUNSEE COUNTY AGRICULTURAL SOCIETY.

BY W. W. CONE, SECRETARY.

#### OFFICERS FOR 1873.

J. M. Bisbey, President.....	Wabaunsee	Wm. W. Cone, Secretary.....	Dover
M. W. Janes, Vice President.....	Maple Hill	G. W. Watson, Treasurer.....	Alma

#### BOARD OF DIRECTORS.

Fnoch Platt,	H. A. Stiles,	L. A. Knapp,	Jos. Fields,
J. M. Johnson,	Horace Griffin,	C. C. Stalker,	A. Sellars,
Wm. Mahan,	T. K. Tomson,	J. A. Eddy,	John Hogue,
	Frank Rickenhauser.		

The above society was organized in 1869, and has held a fair each year since; but not having any permanent fair grounds, the receipts have never been sufficient to pay expenses and premiums in full. The fair of 1873 was better attended and there were more entries than at any previous fair of the Society, still there was great room for improvement. Farmers in general do not take enough interest in these annual exhibitions of the productions of



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the soil, and these fairs are quite often run in the interest of a few fast men with their fast horses. Such horses as win these races are of no more use to the average farmer than the fifth wheel to a wagon.

The following is a synopsis of awards of premiums:

Class. Articles.	Awarded.	Offered.
A—Horses.....	\$111 50	\$154 00
B—Cattle.....	28 00	108 00
C—Hogs, sheep and poultry.....	30 00	42 50
D—Fruit and grain.....	20 00	35 00
E—Domestic.....	18 50	48 00
F—Manufactured.....	5 00	30 00
G—Plowing match.....	8 00	8 00
	\$221 00	\$425 50

Beside the above, there were awarded thirty-six agricultural papers.

#### RECEIPTS.

Tickets.....	\$124 00
Donated by citizens of Alma.....	100 00
	\$224 00
Received from county.....	200 00
	\$424 00

The expenses of the county were:

Printing.....	\$10 00
Pens, track, &c.....	100 00
Incidentals.....	25 00
	\$135 00

This county has a population of 4,300. Farming, as a business, is not carried on to any great extent in this county. The people turn their attention to raising "domestic stock," which proves quite remunerative. There are no railroads in the county. The celebrated "Mission creek stone" is quarried in large quantities about two miles from the east line of the county.

Corn will average about 25 bushels per acre this season; wheat, 14, and potatoes about 40.

There are four cheese factories in successful operation. The cheese from these factories is nearly equal to Eastern cheese. There were over 32,000 pounds of cheese made in the county last year.

### WASHINGTON COUNTY AGRICULTURAL ASSOCIATION.

By G. M. PARKS, PRESIDENT.

#### OFFICERS FOR 1873.

G. M. Parks, President.....Sherman | Geo. W. Shriner, Secretary.....Washington  
Chas. H. Morgan, Treasurer, Sherman.

#### BOARD OF DIRECTORS.

D. E. Ballard, S. B. Steel, G. C. Ferguson, J. J. Veatch,  
Mathias Oswalt, S. H. Hamilton, O. Sawyer.

This Society was organized in June, 1872, and the first fair held on the

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16th, 17th and 18th of September, 1873. Cash premiums were paid as follows:

On cattle in the various rings.....	\$25 00	Speed ring.....	\$40 00
Horses.....	50 00	Miscellaneous.....	3 00
Mules.....	10 00		
Swine.....	15 00	Total.....	\$143 00

The premiums were so graded that small as well as large farmers and artisans could compete for the same; also in addition to cash premiums, diplomas were awarded in the different departments.

The following is an abstract of the Treasurer's report:

CREDIT.	DEBIT.
Am't assessm't on stockhold's, paid, \$125 00	Amount of premiums paid.....\$143 00
Entries on articles at fair..... 40 00	Amount paid for lumber ..... 20 00
Tickets sold during the fair..... 145 85	Am't paid for work and incident'ls, 143 75
Total receipts.....\$370 85	Total expenditures.....\$306 75

Our deficit will be more than made up by the amount due from the county treasurer under section 8 of an act entitled "An act for the improvement of agriculture," approved February 19th, 1872.

The general aspect of the agricultural interests of the county is good, and the future of the Association has a most promising outlook.

There are liabilities against the Society for premiums awarded which are not yet paid, and some other liabilities, amounting in the aggregate to \$120.

### WILSON COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION.

By H. C. BARRETT, SECRETARY.

This association is organized and chartered under the laws of the State, with a capital stock of \$5,000, shares at \$10 each.

Number of share-holders.....	66
Number of shares subscribed.....	146
Amount of money paid on assessment.....	\$206 07
Amount of receipts at fair, held Oct. 15th, 16th and 17th, 1873.....	502 70
Amount of premiums awarded.....	294 50

### WOODSON COUNTY AGRICULTURAL SOCIETY.

By R. F. EAGLE, CORRESPONDING SECRETARY.

#### OFFICERS FOR 1873.

G. W. Hutchinson, President..Center Ridge	Pusey Graves, Rec'ding Sec'y, Neosho Falls
J. S. Watrous, Vice President, Neosho Falls	R. F. Eagle, Corresponding Sec'y.....Kalida



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The Woodson County Agricultural Society held its second annual fair at Neosho Falls on 1st, 2d and 3d days of October, 1873. It was well attended each day, and was a decided success. Upwards of \$600 were expended in premiums. The show of thoroughbred cattle was very fine, and would have done credit to any county in the State. Hogs were also well represented. The presentation of horses was creditable. Grain, fruits, vegetables, etc., were of the highest excellence. The chief features were blooded and graded stock, fine horses, lady equestrian exhibition, trotting, agricultural implements, and a floral hall decoration, together with needle-work, works of art, dairy products, etc.

The agricultural interests of Woodson county are looking up. The spirit competition is abroad, and all our determined to rank our county where she naturally belongs—one of the best in the State. Each township in the county sustains a farmers' club, and there are nine granges, a county council, and a county co-operative association.

### WYANDOTTE COUNTY AGRICULTURAL ASSOCIATION.

By W. W. DICKINSON, SECRETARY.

The second annual fair of the Society was held on the 24th, 25th, 26th and 27th days of September, 1873.

Premiums were awarded and paid as follows, viz.:

On thoroughbred horses.....	\$125 00	On fruit.....	\$12 00
On draft horses.....	10 00	On flowers.....	7 00
On car'ge, saddle and buggy horses,	30 00	On needlework.....	7 00
On boys' equestrianism.....	6 00	On fine arts.....	7 00
On thoroughbred cattle.....	25 00	On agricultural implements, etc.....	10 00
On grade cattle .....	30 00	On native wines.....	4 00
On thoroughbred swine.....	30 00	On special premiums.....	45 00
On grade swine.....	3 00	On speed ring running.....	75 00
On poultry.....	2 00	On speed ring trotting.....	325 00
On grain and vegetables.....	25 00		
On household products.....	10 00	Total premiums.....	\$796 00
On nursery stock.....	8 00		

The receipts since last report to date have been as follows, viz.:

Installment on capital stock.....	\$300 85	From special premiums.....	\$45 00
From the sale of dining halls, etc....	146 45	From entry fees in speed ring.....	100 00
From gate fees, three days.....	665 30		
From other privileges.....	10 50	Total receipts.....	\$1,287 35
From rent of stalls.....	19 25		

Expenditures to date as follows, viz.:

Paid premiums as above .....	\$796 00	Paid for miscellaneous.....	\$28 25
Paid for work on grounds.....	70 75	Total orders drawn.....	\$1,428 22
Paid for work on buildings .....	340 07	Deduct orders drawn and not paid,	140 87
Paid for printing.....	65 65	Balance .....	\$1,287 35
Paid for band.....	127 50		

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A fair degree of prosperity has attended the farmers of the county during the year. They have in the main enjoyed good health. Wages have ruled low, and labor has been plenty and well performed.

The wheat crop was harvested early in excellent condition; yield above the average. Samples on exhibition were finer than any previously shown. Oats were a good crop, of superior quality, except some late sown were cut off by the drouth. Corn is of good quality, but owing to dry weather will not average more than twenty bushels per acre. Corn fodder has been secured in large quantity in excellent order. Clover and the grasses gave a good first crop; the second was a total failure. Early potatoes yielded well; late potatoes, except on low bottom lands, are a failure. Garden vegetables are scarce and bring good prices in consequence of the continued dry weather. Apples small in quantity and poor in quality. No peaches or plums, and but a few pears. Nearly all the pear trees in the county are dying or dead from blight.

The late rains have put our fields in excellent order for crops, and a large breadth of wheat has been sown. It looks finely. Stock of all kinds is looking remarkably well. The fair seems to have given a new impetus to raisers of thoroughbred stock, and we may confidently look to a great improvement in this direction. Socially the fair of 1873 was a success, and all are hopeful for the future.



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### AGRICULTURAL ORGANIZATIONS.

#### DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

FREDERICK WATTS, *Commissioner of Agriculture.* | TOWNSEND GLOVER, *Entomologist.*  
J. R. DODGE, *Statistician.* | RYLAND F. BROWN, *Chemist.*  
GEORGE VASEY, *Botanist.*

#### NATIONAL SOCIETIES.

<i>Name of Society.</i>	<i>President.</i>	<i>Secretary.</i>	<i>P.O. Address of Sec'y.</i>
United States Agricultural Society.....	W. G. Beckwith.....	Ben. Perley Poore...	Washington, D. C.
American Pomological Society.....	Marshall P. Wilder	F. R. Elliott.....	Cleveland, Ohio.
National Agricultural Congress.....	J. P. Reynolds.....	C. W. Greene.....	Jacksonville, Ill.
National Wool Growers' Association.....	Henry S. Randall...	W. F. Greer.....	Painesville, Ohio.
Cotton States Mechanical and Fair Ass'n...	P. J. Berkman.....	Edward H. Gray....	Augusta, Georgia.
New England Agricultural Society.....	Geo. B. Loring.....	Daniel Needham....	Middlesex, Mass.

