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C. W. MURTFELDT, KIRKWOOD, MO.
One of the oldest members of the State Society.

FORTY-SEVENTH ANNUAL REPORT

OF THE

State Horticultural Society
OF MISSOURI

1904

ORGANIZED 1859, INCORPORATED 1893.

MEETINGS AT ST. LOUIS, JUNE 7, 8, 9, 10;
NEOSHO, DECEMBER 20, 21, 22, 1904.

L. A. GOODMAN, Secretary,

KANSAS CITY, MO.

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THE HUGH STEPHENS PRINTING COMPANY,
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1904

MISSOURI STATE HORTICULTURAL SOCIETY.

To His Excellency, Joseph W. Folk, Governor:

This report of our Society work, of the meetings held, of the moneys expended, of the local societies and counties reporting for the year 1904, and of the work at the World's Fair, and the medals awarded is respectfully submitted.

L. A. GOODMAN, Secretary.

Kansas City, Mo.

City of Jefferson, March 27, 1905.

To the Commissioners of Public Printing:

I require for the use of my office five thousand copies of Missouri State Horticultural Report—three thousand to be bound in cloth and two thousand to be bound in paper—which I desire printed as per accompanying sample.

Respectfully,

L. A. GOODMAN, Secretary,

Kansas City, Mo.

Approved:

JNO. E. SWANGER, Secretary of State.

WM. W. WILDER, State Auditor.

J. F. GMELICH, State Treasurer.

OFFICERS FOR THE YEAR 1904.

Governor JOSEPH W. FOLK.....	Ex-Officio Member of Executive Committee
J. C. WHITTEN, President.....	Columbia
C. H. DUTCHER, Vice-President.....	Warrensburg
W. G. GANO, Second Vice-President.....	Parkville
L. A. GOODMAN, Secretary.....	Kansas City
W. T. FLOURNOY, Treasurer.....	Marionville
N. J. COLMAN, Hon. Vice-President for Life.....	St. Louis

LIST OF HONORARY LIFE MEMBERS.

R. H. JESSE, President State University.....	Columbia
HON. A. A. LESUEUR.....	Kansas City
J. C. EVANS.....	Harlem
MISS M. E. MURTFELDT.....	Kirkwood
*C. W. MURTFELDT.....	Kirkwood
HON. N. J. COLMAN.....	St. Louis
PROF. M. G. KERN.....	St. Louis
PROF. B. T. BUSH.....	Independence
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J. T. STINSON.....	Springfield
FRANK HOLSINGER.....	Rosedale, Kansas
WM. H. BARNES.....	Topeka, Kansas

*Deceased.

LIST OF LIFE MEMBERS.

J. C. EVANS.....	Harlem
L. A. GOODMAN.....	Kansas City
D. M. DUNLAP.....	Fulton
D. A. ROBBETT.....	Columbia
CHAS. HUBER.....	Seneca
C. H. EVANS.....	St. Louis
W. R. WILKINSON.....	Altenburg
H. M. WHITNER.....	Fredericktown
RIGHT REVEREND J. J. HOGAN.....	Kansas City
H. C. IRISH.....	St. Louis
M. J. CROW.....	Louisiana
EUGENE W. STARK.....	Louisiana
C. M. STARK.....	Louisiana
W. P. STARK.....	Louisiana
EDGAR M. STARK.....	Louisiana
W. R. WILKINSON.....	St. Louis
H. N. WILD.....	Sarcoxie
MARIE L. GOODMAN.....	Kansas City
C. M. WILD.....	Sarcoxie

LIFE MEMBERS.

[By virtue of resolution passed June 9th, 1902.]

CONRAD AUL.....	Smithville
A. A. BLUMER.....	Fredericktown
R. J. BAGBY & SONS.....	New Haven
TH. BROWNLEE.....	Willow Springs
M. BUTTERFIELD.....	Farmington
A. B. COMBS.....	Ft. Scott, Kansas
J. G. COX.....	Odessa
C. CULP.....	Hannibal
A. J. DAVIS.....	Jefferson City
F. FLEISCHER.....	Gasconade
JACOB FAITH.....	Montevallo
JOS. GAMBLE.....	Brookfield
A. H. GILKESON.....	Warrensburg
W. G. GANO.....	Parkville
E. LISTON.....	Virgil City
G. W. HOPKINS.....	Springfield
WM. MYERSICK.....	Union
J. H. MARION.....	Fulton
N. F. MURRAY.....	Oregon
WM. McCRAY.....	Cowgill
J. E. MAY.....	LaPlata
J. N. MENIFEE.....	Oregon
J. H. MONSEES.....	Beaman
G. T. ODOR.....	Holt
E. A. PATTERSON.....	Kirksville
*F. H. SPEAKMAN.....	Neosho
G. T. TIPPIN.....	Nichols
H. S. WAYMAN.....	Princeton
J. B. WILD & BRO.....	Sarcoxie
J. C. WHITTEN.....	Columbia
A. L. ZIMMERMAN.....	Weatherby

*Deceased.

LIST OF MEMBERS.

G. A. Atwood.....	Springfield	L. V. Dix.....	Jefferson City
J. A. B. Adock.....	Warrensburg	C. H. Dutcher.....	Warrensburg
Anderson Tully Co.....	Memphis, Tenn.	F. W. Dixon.....	Holton, Kas.
B. C. Auten.....	Carthage	R. M. Davis.....	Bismarck
C. C. Bell.....	Boonville	F. L. Dawson.....	Elsberry
E. J. Baxter.....	Nauvoo, Ill.	B. H. Dunall.....	Welch, Ind. Ter.
J. S. Butterfield.....	Lee's Summit	J. A. Durkes.....	Weston
R. E. Bailey.....	Rusk, Tex.	J. L. Erwin.....	Steedman
W. D. Bassford.....	Mexico	R. H. Edwards.....	Peirce City
G. D. Berry.....	St. Joseph	N. G. Engle.....	Centreville
F. J. Buente.....	Morrison	Louis Erb.....	6 Howard Row, Memphis, Tenn.
A. G. Bonham.....	King City	Emory Estes.....	Rolla
Th. Butler.....	Amity	Wm. Eckert.....	Parkville
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Geo. Boone, Jr.....	St. Joseph	I. Y. Elliott.....	Rushville
Wm. Byler.....	Brookfield	J. C. Evans, Jr.....	Olden
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W. H. Benedict.....	Richards	Robt. Forsythe.....	Farmington
Jos. Baumgartner.....	Columbia	W. T. Flournoy.....	Marionville
Mrs. Jos. Baumgartner.....	Columbia	Ford & Kennedy.....	Parnell
S. H. Baker.....	Columbia	F. W. Faurot.....	Mt. Grove
Thos. Bolander.....	Chillicothe	Prof. J. W. Fellows.....	Columbia
E. C. Butterfield.....	Lee's Summit	C. W. Ferney.....	Columbia
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E. S. Butt.....	Mayview	Theo. Funk.....	Warrensburg
J. J. Blakely.....	Platte City	G. A. Fetters.....	Lee's Summit
J. N. Brink.....	Parkville	Th. J. Foster.....	Washburn
J. E. Balmyer.....	McBaine	E. Fosley, R. F. D. No. 1.....	Neosho
C. E. Benson.....	Columbia	Jas. H. Foster.....	Sarcoxie
S. P. Bailey.....	Versailles	Prof. M. C. Finley.....	Parkville
W. E. Barnes.....	Vineland, Kas.	E. H. Favor.....	Columbia
Th. E. Beazley.....	Columbia	R. J. Fulton.....	Deerfield
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Mrs. W. T. Burkam.....	St. Louis	Mrs. L. A. Goodman.....	Kansas City
Dr. E. L. Beal.....	Republic	Mrs. W. Good.....	1006 Howell St., St. Joseph
W. T. Burkam.....	St. Louis	Geo. Gutekunst.....	Moberly
H. O. Beeson.....	Noel	W. H. Ghormley.....	Greenwood
P. V. Carey.....	Marble Hill	R. F. George.....	Peirce City
H. W. Cook.....	Potosi	Chas. E. Gentry.....	Republic
F. W. Closs.....	Allenton	W. D. Gibson.....	Dixon
W. G. Campbell.....	St. Joseph	W. A. Gardner.....	Springfield
C. J. Croniger.....	Vinita, Ind. Ter.	F. O. Gustafson.....	Sarcoxie
A. Chandler.....	Randolph	S. H. Graden.....	Parkville
M. B. Collins.....	Glasgow	T. Godfrey.....	Eldon
M. O. Cole.....	Springfield	C. B. Green.....	1196 East 5th, Sedalia
T. M. Culver.....	Koshkonong	M. B. Greensfelder.....	Clayton
C. F. Christensen.....	Bells, Tex.	W. H. Gibbs.....	Bengal
T. W. Choisser.....	Bourbon	D. S. Helvern.....	Manmoth Springs, Ark.
J. T. Craighead.....	502 S. 7th St., St. Louis	D. M. Hulien.....	Hallsville
J. H. Christian.....	Neosho	W. F. Hoy.....	Farmington
J. C. Christopher.....	Warrensburg		

LIST OF MEMBERS—Continued.

A. Hentrich	Bismarck	T. C. Love.....	Seymour
W. S. Huston.....	Marshall	G. W. Logan.....	Logan
Fred Howe.....	Pacific	I. B. Lawton.....	Bentonville, Ark.
J. S. Harmon.....	Weston	A. I. Loop.....	North East, Pa.
F. P. Halsey.....	St. Joseph	G. B. Lamm.....	Sedalia
F. Horsfall.....	Mt. Grove	J. P. Landes.....	Neosho
W. L. Howard.....	Columbia	T. S. Larkin.....	Corder
Jas. Harmon.....	Kearney	G. T. Lincoln.....	Bentonville, Ark.
C. W. Halliburton.....	Moberly	T. W. Mershon.....	Buckner
Prof. S. A. Hoover.....	Warrensburg	Pat. Moriarty.....	Jonesburg
J. A. Hamerick.....	Warrensburg	H. Meyers.....	Bridgeton
L. T. Hoover.....	Conklin	F. J. Marshall.....	Nichols
L. O. Howell.....	Chillicothe	Judge C. B. McAfee.....	Springfield
S. A. Hazeltine.....	Springfield	Mrs. A. Z. Moore.....	Mt. Grove
Earl B. Hopkins.....	Springfield	E. Mohler.....	Plattsburg
S. J. Hickerson.....	Louisiana	A. L. McClay.....	Highview
W. T. Hawkins.....	Strafford	J. H. Murray.....	Oregon
W. W. Higgins.....	Parkville	W. S. Martin.....	DeKalb
J. R. Helfrich.....	Eldon	D. McNallie.....	Sarcoxie
J. E. Hitchcock.....	Oberlin, Ohio	A. B. Mathews.....	Mayview
Z. M. Hampton.....	Centralia	N. J. Mayer.....	Columbia
Jack Horner.....	Ashley	Jesse Mohler.....	Warrensburg
L. J. Hartman.....	R. D. No. 3, St. Joseph	F. S. Martin.....	Forkners Hill
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Mrs. A. C. Hodge.....	Anderson	S. F. McNair.....	Warrensburg
J. M. Hall.....	Joplin	J. W. McCause.....	Mt. Vernon
J. W. Hitts Sons.....	Koshkonong	H. L. Messick.....	Quincy, Ill.
J. E. Hall.....	Warrensburg	F. J. McNamara.....	Chillicothe
W. T. Helkes.....	Huntsville, Ala.	J. G. McNair.....	722 Chestnut St., St. Louis
T. B. Hudspeth.....	Sibley	H. B. McAfee.....	Parkville
T. J. Henley.....	Spring Garden	W. T. Maddox.....	Waverly
W. A. Irvine.....	Springfield	G. R. Murray.....	Oregon
J. M. Irvine.....	St. Joseph	W. D. Maxwell.....	R. R. No. 2, St. Joseph
J. H. Jenkins.....	Sapp	Robt. Montgomery.....	Oregon
H. W. Jenkins.....	Boonville	F. M. Merritt.....	Pilot Grove
E. C. Jenkins.....	Troy	J. F. Marshall.....	4740 Easton, St. Louis
H. H. Johnson.....	Parkville	C. W. Morrill.....	Macon, Ga.
F. L. Johnson.....	Parkville	W. C. Monsees.....	Beaman
J. H. G. Jenkins.....	Eugene	J. E. Newton.....	Warrensburg
L. P. Jansen.....	2929 S. 13th, St. Louis	Albert Newhouse.....	Smithville
Ed. Kemper.....	Hermann	W. M. Norwood.....	Rhea, Ark.
T. H. King.....	Springfield	W. C. Nash.....	Springfield
J. H. Karnes.....	St. Joseph	A. T. Nelson.....	Lebanon
W. P. Keith.....	Mayview	O. F. Neal.....	Hannibal
R. T. Kingsbury.....	Estill	C. H. Ogden.....	Warrensburg
J. R. Kelly.....	Warrensburg	Chas. O. Ozias.....	Warrensburg
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Wm. Kinling.....	Highlandville	John Osborne.....	Sarcoxie
E. S. Katherman.....	Warrensburg	Albert Owen.....	Warrensburg
C. H. Knighton.....	Parkville	W. H. Otto.....	New Haven
Philip Kalemán.....	Parkville	T. R. Peyton.....	Mexico
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C. Koch.....	Cedar Gap	H. M. Page.....	Breckenridge
E. H. Leggett.....	301 Pearl St., New York City, N. Y.	W. A. Patton.....	Jane
B. Logan.....	Logan, Mo.	W. H. Perkins.....	Quincy, Ill.
Danl. Lowmiller.....	Parkville	Millard Parker.....	Warrensburg
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Alonzo Lewis.....	Sapp	H. C. Porter.....	Fayetteville, Ark.
J. D. Lyle.....	Warrensburg	Ed. Picquet.....	Dixon

LIST OF MEMBERS—Continued.

Emma Piercon	Lockwood	J. W. Tippin.....	Nichols
John Barton Payne.....	Chicago, Ill.	T. H. Todd.....	New Franklin
J. H. Pelham.....	Neosho	D. A. Turner.....	South St. Joseph
G. Raupp	Monett	J. M. Titus.....	Coffeyville, Kas.
R. J. Rogerson.....	7th and Market, St. Louis	Geo. E. Tipple.....	Lee's Summit
August Reese.....	2516 N. 14th, St. Louis	J. A. Taylor.....	Wynnewood, Ind. Ter.
D. W. Reid.....	Slater	J. N. Todd.....	Fulton
O. C. Roby.....	Rocheport	B. B. Thurman.....	Auxvasse
Ezra Roop	Warrensburg	P. A. Van Franken..	R. D. 21, Grain Valley
M. L. Reynolds.....	Nichols	A. Van Buskirk.....	Oregon
Homer Reed	Louisiana	W. H. Vaughn.....	Marshall
E. A. Riehl.....	Alton, Ill.	B. van Herff.....93 Nassau St. New York, N. Y.
W. Riehl	Potosi	C. W. Wilmeroth.....	Chicago, Ill.
J. H. Ruddick.....	Bourbon	Carl Wallace	Jackson
Mrs. Laura B. Robnett.....	Columbia	E. J. Winter.....	Mexico
H. G. Richardson.....	Neosho	Henry Wallis	Wellston
Howard S. Reed.....	Columbia	C. H. Wittenbach.....	Morrison
J. C. Rudder.....	Vulcan Station	John Ware	Wappapello
H. C. Rogers.....	Warrensburg	J. M. Withoil.....	Nichols
J. M. Rogers.....	Elsberry	Dr. C. R. Woodson.....	St. Joseph
Jas. A. Rogers.....	Bowling Green	S. R. Walker	Liberty
G. A. Smith.....	Chillicothe	H. Waterman	Nichols
W. J. Stevens.....	St. Louis	W. H. Watts.....	Glasgow
P. K. Sylvester.....	Sunlight	L. C. Wilson..	Station D., South St. Joseph
A. V. Schermerhorn.....	Kinmundy, Ill.	W. J. Wilson.....	St. Joseph
J. W. Stanton.....	Richyview, Ill.	A. C. Woolfolk.....	Troy
G. L. Sessen.....	West Plains	K. B. Wilkerson.....	Mexico
Chas. W. Steiman.....	Dalton	Dean H. J. Waters.....	Columbia
H. Schnell	Glasgow	G. W. Williams.....	Humansville
A. W. Swartout.....	Mt. Grove	Roy Withoil	Nichols
J. T. Snodgrass.....39th and Wyandotte, K. C., Mo.	Robt. E. Williams.....	Louisiana
H. A. Squires.....	Inza	S. D. Williamson.....	Mt. Vernon
B. F. Stuart.....	Rushville	H. J. Weber & Sons.....	Nursery
Prof. B. L. Seawell.....	Warrensburg	A. Willis.....	Ottawa, Kas.
J. Ovid Stark.....	Stark	J. R. Warren..	Harcourt, Victoria, Australia
J. L. Scott.....	Gravel Point	A. P. Whittemore.....	Webster Groves
W. H. Strong.....	Seligman	H. S. Wheeler.....	Argentine, Kas.
E. E. Smith.....	4029 McGee, K. C., Mo.	F. F. Wagner.....	Warrensburg
N. J. Shepherd.....	Eldon	G. H. Williams.....	Midway, Kas.
A. G. Samuel.....	St. Joseph	J. B. Wagner.....	Sarcoxie
J. P. Sinnock	Moberly	W. S. Wade.....	Springfield
Andrew Sturm	Brunswick	Arthur O. Wild.....	Sarcoxie
Zeno Stocks	Columbia	Frank H. Wild.....	Sarcoxie
W. H. H. Stephens.....	Bunceton	G. H. Wild.....	Sarcoxie
J. T. Stinson.....	Springfield	Wm. H. Woods.....	Sarcoxie
L. J. Slaughter.....	Grain Valley	Chas. Wilson.....	Sarcoxie
Geo. T. Smith.....	Richland	S. A. Waters.....	Nadine
Theo. Saxonmeyer.....	Red Bud, Ill.	T. C. Wilson.....	Hannibal
C. E. Shock.....	Montgomery City	L. A. Willis..	403 15th Ave., Milwaukee, Wis.
F. H. Smelzer.....	Van Buren, Ark.	C. M. Williams.....	Laclede
Oscar P. Schueler.....	Neosho	C. T. Zeitinger.....	Zeitonia
A. V. Swaty.....	Texarkana, Tex.	W. T. Zink.....	Nichols
O. H. Treadway.....	Paynesville	A. W. Zimmerman.....	Amazonia
S. Y. Thornton.....	Blackwater	Louis Zellner.....	Granby
Geo. S. Townsend.....	Troy		

Note.—While we carry all these names on our roll it is well understood that not all have paid their membership up to the present date. Secretary.

LIST OF COUNTY SOCIETIES.

Adair County Horticultural Society—
 R. M. Brasher, president, Kirksville.
 A. Patterson, secretary, Kirksville.

Audrain County Horticultural Society—
 M. B. Guthrie, president, Mexico.
 K. B. Wilkerson, vice-president, Mexico.
 R. A. Ramsey, secretary, Mexico.
 W. G. Hutton, ass't secretary, Mexico.
 William Eagan, ass't secretary, Mexico.
 W. M. Pearson, treasurer, Mexico.

Barry County Horticultural Society—
 W. W. Witt, president, Exeter.
 E. B. Utter, vice-president, Butterfield.
 G. G. James, secretary, Hailey.
 J. C. Crane, treasurer, Exeter.

Barton County Horticultural Society—
 B. D. Hayes, secretary, Lamar.