#### STATE SOCIETIES.

<i>Name of Society.</i>	<i>President.</i>	<i>Secretary.</i>	<i>P.O. Address of Sec'y.</i>
Alabama Agricultural and Mech'l Asso'n...	Samuel G. Reid.....	H. T. Walker.....	Montgomery.
Arkansas State and Mech'l Association.....	D. E. Jones.....	E. C. Morton .....	Little Rock.
California State Agricultural Society.....	R. S. Cary.....	Robert Beck.....	Sacramento.
Colorado Industrial Association.....	John Evans .....	O. A. Whittemore...	Denver.
Colorado Wool Growers' Association.....	Gov. M. Jewell.....	F. A. Clifton.....	Spring Valley.
Connecticut State Board of Agriculture...	Gov. M. Jewell.....	T. S. Gold .....	West Cornwall.
Connecticut State Agricultural Society.....	E. H. Hyde.....	T. S. Gold .....	West Cornwall.
Connecticut State Poultry Society.....	S. J. Bestor.....	W. H. Lockwood....	Hartford.
Delaware State Horticultural Society.....	Wm. Canley.....	Ed. Tatnell.....	Wilmington.
District of Columbia, Potomac.....	.....	.....	.....
Fruit Growers' Association.....	.....	.....	.....
Deseret Agricultural Society.....	C. Gillingham.....	P. H. Folsom.....	Salt Lake City.
Georgia State Agricultural Society.....	A. H. Colquhoun.....	D. W. Lewis.....	Washington.
Illinois State Board of Agriculture.....	John P. Reynolds...	A. M. Garland.....	Atlanta.
Illinois State Horticultural Society.....	A. Bryant, sr.....	O. B. Galusha.....	Springfield.
Indiana State Board of Agriculture.....	Hon. J. Sutherland	A. Heron.....	Morris.
Indiana State Horticultural Society.....	Dr. A. Furnas .....	W. H. Ragen .....	Indianapolis.
Iowa State Agricultural Society.....	John Scott.....	J. M. Shaffer.....	Clayton.
Iowa State Horticultural Society.....	Suel Foster.....	D. W. Adams.....	Fairfield.
Kansas State Board of Agriculture.....	Geo. T. Anthony...	Alfred Gray.....	Waukon.
Kansas State Horticultural Society.....	Wm. H. Howsley...	Geo. C. Brackett...	Topeka.
Kentucky State Agricultural Society.....	Robert Mallory....	J. J. Miller.....	Lawrence.
Kentucky State Horticultural Society.....	J. L. Smith.....	.....	Lexington.
Louisiana State Agricultu'l and Fair Ass'n	J. N. Marks.....	Luther Holmes.....	Louisville.
Maine State Board of Agriculture.....	Z. A. Gilbert.....	S. L. Goodale.....	Baton Rouge.
Maine State Agricultural Society.....	Hon. S. Wasson....	S. L. Boardman....	Saco.
Maryland State Agric'tu'l and Mech'l Ass'n	Geo. S. Brown.....	W. S. G. Baker.....	Augusta.
Massachusetts State Board of Agriculture...	Governor, <i>ex-officio</i> .	C. L. Flint .....	Baltimore.
Mass. Society for Promoting Agriculture...	T. Motley.....	E. N. Perkins.....	Boston.
Massachusetts Horticultural Society.....	W. C. Strong.....	E. W. Buswell.....	Jamaica Plains.
Michigan State Agricultural Society.....	Geo. W. Griggs....	C. P. Kimball.....	Boston.
Michigan State Pomological Society.....	J. P. Thompson....	C. J. Deitrich.....	Detroit.
			Grand Rapids.



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#### STATE SOCIETIES—Concluded.

Name of Society.	President.	Secretary.	P.O. Address of Sec'y
Minnesota State Agricultural Society.....	O. P. Whitecomb.....	Wm. Paist.....	St. Paul.
Minnesota State Horticultural Society.....	R. J. Mendenhall ..	A. W. McKinstrey.	Faribault.
Missouri State Board of Agriculture.....	Henry I. Mudd.....	J. Wielandy.....	Jefferson City.
Missouri State Horticultural Society.....	H. M. Vories.....	Wm. Muir.....	Kansas City.
Montana Agr'l, Mineral and Mech'l Ass'n	John Kinna .....	E. W. Carpenter....	Helena.
Miss. Planters, Manf's and Mech's Ass'n.	J. O. Wharton .....	J. L. Power.....	Jackson.
Nebraska State Board of Agriculture.....	Robt. W. Furnas....	D. H. Wheeler .....	Plattsmouth.
Nebraska State Horticultural Society.....	J. W. Masters.....	R. W. Furnas.....	Brownville.
New Hampshire State Agr'l Society.....	N. Head .....	Aaron Young.....	Portsmouth.
New Jersey State Agricultural Society.....	W. N. Halsted .....	Wm. Force.....	Newark.
New Jersey State Cranberry Gr's Ass'n....	J. A. Fenwick.....	J. J. White .....	Juliestown.
New York State Agricultural Society.....	R. S. Church.....	T. L. Harrison.....	Albany.
New York State Grape Growers' Ass'n ..	C. D. Champlin .....	M. C. Wells .....	Canandaigua.
N. Y. Sheep Breeders & Wool Gr's Ass'n...	H. S. Randall.....	H. D. L. Sweet.....	Syracuse.
N. Y. State Dairymen's Association.....	X. A. Willard.....	J. Shull.....	Mohawk.
North Carolina State Agricultural Society	W. F. Komegay.....	R. T. Fulgham.....	Raleigh.
Ohio State Board of Agriculture.....	L. G. Delano .....	J. H. Kilpart .....	Columbus.
Ohio State Horticultural Society.....	Dr. J. A. Warder....	M. B. Batcham.....	Painesville.
Ohio State Board of Sorgho Culture .....	Wm. Clough.....	J. H. Branch.....	Cincinnati.
Oregon State Agricultural Society.....	M. Wilkins .....	E. M. Waite.....	Salem.
Oregon State Horticultural Society.....	S. Lovelling.....	A. R. Shipley .....	Oswego.
Pennsylvania State Agricultural Society...	Jacob R. Eby.....	E. McConkey .....	Harrisburg.
Pennsylvania State Horticultural Society.	W. L. Schaffer .....	T. Mechan.....	Germantown.
Rhode Island Society for the Encourage- ment of Domestic Industry.....	Hon. W. Sprague....	J. S. Pitman .....	Providence.
Rhode Island Horticultural Society.....	W. F. Channing .....	C. H. Smith.....	Providence.
South Carolina State Agricultural Society	J. Hagood.....	D. W. Aiken .....	Cokesburg.
Tennessee Agr'l and Mech's Association..	H. B. Johnson.....	A. R. Griffin .....	Nashville.
Tennessee State Horticultural Society....	P. S. Fall .....	Dr. G. S. Blackie ..	Nashville.
Texas Agr'l, Mech'l & Blood Stock Ass'n...	S. S. Munger.....	J. F. Dumble.....	Houston.
Vermont State Agricultural Society.....	H. G. Root.....	Henry Clark.....	Rutland.
Vermont State Dairymen's Association....	E. D. Mason.....	O. S. Bliss.....	Georgia.
Virginia State Agricultural Society.....	L. E. Harvie.....	E. G. Leigh .....	Richmond.
Virginia State Horticultural Society.....	W. H. Haxall.....	W. H. Pleasant....	Richmond.
Washington Agr'l, Manf. and Art Society	Phillip Ritz.....	O. P. Lacy.....	Walla-Walla.
West Virginia Central Agr'l & Mech'l S'y.	R. T. Lounde.....	L. Haymond.....	Clarksburg.
Wisconsin State Agricultural Society.....	Wm. R. Taylor.....	W. W. Field.....	Madison.
Wisconsin State Horticultural Society.....	J. S. Stickney.....	O. S. Willey.....	Madison.

#### PATRONS OF HUSBANDRY.\*

##### National Grange—Business Officers.

###### MASTER.

Dudley W. Adams.....Waukon, Iowa

###### SECRETARY.

O. H. Kelley.....Georgetown, D. C

##### Kansas State Grange—Business Officers.

###### MASTER.

M. E. Hudson, acting.....Mapleton, Bourbon county

###### SECRETARY.

Geo. W. Spurgeon.....Jacksonville

###### STATE AGENT.

John G. Otis.....Topeka

###### EXECUTIVE COMMITTEE.

F. H. Dumbauld.....Jacksonville

T. B. Schaeffer.....Grasshopper Falls

W. P. Popenoe.....Topeka

###### STATE DEPUTY.

J. A. Cramer.....Lawrence

###### SPECIAL DEPUTIES.

J. J. Sitton.....Eldorado, Butler county

T. W. Peacock...Independence, Montgomery county

J. Nelson.....Jacksonville, Labette county

A. Palmer.....Topeka, Shawnee county

W. S. Hanna.....Ottawa, Franklin county

T. E. Tabor.....Lawrence, Douglas county

T. Thirley.....Buffalo, Wilson county

I. C. Cuppy.....Humboldt, Allen county

Jas. Brooks.....Burlington, Coffey county

J. F. McDowell.....Columbus, Cherokee county

E. A. Hodge.....Marion Centre, Marion county

L. Meredith.....Olathe, Johnson county

C. Baker.....Appleton, Bourbon county—east half

R. A. Johnson...Hepler, Bourbon county—west half

H. Parmenter.....Solomon, Dickinson county

J. N. Insley.....Oskaloosa, Jefferson county

###### NEW DEPUTIES.

W. S. Mathews.....Seneca, Nemaha county

U. M. Morgan.....Jarballo, Leavenworth county

T. S. Floyd.....Sedgwick City, Harvey county

F. C. Herron.....Huron, Atchison county

B. H. Bradshaw.....North Cedar, Jackson county

W. P. Popenoe.....Topeka, Shawnee county

L. H. Pillsbury.....Manhattan, Riley county

J. N. Limbocker.....Pottawatomie county

J. M. Warden.....Vernon, Cowley county

J. L. Zimmerman.....Wichita, Sedgwick county

J. F. Ricketts.....Garnett, Anderson county

Peter Brandon.....Burlington, Coffey county

E. P. Pomeroy.....Girard, Crawford county

[\* NOTE.—The list of subordinate Granges of the State is so incomplete and full of mistakes, after consulting with members of the Executive Committee of the State Grange it has been deemed advisable to omit the same.—SECRETARY.]



## Transactions of the Kansas State Board of Agriculture, 1873

### STATE BOARD OF AGRICULTURE.

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#### FARMERS' CO-OPERATIVE ASSOCIATION—OFFICERS.