Billings Fruit Growers' Association—
 J. W. Washam, president, Billings.
 Wm. Watkinsen, vice-president, Billings.
 C. E. Purdy, secretary, Billings.
 H. H. Stone, treasurer, Billings.
 Members, 25.

Birch Tree Fruit Growers' Association,
 Shannon County—
 V. H. Kirkendal, president, Birch Tree.
 F. Anderson, secretary, Birch Tree.

Bismarck Fruit Growers' Association, St.
 Francois County—
 C. J. Tullock, president, Bismarck.
 M. H. Dowling, secretary, Bismarck.

Boone County Horticultural Society—
 D. A. Robnett, president, Columbia.
 D. M. Hulien, vice-president, Hallsville.
 Jas. Baumgartner, secretary, Columbia.
 Samuel Baker, treasurer, Columbia.
 Members, 40.

Butterfield Berry Growers' Shipping Association—
 R. J. Hinson, president, Butterfield.
 A. J. Russell, vice-president, Butterfield.
 W. D. Cowherd, secretary-treasurer, Purdy
 (R. F. D. 1).

Butterfield Local, Barry County—
 Morris Bayless, president, Butterfield.
 I. R. Crane, secretary, Butterfield.
 G. D. Bethune, treasurer, Butterfield.
 Members, 12.

Benton County (Ark.) Horticultural Society—
 G. T. Lincoln, president, Bentonville.
 I. Henthorn, vice-president, Bentonville.
 I. B. Lawton, secretary, Bentonville.
 I. H. McGill, treasurer, Bentonville.
 Members, 60.

Callaway County Horticultural Society—
 D. M. Dunlap, president, Fulton.

Central Missouri Horticultural Association—
 A. Tuttle, president, Boonville.
 Dr. Chas. Dawie, 1st vice-president, Boonville.
 Mrs. Jas. Gault, 2nd vice-president, Boonville.
 C. C. Bell, secretary, Boonville.
 W. A. Smiley, treasurer, Boonville.
 Members, 20.

Clay County Horticultural Society—
 F. M. Williams, president, Gashland.
 F. P. Chedister, secretary, Linden.

Berry Growers' Association—
 J. I. Sparks, president, Ashland.

Conway Horticultural Society, Laclede
 County—
 W. H. Getty, president, Conway.
 R. O. Hardy, secretary, Conway.

Cole County Horticultural Society—
 W. A. Maddox, president, Jefferson City.
 Henry Hentges, vice-president, Scruggs
 Station.
 A. J. Davis, Secretary, Jefferson City.
 C. A. Dix, treasurer, Jefferson City.
 Members, 20.

Everton Fruit Growers' Association, Dade
 County—
 J. E. Gyles, president, Everton.
 L. L. Gibson, vice-president, Everton.
 W. S. Wilson, secretary, Everton.
 Members, 23.

Exeter Berry Growers, Barry County—
 T. G. Johnson, president, Exeter.
 K. Armstrong, vice-president, Exeter.
 J. Armstrong, secretary, Exeter.
 Jess Talbert, treasurer, Exeter.

Gandy Berry Growers' Association—
 J. P. Boyd, president, Sarcouxie.
 J. McMahon, vice-president, Sarcouxie.
 H. H. Bean, secretary, Sarcouxie.
 Joe Dodson, treasurer, Sarcouxie.
 Members, 100.

LIST OF COUNTY SOCIETIES—Continued.

The Grafters—

E. H. Favor, president, Columbia.
 J. B. Hill, vice-president, Columbia.
 J. Lee Hewitt, secretary, Columbia.
 Members, 17.

Greene County Horticultural Society—

Theodore H. King, president, Springfield.
 George A. Atwood, vice-president, Springfield.
 Earl B. Hopkins, secretary, Springfield.
 H. H. Park, treasurer, Springfield.

Henry County Horticultural Society—

M. L. Bonham, president, Clinton.
 M. G. Conden, vice-president, Clinton.
 J. M. Prezinger, secretary, Clinton.
 H. T. Burris, treasurer, Clinton.

Holt County Horticultural Society—

N. F. Murray, president, Oregon.
 J. N. Menifee, vice-president, Oregon.
 Wm. Kaucher, secretary and treasurer,
 Oregon.

Koshkonong Horticultural Society—

T. M. Culver, president, Koshkonong.
 C. M. Alderson, secretary, Koshkonong.
 H. C. Huxley, treasurer, Thayer.

Laclede County Horticultural Society—

Phil. Donnely, president, Lebanon.
 W. R. McIlvane, vice-president, Lebanon.
 B. H. Cowgill, secretary, Lebanon.
 M. W. Serl, treasurer, Lebanon.
 Members, 50.

Logan Fruit Growers' Association—

C. M. Lester, president, Logan.
 G. N. Boyd, vice-president, Logan.
 G. W. Logan, secretary, mgr., Logan.
 A. J. Carver, treasurer, Logan.
 Members, 65.

Leasbury Fruit Growers' Association (Crawford County)—

H. N. Lyon, president, Leasbury.
 C. P. Lindsey, vice-president, Leasbury.
 J. L. Fulton, secretary, Leasbury.

Lincoln County Horticultural Society—

A. H. Kercheval, president, Elsberry.
 T. O. Mayes, vice-president, New Hope.
 B. C. Benedict, secretary, Moscow Mills.
 C. F. Wallace, treasurer, Brussels.

Linn County Horticultural Society—

A. P. Swan, president, Marceline.
 I. D. Porter, vice-president, Marceline.
 H. Long, secretary, Marceline.
 J. W. Porter, treasurer, Marceline.

Livingston County Horticultural Society—

F. K. Thompson, president, Chillicothe.
 D. A. French, vice-president, Chillicothe.
 J. T. Jackson, secretary, Chillicothe.
 J. W. Bird, treasurer, Chillicothe.
 Members, 50.

Madison County Horticultural Society—

A. A. Blumer, president, Fredericktown.
 H. M. Whitner, secretary, Fredericktown.

Mayview Horticultural Society, Lafayette County—

Edw. S. Butt, president, Mayview.
 J. W. Gladish, vice-president, Higginville.
 G. H. Rabius, secretary, Mayview.
 Members, 28.

Meramec Horticultural Association, Crawford County—

E. R. Bowen, president, Steelville.
 Jos. T. Marsh, secretary, Steelville.
 C. D. Norval, treasurer, Steelville.

Mercer County Horticultural Society—

Martin Read, president, Princeton.
 J. F. Stanley, vice-president, Princeton.
 H. S. Wayman, secretary, Princeton.
 Lewis Smith, treasurer, Princeton.
 Members, 60.

Miller County Horticultural Society—

J. R. Helfrich, president, Eldon.
 T. G. Henley, vice-president, Spring Garden.
 N. J. Shepherd, secretary, Eldon.
 Henry Philips, treasurer, Eldon.
 Members, 18.

Missouri-Arkansas Horticultural Society—

D. S. Helvern, pres., Mammoth Springs, Ark.
 P. B. P. Hynson, secretary, Mammoth Springs, Ark.

Missouri State University Agricultural Club—

L. W. Thiemann, president, Aullville.
 C. H. Hechler, vice-president, Dalton.
 J. Lee Hewitt, secretary, Columbia.
 J. C. Foulds, treasurer, Columbia.
 Members, 26.

Missouri Valley Horticultural Society—

Geo. W. Holsinger, president, Argentine, Kas.
 W. G. Gano, vice-president, Parkville, Mo.
 Mrs. H. E. Chandler, secretary, Argentine, Kas.
 G. F. Espenlaub, treasurer, Rosedale, Kas.
 Members, 40.

Monett Local—Barry County—

R. D. Creed, president, Monett.
 E. O. Snyder, vice-president, Monett.
 Geo. Raupp, secretary, Monett.
 L. C. Ferguson, treasurer, Monett.

Monteer Horticultural Society—

C. F. Adams, president, Monteer.
 R. Boram, treasurer, Monteer.

LIST OF COUNTY SOCIETIES—Continued.

Mt. Vernon Fruit Growers' Association—
Lawrence County—

R. C. Sedwick, president, Mt. Vernon.
A. Wont, vice-president, Mt. Vernon.
W. E. Hickman, secretary, Mt. Vernon.
Geo. A. McCause, treasurer, Mt. Vernon.
Members, 25.

Neosho Fruit Growers' and Shippers' Association—
Newton County—

C. L. Williams, president, Neosho.
S. D. Taylor, vice-president, Neosho.
J. H. Christian, secretary, Neosho.
J. H. Richardson, treasurer, Neosho.
F. H. Speakman, business mgr., Neosho.
Members, 15.

Nevada Fruit Growers' Association, Vernon
County—

S. V. Mitchem, president, Nevada.
J. S. McClenney, vice-president, Nevada.
W. H. Litson, secretary, Nevada.
J. N. Shipley, treasurer, Nevada.
Members, 20.

Norwood Horticultural Society—

J. W. Hollenbeck, president, Norwood.
J. E. Hart, vice-president, Norwood.
W. S. Calhoun, secretary, Norwood.
Dan. Twohig, treasurer, Norwood.
Members, 30.

Ozark, Fruit Growers' Association—

G. A. Atwood, secretary, Springfield.

Pettis County Fruit and Dairy Club—

Ed. Brown, president, Sedalia.
Chas. H. Green, vice-president, Sedalia.
G. B. Lamm, secretary, Sedalia.
Earnest Thompson, treasurer, Sedalia.
Members, 20.

Peirce City Fruit Growers' Association—

W. F. Brendlinger, president, Peirce City.
C. O. Grimes, vice-president, Peirce City.
R. F. George, secretary, Peirce City.
W. A. Rhea, treasurer, Peirce City.
Members, 116.

Phelps County Horticultural Society—

Robert Merriwether, president, Rolla.
Albert Newman, secretary, Rolla.

Polk County Horticultural and Agricultural
Association—

G. W. Williams, president, Humansville.
G. M. Briggs, secretary, Humansville.
A. H. Schofield, treasurer, Humansville.

Polk County (Ark.) Horticultural Society—

A. W. St. John, president, Mena, Ark.
F. S. Foster, secretary, Mena, Ark.
G. S. Graham, treasurer, Dallas, Ark.
Members, 50.

Richland Fruit Growers' Association, Pu-
laski County—

John C. Evans, president, Richland.

W. W. Hillhouse, vice-president, Stout-
land.

H. W. Rausch, secretary, Richland.
L. C. McCully, treasurer, Richland.
Members, 25.

Purdy Horticultural Society, Barry County—

J. F. Chastain, president, Purdy.
S. M. Bennett, secretary, Purdy.
M. Roller, treasurer, Purdy.
T. R. Robberson, committee, Purdy.
W. A. Thornhill, committee, Purdy.
Members, 65.

Randolph County Horticultural Society—

B. R. Boucher, president, Cairo.
G. N. Ratliff, secretary, Moberly.
J. W. Dorsey, treasurer, Moberly.
Members, 48.

Ray County Horticultural Society—

A. Maitland, president, Richmond.
G. A. Stone, vice-president, Richmond.
R. Williams, secretary, Richmond.
Members, 20.

Republic Horticultural Society, Greene
County—

J. E. Davis, president, Republic.
Dr. E. L. Beal, secretary and treasurer,
Republic.
Members, 40.

Ripley County Horticultural Society—

J. G. Hancock, president, Doniphan.
S. S. Hancock, secretary, Doniphan.

Saline County Horticultural Society—

W. S. Huston, president, Marshall.
W. C. Gower, vice-president, Marshall.
Thos. Adams, secretary, Marshall.
Members, 9.

St. Francois County Agricultural Associa-
tion—

P. V. Ashburn, president, Farmington.
J. B. Highley, vice-president, Farmington.
Maurice Highley, secretary Farmington.
J. R. Pratt, treasurer, Farmington.
Members, 23.

St. Joseph (Buchanan County) Horticul-
tural and Agricultural Society—

W. D. Maxwell, president, St. Joseph.
R. E. Lee Utz, vice-president, South St.
Joseph.
Jas. M. Irvine, secretary, St. Joseph.
Robt. Onstot, treasurer, South St. Joseph.
Members, 45.

St. Louis County Horticultural Society—

H. Meyer, president, Bridgeton.
Geo. Wiegand, vice-president, Bridgeton.
E. W. Terry, secretary, Bridgeton.
B. J. Koenig, treasurer, Normandy.
Members, 17.

LIST OF COUNTY SOCIETIES—Continued.

- Sarcoxie Horticultural Association—
Henry Foster, president, Sarcoxie.
J. F. Wagner, vice-president, Sarcoxie.
J. C. Reynolds, trustee, Sarcoxie.
Andy Seneker, trustee, Sarcoxie.
- St. Charles County Horticultural Society—
Dr. J. E. Edwards, president, O'Fallon.
Jacob Schaeffer, vice-president, O'Fallon.
Tony Moser, secretary, O'Fallon.
J. S. Keithly, treasurer, O'Fallon.
- Seymour Fruit Growers' Association—Webster County—
T. C. Love, president, Seymour.
G. L. Childress, vice-president, Seymour.
L. S. Witmer, rec. secretary, Seymour.
F. A. Williams, cor. secretary, Seymour.
T. J. Smith, treasurer, Seymour.
Members, 38.
- South Missouri Fruit Growers' Association.
Howell County—
Geo. Comley, president, Willow Springs.
J. Lovewell, secretary, Willow Springs.
- South Missouri Horticultural Association,
Howell County —
D. J. Nichols, president, West Plains.
J. W. Hitt, vice president, West Plains.
- Stoutland Fruit Growers' Society, Camden County—
J. W. Burhans, president, Stoutland.
- Henry Evans, vice-president, Stoutland.
Janie W. Burhaus, secretary, Stoutland.
P. C. Kennedy, treasurer, Stoutland.
Members, 41.
- Washburn Local—Barry County—
P. R. Moffatt, president, Washburn.
John Hoog, vice-president, Washburn.
W. B. Adock, secretary, Washburn.
G. K. Hurd, treasurer, Washburn.
Members, 50.
- Willow Springs Horticultural Society,
Howell County—
W. H. Thomas, president, Willow Springs.
G. H. Johnson, vice-president, Willow Springs.
E. Brown, secretary, Willow Springs.
Members, 60.
- Wayne County Horticultural Society—
Chris. Richman, president, Lowndes.
Jas. Wilson, vice-president, Wappapello.
John Ware, secretary, Wappapello.
Wm. Howell, treasurer, Wappapello.
Members, 25.
- Wright County Horticultural Society—
Frank Horsfall, president, Mt. Grove.
R. R. Titus, vice-president, Mt. Grove.
L. M. Reese, secretary, Mt. Grove.
John Thielman, treasurer, Mt. Grove.

STANDING COMMITTEES.

Orchards.

M. BUTTERFIELD, Farmington. W. T. FLOURNOY, Marionville.
N. F. MURRAY, Oregon.

Vineyards.

M. OLIVER COLE, Springfield. ED. KEMPER, Hermann. C. W. STEIMAN, Dalton.

Small Fruits.

HENRY SCHNELL, Glasgow. J. E. MAY, LaPlata. B. LOGAN, Logan, Mo.

Stone Fruits.

G. L. SESSEN, West Plains. J. H. KARNES, St. Joseph. H. CRECELIUS, Mehlville.

Vegetables.

L. C. WILSON, South St. Joseph. J. C. RUDER, Afton. J. P. SINNOCK, Moberly.

Flowers.

MRS. G. E. DUGAN, Sedalia. E. L. MASON, Trenton. PROF. W. L. HOWARD, Columbia.

Ornamentals.

PROF. H. C. IRISH, St. Louis. HENRY WILD, Sarcoxie. H. S. WAYMAN, Princeton.

Entomology.

MISS M. E. MURTFELDT, Kirkwood. PROF. J. M. STEDMAN, Columbia.

Botany.

PAUL EVANS, Mt. Grove. H. W. JENKINS, Boonville.

Nomenclature.

J. C. EVANS, Harlem. W. G. GANO, Parkville. J. T. STINSON, Springfield.

New Fruits.

T. H. TODD, New Franklin. R. J. BAGBY, New Haven. D. A. ROBBETT, Columbia.

Ornithology.

O. WIDMAN, 5105 Morgan St., St. Louis. G. A. ATWOOD, Springfield.
A. H. GILKESON, Warrensburg.

Injurious Fungi.

PROF. J. C. WHITTEN, Columbia. DR. HERMAN VON SCHRENK, St. Louis.

Packing and Marketing Fruits.

T. C. WILSON, Hannibal. W. P. KEITH, Mayview. D. McNALLIE, Sarcoxie.

Transportation.

G. T. TIPPIN, Nichols. C. C. BELL, Boonville. A. T. NELSON, Lebanon.

Horticultural Education.

Chairman, G. B. LAMM, Sedalia. L. A. GOODMAN, Kansas City.
MRS. G. E. DUGAN, Sedalia. MISS M. E. MURTFELDT, Kirkwood.
DR. WM. TRELEASE, St. Louis. PROF. J. R. KIRK, Kirksville.
PROF. J. C. WHITTEN, COLUMBIA.

Missouri State Horticultural Society.

Organized January 5, 1859, at Jefferson City.

Incorporated 1893, at Jefferson City.

INCORPORATION AND REORGANIZATION OF THE HORTICULTURAL SOCIETY BY AN ACT OF THE GENERAL ASSEMBLY IN 1893.

The following law was passed by the Legislature incorporating the State Horticultural Society. The Executive Committee met soon after the passage of this act and accepted its provisions, and at the semi-annual meeting of the Society at Columbia, June 6, 7, 8, 1893, the act was adopted as part of the constitution of the society.

MEMBERSHIP.

Under the new constitution the law requires the payment of \$1 per year for membership fee. Life membership, \$10.

L. A. GOODMAN, Secretary.

ACT OF THE GENERAL ASSEMBLY.

The Missouri Horticultural Society is hereby instituted and created a body corporate, to be named and styled as above, and shall have perpetual succession, power to sue and be sued, complain and defend in all courts, and to make and use a common seal and alter the same at pleasure.

The Missouri Horticultural Society shall be composed of such persons as take an interest in the advancement of Horticulture in this State, who shall apply for membership and pay into the society treasury the sum of one dollar per year, or ten dollars for a life membership, the basis for organization to be the Missouri Horticultural Society, as now known and existing, and whose expenses have been borne and annual reports paid for by appropriations from the State treasury. The business of the Society, so far as it relates to transactions with the State, shall be conducted by an Executive Board, to be composed of the President, Vice-President, Second Vice-President, Secretary and Treasurer, who shall be elected by ballot at an annual meeting of the Society. The Governor of the State shall be ex-officio a member of the Board—all other business of the Society to be conducted as its by-laws may direct. All appropriations made by the State for the aid of the Society shall be expended by means of requisitions to be made by order of the Board on the State Auditor, signed by the President and Secretary and attested with the seal; and the treasurer shall annually publish a detailed statement of the expenditures of the Board, covering all moneys received by it. The Public Printer shall annually, under the direction of the Board, print such number of the reports of the proceedings of

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the Board, Society and auxiliary societies as may, in the judgment of the State Printing Commission, be justified by the appropriation made for that purpose by the General Assembly, such annual report not to contain more than 400 pages. The Secretary of the Society shall receive a salary of eight hundred dollars per annum as full compensation for his services; all other officers shall serve without compensation, except that they may receive their actual expenses in attending meetings of the Board.

CONSTITUTION.

Article I. This association shall be known as the Missouri State Horticultural Society. Its object shall be the promotion of horticulture in all its branches.

Art. II. Any person may become a member of this Society upon the payment of one dollar and membership shall continue upon the payment of one dollar annually: Provided, however, that no person shall be allowed to vote on a question of a change of the constitution or the election of officers of this Society until after he has been a member for a period of one year preceding the time of election, except in case of a life member.