PRESIDENT.		SECRETARY.	
John Davis.....	Junction City	C. S. Brodbent.....	Wellington
VICE PRESIDENT.		DIRECTORS.	
Dr. Lawrence.....	Lawrence	J. S. Van Winkle.....	Pleasant Ridge
TREASURER.		John Mings.....	Burlingame
Henry Bronson.....	Lawrence	J. B. Smith.....	Lawrence
		O. W. Bill.....	Manhattan

#### STATE BEE-KEEPERS' ASSOCIATION—OFFICERS.

PRESIDENT.		SECRETARY.	
Hon. M. A. O'Neil.....	Black Jack	N. Cameron.....	Lawrence
VICE PRESIDENT.		ASSISTANT SECRETARY.	
J. D. Meador.....		O. Badders.....	Leavenworth

#### DISTRICT SOCIETIES.

NORTHERN KANSAS DISTRICT FAIR ASSOCIATION. (Comprising Atchison, Brown and Doniphan counties.)		M. S. Grant.....	President
Geo. W. Glick.....	President	Chas. W. Chapin, Leavenworth.....	Secretary
Nelson Abbott, Atchison.....	Secretary	KANSAS AND MISSOURI FAIR ASSOCIATION. (Comprising Bourbon and Crawford counties, Kas., and Barton county, Mo.)	
KANSAS AGRICULTURAL AND MECHANICAL ASSOCIATION. (Comprising Leavenworth and a part of Jefferson county.)		B. F. Helper.....	President
		J. B. Campbell, Ft. Scott, Kas.....	Secretary

#### COUNTY SOCIETIES.

ALLEN COUNTY AGRICULTURAL SOCIETY.		CLAY COUNTY CO-OPERATIVE UNION.	
A. M. Howland.....	President	L. M. Williams.....	President
A. G. Jones, Iola.....	Secretary	J. C. Mosely, Clay Centre.....	Secretary
ALLEN COUNTY FARMERS' UNION.		CLOUD COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION.	
Wesley Hall, Iola.....	Secretary	B. H. McEckron.....	President
ARKANSAS VALLEY AGRICULTURAL ASSOCIATION.		W. E. Reid, Concordia.....	Secretary
Chas. Tilton, Oxford, Sumner Co.....	Secretary	COFFEY COUNTY AGRICULTURAL, HORTICULTURAL AND MECHANICAL ASS'N.	
ANDERSON COUNTY AGRICULTURAL ASSOCIATION.		S. J. Carter.....	President
Thomas Gowdy.....	President	Eugene E. Bacon, Burlington.....	Secretary
W. W. Kirkpatrick, Garnett.....	Secretary	COWLEY COUNTY AGRICULTURAL SOCIETY.	
ATCHISON COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION.		A. T. Stewart.....	President
W. L. Challiss.....	President	John B. Fairbanks, Winfield.....	Secretary
John A. Martin, Atchison.....	Secretary	CRAWFORD COUNTY AGRICULTURAL SOCIETY.	
ATCHISON COUNTY FARMERS' CO-OPERATIVE ASSOCIATION.		C. G. Hawley.....	President
Thos. F. Cook.....	President	Wm. H. Warner, Girard.....	Secretary
* S. J. H. Snyder.....	Secretary	CHEROKEE COUNTY AGRICULTURAL SOCIETY.	
BROWN COUNTY AGRICULTURAL SOCIETY.		— Hubbard.....	President
John Schilling.....	President	R. McGowen.....	Secretary
J. U. Oberholtzer, Hiawatha.....	Secretary	DAVIS COUNTY AGRICULTURAL SOCIETY.	
BUTLER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.		John Davis.....	President
Lewis Maxwell.....	President	N. F. Greene, Junction City.....	Secretary
M. D. Ellis, Eldorado.....	Secretary	DICKINSON COUNTY FARMERS' CO-OPERATIVE UNION.	
* Deceased.		W. A. E. Meeks.....	President
		W. L. Anderson, Holland.....	Secretary

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### ANNUAL REPORT OF THE

DICKINSON COUNTY INDUSTRIAL ASSOCIATION. V. P. Wilson, Enterprise.....President C. B. Hoffman, Enterprise.....Secretary	LYON COUNTY FARMERS' CO-OPERATIVE ASSOCIATION. J. B. Morgan, Americus.....Secretary
DONIPHAN COUNTY AGRICULTURAL, HORTICULTURAL AND MECHANICAL ASS'N. Jacob Zimmerman.....President J. A. Oder, Troy.....Secretary	MARSHALL COUNTY AGRICULTURAL SOCIETY. J. Weisbach.....President R. S. Newell, Frankfort.....Secretary
DOUGLAS COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION. I. S. Kalloch.....President D. L. Hoadley, Lawrence.....Secretary	MARSHALL COUNTY FARMERS' CO-OPERATIVE ASSOCIATION. A. J. McKee.....President Thomas Garnett, Heasleyville.....Secretary
FRANKLIN COUNTY AGRICULTURAL SOCIETY. Joshua Dunnucks.....President A. M. Blair, Ottawa.....Secretary	MARION TOWNSHIP AGRICULTURAL AND FRUIT GROWERS' ASSOCIATION. S. W. Metaker.....President H. R. Soxman, Willow Springs.....Secretary
GREENWOOD COUNTY AGRICULTURAL ASSOCIATION. Edwin Tucker.....President H. C. Rizer, Eureka.....Secretary	MIAMI COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION. W. R. Fox.....President Thomas M. Carroll, Paola.....Secretary
HARVEY COUNTY AGRICULTURAL SOCIETY. A. G. Richardson, Richland.....President Enos Commons, Emma.....Vice President H. C. Ashbaugh, Newton.....Secretary Daniel Ainsworth, Newton.....Treasurer O. B. Hildreth.....Marshal	MITCHELL COUNTY AGRICULTURAL SOCIETY. C. P. Stevens, Beloit.....Secretary
HOWARD COUNTY AGRICULTURAL SOCIETY. E. J. Sweet.....President Chas. S. King, Elk Falls.....Secretary	MONTGOMERY COUNTY AGRICULTURAL SOCIETY. J. R. Galloway.....President John A. Helphingstine, Independence.....Secretary
JACKSON COUNTY FARMERS' UNION. A. L. Stevens, Circleville.....Secretary	MONTGOMERY COUNTY CENT'L FARMERS' UNION. J. R. Galloway, Independence.....Secretary
JACKSON COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION. J. L. Williams.....President Ira I. Tabor, Holton.....Secretary	NEMAHA COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY. W. B. Slosson.....President Wm. Histed, Seneca.....Secretary
JEFFERSON COUNTY AGRICULTURAL SOCIETY. J. F. Willets.....President B. P. Stanley, Oskaloosa.....Secretary	NEOSHO COUNTY FARMERS' CO-OPERATIVE UNION. Chas. C. Coffinbury, Erie.....Secretary
JEWELL COUNTY AGRICULTURAL SOCIETY. A. W. Mann.....President Jas. A. Scarbrough, Jewell City.....Secretary	NEOSHO COUNTY AGRICULTURAL SOCIETY. Thos. H. Buster.....President W. H. Morris, Osage Mission.....Secretary
JOHNSON COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION. R. E. Stevenson.....President E. T. Thompson, Olathe.....Secretary	OSBORNE COUNTY AGRICULTURAL AND HORTICULTURAL ASSOCIATION. A. M. Fritchey.....President P. J. O'Neil.....Secretary
LABETTE COUNTY AGRICULTURAL SOCIETY. C. M. Monroe.....President C. B. Woodford, Oswego.....Secretary	OSAGE COUNTY FARMERS' UNION. John Mings.....President W. D. Farrar, Burlingame.....Secretary
LABETTE COUNTY AGRICULTURAL, HORTICULTURAL AND MECHANICAL ASSOCIATION. S. W. Collins.....President Wm. Houck, Labette City.....Secretary	OSAGE COUNTY AGRICULTURAL SOCIETY. Harrison Duboise.....President R. F. Playford, Burlingame.....Secretary
LINN COUNTY AGRICULTURAL SOCIETY. James Shinkle.....President A. G. Leaman, Twin Springs.....Secretary	OTTAWA COUNTY AGRICULTURAL SOCIETY. A. B. Crosby, Lindsey.....Secretary
LYON COUNTY AGRICULTURAL, MECHANICAL AND STOCK ASSOCIATION. E. R. Holderman.....President A. R. Bancroft, Emporia.....Secretary	OSBORNE COUNTY AGRICULTURAL SOCIETY. A. M. Fritchey.....President Philip J. O'Neil, Osborn City.....Secretary
	POTTAWATOMIE COUNTY AGRICULTURAL SOCIETY. Thomas Huey.....President E. Walker, St. George.....Secretary



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### STATE BOARD OF AGRICULTURE.

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#### REPUBLIC COUNTY AGRICULTURAL SOCIETY.

Albert Odell.....President  
Isaac O. Savage, Bellville.....Secretary

#### RENO COUNTY AGRICULTURAL SOCIETY.

J. M. Leidigh, Hutchinson.....Secretary

#### RILEY COUNTY CO-OPERATIVE ASSOCIATION.

O. W. Bill.....President  
W. Marlatt, Manhattan.....Secretary

#### RILEY COUNTY AGRICULTURAL SOCIETY.

J. Q. A. Sheldon, Manhattan.....Secretary

#### ROOKS COUNTY AGRICULTURAL SOCIETY.

Laf. C. Smith, Stockton.....Secretary

#### RUSSELL COUNTY AGRICULTURAL SOCIETY.

Geo. H. Exline.....President  
John M. Bradbury, Bunker Hill.....Secretary

#### SALINE COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION.

A. S. Norton.....President  
Albert Sheldon, Salina.....Secretary

#### SEDGWICK COUNTY AGRICULTURAL ASSOCIATION.

N. A. English.....President  
Geo. Sallisbury, Wichita.....Secretary

#### SEDGWICK COUNTY AGRICULTURAL MECHANICAL AND STOCK ASSOCIATION.

R. L. West.....Secretary

#### SHAWNEE COUNTY AGRICULTURAL SOCIETY.

W. P. Popenoe.....President  
Geo. F. Merriam, Topeka.....Secretary

#### SMITH COUNTY AGRICULTURAL SOCIETY.

M. E. Wells.....President  
George W. Buckley, Smith Center.....Secretary

#### ARKANSAS VALLEY AGRICULTURAL ASSOCIATION.

Chas. Tilton, Oxford, Sumner county.....Secretary

#### SUMNER COUNTY AGRICULTURAL SOCIETY.

Chas. S. Brodbent.....President  
John H. Folks, Wellington.....Secretary

#### WABAUNSEE COUNTY AGRICULTURAL SOCIETY.

J. M. Bisbey.....President  
Wm. W. Cone, Dover.....Secretary

#### WABAUNSEE COUNTY FARMERS' UNION.

J. M. Bisbey.....President  
G. W. Watson, Alma.....Secretary

#### WASHINGTON COUNTY AGRICULTURAL SOCIETY.

G. M. Parks.....President  
Geo. W. Shriner, Washington.....Secretary

#### WILSON COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION.

W. A. Peffer.....President  
H. C. Barnett, Fredonia.....Secretary

#### WOODSON COUNTY AGRICULTURAL SOCIETY.

G. W. Hutchinson.....President  
R. F. Eagle, Kalida.....Secretary

#### WOODSON COUNTY FARMERS' CO-OPERATIVE ASSOCIATION.

R. F. Eagle.....President  
M. C. Smith, Neosho Falls.....Secretary

#### WYANDOTTE COUNTY AGRICULTURAL SOCIETY.

D. B. Hadley.....President  
W. W. Dickinson, Wyandotte.....Secretary

### AUXILIARY AGRICULTURAL SOCIETIES OF KANSAS.

#### ALLEN COUNTY.

Allen County Farmers' Union, Wesley Hall, Secretary, Iola.  
Little River Valley Farmers' Club, A. W. McKinney, Secretary, Humboldt.