The payment of ten dollars at any one time shall constitute a person a life member and honorary members may be elected at any regular meeting of the Society; and any lady may become a member by giving her name to the Secretary.

Art. III. The officers of this society shall consist of President, Vice-President, Second Vice-President, Secretary and Treasurer, who shall be elected by ballot at each regular annual meeting, and whose term of office shall be for one year, beginning on the first day of June, following their election. The President, Vice-Presidents and Treasurer shall be eligible to but one successive re-election.

Art. IV. The elective officers of this Society shall constitute an Executive Committee, at any meeting of which a majority of the members shall have power to transact business. The other duties of the officers shall be such as usually pertain to the same officers in similar organizations.

Art. V. The regular meetings of this Society shall be held annually on the first Tuesday in December and June, except when otherwise ordered by the Executive Committee. Special meetings of the Society may be called by the Executive Committee, and meetings of the committee by the President and Secretary.

Art. VI. As soon after each regular annual meeting as possible, the President shall appoint the following standing committees, and they shall be required to give a report in writing, under their respective heads, at the annual and semi-annual meetings of the Society, of what transpires during the year of interest to the Society: Orchards, Vineyards, Stone Fruits, Small Fruits, Vegetables, Flowers, Ornamentals, Entomology, Ornithology, Botany, Nomenclature, New Fruits, Injurious Fungi, Packing and Marketing Fruit and Transportation.

Art. VII. The treasurer shall give a bond in twice the sum he is expected to handle, executed in trust to the President of this Society (forfeiture to be made to the Society), with two or more sureties, qualifying before a notary public, of their qualifications as bondsmen, as provided by the statute concerning securities.

Art. VIII. This constitution may be amended by a two-thirds vote of the members present at any regular meeting.

SUMMER MEETING.

ST. LOUIS, JUNE 7, 8, 9, 10, 1904.

SUMMER MEETING.

FIRST SESSION—TUESDAY, JUNE 7, 1904, TEN O'CLOCK.

The sessions were held in one of the Balcony rooms at the west end of the Horticultural Building.

The meeting was called to order by President Robnett, who spoke a few words of welcome and introduced the new President, Dr. J. C. Whitten.

D. A. Robnett—I thank the society for the courtesies and the honor and kindness that have been shown to me on every side while I have been your presiding officer. You have given me honors that I did not deem myself competent to fill. For all my mistakes and failures I now apologize. But the main thing is to thank the Society for the way in which it has held up my hands. This is the thirty-third meeting I have attended. I am always ready to fill any place that needs me, but any failures in my duties as President are the fault of the Society as I did not choose the office myself. Our law is that an officer shall succeed himself only once. I am therefore stepping down and out and yield the chair to one to whom you can look for advice. Dr. J. C. Whitten will now take the chair and serve you with honor.

Dr. J. C. Whitten—I can not adequately express my gratitude for your courtesy in electing me to this office. Inasmuch as the president is usually a practical and successful fruit grower, I imagine you have chosen me because I have worked with you, and as an appreciation of my professional work, on this account I appreciate the honor all the more. The responsibility is on every member and we need zeal and vigor. I shall do all I can to enhance the position and vigor of the Society, depending at the same time on your co-operation for success. Any honor accruing is due to the active members who do the work for which the Society stands.

DISCUSSION ON STRAWBERRIES.

There being no papers present on the subject, the session opened with a discussion on growing and cultivating the strawberry in the field.

G. T. Tippin—In southwest Missouri the strawberry business reaches large proportions, last week a hundred cars were shipped from that district. That this success is being made commercially is due to the varieties chosen and the system of planting and cultivation. The Associations making the greatest success study first the time of coming into market, and plant therefore the variety which ripens at the best time for the market. Most successful points have a gravelly soil, and practice a thorough preparation of the soil before planting; they plant early in the spring and give intense cultivation. All get good returns the first year. The matted row, which is kept about two feet wide, gives a double surface, and as the best berries are always at the edge this shows that they need space, therefore the rows are thinned and the plants left in individual hills. This thinning it is estimated costs as high as ten dollars per acre, but the result is large berries all along, and last ones are good commercial size.

Mr. Dewey—Wouldn't rows only 16 inches wide be as good as two feet?

Mr. Tippin—That would not bring the results because the narrow row would be thick with plants. The object is to cover the row with good strong bearing plants and have them not too close together.

W. G. Gano—What is the time of thinning?

Mr. Tippin—After the plants are well set, about September first. Plowing the plant beds in the spring gives good results, plow before mulching, for this also is done in the spring.

C. H. Dutcher—In Johnson county we mulch the Haverland and let the Marshall go unmulched.

Mr. Tippin—Plants take their growth and vitality in the fall. The roots are disturbed by the thinning in the fall, so the places thinned should be filled up and leveled that the roots may spread and recover before spring.

Mr. Dewey—Wouldn't it be better to leave the rows thin in the first place?

Mr. Tippin—Yes that would be good but it requires too much care and is not practical on a commercial scale.

J. C. Evans—What is the best mulch in the absence of clean wheat straw?

Mr. Tippin—Leaves or prairie hay are good, the latter has not as much seed as the wheat straw. Cornstalks also make a splendid mulch and good fertilizer.

L. A. Goodman—What about cow peas sown in August for a mulch?

Mr. Evans—We have never tried them, but they might be good.

Mr. Tippin—Generally we use more mulch than is necessary. We should just cover the ground with a sprinkle of straw; it is not for the plants but for clean berries, to keep them out of the sand and dirt.

Mr. Evans—If the straw is full of weeds, grass, etc., it pollutes the ground so that we can hardly pick the berries and then we have to plow the fields.

P. K. Silvester—Sugar cane is a fine fertilizer, grows as fine as wheat, and shoulder high and is as good as wheat straw. Cut it before the seeds manure and put it on thin.

C. H. Dutcher—Sow it the latter part of May, sow thick, two bushels to the acre.

Pres. Whitten—The cane leaves the field clean and is therefore good, so say the best strawberry growers.

C. H. Dutcher—Is it necessary when you have good plants to trim off the roots?

Mr. Sylvester—It saves time to have shorter roots when setting the plants. Leave the roots four inches or one-third of the entire length.

STRAWBERRIES: NOTE ON THE VARIETIES.

(W. L. Howard, Assistant Professor of Horticulture, Columbia, Mo.)

Some of the varieties I mention may not seem new to some of you but they are not the old standard sorts and have not been widely grown. The reports given are taken from notes on our experimental beds at the station and from reports from growers in various parts of the state.

The Aroma is a late or medium season berry and already quite a general favorite. This is about the only variety grown in the vicinity of Neosho where there are six hundred and fifty acres now in bearing and it has proved to be entirely satisfactory and profitable. It is large in size, firm, of good color and fine shape, but not of first quality.

Barton's Eclipse, is a medium season berry of good quality but too soft to ship. Bisel, is a prolific bearer, the fruit ranging from medium to large, is of good quality but slightly soft; a good home berry. The

Bismarck is medium season, prolific, has large fruit and vigorous plants but an acid taste and some object to it on account of its sourness. The Brandywine is a perfect flowered sort, medium season, a fair producer, grows well but is subject to mildew. The Cloud is a pistillate variety, ripens in mid-season and is a grower. The fruit is moderately firm, the flavor mild and sweetish. Earliest, is a staminate, later than the Excelsior, is a good producer but somewhat subject to rust. Excelsior is perfect flowered and makes healthy plants. The fruit is firm and ripens from three to ten days earlier than the others; it is noted for its acid flavor and is considered to be a good canner. Gardner, is the best pollinator in the opinion of many, while a few say they do not like it for anything. Glen Mary, is a medium season, variety and productive; the berries range from medium to large in size but it is somewhat subject to rust and has scant foliage; is a good home variety. Heffin, or Hefflin, has made a splendid record so far; it has a long and late season and is a good producer, the fruit being large and of excellent flavor; the foliage is light green in color but seems to be healthy. Kansas, has a medium late season, the fruit being small to medium and the quality fair.

Other varieties we are trying are the following: Klondike, which is of medium season, berries medium in size and not a good producer. Lady Thompson, medium season of ripening but lasts a long time; size, medium to small, color light, and firm enough to ship well. McKinley, medium season of ripening, fruit medium in size and not very firm; a staminate variety which seems to be a good pollinator. Monitor, is perfect flowered, has large fruit which is abundant and a fine flavor; plants healthy but fruit too soft to ship well. Nick Ohmer is of medium season, perfect flowered, fruit large, not a good producer, but fruit is firm and plants make a fairly good growth. Rough Rider, is a staminate variety which makes a poor growth although plants seem to be healthy; considered to be useful only as a pollinator. Seaford, begins to ripen medium early but has long season of fruiting; rather large fruit, but only medium as a producer; fruit is firm enough to ship well; a fairly good variety with Rough Rider or some other good pollinator growing with it as it is imperfect flowered; bad to mildew. Senator Dunlap, staminate variety of medium season, a good producer; fruit varies from medium to very large in size; texture firm; a vigorous grower and promising commercial variety.

Sample, is an imperfect flowered variety, of medium to late season; a fairly good producer; fruit large and firm and medium good in quality; promises to be a good commercial variety where it succeeds. Splendid is a staminate variety which fruits in mid or late season, is productive

but the size of the fruit is variable; a fairly good shipper, but more highly regarded for home use and local market than for shipping; plant a good grower. Texas, is a new variety, not thoroughly tested as yet but very highly regarded by those who have tried it in South Missouri, notably at the Experiment Station at Mountain Grove. Wild Wonder is a new sort, said by its introducers to be able to grow in bluegrass sod; under cultivation our plants are vigorous but have not been allowed to fruit as yet.

LaPlata, Mo., June, 1904.

Hon. L. A. Goodman, St. Louis, Mo.:

Dear sir:—I enclose paper as requested, I trust you will have a profitable meeting and assure you I would be glad to meet with you but it is impossible. We have promise of a great crop of strawberries. They are just beginning to ripen and need more sunshine than we are having. Raspberries and blackberries also promise full crop. Cherries and plums, 75 per cent. Keiffer and Garber pears full. Duchess blossomed full as they do every year but no fruit. Why is it they don't bear? Apples promise 75 per cent crop. Ben Davis 90 per cent. Think I shall girdle all my York and M. B. Twig as a few that I girdled last year are the only trees with fruit this year. Am disappointed as the trees are 9 years old and have never produced any fruit; while Ben Davis, same age, have produced three crops. Can't compete for any of the premiums as fruit is not ripe enough to send.

J. E. MAY.

GROWING FANCY STRAWBERRIES.

(J. E. May, of La Plata, Mo.)

In growing fancy strawberries there are several things that must be observed to make the undertaking a success. The first requisite is good land well prepared. If not naturally fertile, then the fertility must be supplied by giving a good coat of well-rotted stable manure, say 20 to 30 loads per acre. This should be applied at least a year in advance of setting the plants and plowed under. The land should be thoroughly cultivated during the following summer in some hoed crop, such as early potatoes or beans, and after the crop is off plow again, not too deep, and sow to rye thickly. This will give a good cover crop for winter if sown by September 1, and will also give any weed seed a chance to germinate, thus making the cultivation of the berry plants a much easier matter.

The next thing to do is to attend to ordering your plants, provided you have not grown them yourself. Don't wait until spring, when you are ready to plant them, but select such varieties as you know succeed in your immediate locality. Send your order to some reliable plant-grower and instruct him to have your plants on hand as early as you think the ground will do to work. Better have them two weeks before that time and heel them in than to be a few days behind. Now I don't think fancy berries mean the very largest berries than can be grown, but berries of uniform size and typical of the variety that they represent. Of course, if large berries are to be the end sought, then select such varieties as Bubach, Ridgeway, Nick Ohmer, Rough Rider, etc., but I contend a box of well-grown Crescents or Warfields are just as fancy as any of the others, although not as large. As soon in the spring as the ground is ready to work (never work it while too wet), plow under the crop of rye and drag and harrow until well pulverized and in good shape to receive the plants. Having the plants on hand, begin setting immediately, setting plants $3\frac{1}{2}$ ft. by 18 to 24 inches, owing to variety. If the variety is a great plant-maker, like Warfield or Crescent, 24 inches; if like Bubach, then 18 inches is far enough. Plants should be set deep enough to cover the roots well, but not deep enough to cover the crown. Begin cultivation as soon as plants are set and give thorough cultivation all summer, never allowing the ground to crust after a hard rain. As soon as your plants begin to make runners, place them in line with the mother plants and cover tips with a little moist earth, thus helping to get a row full of plants as early as possible. Plants should be grown in thin, matted rows for best results, allowing them to set not closer than 4 or 5 inches apart. No use to try to grow fancy berries where you let the plants have their own sweet will, as they will pile up so thick that it will be all the plants can do to exist, without producing any fruit of consequence. The idea is to have your rows about a foot wide and plants 4 to 5 inches apart in the row, thus giving each plant room to do its best. As soon as ground freezes in the fall, cover your plants with slough grass or good clean straw to protect the plants from alternate freezing and thawing during the winter and following spring months. As soon as settled weather comes in the spring, remove the mulch from the plants, leaving it between the rows to hold moisture and keep your berries clean. "Pshaw!" you say; "all that is too much trouble." Is it? Wait and watch those plants develop in the spring; see them with their great crowns full of vigor; see the healthy foliage; notice the great big berries as they form and at last see how the boxes fill with great big red berries fit for a king to eat. Watch the expression of

your customer's face as you offer the fruit for sale. Notice how they pass the inferior fruit by, paying you 2c to 3c more per box for your fruit, and then I don't think you will feel that your labor has been in vain.

Mr. Tippin—I want to corroborate Mr. Howard in what he says of the Aroma. The Splendid, Dunlap and Sample are also among the best commercial varieties.

Wm. H. Barnes—We need to develop the real strawberry flavor; for home use we want quality and quantity, not size.

Mr. Tippin—The Texas is likewise promising.

Mr. E. S. Katherman, of Warrensburg, read some notes on a new variety produced by Mr. Turner in Johnson county. The plant is a strong grower, next to Haverland, and the berry firm. The report was referred to the Committee on New Fruits.

Mr. Wild of Sarcoxie also reported a new production, known as No. 176, a cross between Warfield and Gandy, and a pistillate. The Gandy characters prevail, the foliage is like the Gandy. The season is before the Aroma, and it has fruited four years. If it is deemed good, we shall put it on the market, growing it as a leading commercial variety. The place is not occupied by any other variety.

Prof. L. B. Taft—From the fruit I can say it is handsome, of even size, and perfect in form. It is firm and superior in flavor to the Aroma, and under good conditions ships well. If the plants are healthy it will be valuable.

Mr. Wild—The plants are good in all points.

Mr. Dutcher—Victor Hugo, the only new thing from the U. S. Department of Agriculture is a staminate berry. The fruit is good color and quality and prolific. There were only a few runners this year and they all died and the old plants suffered in the winter.

Dr. Whitten—Mr. Howard has been asked to report on the data gathered from his trip in South Missouri, on the best means of handling the strawberry business.

Mr. Howard—On this trip I saw the details of picking, packing and loading the fruit. The thing that impressed me most was that strict business methods are required for this, but such are not always used, and in those cases the growers suffer.

The lessons learned are not to be lax about watching the pickers, one field boss is needed for each twenty-five pickers. If you do not have this, many poor berries are allowed to pass and the official judge rejects them at the end. No berry less than three-quarters of an inch in diameter should be picked, as less than that size will not pass the buyer.

LIST OF BEST VARIETIES.

Johnson County—Haverland with Wolverton for pollinator, Crescent, Warfield with Tennessee Prolific for pollinator, and Greenville.

Laclede County—Bubach, Haverland, Ruby, Gandy.

Washington County—Sample, Gandy Haverland.

Jasper County—The best is Bubach, it has commanded the market and is the one the people pay their money for.

Boone County—Aroma, Excelsior, one of the earliest and Bubach for the home market and Ridgeway, which is the best drouth resister.

Mr. Tippin—The Bubach is not a shipper, as it does not refrigerate well.

Mr. Robnett—The Aroma is very poor in quality.

Orlando Harrison, Maryland—Our best varieties are Tennessee Prolific, although it is somewhat soft, Bubach, Gandy, Aroma, Nick Ohmer, Excelsior and Parsons Beauty, which is of dark color.

Prof. L. R. Taft, Michigan—Haverland, Clyde, Bubach, Brandywine, Gandy, Excelsior. Of the new varieties the Marie is better than the Aroma and Uncle Jim is a good late sort.

Mr. Dewey, Iowa—Bederwood, Warfield, Bisel, Dunlap, Sample and Enhance.

Mr. Brown, Georgia—Lady Thompson is large and prolific, but not the best flavor nor as a shipper. Brandywine, Excelsior and Klondike, an acid berry are good. Hoffman and Neuman are also used. On the coast of Georgia, we plant in August and give good cultivation, until the plants are established. The rows are plowed and sowed with cow peas. A plantation runs for two years in the interior. It is best not to tie to two varieties, but have a half dozen, as most kinds fail some years. For instance last year Nick Ohmer was poor, but this year it redeemed itself. Some varieties prefer a certain location. The Bubach is the nearest universal, like the old Wilson, and the Gandy is good on a heavy soil, while the Aroma is better on lighter soil.

Buchanan County—Crescent, Bederwood, Bubach, Gandy, Haverland.

THE RASPBERRY—DISCUSSION.

Mr. Goodman—I have heard that whole fields have been destroyed this year. What is the cause? In the Ozarks we have fine prospects for berries with no disease whatever.

Dr. Whitten—Anthracnose is very bad on new wood.

D. A. Robnett—There are the best prospects I ever saw on my patch.

A. T. Nelson—There are the best prospects for all kinds of berries. My choice of varieties of raspberries is Kansas, Evans, Gregg, Ever-bearing.

Prof. H. C. Irish—The twig blight on one patch is very bad, but on another I found no indications. The rust is also bad this year.

G. T. Tippin—The Dewberry is profitable where planted, it is the easiest and least expensive berry grown, and brings good prices. It is fine for home use and ships well some distance, that is for one night. It is cultivated the first year, then mowed and burned over after the crop is gathered. The best soil for it I believe is light clay, some say post-oak land. This fruit will bring from fifty to one hundred dollars per acre.

J. C. Evans—I do not know the trouble with my raspberry patch, but I think it was plowed too much last year. The bushes were in bad shape from anthracnose, but we cut them down and they now look better.

Prof. Irish—The twig blight is coming from the East, and there is no remedy for the patch, until the germs are eradicated. It is often mistaken for anthracnose.

President Whitten—I will ask Prof. Irish to bring specimens so that we can learn the two diseases.

Mr. Barnes—From three-fourths of the State of Kansas I have had letters saying that anthracnose prevails, but it may be some is blight.

T. H. Todd—Raspberries are good only three years on the same ground. Care does not seem to prevent diseases. The new wood dies and then there is no fruit. Rarely are over two crops good from the same spot. We have to change and distribute the plantings.

COMMITTEES APPOINTED.

Fruit—Prof. L. R. Taft, Orlando Harrison, W. P. Stark.

Finance—D. A. Robnett, P. K. Sylvester, W. T. Flournoy.

Final Resolutions—C. H. Dutcher, G. T. Tippin, J. M. Irvine.

SECRETARY'S REPORT.

June, 1904.

Since I have been your secretary for the last twenty two years we have held no meeting in St. Louis. It is proper therefore that at this time of the greatest exposition ever held in the world that we should meet and again discuss what is new in our business, what have we learned, what is the outlook, when will Horticulture become a science? Our society was organized here in St. Louis and it is proper that we should meet here at this time.

We are certainly gaining in knowledge and in experience, as to "how" and "what," and "when" in this fruit business. We are surely finding more and more the dangers, and disappointments and the failures, and, like the old fruit grower said, finding "more new bugs and insects and diseases and troubles than ever before until we can only wish for more knowledge of how to combat them."

The spring opened up with the brightest of prospects. The frosts and cold and rains followed in quick succession and so most of our hopes were blasted.

There are still many locations however where the fruit prospects make a good showing and the results of our crops this fall may therefore far exceed our expectations at this time.

Following is crop report collected from 500 P. O. cards sent out and collated from the answers received in response to the requests.

The crop report was justified by the results as shown during the summer and fall. The apple crop was a light one in most parts of the state and the quality was not very good either. Many orchards had none at all, others very few and still some orchards or parts of orchards had a very fair crop. The prices were poor also and strange to say never improved. These bearing orchards were so scattered that we can say that no place or portion of the State was best.

The peach crop was still poorer than the apple crop. The southwest portion had none. The central and southeast part had a good half crop. Along the Missouri river there seemed to be a good sprinkling also. During the ripening of the Elberta in south Missouri the rains were so incessant that the peaches rotted very badly on the trees, and this continued until the Salway season.

The strawberry crop was a full one but the excessive rains prevented marketing the full crop.

The other berries did well and the crop was generally satisfactory.

Grapes produced an enormous crop. Cherries, Plums and Pears were only partial crops but brought fair prices in general.

The great work of the society and every member of it since our last meeting has been to get ready for the fruit display at our great exposition. In spite of the great failure of our crop last fall we have a large fine lot of apples on our tables and a still larger and finer lot in cold storage. To the members of this society is due the honor of this collection, for, with but few exceptions, have we had collections made by any other persons than by our members and although our commissioners were liberal in paying for all this fruit yet it is to the honor of our society that it is said that nine-tenths of all our fruit was collected by the members of the society.

The work of installation and our display in general has been a slow and tedious one, because of its complicated nature, and various disappointments by the workmen in its construction. Even today we have not been able to get the electric power turned on or the connection made so as to have our train running, in spite of the fact that all is ready, and has been ready for the power for two or three weeks, and in spite of the promises that we should have it tomorrow—ever tomorrow. To me this delay has been a very provoking part of the work.

To the members of our society have I to give credit for the possibility of collecting and making this display of fruits. Of the many hundreds of boxes of strawberries already put on the tables, all or nearly all are the results of direct effort of this society and its members. Some days, five or six or more crates of berries were received and put on the tables and, in nearly every instance, were they either furnished, or collected by the members of this society.

The question of hardiness of our fruit and their ability to withstand the cold of spring is a question that is coming to our attention more and more and one that needs close investigation. The question of location of our orchards and the soil in which they are planted and character of the subsoil under them, are matters that need study and thought and observation. Our eyes, and ears, and minds need to be kept open to facts and experiences which are taking place about us continually.

All these matters are being investigated by our Agricultural College and Experiment Station more closely each year so that we may be sure of results and knowledge in a few years, that will work greatly to our advantage.

The dust process of spraying and keeping rid of insects and diseases, has probably come in for more inquiry than any other new subject before

us. Many more have tried it than ever before, some with success, some with partial success others with entire failure just the same experience as with liquid spraying, some condemning it, others approving and all sorts of views as to benefits and results.

Results this year have not proven anything except the uncertainty of our efforts and the surety that we must do something to keep our fruits free from troubles. Continued experimenting will finally result in definite directions and I feel sure that in a few years we can say what and how and when to spray.

Information and special facts are wanted to go into our case where we shall have the enlarged photos to show. We want some extraordinary facts as to largest crops of fruit, growth of trees, money from crops, size of trees, oldest bearing orchard, best record of orchard products, largest fruits produced; in fact any important horticultural fact that would be notable enough to go on a card for the viewing of the public.

Some of these which I shall use are here appended and they will be used on our large photo cards.

THE LARGEST HORTICULTURAL FACTS OF MISSOURI.

Largest apple tree 9 years old, 30 inches in circumference, 28 feet spread, 25 feet high.

Largest apple tree 6 years old, 6 inches in circumference, 15 feet spread, 13 feet high.

More counties producing fruit than any other state.

The largest nurseries in the world are in Missouri.

The largest orchard in the world is in Missouri.

The largest number of apple trees in any state in the world is in Missouri, 25,000,000.

The largest acreage of peach orchards in any state in the world is in Missouri.

The largest number of cars of strawberries was shipped from Missouri, 2,000 cars.

The largest crop of fruit in the State, \$20,000,000.

The largest strawberry center.

The largest acreage of fruit lands of any state.

The largest range of red lands of the Ozarks.

The largest amount of "loess" lands, best in the world, along the Missouri and Mississippi rivers.

- The largest apple tree in Missouri, 10 1-2 feet in circumference, 90 years old.
- The largest peach tree in Missouri, 7 1-2 feet in circumference, 54 years old.
- The largest grape vine in Missouri, 2 1-2 feet in circumference, 120 years old.
- The largest crop on a single tree in one year, 110 bushels.
- The largest cherry crop on a single tree in one year, 610 boxes.
- The largest peach crop on a single tree in one year, 35 bushels.
- The largest strawberry crop per acre \$1,210, Jackson county.
- The largest raspberry crop per acre \$470, Buchanan county.
- The largest grape crop on single wild vine, 1,000 pounds.
- The largest wild crab apple in the world, 9 inches in circumference, Missouri product.
- The largest apple, 21 inches, weight 33 ounces.
- The largest peach, 14 inches in circumference, Olden.
- The largest strawberry, 8 1-4 inches in circumference.
- Oldest apple tree in Montgomery county, 102 years old.
- Largest chestnut orchard in Jackson county.
- Largest pecans grow in Bates county.
- Largest peach orchard in Oregon county, McNair orchards.
- Largest grape vinyard in Gasconade county.
- Largest strawberry plantation in Jasper county.
- Largest apple orchards in Ozarks.
- Largest apple orchards being planted by Frisco Orchard Co.
- Largest number of good winter apples originated in this State.
- Largest number of grapes originated in the State.
- Largest and best Horticultural papers in Missouri.
- Largest number of intelligent fruit growers (30,000).
- Largest number local Horticultural societies.
- Largest and best State Horticultural Society.
- "Loess" lands best fruit lands.
- Red lands of the Ozarks, ideal fruit soil.
- Varieties more important than good growth.
- Sub-soil more important than top soil.
- Cultivation more important than manure.
- Missouri hills and Ozark Mountains have the best subsoil.
- The best Horticultural school of the land at Columbia.
- The only exclusively fruit station at Mountain Grove.
- The Agricultural College best in the Nation.
- Full peach crop 4 1-2 million dollars.

Full apple crop 14 million dollars.

Full berry crop 3 1-2 million, per year.

Best apple returns from apple orchard \$40 per acre, for 20 years, Holt county.

Best apple crop from 5 year trees \$200 per acre, McDonald county.

Largest apricot tree in Clay county, 7 feet in circumference, spread of branches 40 feet, 20 crops in 20 years.

Largest increase in orchard for 5 years, 100 per cent.

Largest increase in orchard for 10 years, 200 per cent.

Largest increase in orchard for 15 years, 300 per cent.

I wish to call to your attention the beauty of our exhibit. I believe it to be by far the most elaborate horticultural display ever attempted, and it is not yet complete by any means. In addition to what you see on the floor we shall have all the cases filled with large photos of fruit plantations of all kinds, and the bases filled with books and reports. Over them will go a large relief map of the State with all the fruit districts and lands plainly colored so that they can be seen at a glance. This will be invaluable to the land seeker. At one end of the cases will be placed the nut display, on the wall over the jar exhibit will be a series of orchard views representative of our fruit interests. At the main entrance will be a fountain and on each side two large show cases to be filled with fruits. Under the pagoda will be two small fountains under glass cases and these cases to be covered with fruit. A center piece consisting of a large glass vase and 8 large punch bowls to be filled with fruit. Back of the main long fruit stands will be a double horse-shoe showcase to be made with glass shelves and all to be filled with fruits.

When our exhibit is completed it will be by far the most elaborate one ever attempted and will cost more than all the rest of the exhibits in the building.

The Missouri Commission have stood by me in this matter and granted every reasonable request that I made asking that I be permitted to make the display the most notable one every attempted. To this end we have worked in unison and Mr. Bonfoey, the chairman, has been a notable enthusiast in all we have had to do, giving his heartiest co-operation to every suggestion made for "showing the world."

The result stands before you, and to you, dear helpers and co-workers, I now tender many of hearts truest emotions for your noble assistance in every part of the work. Our society takes another step in advance in the eyes of our sister societies, has made another record as one



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
GANO APPLES. CROP 1901, 1902, 1903, 1904.

of the best societies and I am glad to report to you that they all say, "You can do anything in Missouri, for you have such a strong, noble, earnest intelligent State Society." To you, then, does the credit of this display come.

L. A. GOODMAN, Secy.

REPORT OF TREASURER, W. G. GANO, JUNE 7, 10, '04.

Jan 30, N. F. Murray, expense to Kansas meeting..	\$11 30	
Hudson-Kimberly Pub. Co., 5,000 envelopes.	10 00	
Hudson-Kimberly Pub. Co., 2,000 letter heads	12 50	
Express on fruit, winter meeting, \$4.00,		
\$1.25, 75c., \$1.22, \$2.10, \$1.25.....	11 82	
		<hr/>
Warrant No. 546		\$45 62
Jan. 30. Express, 25c., 25c., 47c., 40c.....	\$1 37	
Salary of secretary for January.....	66 66	
Salary of typewriter for January.....	20 00	
		<hr/>
Warrant No. 547		\$88 03
Mar. 14. Postoffice bill	\$40 00	
Salary of secretary for February	66 66	
Salary of typewriter for February	20 00	
		<hr/>
Warrant No. 548		\$126 66
Mar. 31. Expense W. G. Gano to Ex. Com., St. Louis.	\$19 35	
" G. T. Tippin, same	17 00	
" C. H. Dutcher, same	16 00	
" D. A. Robnett, same	14 82	
Salary of secretary for March.....	66 66	
Salary of typewriter for March.....	20 00	
		<hr/>
Warrant No. 549		\$153 83
May 21, Express on photos.....	40	
Telephone to Odessa	35	
Scotford, pencils and pens	\$2 20	
Salary of secretary for April	66 66	
Salary of typewriter for April	20 00	
		<hr/>
Warrant No. 550		\$89 61

May 21, Expense W. G. Gano, to Nichols and return.	\$17 60
Expenses D. A. Robnett, to Kansas City and return	14 30
D. A. Robnett, postage for two years.....	10 00
D. A. Robnett, telegram	2 40
Expenses J. C. Whitten, Kansas City and return	11 85
Expenses J. C. Whitten, Louisiana and return	6 70
Expense L. A. Goodman, Ex. Com. meetings	24 20
	<hr/>
Warrant No. 551	\$87 05
May 21. Expenses G. T. Tippin, Ex. Com. meeting, St. Louis	\$19 60
Expenses C. H. Dutcher, meetings St. Louis and Kansas City	15 10
Expenses D. A. Robnett, Ex. Com. meeting, St. Louis	12 35
Expenses W. G. Gano, Ex. Com. meeting, St. Louis	23 10
	<hr/>
Warrant No. 552	\$70 15
May 21. Postoffice bill	\$21 00
Scotford, 1,500 programs and one dozen pen-holders	10 25
Scotford, 500 double post cards, printing...	12 50
Salary of secretary for May.....	66 66
Salary of typewriter for May	20 00
	<hr/>
Warrant No. 553	\$130 41
	<hr/>
Total amount	\$791 36
RECEIPTS—1904.	
Balance on hand January 1, 1904	240 96
Jan. 30. Received from State treasurer	825 85
Received from Md. State Society per L. A. Goodman.	72 00
	<hr/>
Total receipts	\$1538 81
Total paid out	791 36
	<hr/>
Balance on hand	\$347 45

Since making this report, I have received from the State treasurer, June 2, 1904, the sum of \$791.36. This makes a total sum of money in my hands which I turn over to my successor in office, W. T. Flournoy, of \$1,138.81. The expense of this meeting and premiums awarded will, of course, be deducted from this amount.

W. G. GANO,
Treasurer.

Mr. Chairman: Your committee, after looking over the Treasurer's report, find bills and receipts for each and every item in account. Also find drafts for amount to balance his account.

D. A. ROBNETT,
W. T. FLOURNOY,
P. K. SYLVESTER.

Adopted.

The report of the Finance Committee and the resolutions offered and adopted on another day of the meeting are submitted here at the conclusion of the Treasurer's report; also the discussion on the Finance Committee report. The Executive Committee authorize the following statements and notations in order that our members may have a full understanding:

AFTER THE REPORT OF THE FINANCE COMMITTEE.

A statement followed the report to the effect that the \$1,000 which was placed in the Mississippi Valley Trust Company by order of the Executive Committee, was still there and \$100 had been spent for four chairs and two desks for use at the World's Fair. This was done by vote of the Executive Committee and the treasurer issued the check for the same. There is, therefore, still left to the credit of the society over \$1,000, including interest. This fund, while deposited in the name of the Society, can be drawn only by the treasurer on order of Executive Committee and of the President and Secretary, the same as all other moneys are drawn.

This money has been accumulating for a number of years and it has been the aim of the Society to save and establish a fund of \$2,000, or more of their own. The time is here when another \$1,000 can be set aside and added to this amount.

Later the Executive Committee decided that \$500 more should be added to this fund and be deposited the same as the other with the Mississippi Valley Trust Company, which was done, making about \$1,500 now in the hands of the Mississippi Valley Trust Company to the credit of our Society.—Secretary.

DISCUSSION ON TREASURER'S REPORT.

E. W. Stark—Is there an opportunity for remarks? I wish to make a few remarks. Upon the report of the treasurer the other day I asked him if there were other funds in his hands. I asked him of another item and he said he had received it from the secretary. I got no information and talked with him afterwards, and got no information; and asked the committee and got no information other than that they had examined the treasurer's report. Under our laws and constitution the treasurer is instructed to hold the funds and to hold them for warrants drawn by the president and secretary on treasurer, the voucher to be furnished by the secretary. Interrogating the treasurer I asked the expenditures and find they are itemized, but he does not know the source of his receipts. January 30th received from L. A. Goodman \$72.00. I asked the treasurer for the voucher which the secretary furnished and he said it was a balance which the secretary turned over to him. I went to the committee who examine the treasurer's report and received no information. I do not know from whom to make the inquiry except here.

NOTE—The Secretary furnishes no voucher for money turned into the hands of the Treasurer. The money comes direct from the State Treasurer on an order signed by the President and Secretary, and the Treasurer does know where all the money comes from.

This Society is incorporated for a specific purpose under a constitution which specifies the duties each officer is to perform. As I read the constitution I see by the by-laws that the treasurer is to act as custodian and receive money and issue it on warrants by the secretary. As I understand it, the secretary is to keep the record and issue warrants as specified, and if he receives money he is to turn it over to the treasurer. As a member I deem it my privilege to know the source. I am unable to glean any information from the treasurer and the committee. The report of the treasurer has the items of expense, but not the receipts.

NOTE—The Society has a constitution but no by-laws; and if reference is made, it plainly shows that the Executive Committee have full power over all the money in our hands, and in drawing money from the State, and all other business dealings with the State.

D. A. Robnett, Chairman Committee on Finance—I said I would ask for the information and I did so and found it; also the information concerning the special fund and reported it to you myself. This special fund was reported last year and the account is with the Missouri

State Horticultural Society and the treasurer has it deposited with the Mississippi Valley Trust Company at St. Louis. This is not an annual session and the secretary inserted it in last year's report, \$992.62 on hand and \$100.00 paid out for World's Fair. Mr. Gano has it in the name of the Society at St. Louis. Mr. Stark said he wanted to be on the Finance Committee, and I thought he should be, so I asked the president to appoint him, and he kindly did so, but Mr. Stark would not accept it, and refused to look into this matter with us, in spite of the fact that he was given every opportunity by the committee.

L. A. Goodman—The money can not be drawn from this special fund by the treasurer alone. After the death of Mr. Nelson and a new treasurer was appointed, this fund could not be turned over until matters were settled and the certificate of deposit turned over to the Executive Committee, but as soon as settled the money was deposited in the name of the Society and is now held in the name of the Society by the Mississippi Valley Trust Company. I told Mr. Stark personally everything he asked. We get our money by checks from the State treasurer, sent directly to our Society treasurer. It has been our ambition to set aside two thousand dollars for a permanent fund, and this money is the beginning of it. The \$72.00 referred to was a refund from the Maryland society for money paid out for my expenses to their meeting, and I told him of this also. He has known all the facts in connection with all our money matters, for I had explained them all to him.

When we draw a requisition on the State Auditor we have to present a list of paid bills and send a certified list to Jefferson City. I have had to pay these bills as they come in, express, travel, printing, post office, etc., and I do this all the time. It is the same way with this Exposition work. The Missouri Commission sometimes owed me from three to six hundred dollars at a time. This money was turned over after the meeting because we have to settle bills that way. I explained to Mr. Stark and supposed it was satisfactory, and I am ready to explain to every member. The Executive Committee, to whom all such things are referred, and who have the power to act in all such cases, had full knowledge of this whole matter as did also many of our old members. There was nothing hidden or covered up, but all was done above board and Mr. Stark was told of it all personally by myself. In preparation for the World's Fair we were running three stations and there were expenses of express, processing and buying fruit and some of the money was so used, as is our custom to use it, and make the settlement afterward, sometimes months afterwards. This was done in this instance as it has been done often before, and the Executive Committee so authorized it.

Mr. Stark—I would ask the question, what is your plan and policy of settlement with the treasurer?

Mr. Goodman—We aim to settle once a year, including memberships. We make partial settlements with each other according to the semi-annual and annual reports, as shown by the warrants issued each month.

Mr. Stark—Is this settlement the only one?

Mr. Goodman—This is the settlement we make once a year.

Mr. Stark—I ask this as my privilege and right as a member.

Mr. Goodman—That is supposed to be the final settlement. Partial settlements are made once or twice a month with the treasurer, and warrants are drawn. The complete one is never made until December, and then everything is not always settled. Membership fees are sometimes carried over, and also some other expenses, as we have found this sometimes necessary, and the above instance is one of them.

Mr. Robnett—Mr. Stark was told that the \$72 was returned from the Maryland society, and he knew all about it.

Mr. Stark—I made inquiry the first day of the treasurer and have the right to know. The constitution specifies the duties and how the account shall be kept. The reports of officers should be correct, of the right sources and right expenditures, and I ask if such has been made to the society?

Mr. Goodman—You have been informed of this whole matter time and again. The source of every dollar has always been given and for what expended.

Mr. Gano—The warrants were used for monthly statements which are partial settlements only. The secretary and treasurer keep a running account as suits their convenience.

Mr. Stark—Have the duties of treasurer been carried out?

Mr. Williams—Do you show all the bills to the State Auditor?

Mr. Goodman—No, certainly not. No bills have ever been given to the State Auditor in the history of the society. The law does not require him to look over a lot of bills, but a list of them certified to by the president and secretary is sent him according to law, the warrants issued (after being paid) just as the law requires, and he never gets any of our bills. They are all audited by the Finance Committee of the State Society.

Member—The money is held by the laws of the State and the rules of the Society, and that should be enough.

Mr. Stark—This makes no authority for payment.