#### ANDERSON COUNTY.

Greeley Farmers' Club, W. F. Grear, Secretary, Greeley.  
Jackson Township Farmers' Club, Thomas Gowdy, Secretary, Garnett.  
Washington Township Agricultural Association, R. H. Cunningham, Secretary, Garnett.

#### BUTLER COUNTY.

Benton Farmers' Club, B. T. Rice, Secretary, Benton.  
Chelsea Farmers' Club, J. L. Taylor, Secretary, Chelsea.  
Eldorado Township Farmers' Club, J. E. McCulley, Secretary, Eldorado.  
Prospect Farmers' Club, J. W. Williamson, Secretary, Eldorado.  
Rosalia Farmers' Club, A. L. Miller, Corresponding Secretary, Eldorado.

#### CHASE COUNTY.

Chase County Agricultural Society, W. S. Romigh, Secretary, Cottonwood Falls.

#### COFFEY COUNTY.

Avon Township Farmers' Club, John Giesy, Secretary, Burlington.  
Cavona Farmers' Club, A. H. Dow, Secretary, Cavona.

#### CLAY COUNTY.

Clay Centre Township Farmers' Club, J. C. Mosely, Corresponding Secretary, Clay Centre.  
Clay County Co-operative Union, Charles Disbrow, Corresponding Secretary, Republic City.  
Lincoln Creek Farmers' Club, Philip Rothman, Secretary, Clay Centre.  
Wakefield Farmers' Club, John B. Quimby, Secretary, Wakefield.

#### CRAWFORD COUNTY.

Crawford County Grange, H. M. Kirkpatrick, Secretary, Girard.  
Centre Valley Grange, Henry Heckman, Secretary, Girard.

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### ANNUAL REPORT OF THE

Ozark Grange, No. 79, Wm. Heckman, Secretary, Girard.

#### DAVIS COUNTY.

Canby Farmers' Club, David Houtz, Secretary, Moss Springs.

Marble Grange, N. F. Greene, Secretary, Junction City.

#### DICKINSON COUNTY.

Cheever Farmers' Club, J. W. Hamilton, Secretary, Abilene.

Excelsior Club of Buckeye Colony, J. G. Wolfe, Secretary, Abilene.

Fairview Farmers' Club, W. S. Anderson, Secretary, Holland.

#### DONIPHAN COUNTY.

Union Farmers' Club, W. W. Bullock, Secretary, Doniphan.

#### DOUGLAS COUNTY.

Black Jack Farmers' Club, C. B. Rice, Corresponding Secretary, Black Jack.

Blue Mound Farmers' Club, L. W. Tuttle, Corresponding Secretary, Lawrence.

District No. 2 Farmers' Club, D. Shook, Secretary, Baldwin.

Excelsior Grange, Douglas county, A. J. Githart, Secretary, Lawrence.

Kennedy Valley Farmers' Club, Gustaf Helstrom, Secretary, Lawrence.

Oak Ridge Farmers' Club, Charles Robinson, Secretary, Lawrence.

Pleasant Valley Farmers' Club, Gustaf Helstrom, Secretary, Lawrence.

Palmyra Farmers' and Mechanics' Union, H. R. Brown, Secretary, Palmyra.

Riverside Grange, Miss G. E. Cameron, Secretary, Lawrence.

Spring Creek Farmers' Club, Darius Shook, Secretary, Baldwin.

Vinland Farmers' Club, Geo. Cutter, Secretary, Vinland.

West Coal Creek Farmers' Club, Thomas Breeze, Secretary, Holling.

#### FRANKLIN COUNTY.

Prairie City Farmers' Union, C. F. Mosher, Secretary, Prairie City.

Prairie City Farmers' Club, J. S. Fletcher, Secretary, Prairie City.

Spring Branch Farmers' Club, D. C. Thoman, Secretary, Williamsburg.

Wellsville Club of Co-operative Union, J. P. Stephens, Corresponding Secretary, Wellsville.

#### JOHNSON COUNTY.

Aubrey Farmers' Co-operative Union, Josiah Watts, President; E. F. Thompson, Secretary, Aubrey.

Edgerton Co-operative Union, C. M. Dickson, Secretary, Edgerton.

Glenwood Farmers' Club, B. Brewer, Secretary, Glen.

Gardner Grange, Alfred Taylor, Secretary, Gardner.

Pleasant Ridge Farmers' Club of Oxford township, W. S. Mitchell, Secretary, Olathe.

Pleasant Prairie Farmers' Club, A. G. Carpenter, Secretary, Glen.

Shawnee Township Farmers' Club, J. D. Jessup, Glenwood.

#### JEFFERSON COUNTY.

Chester Grange No. 23, R. L. Gilbert, Secretary, Chester.

Chitwood Farmers' Club, George Gray, Secretary, Perry.

Grasshopper Falls Farmers' Club, J. B. Sheaffer, Secretary, Grasshopper Falls.

Kaw Township Farmers' Club, M. R. Dutton, Secretary, Grantville.

Lone Tree Farmers' Co-operative Union, J. W. Shrader, Secretary, Oskaloosa.

Round Mound Farmers' Club, H. Seavy, Secretary, Perry.

Spurlock Farmers' Club, John Willets, Secretary, Perry.

#### JACKSON COUNTY.

Jackson County Agricultural Farmers' Club, A. L. Stevens, Secretary, Circleville.

North Cedar Farmers' Club, D. H. Bradshaw, Secretary, North Cedar.

Netawaka Farmers' Club, L. P. Paddock, Secretary, Netawaka.

Whiting Farmers' Club, Chas. Shedd, Secretary, Whiting.

#### LEAVENWORTH COUNTY.

Kickapoo Township Farmers' Club, R. Drews, Secretary, Kickapoo.

The Agricultural and Horticultural Association of the 23d District, W. F. Goble, Secretary, Leavenworth.

Mount Olivet Farmers' Club, W. F. Goble, Secretary, Pleasant Ridge.

Pleasant Ridge Farmers' Club, J. S. Van Winkle, Secretary, Pleasant Ridge.

Reno Farmers' and Workmen's Union of Leavenworth, T. R. Rodman, Secretary, Lawrence, Douglas county.

Sherman Township Farmers' Club, John J. Hines, Secretary, Leavenworth.

Union Farmers' Club, R. O'Brian, Secretary, Reno.

#### LABETTE COUNTY.

Fairview Township Farmers' Club, C. M. Monroe, Secretary, Oswego.

Labette County Agricultural Club, C. M. Monroe, Secretary, Oswego.

Liberty Township Farmers' Club, Wm. Houck, Cor. Secretary, Labette.

#### LYON COUNTY.

Americus Farmers' Club, Watson Grinnell, President; C. F. Conklin, Secretary, Americus.

Americus Township Farmers' Club, Z. S. Adair, Secretary, Americus.

Allen Creek Farmers' Club, John R. Moys, Secretary, Americus.

District No. 41 Farmers' Club, Charles Rosencrans, Secretary, Americus.

Elm Creek Farmers' Club, J. G. W. Stinson, Secretary, Waushara.



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- Emporia Mechanical and Stock Association, T. P. Hall, Secretary, Emporia.
- Emporia Township Farmers' Club, A. J. Wilhite, Secretary, Emporia.
- Fruitland Farmers' Club, B. F. Dixon, Secretary, Americus.
- Ivy Farmers' Club, Charles E. Raine, Secretary, Ivy.
- Lyon County Horticultural Society, R. C. Milliken, Secretary, Emporia.
- Lyon County Farmers' Co-operative Association, J. B. Morgan, Secretary, Americus.
- Upper Allen Farmers' Club, John R. Moys, Secretary, Americus.
- Union Farmers' Club, Wm. P. Johnson, Secretary; O. W. Way, Corresponding Secretary, Emporia.
- LINN COUNTY.**
- Blue Mound Farmers' Club, No. 16, E. C. McMillan, Secretary, Blue Mound.
- MCPHERSON COUNTY.**
- Lake Valley Co-operative Union, Eugene H. Palmer, Secretary, Farland.
- MIAMI COUNTY.**
- Mound Valley Farmers' Club, O. L. Pullman, Secretary, Paola.
- Plum Creek Farmers' Club, Eli Chandler, Secretary, Paola.
- Richland Township (Miami county) Farmers' Club, J. W. Bryan, Secretary, Edgerton, Johnson county.
- Stanton Township Farmers' Club, C. E. Newman, Secretary, Paola.
- School District No. 25 Club, Thomas Roberts, Secretary, Paola.
- MORRIS COUNTY.**
- Council Grove Township Farmers' Club, A. T. Lane, Corresponding Secretary, Council Grove.
- Elm Creek Farmers' Club, M. S. Meacham, Secretary, Council Grove.
- Skiddy Farmers' Club, H. M. Anderson, Secretary, Skiddy.
- MARSHALL COUNTY.**
- Industrial Club, Frank Leach, Secretary, Waterville.
- Marshall County Farmers' Co-operative Association, Thomas Garnett, Cor. Secretary, Heasleyville.
- MONTGOMERY COUNTY.**
- Montgomery County Central Farmers' Club, J. R. Galloway, President, Independence.
- NEOSHO COUNTY.**
- La Dore Farmers' Conversational Club, Louis A. Reese, Secretary, La Dore.
- Neosho County Farmers' Co-operative Union, C. C. Coffinbury, Secretary, Erie.
- NEMAHA COUNTY.**
- Valley Township Farmers' Club, James L. Brockman, Secretary, Seneca.
- Walnut Township Farmers' Club, Henry Insley, Secretary, Sabetha.
- OSAGE COUNTY.**
- Camp Creek Farmers' Club, J. S. Barber, Secretary, Ridgeway.
- Dragoon Farmers' Club, A. C. Easter, Secretary, Burlingame.
- Fairfax Farmers' Club, John Rehrig, Secretary, Fairfax.
- Osage County Club, W. D. Farrar, Secretary, Burlingame.
- Pleasant Valley Farmers' Club, J. W. Laybourn, Secretary, Osage City.
- Plymouth Farmers' Club, N. S. Brian, Secretary, Olivet.
- Richardson Farmers' Club, P. L. Doane, Secretary, Richardson.
- School Creek Farmers' Club, L. O. Snoddy, Secretary, Burlingame.
- Starr Farmers' Club, H. Jumper, Secretary, Melvern.
- West Dragoon Club, J. Mings, Secretary, Burlingame.
- POTTAWATOMIE COUNTY.**
- Union Club of Center Township, I. S. Goodings, Secretary, Louisville.
- RILEY COUNTY.**
- Bluemont Farmers' Club, C. Kimble, Secretary, Manhattan.
- Donnagana Farmers' Club, W. R. McDonald, Secretary, Donnagana.
- Elbow Farmers' Club, W. F. Allen, Secretary, Manhattan.
- Fairview Farmers' Club, Clifton Oldham, Secretary, Riley Centre.
- Fancy Creek Farmers' Club, Ed. Secrest, Secretary, Randolph.
- Pioneer Farmers' Co-operative Association, A. L. Klingan, Secretary, Bala.
- Riley Centre Farmers' Club, C. W. Knapp, Secretary, Riley Centre.
- Riley County Farmers' Co-operative Association, W. Marlatt, Secretary, Manhattan.
- Zeandale Farmers' Club, J. H. Pinkerton, Corresponding Secretary, Manhattan.
- REPUBLIC COUNTY.**
- Rose Creek Farmers' Club, H. C. Royse, Secretary, Prairie Plain.
- SHAWNEE COUNTY.**
- Indianola Farmers' Club, E. Cole, Secretary, Indianola.
- Ross Creek Farmers' Club, Wm. W. Cone, Secretary, Dover.
- Topeka Farmers' Market Association, S. H. Downs, Secretary, Topeka.
- SUMNER COUNTY.**
- Arkansas Valley Agricultural Association, Charles Tilton, Secretary, Oxford.
- WOODSON COUNTY.**
- Eminence Farmers' Club, R. F. Eagle, Secretary, Rose.
- Liberty Township Farmers' Union, Geo. S. Boutwell, Secretary, Rose.
- Woodson County Farmers' Co-operative Association, M. C. Smith, Neosho Falls; R. F. Eagle, President, Rose.



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### STATE BOARD OF AGRICULTURE.

#### WABAUNSEE COUNTY.

Alma Farmers' Club, F. W. Kroenke, Sec'y, Alma.	Wabaunsee County Farmers' Union, W. W. Cone,
Newbury Farmers' Club, C. O. Keime, Secretary, Newbury.	Secretary, Dover, Shawnee county.
Pavillion Farmers' Club, H. A. Stiles, Secretary, Pavillion.	Wabaunsee Farmers' Co-operative Association, J. M. Johnson, Secretary.



### PRACTICAL PAPERS.

#### THE PLAINS.

BY R. S. ELLIOTT, INDUSTRIAL AGENT KANSAS PACIFIC RAILWAY.

The Great Western Plains are a distinctive geographical feature of the continent—an almost treeless tract, stretching one thousand miles from north to south, with an average width of four hundred from east to west, and rising with an almost uniform slope from 1,300 feet above sea level at their eastern margin to 5,300 at Denver; in past years noted in the school atlas as the "Desert," worthless for all civilized uses, and ever to continue the domain of the wild beast and the wandering savage. Although traders to Mexico, emigrants to Oregon, Utah and California, adventurers in the fur trade, and troops and exploring parties in the public service, had for many years traversed the Plains, subsisting their animals on the grasses by the way-side, and often themselves on the venison and beef of antelope, elk and buffalo, yet the idea of the desert character of the whole vast region held its place in the public mind with singular tenacity.

It was a geographical delusion. So far as *soil* is concerned, if we take into view the entire surface of the Great Plains, we find that the infertile districts (mainly in the sand hills and "bad lands" of Nebraska and Dakota) are so small in proportion that the reputed desert has as limited a share of inferior soil as perhaps any other equal portion of the country.

The portions of the Plains—about 70,000 square miles—which lie in Kansas and Colorado, and may best be considered together, have few or none of the marks of sterility, but are covered with a nutritious vegetation, and have for centuries sustained a varied and ponderous animal life. They are well described by Fremont as "far-stretching green prairies," presenting an aspect of verdure and beauty. Their gently undulating surfaces, with no prominent elevations above the general level, nor great depressions below it, have a pleasing grace of contour; and the precipitous bluffs, which in places border the streams, often add a picturesque charm to the landscape. But the repulsive face of the desert nowhere appears.

#### WATER.

The volumes of water in the principal streams of Central Kansas (the Saline and Solomon with their sources in the western parts of the State, and the Smoky Hill and Republican with their extreme fountain-heads in Colorado—all at last with their united waters forming at Fort Riley the Kansas or "Kaw" river) bear unfailing testimony to the yearly rainfall. Although in their earlier journeys they all flow through portions of the Plains where the rainfall is comparatively light and evaporation rapid, yet they are constant streams, but could not exist as such without a rainfall greater than the country is usually credited with. We need no further proof that while the rains in the far western parts of Kansas may be scant for general agriculture, they must yet be enough to meet the wants of flocks and herds.

In general terms we may say, that there is no considerable tract in any part of Kansas

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without a constant stream, or abundance of sweet and wholesome water in springs and spring-fed pools, or accessible in wells of moderate depth. The same is true of the eastern Plains of Colorado, not reached by the mountain streams, but dependent on the rainfall of the open country.

From Ellis westward, the railway has its course for nearly the whole distance to the Colorado line on an elevated divide or water-shed, and the wells for railway use must consequently be sunk to greater depths than would be required down the slopes on either hand. Hence, when water is required distant from the railway, the settler, if not near a spring or stream, will procure it in wells of less depth than those along the track. In course of time, with the increase of live stock on the Plains, ponds to hold rain-water will be made on the uplands, in order that the animals may graze without a daily journey to the streams in the valleys.

#### TIMBER.

Except fringes and groves along the streams, the Plains are treeless. To the newcomer from the better-wooded regions, the scarcity of timber seems to be a prime disadvantage, an objection to the country not to be surmounted. Yet, as compared with the densely timbered districts in the Mississippi Valley, in which many a pioneer has worn away his life in hewing out a farm, the open tracts are not without compensations. The farm of the settler is ready for the plow; his meadows and pastures are prepared by nature. And as he probably intends live stock to constitute his main interest, there are positive advantages. By using the abundant materials in the ledges of rock that crop out of the bluffs, he may soon have durable buildings at a small cost for imported lumber. If he is near the railway, it will supply him with coal for fuel; or he may perhaps be near a local deposit, not of best quality, but fit for ordinary domestic uses. If he is distant from the road, there is probably near him wood enough not yet cut away to last for years. For fences, he resorts to posts and boards, or wires, until hedges can be grown; or for small inclosures he may be able to lay up a stone fence cheaply enough to justify the work. Having a modest capital of money and live stock to start with, and a fair reserve of energy and industry, the settler on homestead or railway lands in the open regions may soon find himself in comfort and plenty.

#### GRASSES.

The native grasses of the plains are of several genera and species, adapted to local conditions; and mingled with them are various annual plants, and many herbaceous perennials. But the buffalo grass—*Buchloe dactyloides*, of botany—spreads over the widest areas in the Kansas and Colorado plains, having considerable grama grass intermixed in many districts. Both these grasses are unsurpassed in nutritive qualities.

The buffalo grass is peculiarly suited to the conditions. In the latter part of summer (as is well known) it dries to a natural hay, and it retains its nutritive properties all winter. The seed is formed in a hard capsule on a stalk but an inch in length, closely hidden in the mat formed by the short, curly blades; and as the capsule retains the seeds through the winter, they are believed to add much to the value of the pasturage. To the untaught observer this is a worthless-looking grass, yet the buffalo and other animals have from time immemorial relied on it for winter food. It is not strange, therefore, that in the "buffalo range" domestic animals can likewise be wintered on this grass without other food than nature has thus provided. Not forming seed very abundantly, and the seed likely to be consumed by the animals grazing on the plains, the buffalo grass might have become extinct, had it not been given chances for perpetuation in its habit of spreading by runners, rooting at the nodes like the runners of the strawberry.

It is a fact, however, worthy of note, that as the settlements of Kansas extend westward, the buffalo grass disappears; as if, like the buffalo or Indian, it suffered by contact with civilization. Twenty years ago, as stated by reliable authority, the buffalo grass



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covered much of the country about Manhattan; but it has since almost entirely disappeared to Ellsworth, a distance of one hundred miles farther west. Taller grasses take its place, as the settlements are extended; the prairie grass or "blue-joint"—*Andropogon furcatus*, of botany—being most conspicuous. This grass does not cure for winter pasture like the buffalo grass, but being of taller growth, affords abundant material for hay, which may be cut by thousands of tons in the prairies of Kansas. Far out in the plains the blue-joint is found in small patches, but it seems to wait for the permanent and denser settlement of the country before taking full possession.

No very satisfactory reason for this disappearance of the buffalo grass has yet been pointed out. It is supposed by some persons that the spread of settlements westward has been attended by a partial modification of climate, bringing showers more frequent than formerly, and that the greater moisture of the soil and increased humidity of the atmosphere are unfavorable to this plant, while stimulating a more vigorous growth in those that take its place. But against this view is the fact that small remnants of the buffalo grass are often seen in unusual vigor, surrounded by the stronger-growing grasses that are soon to cover the ground it occupies. It is possible that the increased vigor of the taller grasses and their more perfect formation of seeds simply enable them to take root in and among the tufts of the shorter grass and ultimately crowd it out.

This substitution of grasses has already taken place over a very wide extent of Kansas. Whether it is to continue is an interesting question. If it is to go on, the effect of the taller vegetation, when it shall be spread over large enough areas of the Plains, is not unlikely to be felt in the summer temperature. The air, passing over the taller and thicker grasses, will be less heated than when in contact with the comparatively thin coating of buffalo grass; and less of the sun's heat will be reflected than from the present "buffalo grass plains." What effect, if any, taller vegetation on the distant Plains may possibly have on the yearly rainfall is a question for whose decision there are no examples to which we can refer. Wherever the surface soil of the Plains is broken, whether by the wagon road, the railway cut, or by the plow, taller herbage takes the place of the shorter grasses. Nature seems to intend a thicker coating of the Plains in due time. But what meteorological changes, if any, are to follow, who can undertake to say? Is not great amelioration of climate possible, if not probable?

### CHEAP LANDS AND FREE HOMESTEADS.

Only in the public domain west of the Mississippi, in the central latitudes west of the Missouri, can the landless now find cheap lands and free homesteads. They must resort to Kansas or Colorado, or to regions equally or more remote from the older parts of the Union, to enjoy the bounty of the United States in farms without money cost, or to purchase at low prices and on easy terms from the land-grant railways.