NOTE—It does make authority for payment and payment is made by a warrant drawn by the President and Secretary. After the Secretary makes out the warrant the President can refuse to sign it if he thinks it not right: and after the warrant is signed by the President

and Secretary, the Treasurer can still refuse to pay it if he should think it not correct. This authority comes by State law and by the rules of the society. If the gentleman had ever attended a meeting of our Society he would have known all these things. The Executive Committee have entire control of this whole matter.

Mr. Stark—There is but one way and that is the right way as a corporation. This has not been done.

Mr. Goodman—It has been done and you know it has for I have told you all the circumstances, and this plan we have followed for thirty years.

Mr. Burkam—Mr. President, I rise to a point of personal privilege: I can't sit still and listen any longer to these accusations made by aspersions and innuedoes, and I demand of Mr. Stark that he file a statement of any charges he has to make with the secretary. I make this as a motion to have Mr. Stark write down his claims and put in writing his charges against any member or members of the Society and file it at once with the secretary.

The motion was seconded.

J. M. Irvine—We can't cover up a wrong. The Society is laying up trouble for itself.

Mr. Goodman—The Society has nothing to cover up and never has had anything to cover up. All you have to do is to open your eyes and see; the reports show it all. Every cent of money ever received and every cent ever paid out by the Society is a matter of record.

Mr. Burkam—My object is not to smother any wrong, but I want the charges filed against the people who are charged with dishonesty or carelessness or neglect. I want to know and the public wants to know the truth of these matters. I am a new member and I want to know whether these men are responsible. I insist on the motion.

The motion was put and carried.

NOTE—This filing of charges, Mr. Stark failed to do at the time, and has failed to do anything of the kind since.

W. G. Campbell—I think there were no charges made and the treasurer's report does cover all funds.

C. H. Dutcher—Mr. Stark does not accuse the officers of stealing or dishonesty. The methods of accounts and reports should be improved. The \$72 could have been reported in December, but was not, because Mr. Goodman was using the money for the Fair, as the appropriation was not available until money was spent and bills rendered.

I move that while we have explicit confidence in the integrity and honesty of our secretary, Mr. L. A. Goodman, and our outgoing treasurer, Mr. W. G. Gano, in the handling of the funds of our Society, and that we are proud of the fact that the reports of the Financial Committee, show not the loss or misappropriation of a single dollar, we recommend

such a change in the method of keeping the accounts that the books of the treasurer shall show more clearly the source of all receipts, that every dollar shall pass through the hands of the treasurer, and that the present system of balances be discontinued.

This motion was seconded and carried.

Motion offered by Mr. Stark—I move you, Mr. President, that a committee of three be appointed to investigate this fund of \$1,000 or more, for which no report was made to this meeting by the treasurer, ascertaining who is the custodian of the fund and by whose authority they are acting, ascertaining from what source the fund was derived, tracing it from its incipiency down to the present date, informing the Society who has been handling it, what additions have been made to it, who have been drawing checks or warrants against it and for what purpose such disbursements have been made. This committee further to have the authority to at once take possession of this fund and turn it over to the treasurer who is the proper custodian of all funds belonging to the Society.

Mr. Dutcher—I second the motion.

Member—I enter a protest to this motion as its endorsement implies that the report does not cover the whole of our funds.

The question was called and the motion carried.

NOTE—This money is now in the hands of the Treasurer and has always been in the hands of the Society and is now deposited with the Mississippi Valley Trust Company of St. Louis as Mr. Stark well knows. Later in the year President Whitten appointed Hon. M. B. Greensfelder of Clayton, Judge O. B. McAfee of Springfield and Prof. S. A. Hoover of Warrensburg as the committee to report on this matter at the Winter meeting. This report is to be found in the minutes of the Winter meeting, business meeting, fifth session.

In our report for 1901 the Treasurer reported the special fund of \$1,071.20 on hands, and with interest to 1902 made the amount \$1,092.62. One hundred dollars of this fund was spent for office furniture at the World's Fair, by order of the Executive Committee, and, in the report of 1903 the Treasurer showed as a balance on hand \$992.92, and accrued interest; thus making a complete report of all the money on hand in the Mississippi Valley Trust Company.

Mr. Dutcher introduced a resolution on the Gano and Black Ben Davis controversy.

RESOLUTION CONCERNING THE BLACK BEN DAVIS-GANO CONTROVERSY.

In view of the present status of the Black Ben Davis-Gano controversy, your Executive Committee, the special committee on said controversy concurring, feel it is due all parties interested and affected that the following statement be made:

1. Our action in appointing said committee was a legitimate one, being in harmony with the position often taken in our discussions and which found formal expression in the resolutions recorded on pages 89 and 90 of the 1902 report.

2. In harmony with the latitude given the committee at the time of its appointment, it decided that their investigation of the facts obtainable concerning the origin, dissemination and characteristics of the Black Ben Davis and Gano apples, should be reported on account of any bearing they might have upon the origin of the varieties and for their historical value should they possess any, and that the work should be done in the same spirit in which one might trace the origin of a cultivated plant in order to determine if possible whether it was an indigenous or an introduced species.

3. When this was accomplished, we considered our duty to the fruit growers fully performed and hoped to hear no more of an already unpleasant controversy. But whereas the Stark Bros., of Louisiana, Mo., think a too strenuous interpretation has been given the statement made by their representative, Mr. Crow, at the summer meeting of 1902, viz.: "that the Stark Bros. think it right to appoint the committee; all they ask is a fair committee," and that as a result they have been placed in an unjust attitude, the Society would state the Stark Bros. did not in any other way ask for the appointment of the committee, did not, to our knowledge, verbally accept the personnel of the committee nor agree to stand by its report, but manifested an acquiescent interest in its work by placing in their possession information, and accompanying them in an interested capacity on their trip into Arkansas, which acts were calculated to leave the impression that they were satisfied with the committee, while it did not imply, as a matter of fact, they would agree to its findings in case the report went against their position; and

Whereas, it is now claimed and charged by the Stark Bros., that since the report was made its legitimate function seems to have been lost sight of by some, to be considered from the standpoint of its alleged bearing upon commercial interests alone to the exclusion of any scientific or historical, or other value, the report may possess, and that some have unduly used it to their detriment in business, and to their injury in reputation and character, for which our action furnished the occasion, this Society would state and does now state, that it never contemplated any such use of the report as is charged, and that it was not our intention to unjustly interfere with any established commercial interest; that recognizing the fact that some horticulturists and fruit growers do not concur in the conclusions of our committee, we recommend every one interested in the matter to consider the entire evidence as brought out upon both sides, and make up his own opinion; and that we should all avoid any over-zealous defense of personal opinion which might lead to misunderstanding and partisan strife.

DISCUSSION ON BLACK BEN DAVIS CONTROVERSY.

Mr. Stark—This resolution indicates recent developments, since the report of the committee appointed to investigate the question of two varieties called Black Ben Davis and Gano. I deny asking for such a committee, or that I am satisfied with the personnel, or that I accept the report. (Refers to letters.)

We received a letter from Prof. Whitten stating that he had learned many things, and would like to come to Louisiana, and we answered to come, and bring Mr. Robnett with him. They owed it to themselves to take the initiative. A statement was prepared and mailed to us, but was not satisfactory. We went to Columbia, but could not accept it. We sent another statement with a few additions, but President Whitten and Mr. Robnett were unwilling to sign this.

Mr. Robnett made a motion to postpone the discussion until two o'clock.

Mr. Todd offered an amendment to table the whole until the winter meeting. This was amended to give Mr. Stark twenty minutes to finish his statement.

The amendment as amended was carried.

Mr. Stark—We would not accept the article unless as worded by us, but would accept it as finally signed by part of the Executive Committee. As far as the personnel of the committee for the investigation is concerned, Mr. Goodman is at the bottom of the whole, and responsible for it. We have heard that he said the apples were the same. We find that Mr. Goodman introduced the question and asked for the investigation and made the statement that he had received hundreds of inquiries as to the two. Mr. Robnett consulted Mr. Goodman on the committee. Mr. Goodman is the instigator, he never lost an opportunity to say the apples were the same, never said a word in favor, never recommended a customer to Stark Bros. He said Stark's imposition should be settled by the Society. In conclusion we want the members to know what led to the controversy, and the expense. We mean to publish the whole matter.

NOTE—This gives the secret of all the trouble, about the money matters as well.

G. T. Tippin—I am glad my reputation is worth as much before this Society as though I were not a nurseryman. I am one of the men who would not sign the statement Mr. Stark wanted, and my brother officers are glad we refused to do so. In fact the officers withdrew their signatures, and Stark Bros. had no right to the statement at all, as it was not to be given to them unless signed by the entire Executive Com-

mittee, and as it was never signed, it was never delivered. Messrs. Whitten, Flournoy and Evans are honorable gentlemen. The report was made in the interest of fruit growers and is an honest decision. The Society or the Executive Committee are not responsible if the report is misused. The report should not be criticised, nor impugned, the resolutions did not authorize any abuse of the report. I know that this committee settled this controversy once and for all, and the Society concurred in their finding unanimously.

On motion the resolutions introduced by Mr. Dutcher were adopted without a dissenting voice.

NOTE—Concerning the report sent out by the Starks as coming from the Executive Committee: This article was signed by a part of the Executive Committee and the Black Ben Davis and Gano Committee, with the understanding that it should not become public unless signed by all of them. Never having been signed by them all, it was never delivered to Stark Bros., nor given to the public, and the Executive Committee passed the following, which was signed by every member of the committee, and sent to Stark Bros., and ordered embodied in the report of 1904, as their final conclusion in this matter:

W. P. Stark, Treasurer:

St. Louis, Mo., May 3, 1904.

Dear Sir.—The whole Board having utterly refused to concur in the statement sent by you to Messrs. Robnett and Whitten, and a further discussion of said statement having brought out more fully the real purport of the same, those who did sign withdrew their names, and it was unanimously agreed to take no action in the matter.

The Special Black Ben Davis-Gano Committee consider that their work ended when their report was made and accepted and they were discharged.

D. A. ROBNETT, President.

G. T. TIPPIN, Vice-President.

C. H. DUTCHER, Second Vice-President.

L. A. GOODMAN, Secretary.

W. G. GANO, Treasurer.

SECOND SESSION—WEDNESDAY, JUNE 8, 10 A. M.

President Whitten called the meeting to order.

The secretary read an invitation from Dr. Trelease to visit the Missouri Botanical Garden.

The Missouri Botanical Garden,

Office of the Director, St. Louis, Mo., May 21, 1904.

Dear Mr. Goodman.—I take much pleasure in extending a cordial invitation to the State Horticultural Society to visit the Missouri Botanical Garden on the occasion of its approaching summer meeting. Though I fear that I shall not have returned to the city myself, Mr. Irish will see that every provision is made for the economical use of time in case the invitation is accepted, and timely notice given of the proposed time of visit.

Very truly,

WM. TRELEASE, Director.

A motion was made and carried to accept this invitation for Friday afternoon, and that the Society make the visit in a body.

The general subject of orchards was the order of the morning.

ORCHARDS.

(Mr. T. H. Todd, New Franklin, Howard Co., Mo.)

Location—The fruit growers should understand that, without proper location, they have failure to start with. To my mind one of the greatest questions is the location. If you have the right one you are sure of success. In viewing the country over I find there are thousands of acres in the State which are not considered good for growing trees and fruit for money. I find plenty where the trees grow large, but they are not fruitful. I hoped to have nice looking trees and orchard by careful attention, and thought there was no question as to results, but after trying twelve or fourteen years I find other things are necessary, and many problems confront the fruit grower.

I would recommend, when you are setting out a commercial orchard, to select high, dry, rolling land with a deep subsoil, as original timber land, and the river hills of the Missouri, Mississippi or any stream. In my orchard I have had reasonable success. One year I have had an abundant crop on the east side, or another on the west, with perhaps an entire failure on the north, and so am sure of a crop each year, but not on all of the orchard at once. I have never seen all points of the compass in the orchard have fruit in one year. I could make great suggestions to myself, as to planting something else than apple trees on the low rich land. It is necessary to start well by having a good location and then we may expect reasonable results. Let us not plant on the hills with no soil, nor on poor land where only scrub trees grow, but get good land even if it does cost some more. Don't start on unprepared land. Prepare your land beforehand.

Planting.—We all differ a little in our plans for planting. Some think it is best to plant in the fall. Have the ground prepared and plant freshly dug trees as early as possible, and set that way and standing until spring they are apt to start better than those set in the spring. But I think it better to plant in the spring when the sap is starting, the trees are full of vigor and all is ready to grow and they will not be injured by the winter weather.

Varieties.—I believe in planting different varieties, as when we divide up we will have success with one if not the other. Some prefer one kind,

some another. I think it is best to have not over half a dozen varieties, but neither should we have all Ben Davis nor all Jonathan, nor too many of one sort. Some varieties are not adapted to all soils, so we must know our soils, and what use they are suited for before planting.

My first choice is Ben Davis, and then Gano and the standard varieties.

We must not plant too close together. I made that mistake at first. Twenty-seven feet is too close, the trees ought to be thirty-five feet apart. Missouri Pippin can be planted close. Every man has and should have his own way of planting.

Care.—There are many ways in which we can take care of our orchards. We work the land with corn as long as possible in order to cultivate the trees and have the land clean. We are not bothered with rabbits where there is no grass or weeds. While it may take a great deal of substance of the land away to grow corn, we can put the richness back with clover. A mulch is splendid but we must not leave food for the mice. If the corn is cut, we can not mulch as the corn remains as feed and harbor for the mice. You should go over the orchard before cold weather and pull the mulch away, and clean twelve inches or further from the tree.

Rabbits.—We have been successful against rabbits with a wash of lime, carbolic acid and sulphur and some copper, mixed together. It will scale off if it is not rightly mixed. Put the carbolic acid and soap in a barrel, add a little water and add rock lime, which slacks and mixes the other ingredients. Get the sulphur in before the slacking is finished. This stays on the trees two or three times as long as whitewash.

Tobacco dust is good around the roots and trunks of small trees, and if put where it is hard to get a tree to live, you can then replant.

Replants.—I hate to have vacant spots in my orchard. Put in young trees, and they will grow if well cared for. Take care to get the hole well prepared. Empty the hole by dynamite, this loosens the ground better than plowing. Prepare in the fall and set in the spring.

If the land is rich, you can rake the clover for hay, otherwise let it stay on the ground. Do not have any small grain in the orchard.

Pruning.—Head the trees low, after two years you can get the head the way you want it, two feet from the ground, or as low as you can. Take off the water sprouts in May or June, or while they are soft and can be rubbed off with the glove. Of course we must cut off the dead limbs and broken ones.

Spray.—We shall keep on spraying as we are until we find something better. We can not tell the exact effects.

Mr. Howard—How many corn crops would you use?

Mr. Todd—I would use four crops of corn, but if your land is thin you can not use as many. The corn protects the young trees from the sun.

Mr. Dutcher—How do you prepare for the new tree or replant?

Mr. Todd—After the fruit is gathered, clean up the orchard in the fall for winter, pull the grass away and take off the unnecessary limbs. At this time you can detect the dead trees. Bore a hole two feet under the tree and use one stick of dynamite under to blow it out. Leave the place open until spring, for the freezing is good for the ground. Borers and all pests will be destroyed and the replants will grow. I don't find new earth necessary, but fill the hole with near-by earth. Tobacco dust put near the roots of the trees after they are set is beneficial and the difference is readily seen where it is used.

J. M. Irvine—Do you put clover after the corn and does it harbor mice?

Mr. Todd—I use the clover when it is necessary to have a fertilizer.

Mr. Meyers—Will dynamite throw out a tree thirty-five or forty years old? I have had success in putting in a new orchard where an old one had been.

Mr. Todd—If the tree is very large, use two sticks of dynamite.

President Whitten—Mr. Todd is modest as to his success, but he has given us good sense and the pith of his practices.

SCIENCE APPLIED WITH PROFIT.

(C. H. Williamson, Quincy, Ill.)

When your esteemed secretary asked me to prepare a paper for this meeting he assigned an ironical subject like the "Money-side of Fruit Growing." My science, if I have any, is from books and scientific minds, but we use it in a loose and unconventional way, as meaning the use of some system in our work and good sense and such information as we can get, and I have used it so. We speak of a man as just setting out his orchard and he has to consider first location. I have long since given up the inquiry as to whether I shall plant on the northeast or some other slope. My rule is, never put out an orchard except where there is the best of soil, where nature has richly stored the food materials. Some soils are apparently poor or sterile but are richly adapted to orchard growing. My experiences teaches me never to put the trees where the soil is thin nor where the frost easily settles. I

have changed my opinion on bottom lands and now I had as lief have an orchard there, near the water as in any other location. In ten years an over rich bottom soil will produce more crops than any other except fine hills. The high ridges with mulatto soil, as in Arkansas, are the finest orchard lands. The keeping quality of apples grown on bottom lands is surprising, as was proved by the Maiden Blush grown there. When the spring is late and there are severe frosts the bottom is dangerous. The experience of last year in this regard cannot be taken into a business account. There are two desirable locations, the bottom lands and the best in elevated situations.

My cannon No. 2 is, buy trees near your own place.

It pays to mulch in order to start the young trees and keep them growing. We do not regard enough the needs of the young growing tree. The question as to what crop to put in the orchard is a grave one. Experience leads me to believe that we ought to give high and continuous cultivation, but cropping in corn is often a mistake. I would never put more than one crop of corn in a new orchard. It is a virtue only because of the cultivation given, but it is not the better way. Potatoes are a good crop for about two years, only they are too much work. Clover would keep two years in a young orchard and one of the cheapest and best ways is to keep it in clover for a period of two years, and use hoeing around the trees. This is a cheap way for extensive planting and in hard years it is safe to put in clover and hoe. Western orchards may not need cultivation every year, especially where there has been washing and erosion. We have often made a scientific mistake by over cultivating. It is better to keep a bearing orchard in clover half of the time and use commercial fertilizers. Besides cultivation during the period when the new leaves need stimulants, use commercial fertilizers which are prepared in a scientific way.

As to pruning we need to cut more than is the usual habit. Missouri has grown too much wood. Few of us can show successive crops, and we need to change the methods now used. The business of apple orcharding is, as we have it now, a weak business, and from a scientific standpoint, a monumental failure. I do not doubt but that most of you, and I know for myself, that I have made serious mistakes. I use clover a number of years and then cultivate for a season or two and then put in clover again and hoe by hand around the trees, and I use commercial fertilizer to stimulate the fruit production on my trees.

In the matter of varieties, judging from my own experience, I would dissent from the choice of only from one to four varieties. For our pocketbook's sake we should have at least eight. Different years are

not favorable to all kinds; some may be a failure while others are successful, and there are eight successful varieties for the West. We cannot afford to neglect the early varieties.