Along the Smoky Hill, Saline, Solomon and other streams in Kansas, as also in the plains and mountain peaks of Colorado, thousands of hardy and industrious pioneers have established themselves under the homestead laws; and there is room for thousands more. There are yet locations awaiting the farmer, where he can have a free homestead on soil as rich as he need care to turn over; and awaiting the cattle or sheep grower, where he can have pasture lands practically without limit, free of any cost whatever.

### KANSAS PACIFIC RAILWAY.

The grand event in the history of the Plains of Kansas and Colorado was the building of the Kansas Pacific Railway, one of the great highways of the continent. This gave access to the unknown land of the Plains on and near the thirty-ninth parallel. It has dispelled the "desert" delusion. Some of the results are already seen in the settlements along its line. It has carried the Kansas "frontier" westward nearly two hundred miles beyond where it was when the road was begun. It has brought the Colorado frontier so far eastward that only a comparatively small gap remains to be filled, in order to unite

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the pioneers of the east and west. Even in this gap there are a few herds of cattle held by settlers who intend to be permanent; and but a short time will elapse before we shall see the chain of settlements complete from the Missouri to the mountains.

#### EXPERIMENTS IN CULTIVATION.

Persuaded that the soil and climate of the plains had been undervalued, the managers of the railway ordered experiments in cultivation to be made, at points beyond the settlements as existing in 1870. The experiments ran through 1871, 1872 and 1873, and have resulted in a very satisfactory measure of success.

At the first point, Bosland, 239 miles west of Kansas City and 1,586 feet above sea level, the growth of forest trees, transplanted and from seed, and of wheat, rye, corn, sorghum and other crops, has been such that any one looking at the field might well imagine himself in Illinois or Missouri rather than on the high plains of central Kansas. This field in the spring of 1871 was west of all settlements in Kansas, but they have since extended eighty miles beyond.

At the second point, Ellis, 302 miles west of Kansas City and 2,019 feet above sea level, forest trees, transplanted and from seed, have in some instances made surprising growth; and wheat, rye, corn and other crops have equalled the production of localities supposed to be much more highly favored.

At the third point, Wallace, 420 miles west of Kansas City and 3,200 feet above sea level—near the west line of the State of Kansas, and in a portion of the Plains extremely unpromising—success was not expected equal to that farther east, yet has been such as to show that in average seasons and without irrigation, grain and forage crops will reward the sheep and cattle farmer for cultivation and care. That a single tree should there survive without irrigation and not near a stream to get the benefit of underground moisture, was a few years ago not believed possible; yet several varieties of transplanted forest trees, among them the ash, elm and honey-locust, have grown moderately but steadily for three years; and trials have also shown that trees may be grown from seed in that locality.

All the experiments were made in districts pastured by the buffalo in 1871. There was no irrigation. The trees had no mulching or other protection. There was none of the particular care usual in nurseries. All the conditions were such as to make the tests severe, so that any success attained should be reliable.

So far as we may judge from trials running through three years, these experiments justify the conclusion that grain and forage crops, forest trees and hedges may be grown on the Plains to the west line of Kansas, and probably to a considerable distance beyond, depending only on the rainfall.

These experiments have drawn attention to the possibility of extended cultivation of farm crops, trees and hedges on the plains, and have stimulated action to this end in districts remote from the railway. They have aided to keep before the public the general subject of forest culture—a subject of vast importance in view of the future wants of the whole country—and they may probably to some extent influence the planting of forest trees on the frontier under the law of Congress to encourage timber-planting on the public domain.

#### CLIMATE.

Cultivation on the plains, as well in the railway fields as by settlers, has afforded much proof that the dryness of the climate, especially in spring and summer, the growing seasons, has been greatly over-estimated. The rains are more copious and more frequent than has been supposed. They generally begin in March and continue till October, with rarely an interval over two weeks without showers. They vary much, but in average seasons afford abundant moisture to sustain trees and summer crops, and to germinate fall-sown grains. Usually there is scant precipitation in October, but quite heavy rains



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sometimes occur. After the 1st of November there is rarely any rain till March, and but light snows which seldom cover the grass in the distant plains longer than a few hours at a time.

The first frost in autumn comes about September 25th, and the last in spring about the middle of April. The winters have long intervals of mild and beautiful weather, when to be out in the clear sunshine and invigorating air is a positive pleasure. It is a rare thing for the thermometer to indicate zero or below more than once or twice in a winter. The summer heats, tempered by the cooling breezes, are never oppressive, and sunstroke is unknown.

#### BEEF AND WOOL.

The rapidity with which the country traversed by the Kansas Pacific Railway shall be filled with industrial life suited to its conditions, depends not alone on the soil, water and grasses, but is to be governed somewhat by the demand for beef and wool. No limits can be assigned to the number of cattle and sheep which can be grown. The country can respond to any probable requisition. It has ever been pre-eminently a region of robust animal life, and the domestic flocks and herds destined to occupy it will have the health and vigor of the untamed quadrupeds that have roamed the plains. In such a region the business of growing beef and wool is one of little risk and great profit, and likely to attain large proportions.

Large bodies of cattle have, in the last three years, been herded and grazed in the Kansas plains west of Ellsworth, near the railway and on streams north and south; and many permanent locations have been selected for their raising as a regular business. Experience in both summer and winter has fully demonstrated the safety and success of such enterprises, and the number of persons engaged will from year to year increase.

Already there are in the Colorado plains, east of Denver, herds of cattle numbered by thousands, in a country with resources similar to those of the extreme western border of Kansas. These Colorado herds will be succeeded by others east of them till the Kansas line is reached.

Sheep husbandry has been for more than two centuries a leading business in New Mexico. It is already a large business in Colorado. A beginning is made on the plains of Kansas. All the open country of Kansas, Colorado and New Mexico has the same general characteristics favorable to this husbandry—nutritious grasses and a dry climate, promoting vigorous growth of the sheep, and insuring exemption from disease.

The flocks and herds of the Kansas and Colorado Plains are not made up of only the degenerate sheep of New Mexico or the half-wild cattle of Texas. On the contrary, the best brands of sheep, both for mutton and wool, and Short-horn and other highly valued breeds of cattle have been liberally and profitably introduced. It is found that the superior breeds both of sheep and cattle readily adapt themselves to the country, and the increase unites the docility of the domestic animal with the hardiness of the antelope and buffalo.

#### THE BUFFALO.

The railway has not only exploded the fable of the desert, but has almost exterminated the native herds, by providing for their flesh and hides a way to consuming markets.

Once numerous from east of the Mississippi to west of the Rocky Mountains, the buffalo have survived in the open pasture land long after their disappearance from other localities; and up to the time of railways those witnesses to the wealth of vegetation in the "desert" were estimated to outnumber all the domestic cattle in the United States. Only those who have looked on the herds of buffalo as they have often appeared a few years ago, when all the immense sweep of prairie taken in by the vision would be closely covered with them—on all sides stretching away to the horizon, and in the dim distance appearing like a dark mantle spread over the plain—can form an adequate idea of the number sometimes gathered in such assemblages.

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For centuries these animals supplied tens of thousands of wandering Indians, not only with food and raiment, but also with the essential material of their primitive and portable dwellings. They are even more to the savage than domestic cattle are to civilized man. Hence their current destruction to supply the daily wants of the Indians, and, within the present century, to provide robes for commerce with the white man, must have been incredibly great. And yet there were immense numbers of buffalo still on the Plains when the iron rail was laid.

It is only when we recollect these facts that we get the proper notion of the wonderful adaptation of the Plains to the sustenance of animal life. The famed pampas of South America have no such history. They have only been a cattle range since the advent of civilized man, by whom the herds were introduced. Our Plains are the native land of the bovine race, and will continue to sustain it. We only make a slight change when we substitute domestic cattle for the buffalo. The latter, under the persecutions of Indians, hunters and sportsmen, will in a few years be extinct. The former will multiply indefinitely. The railway is fatal to the buffalo, but fosters the domestic herd.

### PROBABLE AMELIORATION OF CLIMATE.

The changes likely to be witnessed on the Plains, reaching even to great amelioration of climate, have no precedent. In other lands, destruction of the forests has been followed by adverse changes of climate, and desolation has succeeded fertility. On the Plains the reverse process will take effect.

The extension of settlements, attended by the taller vegetation of grasses and farm crops, and the growth of forest trees, orchards and hedges, are all agencies in amelioration of climate. All the acts of man must tend to improved conditions. The progress may not be rapid, but will be continuous. Already Kansas enjoys greater atmospheric humidity and more frequent showers, if not a greater yearly rainfall, than before the eastern prairies were brought into cultivation. Springs have appeared where none were known before, and the little prairie streams are more constant. These are effects of causes daily in operation—causes which cannot cease, but will multiply; and such effects will attend the denser settlements in their westward march. The individual will not propose to wait for these changes, but the multitude will move forward and produce them.

### FOREST-TREE CULTURE.\*

BY DR. J. A. WARDER.

*To the Gentlemen of the Agricultural Society and Members of the Kansas Legislature:* I cannot express the pleasure afforded by this opportunity to address you, my fellow-citizens who reside here in Kansas, upon a topic which is believed to be one of vital importance to you and to the whole nation. Having come to your State at this time, especially to do what I can to advance the interests of *timber planting*, I thank you, gentlemen, and your good Governor, for your kind invitation to use this hall for such a purpose.

*The West* has had great charms for me since early childhood, when stories of thrilling adventures beyond the mountains excited the youthful imagination. Since leaving the Atlantic seaboard, I have made successive advances into it, or rather toward it. With what avail? Even here, near where the Kaw begins her course, one must look still further toward the setting sun to find the object of his search, if, indeed, he do not falter in his pursuit, and feel that he asks in vain, *Where is the West?*

Long before crossing the Alleghanies, this vast country beyond the Missouri had pos-

\* Delivered in January, 1873.



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assessed my mind as a region of romance. The explorations of Lewis and Clarke had been read in boyhood with the deepest interest, and seeds brought back by the famous botanist of that expedition, planted in my little garden, have already made noble trees. Next came the thrilling accounts of the great Pathfinder, whose course, as he journeyed through these extended plains, was traced from camp to camp, upon the skeleton maps accompanying his reports, and his journal was read as though it had been a legend of *fairy-land*. Later explorers led me across the *Llanas estacados*, which seemed to be the great open door through which pour the winds of Eolus, and even a quarter of a century ago some active minds were busied with the plans for the formation of national forests of sturdy species, to stand as out-posts guarding our valley from this quarter.