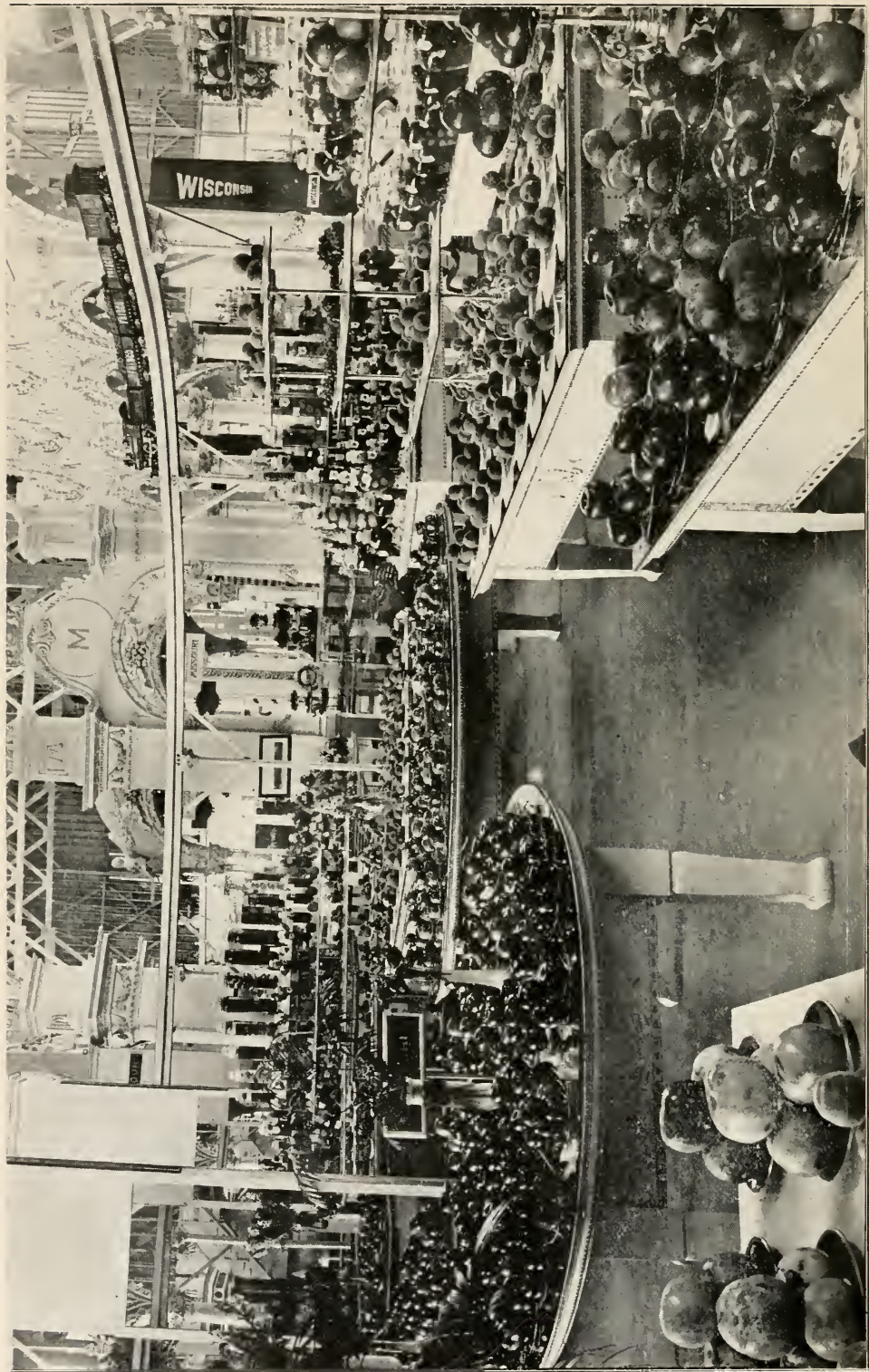
The work of spraying cannot be done rigidly by rule, it is most foolish to spray by calendar dates. We must adapt our spraying to the seasons and will need to change every year. The rule is not the master, but reason in the use of the rule.

When I became satisfied this spring that there was too much rain at blooming time, I cultivated an orchard of beautiful Jonathan trees, and had, as a result, a phenomenal set of fruit, and I did the same five years ago and am persuaded that this is the reason of the fruit setting, it re-inforces and invigorates the blossoms and is a safe plan. Watch the weather and the conditions and make your rule.

The most important spraying after the first is the later one and not the intermediate. We do not have enough of the late spraying. It is necessary to change the character of the spraying for the late application. For the two late ones we use carbonate of copper and for the early ones Bordeaux mixture. I am satisfied that many a fine crop has been ruined by insects after July 15th. We should, however, protect and defend our crop by spraying at this time and also in August, the 20th is the last date of our spraying. The price of spraying five times is ten dollars per acre and the price of cultivating is five dollars per acre, clover reduces it some; one and one-half cents per tree is said by other orchardists to be the price for hoeing and fifteen dollars per acre for cultivation. Five dollars per acre for commercial fertilizer has proved beneficial through a season of years. From fifteen to twenty dollars per acre for expenses is what you should spend if you want fruit, but the business of growing wood instead of fruit is unprofitable, and you had better direct your efforts to other channels. I am sure that legitimately conducted, and if men take advantage of every new thing that is observed, that the growing of apples is profitable.

The orchardist should have an attitude receptive to newer light and discoveries. The business of apple orcharding is legitimate and profitable, provided it is well conducted, but the man of ordinary means usually undertakes the work on too large a scale. It is intensive and not extensive work.

Pres. Whitten—Mr. F. W. Taylor, chief of the Department of Agriculture and Horticulture of the exposition is present at this time and will give a short talk to the Society. Mr. Williamson has kindly allowed his own paper to be interrupted in order that the Society may hear from Mr. Taylor.



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
3,000 PLATES APPLES.

Mr. Taylor—I am sorry to have the appearance of not being able to see my friends and listen to horticultural gospel, but the dairy work has now been put into my hands so that time is shortened. I commiserate myself at not being able to do more and learn more in this work. The Horticultural Exhibit is the apple of my eye. Just executive work is a grind, but I am delighted to be here and listen to horticultural language, it is like hearing again the language of one's youth. It is a pleasure to me to drop in at this time. All this pomological exhibit is not by chance, but a lot of men have worked, so that we have a display never before approached at this time of the year, and we are proud of it.

We shall try to get records that are worthy of publication, that shall be helpful and shall be printed and not buried. We want the most possible made of this. In the selection of jurors we have provided that representatives of every agricultural and horticultural college shall be brought here, twenty to thirty of them. They will be making studies, taking data, bringing them home to their schools and stations, so that the expansion of knowledge shall reach to every state. The educational advantages must be gotten to the people. We shall try to make it as broad as possible and hope the recipients will be benefited, especially the young men and the experiment stations and colleges. A great good will be started from this exposition. I am delighted to be here, more than at any other organization. My best wishes are yours for all success, and I hope the meeting here will be profitable and that you will enjoy the visit. I thank you for your time and attention.

DISCUSSION ON ORCHARDING.

D. A. Robnett—How soon would you put clover in a young orchard?

Mr. Williamson—I use potatoes in the orchard for the first two years and find them profitable and good for the soil, but they are a good deal of labor and consequently it is not well to have them for more than two years. Then I put in clover and leave it on the ground, or at least the second crop.

To return to the topic of varieties I grow eight. The first is Jonathan, and I have them forty years old and they will live another twenty or more, while Ben Davis are gone at the same age. The Jonathan is a heavy bearer and worth more than others. My next varieties are Grime's Golden and Ben Davis, but I do not plant solid blocks of Ben Davis, but have it in moderation. It is a business apple and a tree of business instinct. Potash in the soil improves Ben Davis, and it is as good as Baldwin every time. Speaking of Ben Davis I include the Gano also. It will have fine color when the Ben Davis is slow to color. Wine-

sap is another good one. The Willowtwig must be starved as a Kieffer pear and it is safe to leave it in weeds. The Wealthy is good and the Maiden Blush not the least valuable, mine are still bearing at sixty years. It is thrifty and healthy and rewards all labor expended upon it. The Wealthy at twenty-five years is still a good tree. Off of two hundred trees we gathered twelve hundred bushels. It needs to be thinned and the cheapest way is to spray while it is in bloom.

W. H. Barnes.—At this time the Gano are on the tree while the Ben Davis are on the ground.

Mr. Williamson.—For the eighth variety I would recommend Missouri Pippin, especially as it is a good filler. Plan for sixty feet between the trees. It will bear itself to death and can be cut out.

Bentonville, Ark., June 1, 1904.

L. A. Goodman, Secretary:

My Dear Mr. Goodman—Your invitation to meet with your State Horticultural Society in St. Louis June 8-11, was duly received, and I feel very much flattered at that part of your letter asking that I prepare a paper on "Orchard Cultivation;" for am of so limited experience.

I am trying several experiments on that line of care, and think by next winter I will be able to speak out my judgment. Clean cultivation of a young orchard should continue until June 10th to 20th, then sow with cowpeas, or later with rye to be turned under not later than April. And hoe your trees at least twice, three times is better. When the orchard comes into bearing seed to clover and cultivate with the mower. I have 40 acres of 11-year-old trees which have been in clover for three years, they look well, lost but one tree last year. All Ben Davis show from $\frac{1}{8}$ to a full crop. I am sure some trees will have five barrels of apples after thinning.

I use dust spray altogether, have been over it four times and intend leaving one-half with the four sprayings and the balance with six or seven sprayings. We must find out all about it.

Now I am very sorry I cannot be with you, I would enjoy it, but little wife is sick and I must not leave her; besides I am run over with my little cares. Besides this, I am ashamed of our State Horticultural Society. We hope at our next meeting to undo, as far as possible, the work that was put through at our last meeting. With my very best wishes for you, the society, and its prosperity.

Sincerely,

GEO. T. LINCOLN.

THE APPLE GROWER AND THE APPLE SHIPPER.

(Louis Erb, Memphis, Tenn.)

Your convention being held in the World's Fair City of St. Louis, I took for granted that it would be attended by apple growers as well as by apple shippers. For this reason I selected for my subject, "The Apple Grower and the Apple Shipper." Under the circumstances I also concluded that it would be proper, on this occasion, to say a good word for Missouri, and especially the Missouri apple grower.

I am enjoying the freedom and hospitality of this city and State on the same terms that you are, any where from \$2.50 to \$15.00 a day, and it behooves me to show and express my appreciation, besides I am a Missouri apple grower myself, and as the crop looks short this year, I need encouragement in another direction. As the progress of a race of people is indicated by the care for fruits and flowers and the character of its apple growers, so may we also judge of its taste, culture and refinement by the appearance of its apple shippers. If the men I see before me are a fair representation of the latter, then I must confess our race is in good luck and a subject for congratulation. As co-workers of the apple growers in civilizing humanity, by supplying it with apples, they may not scale the dome of the temple of fame, nor attain to great honor and renown, but surely the world is better off for their living in it.

If all the politicians from Maine to California were put in a big sack and dumped into Salt river it would certainly be a great calamity, but the nation would still live and the people prosper, but what would the world do without the apple shippers? The first apple shipper, of whom we have any record was Eve in the Garden of Eden, when she plucked the apple from the forbidden tree and shipped it to Adam. And as a result of her first shipment, there came the clothing and the millinery business.

As I stated on a former occasion, our distinguished friend, Mr. P. M. Kiely of St. Louis, after thorough investigation, has made the important discovery that this first shipment of apples from the Garden of Eden consisted entirely of Ben Davis. And for making this discovery we owe him a debt of gratitude which we never can pay.

Now what is the difference between the apple grower and the apple shipper? The difference between the apple grower and the apple shipper is, that one is an optimist while the other is a pessimist. The difference

between an optimist and a pessimist, in my opinion, is that one can make a speech under the influence of hot coffee, while the other needs the inspiration of a "cold bottle." But according to another authority, an optimist is a man who builds air-castles, and like the American eagle, soars among the clouds; the out-stretched wings of his imagination fill the sky, and in Missouri he regards himself the intellectual crown of the universe.

The pessimist, on the other hand, is said to be a man of a conservative temperament who deals in facts and figures, and, like the frugal hen that scratches the earth for worms and insects in order to lay more eggs, he is after apple growers to increase his bank account, always has an eye for business and takes no stock in sentiment.

But Mr. President, I do not wish that this explanation of the difference between the optimist and the pessimist be considered as a compliment to the apple grower nor as a reflection on the apple shipper. And yet it is true that the apple grower is the best man of the two, because he plants the apple trees. And in poetical language,

"What does he plant, who plants the apple tree?"

"He plants cool shade and tender rain,

"And seed and bud of days to be,

"And years that fade and flush again,

"He plants the glory of the plain,

"He plants the people's heritage,

"The harvest of the coming age,

"The joy that unborn eyes shall see,

"These things he plants, who plants the apple tree."

Yes, it is true that the apple grower is the best man of the two because he is engaged in the divine calling of horticulture, while the apple shipper is employed in the wicked avocation of commercialism. The very existence of the apple shipper is dependent on the apple grower. Without an apple grower, there could be no apple shipper, and the latter would be compelled to go into some other business to make a living for himself and take care of his poor relations.

The apple grower is a proud man, superior to the ordinary man who tills the soil, and if any dude apple shipper from the city doubts my assertion, just let him call him a clod-hopper or a mudsill, and then see what he will do to him.

The apple grower, especially if he hails from Missouri, is regarded by the best people everywhere, as a messenger of peace, joy and good will. The angels of heaven are supposed to hover around him, to guard and watch over him, and to inspire him with beautiful sentiments and thoughts of poetry and song. In the language of another:

"He who would worthily speak of a Missouri apple grower should be inspired by a muse of fire that should ascend the brightest heaven

of invention, he should have a kingdom for a stage and monarchs to behold the swelling scene."

But, Mr. President, while this is all very nice and sounds well, it has also occurred to me that the average Missouri apple grower would feel that he was a still bigger man if the angels of heaven would only hover around his orchard occasionally and inspire his trees, not with beautiful sentiments and thoughts of poetry and song, but with an ambition to bear larger and more regular crops of apples. In olden times when a man achieved distinction in any calling, great pains were taken to find out all about his ancestors, the idea being that genius is inherited. The Americans being a young and practical nation, care nothing for ancestry, every man stands for himself, every tub on its own bottom, no one cares whether his grandfather dined with President Jefferson or sawed wood for a living. But if in the near future it should become the custom in this country to inquire into the ancestry of gifted men and women, you will find they are the sons and daughters of Missouri apple growers, and don't you forget it. (I take for granted, Mr. President, that no inquiries will be made into the ancestry of those sons and daughters of Missouri apple growers, who may happen to be usefully employed in work houses and the penitentiary.) Missouri, by some people once considered the moss-back in the galaxy of states, has today the best and most complete system of schools and other educational institutions of any in the union, according to her population, and is holding her own in the march of progress in all other respects.

Missouri is the only state in the Union that has an experiment station or college exclusively devoted to fruits. It is located at Mountain Grove in the southwestern part of the State. No other state except Missouri has a railroad that takes as much interest in fruit growing as the great Frisco system. Go to the World's Fair grounds and you will see at the Missouri horticultural exhibit, its train of cars of big red apples swinging 'round the circle. In other states you have to pay on railroads whenever you ride but in Missouri all you have to do when you enter the cars is to hold up a Ben Davis apple in your right hand and an Elberta peach in your left and the Frisco system take you all over the State without charging you a cent. Therefore, I say, if any of you apple shippers are tired of your wicked vocation, come to Missouri and start an apple orchard, and if it does not make you rich it will surely make you happy. The Frisco system, through its emigration department, will help you in finding the land, and the people bid you welcome and wish you god-speed. I admit that Missouri, on account of unusual weather conditions, has had short crops for several years, and that New

York is still the banner state in the production of apples, but the time will come, and is not far distant, when Missouri will raise more apples and better apples than any state in the Union, especially the Ben Davis. And even now she is holding her own when you consider the age of the trees. Yea, she is doing more than holding her own: According to the census of 1900 she has 20,040,399 apple trees while the great apple state of New York which comes next has only 15,054,832.

Talk to me about old Missouri, why she can beat the world in raising smart politicians, fine mules, beautiful women and Ben Davis apples. Hence, its no cause for wonder that in this good year of the Lord 1904 there is being held within the borders of this State, the grandest exposition that has ever been seen in this or any other land.

The horticultural and pomological displays, which are or will be the largest and most complete that have ever been known in ancient or modern times, owe or will owe their success in a very great measure to the untiring efforts unparalleled energy and wide knowledge of the apple growers and others interested in the cause of horticulture. No visitor should leave St. Louis without thoroughly inspecting these departments, and taking a good look at Frederic W. Taylor, L. A. Goodman and John T. Stinson who are in charge of them. And I say especially John T. Stinson, because, as I am reliably informed, he is the man who on the 27th of next September, will give away to the public one million dollars worth of apples. Such deeds of chivalry, Mr. President, remind me of the days when knighthood was in flower, and therefore I say, may the blessing from On High rest on the gallant sir knight, "Apple" John, and his great liberality. I honestly believe that one of the causes of Missouri's awakening from her long slumber was the appearance on the stage of her activity of the intelligent apple grower.

As I still claim to be a citizen of Tennessee, I believe I can assert, without being accused of egotism, that the apple grower of Missouri is one of her best and most useful citizens, and I am quite satisfied that when his course is run on this earth, and his genial spirit passes to the other side of Jordan and into the new Jerusalem, he will leave to posterity the richest legacy of all the dead—the Ben Davis apple tree.

But while, as I have said, the apple grower is the best man of the two the apple shipper has also a great mission to perform in life. His mission is largely for the benefit and advantage of the apple grower and this being so, he will surely get his reward, if not in this world then in the next.

Mr. President, I believe that when, at the end of time, the Angel Gabriel blows his horn for the just and the good to appear, some of the apple shippers will be found at the golden gate.

The interests of the apple grower and the apple shipper are mutual, and it behooves both to cultivate the most intimate and friendly commercial relations with each other. Both will make money by the operation, and, although money is a side issue with the apple grower, there may be times when his family and perhaps his creditors can use it. It is an old saying that a good barber never shaves himself, but lets some other fellow do it for him. The same rule applies to the average apple grower. The apple shipper thoroughly understands the tonsorial art, and is, therefore, entirely competent to shave the apple grower. And considering the fact that the average apple shipper has a tender regard for the feelings and opinions of others, and believes in the golden rule, "Do unto others as you would have them do unto you" (provided he can do the others first). I am confident that he will make a nice job of it.

It is one thing to grow apples, and another to market them. Preachers and poets have told us in prose and in verse of the wonders and beauty of nature, in ways and manners to challenge awe and admiration. It is therefore, not surprising that some unreasoning persons believe that she is solely responsible for the production of the superb fruits which are being exhibited at the exposition in this good city and the work of the grower is lost sight of.

But after all, nature supplies us with very few useful or beautiful things. Excepting the earth, which sustains us, the air, which we breathe, and the water which we drink, there is not much else that is solely due to nature. All that we own or possess is due to the application of human knowledge and skill, and the conquest of labor. The beautiful apples which are raised on the Ozarks, especially the Ben Davis, according to a tradition among the bald knobbers down our way, were originally in Asia small, dry and worthless seedlings, and used by the children in playing marbles, but by and through the ingenuity and industry of men, and at the expense of much time and almost infinite patience, you find them what they are today.

And still the work is not done, as a horticulturist, I agree with others in that the prize of an apple orchard is: a clear head, constant application, eternal vigilance, a discerning eye, a bending knee and a sharp knife. It takes all of these attributes with the addition of hope, faith, enthusiasm and great patience to fight, in these modern times, fungi diseases, codling moth, canker worm and other pests. Now add to this the making, gathering and packing of the crop, and you must admit that the apple grower has his hands full without looking after the markets. Therefore, I hold that apple growing is a business by and in itself, and the marketing the apples is also a business by and in itself.

To market the apples is the business of the apple shipper whose whole time and attention is devoted to it.

I do not deny that there are plenty of apple growers who have the ability to market their own apples, but whether or not it is good policy to do so, that is the question. Shakespeare says of the man who tries to do two things at a time :

"He is like a man to double business bound
and stands in pause where he shall first begin
and both neglect."