Since coming among you it has been my privilege and my pleasure to set my feet upon the veritable Fremont trail, in different parts of its course, and to realize his description of this wonderful country. I have been especially pleased to observe the astonishing development effected by your intelligent industry. Towns and cities, farms, fences, farmsteadings and all of their several concomitants are to be seen on every side, as the traveler passes through your noble young State. Among these improvements, the schools, colleges and churches stand like beacons on the hill-tops, inviting the emigrant to come and join you in an advanced civilization, which you have so rapidly attained.

Before coming among you I had watched the progress of your adventurous pioneers, and their struggles in the cause of freedom, now so happily crowned with success; but who could have anticipated such a result in population and civilization in the few short years which have elapsed since the Indian and the buffalo were the lords of your soil!

The topic I desire especially to present to you this evening is the great problem of *timber planting*, not only with a view to furnish the farmer and the artisan with the needed supply of lumber and fuel for the varied purposes of civilized life, but also in the hope of effecting thereby a modification of your climate that will prove beneficial to your crops, to your cattle, and to yourselves.

It is high time, indeed, that we should appreciate the great value of a proper proportion of timber in all parts of our country, more especially in those regions devoted to agriculture. Excess of forests in some parts of our country, and their entire absence over wide areas in other places, are equally undesirable, and are attended with unpleasant results. The most fertile soils are often rendered inhospitable and a wilderness by either extreme. The dense forest lands of many parts of the Ohio valley proved a serious bar to the occupation and development of that country. The huge trees held possession of the soil, and had to be removed for the introduction of cereals and other crops for the support of man and his domestic animals. Vast level tracts were so covered with jungle that it was impossible for the rain water to escape, and hence they became morasses that repelled the settler by their deadly malaria. These were condemned as swamp-lands by the Government surveyors, and for a long time they remained in a wilderness condition, until advanced legislation and combined efforts have been able to open proper drains, and they have become our most productive regions.

So, on the other hand, these vast stretches of open prairie lands which occupy almost the entire region between here and the Rocky Mountains, open to the blasts both summer and winter, though beautiful to behold, though made up of fertile soil, are really desert in their native condition; they are as much of a desert to civilized man as is the forest wilderness. These vast plains are uninviting to the settler, except on account of their abundant herbage which can be utilized by the herdsman. As an agricultural region the country is unoccupied, and must long remain so because of its vast extent of open lands, destitute of timber for men's necessary uses and shelter. It is arid and wind-swept, because thus exposed to the elements.

The early explorers might well have called this great expanse the *American Desert*, for our plains, in many respects, resemble the steppes of Tartary, the great deserts of Africa,

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and the llanas of South America, all of which must, to a great extent, remain in their present condition of unfruitfulness, occupied only by herdsmen or by wild animals until the conditions which render them desert shall be changed by man's ingenuity and industry.

It has been found in your brief history that already the boundaries of the Desert are contracting with the advance of civilization, the breaking up of the prairie soil, and the gradual planting of timber and other trees. You have all observed that the buffalo grass\* is receding also, and that its place is being occupied with coarser and taller herbage, such as the blue-stem. Small as this change in the herbage may appear to some of you, it is not without its significance to the observer of the phenomena of nature, and the change has its importance too in a climatic point of view. One of your own intelligent settlers on the line of the Kansas Pacific, Mr. E. Houeck, attributes the drouths of the American Desert to the close character of the turf composed of the *Buchloe*, and well observes in a communication to the *Home Journal*, of Lawrence, that "a plat of ground, covered with a thick coating of tall verdure, will absorb (and retain), if not to steep, nearly all the water of a moderate rain. This very fact of tall grasses taking the place of the short, crisp and dense buffalo grass, which turns rain nearly as well as a roof, explains why our American desert is so rapidly disappearing, and why grateful showers bless the labors of the husbandman, where only a few short years ago fog and rainfall were unknown." Mr. Houeck is right, and his suggestions are valuable. I have had the pleasure of conversing with him upon the subject, and am happy to find in him a firm believer in the importance of timber planting. In confirmation of these views respecting the grasses, allow me to quote a parallel, or rather an opposite case, from the prairie State of Illinois. Though nearly destitute of timber, large tracts of land were originally covered with a dense coating of tall, coarse grasses and weeds which prevented the rapid evaporation and outflow of the rainfall; when the settlers opened the sluices, and converted these morasses into arable lands, the climate became dryer, and so remained until a favorable change was presently brought about by the scattered trees, orchards, buildings, hedges and fences of the settlers, all of which exerted an influence in breaking the force of the winds.

I am aware that there is a difference of opinion among writers upon meteorology as to the effects upon climate produced by the presence or absence of forests, and could cite many instances, from high authority, to prove that the clearing of large tracts have produced important changes in different countries, and that in others the conditions have been ameliorated by extensive plantations, but I will not now weary your patience by these citations, and will only claim that the most favorable influences may be effected, at least locally, by timber planting; and this is what is most to be desired, that every farmer should protect himself from the piercing winds that exhaust his soil of moisture, and that are so severe upon himself, his cattle, and his crops, when, unobstructed, they sweep over him from the open plains. This result is manifestly within the reach of all, and should be at once provided for by every farmer in the State. Groves and shelter belts ought to be planted on every farm. They will very soon make a decided change for the better in their immediate neighborhood; nor will it be many years before the farmer will be able to draw from them his supplies of the most valuable material.

No well-informed person, I am sure, can doubt the necessity for a due proportion of timber-land in any civilized country. Forests are needed for supplying our wants upon the farm and in the arts, as well as for fuel; they are needed for sheltering ourselves, our cattle and our crops, as well as for their happy influence upon the humidity of the atmosphere. The proper proportion of the land to be devoted to timber growing is a question of great importance; one-fifth of every farm might well be so appropriated. In a broken country, the rocky and hilly portions should be devoted to tree-planting, and there are trees which are adapted to such places. In a level, champaign country, where all the

\* *Buchloe dactyloides*.



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land for miles around is equally well adapted to crop cultivation, the farmer may plant his timber in belts to the windward. It has been asserted by those who have been observing the effects of such belts in Illinois, that were one-fifth of the land so occupied, the remaining four-fifths of the farm will produce more than the whole would have done if left exposed to the winds. Bryant recommends thirty acres to each quarter-section, which is rather less than this. In Europe, the forest commissioners demand one-fifth to one-third of the entire area. In Prussia, the forests are scrupulously maintained by the government, at an expense of \$1,600,000 per annum, and with an attendant production of more than nine millions annually.

For your encouragement, allow me to present the result of a careful examination and measurement of trees in the plantations of enterprising pioneers in this branch of agriculture. They are cheering to those of us who are planting. The following were taken near Terre Haute, Indiana, on sandy soil, between the river and the prairie:

Name of Tree.	Age. Years.	Diam'r. Inches.	Name of Tree.	Age. Years.	Diam'r. Inches.
Allantus.....	24	22	Cottonwood.....	42	42
Austrian Pine.....	20	15	Red Oak.....	50	42
Black Walnut.....	15	14	Sassafras.....	40	22
Black Locust.....	38	24.66	Tulip Poplar.....	22	21.66
Catalpa.....	15	21	White Pine.....	19	15.66
Chestnut.....	17	17.66			

The following measures were taken at Springfield, Ohio, from trees planted in 1851, chiefly in a blue-grass sod, without any cultivation, and on a hard clay soil—all twenty years set:

Name of Tree.	Diam'r. Inches.	Name of Tree.	Diam'r. Inches.
Allantus.....	15	Paper Birch.....	10.33
Austrian Pine.....	15	Red Cedar.....	9.33
Bur Oak (natural).....	15	Silver Poplar.....	17.33
European Larch.....	10.33	White Elm.....	14.33
Norway Spruce.....	14	White Pine.....	14.33

Others, in the same region, but in cultivated grounds, planted at the same time, measured:

Name of Tree.	Diam'r. Inches.	Name of Tree.	Diam'r. Inches.
Cypress.....	10	Paper Birch.....	14
European Larch.....	18	White Pine.....	14.33

Mr. Bryant gives the following table of measurements by D. C. Scofield, Elgin, Illinois, of trees planted on upland prairie, twelve years ago:

Name of Tree.	Diameter. Inches.	Ht. Feet	Name of Tree.	Diameter. Inches.	Ht. Feet
European Larch.....	8 to 12	30	Scotch Elm.....	3 to 4	16
American Larch.....	4 to 6	25	European Birch.....	4 to 6	14
White Ash.....	3 to 5	16	European Beech.....	2 to 4	10
Silver Maple.....	4 to 6	25	White Pine.....	6 to 10	35
Sugar Maple.....	2 to 4	12	Norway Spruce.....	5 to 8	20
Black Walnut.....	2 to 4	14	Scotch Pine.....	4 to 8	20
Chestnut.....	3 to 4	16	Austrian Pine.....	5 to 7	16
White Elm.....	3 to 4	16	Balsam Fir.....	4 to 6	16

We may take lessons from older countries in this matter, and you are referred to the experiments in planting artificial forests in Europe, which have been very successful. In some countries the government appoints officers, whose duty it is to inspect the forests, and to indicate what trees may be cut. Schools of forestry have been established, where the youth are taught the management of timber plantations and everything connected therewith, from the nursery of seedlings to the matured forest of noble trees. May we

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not hope that in the great schools of the NEW EDUCATION, now springing up in several States of our own country, this important subject will claim and receive its full share of attention?

All travelers tell us of the artificial forests of Europe. The extensive plantations of the Duke of Athol have fully demonstrated the practicability of timber growing on the rugged hills of Scotland, while the marshes of Holland, reclaimed from the ocean, have their willows, and the sandy beaches of the Netherlands have been made to produce extensive forests of pines. One of our adopted citizens, Mr. Henry Fraas, of Columbus Ohio, in a recent visit to Fatherland, found the Rhinard Forest, planted with Norway Spruce thirty-four years ago, was already yielding beams of two feet diameter.

Let us see what others have done: Mr. D. C. Schofield, of Elgin, Illinois, is one of the most earnest tree-planters in the West, and while he warmly advocates the creation of artificial forests by his eloquent appeals to all whom he meets, as well as by using his pen and the press to reach a wider circle, he also practices what he preaches, and has a beautiful plantation already well grown, in which he has tested quite a number of trees upon the prairie soil of northern Illinois. Among them all he prefers the European Larch, and for the following reasons: It is hardy, of rapid growth, easily transplanted, and bears being set closely. In shelter belts he recommends putting them three feet by three. He claims that the timber is unequaled for durability, and having great strength and elasticity it is valuable for all purposes in agriculture, architecture and the arts, and is even suited for cabinet work.