Although the apple shipper may be a pessimist, and, like the hen, prefer to stick to the earth in his conservatism, yet, when the apple season opens, he becomes an eagle in his flight, or like a race horse in his course, he scours not only his own country, but all the foreign lands where they have sense enough to eat American apples, to find the best markets. He knows where the men are located who buy apples, and keep in constant touch with them, and they know where to find him.

To make apple growing in the United States profitable, with the increasing production, we need Europe as an outlet. Now, if a man in Liverpool, London, Amsterdam, Hamburg or Paris wants one or ten thousand barrels of apples, he will not enquire all over our country among the apple growers, but will send his telegrams and his orders to reputable, responsible apple shippers in Chicago, St. Louis, New York, Boston and other large cities. For this reason I consider that the apple shipper or commission merchant, or apple buyer, as you may call him, is a necessary evil or a great blessing. All depends on how he treats the apple grower. I may say by way of parenthesis, that sometimes the apple shipper is almost as honest and reliable as the apple grower; strange as it may seem, but I have known of such cases. For five and twenty years I have been a commission merchant myself, and on account of the sins I committed, according to the foolish opinion of some country shippers, remorse struck me and I repented a good many years ago.

In order to make proper atonement for my sins, I also became an honest apple grower. Of course I had the good judgment to select Missouri as my field of operation, and pitched my tent in the land of "the big red apple." I located on the Frisco system on top of the Ozarks, "just midway between Memphis on the Bridge and Kansas City on the Kaw," on what is called Missouri's highest ridge, and the finest place you ever saw. The elevation at this point is so lofty and the atmosphere so ethereal that I sometimes dream of things above and beyond this earth.

In one of my dreams I saw Eros, the God of Strife, throw the prize of beauty in the midst of the assembled divinities, and Juno, Minerva and

Venus quarreled over it. Then I saw Jupiter, the chief of all the gods, appoint Paris, the handsome, accomplished and valiant, to settle the dispute and make the award. He gallantly awarded the prize of beauty, which was a Ben Davis apple, to Venus, the goddess of love and beauty, whose favorite fruits and flowers were the poppy, myrtle, rose and apple. So you see my friends not only in this world of ours, but even beyond the skies the handsomest woman takes the cake, or which is better, the Ben Davis apple.

Now from the experience I have had in both lines of business, I have come to the conclusion that it is the best policy for the apple grower to sell his apples, if possible at harvest time, if he can obtain a fair price, or consign them to reputable, responsible commission houses. The expense of holding and the risk of dribbling them out during winter and spring in small lots to Tom, Dick and Harry are matters for serious thought and consideration. I know that some of the apple shippers are too particular when they try to purchase from the apple grower, by demanding only the select fruit and leaving him with two-thirds of his crop to take to the evaporator or cider mills. Now this is all wrong, and the reason why many apple growers have become apple dealers.

If the apple grower had his own way about it there would be only No. 1 apples, but unfortunately he can't control the elements and other conditions incidental to apple growing.

Hence, no matter how careful he may be, a large per cent of his apples will not class as No. 1, and he must find a market for them better than the evaporator or the cider mills. My opinion is that a good demand can be created in this country for No. 2 and even No. 3 apples, among people of moderate means, if the apple shippers would take hold of it in the right way. And when they do take hold of it and have them packed in a proper careful manner, indifferently packed, "farmers' stock" will no longer glut or spoil the markets for them. In other words, my advice to you apple shippers is, instead of trying to buy only one-third of a grower's apples, buy his whole crop in so far as it is merchantable, and pay him for each grade what it is worth and no more. I am aware that some apple shippers do this, but in the majority of cases they will talk only about fancy stock, and will leave the grower with the bag to hold, which usually results in the latter becoming a competitor of the former. Treat the apple grower right in this matter and you will serve your own interest in the end. It is my opinion that if the apple crop in the United States is handled in the right way, by proper packing, judicious marketing and wise distribution among all classes of people, there can be no over production and ruinous prices for many years to come.

There are more people in this country who do not get enough apples, than there of those who get too many. It is your business as apple shippers to reach them, and by so doing, you will not only increase your own prosperity, but will also make apple growing a source of greater profit.

I am also aware that some of the apple growers are suspicious of the apple shippers because they meet annually in convention and pass resolutions about the immense apple crops all over the United States and Canada, and the consequent low prices. But I tell my friends that this does not signify anything, that it is simply a harmless diversion and affords the members an opportunity to blow off surplus steam, and that besides they want to have a good time away from home where their wives and the members of their church can't watch them.

The apple growers are guilty of the same offense when they attend the horticultural meetings, especially the older members and the bald headed men, who ought to know better; some of them come to St. Louis not only to blow off steam, but foam as well, "Anheuser-Busch" for instance. At our last meeting which was held in this city early in June there came with me an old apple grower from Wright county, who had never been in a large city before. At home he was regarded as a very respectable and pious old man and a model apple grower. We had hardly been in St. Louis two days when I saw him one evening, with my own eyes, occupying a front seat at a variety show down on Market street, and during the night he would talk in his sleep about buying a brewery and an automobile. As he spoke in a low tone of voice, I may not have caught the last word correctly, but it was either automobile or order more beer. According to my observations there are very few millionaires among the apple shippers, so they are not getting rich off the apple growers. As a rule they are too honest and pay too much for apples, and then they are not skinflints like men in other lines of business. When they occasionally get the best of an apple grower and make big money they spend it like a prince. They are high rollers and there is nothing small about them.

Therefore, not many of them after they have rendered their last account sales or made out their final statement, leave enough of this world's goods to enable their families to erect them beautiful or costly tombstones on which to put the inscription, "Here lies Peter Jones, who in life was a good apple shipper and tolerably honest commission merchant."

But some bright Missouri apple grower will say if it is best policy to sell apples at harvest time to apple shippers, "why don't you do it yourself?" I do whenever I can at a reasonable price. I am always

willing to give the apple shipper a chance, because I know he is a good fellow and generally has a large family to support; besides I hold as I have said before, that apple growing is a business by and in itself, and the marketing of apples is also a business by and in itself. My orchard being like myself, comparatively young in years, I have not had many large apple crops, but whenever I had any apples of consequence I have generally sold them to wholesale apple dealers or commission merchants. And expect to pursue this course in the future. I don't mind being shaved by the apple shippers in the ordinary way, but what I object to is a clean shave.

In 1901, when Missouri had a fair crop of apples, several prominent apple shippers came to see me to look at my crop, but did not think I would sell to them, because I was an apple dealer myself. I told them very frankly to disabuse their minds, and that as an apple grower I was ready to sell my crop. And I did sell all of my crop to one man from the good city of St. Louis, who belongs to the International Apple Shippers Association. He paid me nearly \$30,000.00 for my apples delivered on the cars, he stuck to his contract and I stuck to mine, and not one unpleasant word passed between us. And this year before the Ben Davis turns to crimson red or the Huntsman to golden yellow, I expect to see some of you apple shippers at Cedar Gap, drinking my buttermilk and buying my crop.

In 1902 I sold a large portion of my crop to a prominent Memphis apple dealer, who is also a member of the International Apple Shippers Association. He must have done well on his purchase, because on several occasions after that, when I called at his store, he invited me to his cellar, where he keeps an open barrel of olives and other things imported from Kentucky. My Memphis friend, although a pessimist, is a philosopher as well; he realizes that in order to stand in with the apple grower he must keep him in good spirits. In 1903, on the last day of April, when the prospects were as rosy as the rising sun of an August morning, the elements destroyed the crops, and the Missouri apple growers were taught another lesson on the dark side of the divine calling of horticulture, and in consequence of this calamity, many of them haven't the ready cash this year to visit the World's Fair, and those who do come here can't afford to dine and drink champagne at first class hotels like you prosperous apple shippers, but proud and aristocratic as they are, have to economize and straddle stools at the lunch counter. Such is life in this ungrateful republic.

Mr. President, in closing my remarks, which I fear are already too long, I will say to the apple grower, don't be afraid of the apple shipper,

he won't hurt you, and he couldn't if he would. So long as the apple shippers are not in a trust or combine, competition will always compel them to pay fair market value for apples, and there is no more danger of that than there is of the apple growers forming a trust or combine.

The apple shippers and the apple growers in some respects are "birds of a feather," they are all sweet harmony in conventions, and believe in having "a good time" together, but when it comes down to business, they don't agree, and never will, except on one proposition, namely, that the Missouri Ben Davis is the best apple in the world.

JUDGING FRUITS.

(Prof. L. R. Taft, Agricultural College, Michigan.)

In exhibiting fruits the manner of doing so and of the preparation is the cause of success. This exhibit of fruit is the finest ever had in jars and from cold storage, but there has not been care enough in packing. Do not blame the superintendent nor the judge for lack of awards if your fruit is carelessly sorted or poorly packed.

There are two methods that may be used in judging fruit exhibits. One is to off hand pass upon the fruit. Second, to determine the standard of each exhibit. To do this we must have a score card by which the judges may determine the comparative merits.

The first point is size, although not of the utmost importance. One plate of five full normal and uniform specimens will score higher than a plate of four good specimens and one larger one; or four normal will grade higher than four overgrown ones, since the latter are imperfect usually in color or form. Size relates to size and considers uniformity, or uniformity is a separate item counting twenty or twenty-five points. Form and color should be uniform and they relate to all classes of fruits. Color of course, should be uniform in making up a plate of fruit. It would be far better to have five specimens really uniform in color, and I would mark them far higher than if I had four specimens of the proper color and one which was undercolored. Form means the typical form for a variety. But the judge must consider the district, as varieties vary usually in some particulars in each district.

On the point of quality there is a variation among score cards, but thirty points is out of proportion. Here we use 15 for each point of size, color, form and quality, and uniformity counts a part of each. Another card counts ten each for size, color and form and fifteen each for quality and uniformity. Twenty counts are given on the size of the exhibit.

Twenty points also for freedom from blemishes, this is the highest given. A score of 60 per cent gives a bronze medal; 75 per cent a silver medal; 80 per cent a gold medal and 95 per cent the grand prize. Blemishes are defined as imperfections, worm holes, scab, the stem off, bruises, results of bad packing or picking. Eighty points means full size, and uniform, proper color and typical form. A whole plate of misshapen specimens, off type, will be better than to have just one odd one on a plate. Though the fruit may be of good size, quality fair, color and form typical, some inferiority in the matter of blemishes enables us to throw out the plate entirely. In no case use four large specimens and one small. Have the size uniform as possible.

I wish especially to impress the great need of careful packing. Some packages look as though the fruit had been dumped in. It is advisable to reduce the size of the exhibit rather than have poor fruit. It will be poor economy to put five plates of poor specimens in and sacrifice eight to ten points thereby, rather than lose two to four points on the size of the exhibit. These are hints to enable the superintendent to suggest helps to the growers and exhibitors, that they may do better in securing the awards and send in better fruits more carefully packed.

Mr. Goodman—We have much trouble from delay by the express. How much allowance can the judges make for that?

Prof. Taft—We can not allow full for bruised fruit. Some wrap and pack their fruit so that the delay is not so injurious. Over-ripe fruit put in with the green will make the mould spread to the hard ones. We have, however, made some allowance for the delays.

President Whitten—The session has been exceedingly interesting, and I am sure all have enjoyed it. We are adjourned until tomorrow morning.

THIRD SESSION—THURSDAY, JUNE 9, 10 A. M.

SPRAYING—DISCUSSION.

R. T. Kingsbury.—Sometimes I think the spray is what I want, sometimes it fails, both dust and liquid. Neighbors who never use either have as much fruit and as free from insect and scab as mine, therefore, what is the use of spraying at all? The more I spray the less I know. The machines apply the dust all right and the formulas are thought to be right, but the sprayed parts of my orchard show a bad condition and it may be the sprays are not all right.

Mr. Goodman.—I have used dust for four years in an extensive orchard, but I am still at loss to know just how far it is a success. We sprayed thoroughly last year over four hundred acres, but the frost killed all the blossoms and we stopped spraying. We cover the trees and even the ground as with a light snow. This year we have been over the orchard four times to date, we began before the buds opened. But we are not sure of the results, but the liquid is no more sure. I think enough of it however, to continue. We must use one or both for good results.

The Ozark hills are too rough for the liquid spray and we can not get water, so we use the dust. The cold and rain have so affected the bloom this year that I can see no difference between the sprayed and the unsprayed plots. I am sure the dust will help if used at the proper time, with proper materials, etc., but we are often uncertain of the time of the development of insects and fungi, and in a large orchard it is difficult to do every thing on time. There is no certainty, but we should continue to experiment in this line. We can not set dates, or say a week later, etc. Go every morning if it is moist and dust from four o'clock to eight, it takes a week to get over the orchard and then we begin again. Positive results I can not give, but the spraying has helped to prevent the increase of germs and insects, so as a preventive it is a good thing.

Sometimes a spot sprayed goes as good fruit as the sprayed, but we can not conclude from that, only the conditions are different and such as to give good fruit any way. We have used only lime with no poisons and some such plots have proven as good as where we used the fungicides. At least I am satisfied that it is worth while. Our orchards being in good condition when others are not, shows the spraying is preventive.

Question—What formulas do you use?

L. A. Goodman.—We get our materials from Leggett Bros., New York City, they can supply Paris Green and also the dry Bordeaux in five pound packages. We also use Hammond's Grape Dust for fungus on the apples. Lime alone is also good, 40 pounds of it can be slaked with lye water made from two pounds of concentrated lye dissolved in water. Sometimes we use sulphur in addition and we can now use the Bordeaux powder made by Dr. Bird's formula.

T. H. Todd.—To make Bordeaux according to Dr. Bird's plan seems to be impractical for a large orchard. I would like to know about my rule and if it answers the purpose. If you take sulphate of copper, powdered fine and mixed it in the lime, would it have the same effect as Bordeaux. Bordeaux mixture is one product and not two. In a dust

spray we have one or two, or three elements, according as we put the materials in. In mine the Bordeaux is the poison and lime the carrier.

W. L. Howard—Bordeaux mixture proper is a chemical union and in a solution combines with the lime. In the dust form it is ordinarily separate, there is no real union but only a mechanical mixture.

E. H. Favor.—If quick lime is ground up and the sulphate of copper ground, when the mixture is applied the moisture on the leaf forms the chemical union. But with air-slaked lime such a union will not be formed, if the ground quicklime stands exposed to the air it will become slaked.

T. H. Todd.—When I use air-slaked lime and the powdered sulphate I find the same color when the moisture strikes the dust as in regular Bordeaux, the color is blue in the dust. I use twenty-five pounds of copper sulphate to one hundred of lime.

Mr. Favor.—The insoluble compound is greenish, but we get the blue color a great deal. If we could use quicklime it might do, but we cannot get it. The air-slaked and the copper do not make true Bordeaux.

Mr. Todd.—The powdered lime would burn the hands.

Mr. Favor.—If the lime burns it must be quicklime as it gives off heat, but no amount of heat is given off with air-slaked lime.

B. C. Auten.—It is impractical to pulverize copper sulphate so that it will carry in the air. The copper sulphate is heavy and descends pure on the men, hence the blue color. Does the lime counteract the scalding of the copper?

Mr. Favor.—This mechanical dust mixture burns more than the liquid because the copper is not finely divided and the particles do not scatter as well but stick together. The lime and copper sulphate cling together in separate balls and the burning that results is as bad as the fungi. The liquid scatters the particles better. We have been using at the experiment station both Mr. Maxwell's and Dr. Bird's formulas.

Mr. Todd.—I made the trees white with the powder and now the leaves are blue but healthy.

Mr. Favor.—The air-slaked lime and the copper give an insoluble compound, and consequently does not burn the foliage.

J. M. Irvine.—Mr. Maxwell used the mechanical mixture and burned his foliage. He sprayed seven times and yet has scab in his orchard, the spray was ineffective and both apples and trees have the scab. Have you scab on your sprayed trees?

Mr. Favor.—Yes, the sprayed trees have the scab badly this year. If the spraying is carried out faithfully we may control the scab next year. If we quit spraying early it gives the scab all summer to grow,

so we shall spray all summer and winter and hope to control the scab. The Ben Davis and Jonathan are not so bad with the scab as other varieties. We hope to discover some difference between the dust and the liquid spray, but we have not so far. The dead leaves caused by fire blight are very bad this year, and there are many spots burned with the spray, but they have not the same appearance, the scab has a sooty appearance, but the burning by the spray is rusty like the stem end of the fruit.

Prof. Whitten.—Mr. Favor it would be well to bring out the effect of cold compared with the blight.

Mr. Favor.—The effect of cold causes a curling and shriveling and occasionally is spotted a little. Blight covers an area of the leaf surface, but makes no spots and the color is yellowish brown.

R. T. Kingsbury.—My trees which were sprayed heavily show no burning, the blight and burn are not on the sprayed trees, but the spraying was no heavier than at other times.

Mr. Todd.—Jonathan and Huntsman and other varieties are much affected. I sprayed one-half of a tree, which is affected, five times and can see no harm, but the unsprayed half looks blighted, while the next tree to it, also unsprayed, shows no blight, therefore, I can arrive at no conclusion.

W. G. Gano.—In years previous we have had great difficulty with the liquid spray burning, we suppose by the last application. By using liquid for the first and second sprays and dust for the latter ones we hope to obviate the burning. Does the dust injure the fruit?

Mr. Favor.—Those who have experimented with it say not, but I do not know. The liquid does scald the fruit.

Mr. Auten.—Results of spraying are not evident the first year. One advantage of the dust is that we can get it ready in the winter. The dust

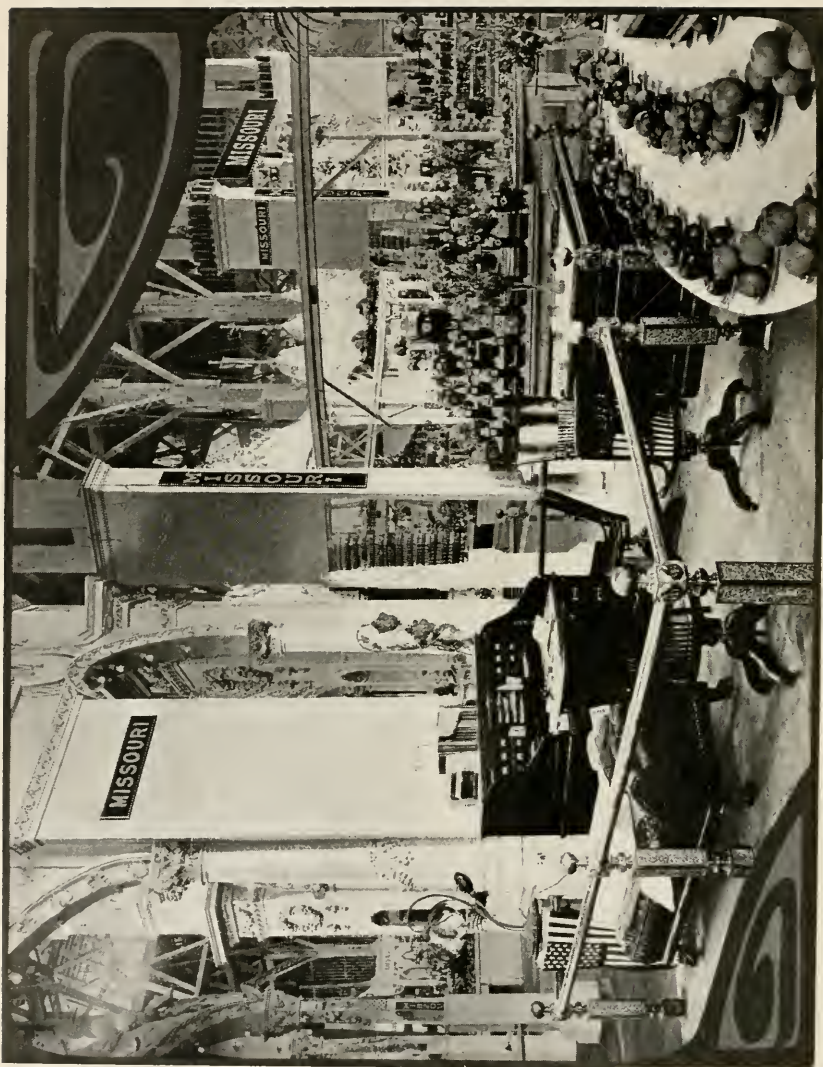
NOTE BY SECRETARY—The spraying should not be done while the trees are in bloom and for codling moth we spray after the petals have fallen.

goes over the orchard and we may injure the fruit on the trees which are in bloom while we are spraying the others for codling moth.