Every thinning of the trees he counts a harvest. The first, at seven years from planting, gives him grape stakes and poles; the second, at fourteen years, furnishes three thousand six hundred fence posts per acre, which he values at one thousand dollars or thirty-six cents apiece. The third thinning, at twenty-one years, gives six hundred trees, which he values at three thousand dollars; the fourth cutting, at thirty years, affords three hundred trees, valued at six thousand dollars; making a total yield of ten thousand dollars from the acre in thirty years. But this is not all, for there are three hundred trees still upon the ground as a permanent investment, worth six thousand dollars more, but which will now continue to increase in value annually for half a century longer, when they will be majestic shafts, fit for any purpose as lumber.

Mr. Schofield is perhaps over-sanguine, and may have set his estimates at too high a valuation; but it is presumed that they were based upon the market value of posts and other lumber in his region, and that they are within reasonable limits.

Mr. M. L. Dunlap, of Champaign, Illinois, has long been an advocate of timber planting on the prairies. This he has urged by means of his vigorous pen, and by his persuasive eloquence when among his brother farmers, but especially by his acts upon his own acres, that are already well protected from the prairie blasts by sheltering groves. He, too, is an admirer of larch, with which he has had some experience that has induced him to continue his plantations, annually extending them. Here are his calculations for an acre devoted to the larch production:

Trench-plowing.....	\$5 00
Harrowing and rolling.....	2 00
Three thousand plants.....	30 00
Freight.....	1 00
Spade and setting.....	3 00
Cultivating.....	4 00
Hoeing the young trees.....	5 00
Cultivation for five years.....	15 00
	<hr/>
	\$65 00



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Cost of land.....	\$50 00
Interest for six years.....	30 00
Taxes for six years.....	5 00
Interest on \$65 for five years.....	39 00
	<hr/> \$125 00

Total..... \$190 00

No further attention is needed for the next six years, when the account will stand thus: One acre, which has cost, \$190; interest for six years, \$114; taxes for six years, \$16; total, \$320.

We may now safely estimate the crop on this acre to consist of 2,500 trees, allowing 500 for loss; we can thin out 1,000, leaving 1,500 to stand. Those taken will give us 1,500 posts, of which

Five hundred, at thirty cents, give.....	\$150 00
One thousand, at twenty cents, give.....	200 00
	<hr/> \$350 00
Less expense of cutting.....	30 00
	<hr/> \$320 00

So that at the end of twelve years, the partial crop of thinnings will pay for the land and all the expenses, with interest at ten per cent. This is a good investment of itself; but we have the land left, and paid for, and it is also clothed with 1,500 larch trees, from five to ten inches in diameter. These, at the end of twelve years more, may be set down thus: *Dr.*—Cost of land, \$00.00; cost of trees, \$00.00; total, \$00.00. *Cr.*—By 1,500 larch trees of a suitable size for railroad ties, worth certainly fifty cents apiece, or \$800 for the land and trees at the end of twenty-five years from planting.

I think the following calculations are perfectly safe: At 4 feet there will be 2,720 plants per acre; thinning out every alternate tree at the end of six years will leave 1,360 trees on the ground; at the end of twelve years one-half of these cut out; 680 trees, will give:

1,360 split posts, first cut, at 20 cents each.....	\$272 00
680 round posts, second cut, at 20 cents each.....	136 00
680 round posts, third cut, at 15 cents each.....	102 00
	<hr/> \$510 00

If the whole land be cleared, the yield would be double, or \$1,020 as the value of the trees, and we may so estimate it—\$1,000 for the crop of one acre in twelve years!

But it may be safer to estimate the trees at twelve hundred per acre, and allowing a higher valuation, but still below the market price for posts, we have the following showing:

2,400 split posts, at 25 cents each.....	\$600 00
1,200 round posts, at 25 cents each.....	300 00
1,000 smaller round posts, at 20 cents each.....	200 00
	<hr/> \$1,100 00

Value of the crop per acre..... \$1,100 00

It is not, however, good policy to remove the whole of the trees at this time, for the half that is left at each thinning will rapidly improve until the number is reduced to about three hundred per acre, and then for half a century longer these will go on increasing in value in a geometrical proportion.

The following account of an experiment in tree-planting, done in Hamilton county, Ohio, is interesting. It is given on the authority of Ezra Sherman, of the Whitewater Village of the United Society, at Preston, Ohio. The seeds of locusts and cedars were planted in 1830. In three years the locusts were set out in a grove of fifteen acres, at twelve feet distance from each other. An avenue was also planted along a public highway, for two hundred rods in extent.

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Mr. Sherman considers that the stakes, poles, and pasture of this grove have been worth as much as it would have yielded if free of trees. (!)

In 1870, forty years from the seed, two-thirds of the trees along the road were cut down; these 180 trees made 1,500 posts, worth 35 cents each, or \$525—that is from eight to nine dollars per tree. The stakes and top-wood for fuel was worth something besides. Some of the trees in the grove are considered worth \$10 a piece, and the fifteen acres thus stocked are expected to furnish fence posts for the whole farm of 1,500 acres for all time.

The cedars, though of much slower growth, are highly valued. They will make eight posts against thirty of the locust trees. Mr. Sherman advises planting a variety of species, as more in accordance with nature. He thinks there can be no better legacy for posterity than a judiciously planted grove of timber. After the first two years the borers were not troublesome.

The editor of the *American Rural Home*, of Rochester, New York, urges the planting of timber as a farm crop, especially for the benefit of those who are to come after us, for otherwise our successors will sadly feel the need of the protecting influences afforded by forests. He also very truly observes, that though there be no immediate dividends on the investment, the increase of capital begins at once—the farm is worth more money. The capital accumulates with compound interest, and the final realization of the crop counts up a large sum. To whom shall we look to take the initiative steps in this matter—to set the example in Kansas! Private enterprise is not commensurate to the task, though you have as much of that as any people, and I may say more of it; and refer you to the large plantations already under way at Ottawa, set out by your own Mr. Kelsey. Your railways have already done much in this field, through the efforts of Mr. Elliott, Industrial Agent of the Kansas Pacific. The road from this city to Santa Fe is negotiating for a much grander experiment with a man who does not know the word fail. But, gentlemen of the Legislature, to you we hopefully look for substantial aid in this matter. You are the governors of the land, the trustees of her vast resources, the almoners or dispensers of her annual income, which is the willing tribute of her sons, and to you they may well turn for the counsel, example and support which you can so well provide. In the agricultural department of your *industrial school* at Manhattan you may happily foster this great interest by making a reasonable provision from the public revenue for systematic experiments in foresting, for the public good.

### HOW TO GROW TIMBER.

This is to us Americans a new branch of industry, and those of us who have paid it most attention are also those who most fully realize that we have yet much to learn, and that we must obtain the requisite information by long-continued and oft-repeated experiments, rather than from books or by argument. We have to deal with new conditions and new material, which make our experiments different from those we find detailed by European writers. Still, the experience of others will prove of great value to us, and should not be ignored. We have observed the natural forest growths, and have studied the results in neglected or overgrown nurseries of different kinds of trees; and from all these sources, as well as from observing the results of tree planting already a few years advanced, we have been able to draw this conclusion: That to produce valuable timber, the young trees should be planted very closely. One of your own citizens, a pioneer in tree planting here on the plains, has often discussed this point with his friends, and, though he agrees with us in principle, he has adopted a different plan, for the sake of inducing his neighbors to imitate his example of planting a mixed crop of timber and corn, which they might do when they would not plant the former alone. Mr. Kelsey has planted thickly in rows twelve feet apart, between which he has grown two rows of corn while the trees were small. The objection to this plan is that the trees will branch out toward the open spaces instead of reaching upwards, whereas when set more closely this



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branching does not occur, in most kinds of timber. This difficulty is now admitted, and a modification of the plan is to plant walnuts, oaks and such slower growths, in this manner, and after two or three years' cultivation, when the young trees have become well established, rapidly growing kinds, such as poplars and cottonwood, or water maples, are planted in a single row mid-way between the two rows of corn stalks. These will soon overtake the first-planted trees, and cause them to grow up straight. Of course the corn planting is discontinued.

**SELECTION OF THE GROUND.**—Almost any ground will do for some kinds of trees, so great is the range from which we may choose, but judgment is required in adapting the selection to the ground appropriated. Rough, broken and stony lands that are not so well adapted to general cultivation, are admirably suited to tree planting. Where the land is all equally good we should plant with a view to shelter, by setting strips to the windward side of our buildings and orchards and gardens, say on the west and south, or north. Mr. Bryant, in his valuable book, recommends a strip of eight rods width on two sides of every quarter-section of land. These shelter belts should always be sufficiently wide.

All along your rivers in Kansas, the bluffs and abrupt hillsides should be planted largely; they are admirably adapted to the growth of some of the most valuable timber trees, such as the chestnut, red cedar, pines, spruces, some oaks, and perhaps also the invaluable black locust. There are also rocky and shaly ridges of upland away from the rivers, some of which would probably be suited to the chestnut.

**PREPARATION OF THE SOIL.**—In this country where we are driven to economy of labor, we have already determined that a thorough plowing of the ground is better and cheaper than digging holes by hand for planting the trees, as is done in Europe. We advise that the land to be planted should be well plowed and harrowed. In new prairie sod the trench plow will make the best preparation; in old or cultivated land any good plowing will answer. After harrowing, the land is to be laid off as for corn with a plow either in drills for wide planting as advised by Mr. Kelsey, or in squares by cross-furrows for closer setting of the trees. It is advised by some to take off a crop of corn from the prairie sod before planting the trees. In this case the corn-stalks are a sufficient guide to the planter, and they will also yield a degree of shelter and shade to the young trees the first season that will prove valuable. Fall planting may be practiced in a cornfield with advantage; setting the young trees to the north or in the shade of the corn-stalk, they will be protected, and are ready for an early start in the spring.

**PLANTING.**—Large seeds, such as nuts and acorns, may be dropped and covered in the field, and some cuttings may be set at once in their stations, but most species are better grown in the nursery until large enough to transplant. This may require one, two or more years of preparation, but the transfer should not be deferred too long, as the expense of transplanting is thereby greatly increased. When planting young trees of some size, it is necessary to dig a hole with the spade, and great pains should be taken to apply the earth closely to the roots, and to *pack it very firmly* about them, so as to exclude the air. This is particularly recommended with young conifers, especially the larch, and it is also desirable to plant these last as early in the spring as this can be done after the soil is dry enough to work pleasantly; their buds should not be at all started. With pines, spruces, cedars, and most evergreens, however, it is believed to be better to wait until the buds have started, where we can control our operations.

The planting out of a great many kinds of trees is a very simple affair, when the preparation of the soil has been thoroughly attended to. The spade is thrust down into the mellow earth and a cleft is opened, into which the root or cutting is placed, withdrawing the spade, and reversing its face it is again thrust down, a few inches from the first cut, and pushed toward the plant, thus compressing the soil against the roots. When we have to do with the more valuable kinds of trees, however, especially evergreens and