Mr. Irvine.—The Entomologist of the Georgia Experiment Station has a new method of combining the Bordeaux mixture, which he claims is better, as it is easier and cheaper than Dr. Bird's.

C. H. Dutcher.—Were the conditions last year not favorable to the formation of poor fruit buds? Do we have imperfect buds when we have pale or white blossoms? The old saying is, red bloom foretells a good crop and white bloom no crop.

Mr. Todd.—My orchard shed its leaves prematurely last fall, but now shows the best prospect.



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
OFFICE.

Mr. L. A. Goodman, Kansas City, Mo.:

Dear Sir—Since I reported to you on the condition of the apple crop, there has been such a change, that I feel that I should report it. There was then a good prospect for Willowtwigs, Ben Davis and Jonathan. They have since dropped off, until there is not 5 per cent of a crop in sight now. I think the excessive rains are the cause of most of the trouble. Some were ruined by the pollen being washed from the bloom. The Willowtwig, Ben Davis and Jonathan were wet so much that they turned black, then dropped.

There is one thing I never saw before. Some trees would have part of the blooms to bloom, or all the blooms were out all right then part would drop off, while other bunches of blooms would all die, leaves, twig and all are there yet. Some entire trees would do this; all the blooms would die, including the twig or fruit spur that they grew on. This is something entirely new to me. Can you tell me anything about it? Is the condition here anything like a representation of the State?

I am yours very truly,

C. AUL.

Smithville, Mo.

DISCUSSION ON PEACHES.

Louis Erb.—Peaches grown among apples do well and give a good crop and the apples also do well. The peaches take nutriment different from the apples and give something to the soil, but they may interfere when it comes to the spraying unless the dust is used, which does no harm to the peaches. At Cedar Gap in eleven years we had nine crops of peaches, but after that there were more trees planted and two hundred acres have been but an ornament and expense. Three years ago we had a good crop, but in 1902 hardly any, and last year they were killed in March. This year we had a good winter, but on January 16th the thermometer registered ten degrees below zero and the peaches were winter-killed. In New York the temperature was thirty degrees below and yet the peaches were not killed. Why, I do not know. The trees seventeen and eighteen years old were strong and vigorous for a crop, but still they were winter-killed. We are never troubled with spring frosts. I have seen snow and ice on while they were in bloom and yet we had a full crop. With us they are safe after the weather is no longer below zero.

P. A. Sylvester.—Our peach orchard in Washington county has an elevation of twelve hundred and fifty feet, and last winter although the

temperature was eighteen and a half degrees below zero only the Elberta were killed. Then we had three freezes and ice froze next to the peaches, and the frost and wind took the crop on all the top trees but left the valley safe.

B. C. Auten.—If it becomes warm the first of March and then freezes there will be harm done. The Elbertas were killed in the winter but some others were killed by the spring freezing. The Family Favorite and Crosby indicate good prospects. The Staminate Nectarine is also safe.

Mr. Erb.—Paul Evans, Director of the Experiment Station at Mt. Grove, says to spray with white-wash and sweet milk, as sweet milk has the sticking quality. One man sprayed five hundred trees with this white-wash and had peaches when his neighbors had none. Iron pots for fire are used in the California orchards to prevent danger of frost.

Henry Wallis.—One reason for its freezing in Missouri and not in New York is because there the weather is stable, while in Missouri it is changeable. We should not promote the late growth in the fall and should avoid late cultivation.

Mr. Auten.—Glue put into the white-wash to make it stick hardens it so that it cracks, while the milk keeps it moist so that it stays on.

Pres. Whitten.—We would like to ask the gentleman from Michigan about some of these points.

Mr. Thompson.—It is well to prepare the packages of peaches in the best manner possible and if there is any defect in color we use tarlatan to overcome it.

INSECT PESTS—THE "STING" IN THE APPLE.

(J. M. Stedman, Entomologist of the Experiment Station, Columbia, Mo.)

Since the "sting" in the apple has attracted so much attention recently, due to the immense damage it has caused, I will confine my remarks today entirely to this subject. The "sting" in the apple is caused by the common plum curculio, *Conotrachelus nenuphar*, Hbst. During the past two years more especially, the plum curculio has "stung" the apples of the Ozark region to such an extent as to cause very serious damage in all cases, and in many orchards has injured from ninety to one hundred per cent of the crop. Apples "stung" by these beetles are reduced from No. 1 grade to No. 2 grade, while those badly "stung" are reduced to No. 3 grade and culls.

Since you gentlemen know that in commercial orcharding the profits

are made on No. 1 apples, it is very easy to understand the serious situation caused by this pest. Several orchardists claim that this insect has caused them more trouble than that of all other insects and fungous diseases combined, not excepting the bitter rot.

The so-called "sting" in the apple is caused by the beetle eating holes through the skin for purposes of feeding or for purposes of laying eggs. The long beak on which the mouth parts are situated is shown in Fig. 1, which is a photograph of an adult plum curculio magnified five diameters. The beetles begin to cause the "sting" on the apples about the middle of May, while the apples are about the size of large cherries, and by the first of June begin to attract attention by the many punctures or "stings" they now make. The male beetles make only feeding punctures in the apples, while the female beetles make both feeding punctures and egg punctures. From my observations, I estimate that during May the females make from four to five times as many feeding punctures as egg punctures, and that as a result of the work of both males and females, we find about twelve times as many feeding punctures as egg punctures on the apple. In all cases these punctures, whether for feeding or for the depositing of eggs, are known as "stings" among horticulturists. During June the females make almost as many egg punctures as feeding punctures.

In making a feeding puncture the beetle eats a small hole through the skin by means of its mandibles or jaws, this hole being about one-tenth of an inch in diameter. It then eats the pulp about one-tenth of



FIG. 1.

an inch in depth, thus leaving a small cylindrical hole in the apple. During July and August the beetles also have a habit of eating the pulp back under the skin as far as they can reach around the hole. These feeding holes then become very conspicuous, since the undermined skin withers, shrinks and turns dark, and the apple usually commences to rot at this place, thus absolutely ruining the apple for storage purposes.

In making the punctures for the purpose of depositing eggs the female also eats the tissues of the apple and this is probably the reason

why during the egg laying season they do not make as many purely feeding punctures as they do earlier and later in the season. In making an egg puncture the female first eats a small hole through the skin, and then eats the pulp back about one-sixteenth of an inch, thus making a small cylindrical hole, usually quite parallel to the skin. She then turns around and deposits an egg in this hole. Having accomplished this, she then eats the tissue by cutting a small crescent shaped hole through the skin and into the pulp so as to partly surround and partly undermine the egg. Such a puncture is shown in Fig. 2, *b* and *d*, which is a photograph of portions of the apple cut away and magnified two and one-half diameters.

As most of these egg punctures or "stings" are made during the rapidly growing season of the apple, if the eggs fail to hatch or the larva die early in their life, then the apple may outgrow the "stings," provided fungoid and other diseases do not attack it at this point. Such a "sting" from which the apple has partially recovered is shown in Fig. 2 *e*, and also at *f*, where the three smaller punctures are healing over. The large central one, however, will not heal because a fungoid disease has entered and the apple is starting to decay at that point.

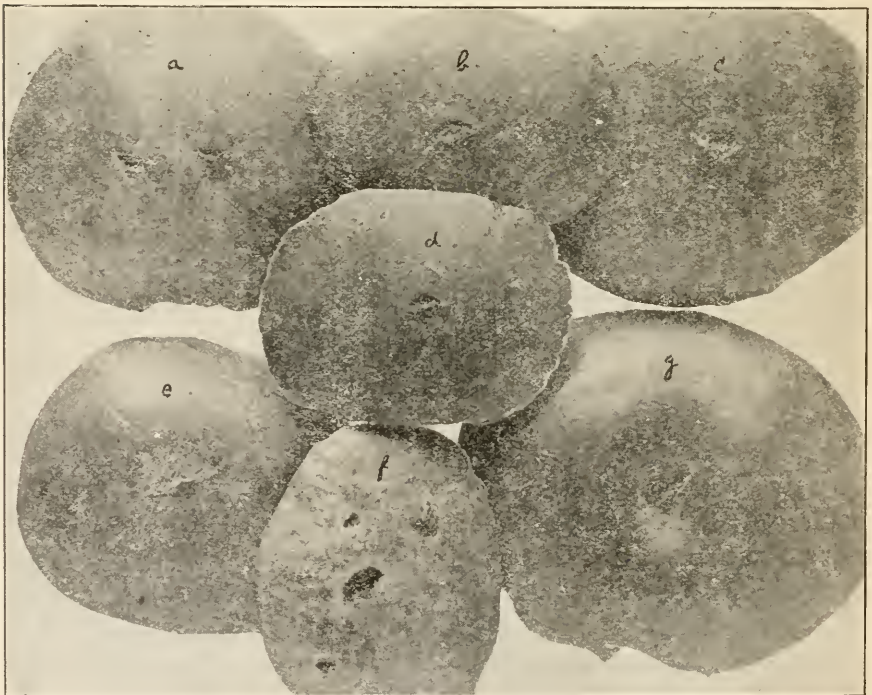


FIG. 2.

If the egg hatches and the larva lives long enough to eat its way into the pulp a distance of a quarter to a half inch and then dies, the apples, whether young or medium size, may, if no diseases enter at this point, outgrow the "sting" and leave a scar. This scar will be situated in a depression of greater or less extent, according to the age of the apple when "stung" and to the length of the life of the larva, and the depth to which it burrowed in the pulp, before it died. Such a scar in what is at this time a shallow depression, but will become greater as the apple grows, is shown in Fig. 2 g. By cutting open such a depressed scar, one will observe that the course of the young larva can be easily traced by the dark colored and harder tissue that forms a short thread where the larva ate its way. This tissue has a very bitter taste, becomes quite dense, and does not enlarge as does the surrounding tissue, and hence the depression increases as the apple becomes larger. It is in this way that the bulk of our knotty apples are formed. A single apple may have one or many egg punctures or "stings," and these may be distributed throughout the season, so that we have single apples covered more or less with scars, depressions and stings.

Such apples even though not attacked in these places by fungoid or other diseases, cannot be sold to be placed in cold storage; but it must be borne in mind that these various "stings" open up the way for diseases to enter, and cause the apple to rot or decay at such punctures, and absolutely ruin them while yet on the trees. When "stung" apples are placed in cold storage they soon decay at the places punctured; and since the adult beetles begin to make the feeding punctures or "stings" by the middle of May, while the apples are very small, and continue to do so throughout the apple growing season; and since the egg punctures or "stings" are made in great numbers during the latter part of May, and during all of June and the fore part of July; and also since the young beetles emerging along in August also make feeding punctures, thus resulting in the "sting" of the apple throughout the entire season, it is easy for one to see the serious nature of this trouble—the "sting"—caused by these plum curculio in the apples. The plum curculio will live and breed in the fruit of the plum, peach, nectarine, prune, apricot, cherry, apple, pear, quince, wild plum, wild crab apple and hawthorn. However, it prefers our cultivated plums to other fruit and breeds better in them. It also breeds well in the peach, but does not do anything like so well in the apple. Hence it is that if plum and peach orchards are placed near apple orchards, such apple orchards suffer more from this insect than would otherwise be the case. Early in the spring the beetles feed on the developing leaves, later on the petals of developing flowers, and still later entirely on the fruit.

There is only one brood of the plum curculio each year. The adult beetles hatch out for the most part during August and feed for a time by puncturing the apples. At the approach of cold weather they seek hibernating quarters by crawling under rubbish of all kinds, or by crawling in the ground a short distance. There they remain during the winter, coming out the next spring in order to feed upon the young developing leaves, which they do to a slight extent only. The old beetles die in the fall at the approach of cold weather. The beetles coming out in the spring from hibernating quarters begin to deposit their eggs about the middle of May and continue this egg laying until the middle of July. They do this work during a part of the day or a part of the night, or may work all day if it be cloudy. Fortunately for the apple growers, only a small per cent of the eggs deposited in the apples ever succeed in hatching. Of these eggs that do hatch into larva, fortunately, only a small per cent of them ever succeed in reaching the full grown larval existence. For some unaccountable reason the great bulk of them die by the time they are one-fourth grown. It seems necessary for the life and growth of these larva that the apples fall to the ground by the time the larva are about half grown otherwise the larva appear always to die. If the apple drops, the larva continues to live and grow, and after becoming full grown, eats its way out of the apple and enters the ground. The entire larval stage in the apple lasts about three weeks.

When the larva is full grown it leaves the apple and immediately burrows into the ground one or two inches, wiggles its body so as to pack the earth away and make a little cell, and there remains quiet for about two weeks; it then changes to the pupa stage. The pupa stage lasts from two to three weeks, then transforms to an adult beetle, which at first is light brown in color and quite soft, but gradually becomes darker and darker, and remains in its earthen cell about ten days before it digs its way out to the surface of the soil. The pupa stage, as well as the first week in the life of the adult beetle in the ground, are uncertain ones, since the pupae especially are easily killed by cultivating the soil while they are in it.

The adult beetles on emerging from the soil are lighter in color than the older ones but soon gain their proper color. They immediately seek their natural food, and can be found in good numbers during the latter part of July, and during all of August, feeding on the apples and making the punctures or "stings" already described. At the approach of fall these beetles seek quarters in which to pass the winter, while the old beetles, which have not already died, perish. It will thus be seen that many of the old beetles are still at work in the apples by the time the

young beetles emerge and begin to puncture them also, but for feeding purposes only. As the female beetles are quite slow in depositing their eggs, and vary somewhat in the time of beginning, we have some of them laying eggs in apples as late as the last of July or the first of August, at which time the young beetles are beginning to emerge in great numbers.

Remedies.—As a result of my experimental work, I can now say that it is perfectly possible, practical and comparatively easy to successfully fight this pest in the apple orchard and to prevent its doing undue injury. In order to do this, however, we must take advantage of some weak points in the insects economy which we have described.

The four principal habits we can take advantage of are: First, the fact that the adults hibernate during winter under rubbish and the like; second, that in the spring the adults feed to a certain extent on the developing leaves before the trees bloom; third, that the larva, in order to live and reach their complete larval stage, must be in apples that drop to the ground before the larva are much over half grown, otherwise they die; fourth, the fact that the full grown larva leave the apples and enter the ground an inch or two and there transform to pupa that are easily killed.

It is well known to horticulturists that an apple orchard near a forest suffers more from the "sting" than one out in the clear, and that the part nearest the forest is "stung" first. This is because of the fact that the plum curculio is found in certain wild fruits which grow abundantly in our forests, and also because the beetles seek the timber to a large extent during the fall for hibernating purposes, and seek the nearest food early in the summer. This same rule holds good in regard to the proximity of peach and plum orchards, and hence it is well to have the plum and peach orchard as far as possible from the apple orchard.

In visiting various apple orchards I noticed that those orchards that received thorough or even only slight cultivation suffer less from the "sting" than those that are allowed to grow up to grass and weeds. This fact is easily accounted for by the removal of hibernating quarters and the destruction of pupa.

By spraying the apple orchard with arsenate of lead twice before the blossoms open, one can kill about fifty per cent of the beetles that eat of the young leaves at this time of the year. The spraying should be done very thoroughly, and if rains wash off the poison, the spraying should be repeated. It must be borne in mind, however, that this spraying is not to take the place of other methods of fighting the insect. It is only a help towards lessening their numbers. If one is not going to

spray the trees at all before the blossoms open, it is doubtful whether it would be advisable to make a special spraying at this time for the plum curculio. But it usually is the case that orchardists wish to spray their trees before the blossoms open for fungous diseases (which in many respects is the best time to do the spraying) or they wish to spray their orchards for other insects, in which case the addition of Paris Green or Scheele's Green with the Bordeaux mixture will be a great help. If one is going to spray for bitter rot, apple scab and other diseases before the blossoms open, and for codling moth after the blossoms fall, the addition of an arsenical poison to the Bordeaux mixture sprayed before the blossoms open, will also kill large numbers of the curculio; and the spraying with the arsenical poison after the blossoms fall, will not only kill the codling moth, but will also greatly lessen the curculio "sting."

It is advisable not to add arsenate of lead to Bordeaux mixture, since a chemical change is likely to occur which will injure the foliage; but Paris Green or Scheele's Green can be added to Bordeaux mixture, by regarding the Bordeaux mixture as simply water, and adding to each one hundred and fifty or one hundred and seventy-five gallons of the Bordeaux mixture, one pound of the Paris Green and three pounds of fresh lime.

Since the larva of the plum curculio in the apple will not live unless the apples fall by the time the larva are half grown, and as the larva remain in the fallen apples for a week or so before they eat their way out and enter the ground, we have a very vulnerable point in which to fight the insects. To this end, all the fallen apples should be gathered each week and destroyed. This can be done by hand picking, and then burning the apples or feeding them to live stock, or live stock that will eat the fallen apples as fast as they drop can be kept in the orchard in order to eat them as fast as they fall. If only one method of fighting the plum curculio in the orchard is to be followed, this method of destroying all windfalls at least once a week is by far the most satisfactory.

We can also take advantage of another weak point in the life history of this insect, viz., the fact that the larva all leave the apples and enter the ground about two inches in order to transform to the pupa stage during the latter half of July and the fore part of August, in which pupa condition the insects are easily killed by any unusual disturbance. Hence, by shallow plowing and thoroughly harrowing the orchard during the middle of July, and then harrowing the first and the fifteenth of August, one will rupture the earthen cells and destroy the great bulk of the pupa in the ground before they have transformed to the adult beetles.

If poultry are allowed to roam through the orchard, especially while

the plowing and harrowing is going on, they will pick up immense numbers of these insects.

If all three of the above methods of fighting the plum curculio in the orchard are followed, one can so rid the orchard of these insects in a year or two as to scarcely notice their presence. In other words, if one will spray the trees twice before the blossoms open with arsenate of lead and four times after the blossoms have fallen with the same arsenical poison at intervals of ten days, and when the apples begin to fall, gather them once a week and destroy them, or turn hogs into the orchard in order to eat them up, and then the middle of July plow very shallow and harrow very thoroughly, and then harrow again on the first and fifteenth of August, one can practically exterminate the plum curculio in the apple orchard.

GROWING AND TRAINING THE VINES.

(Ed Kemper, Hermann, Mo.)

“Growing and Training the Vines,” the subject assigned me is work that anybody can do after having a few little hints, and a few well trained grape vines should be in every garden trained to the fence, or in the yard trained to a neat arbor, or in the back yard trained to the wood shed or any building. They will not rot if trained to the aforesaid objects, will bear abundantly and with little care. For the first few years they have to be cultivated, but in after years this work is not necessary. If you have cultivated your vines good for one summer and they have made a strong growth, that growth has to be cut off entirely the coming winter or spring, no matter how strong it may be, this seems wrong to almost anybody, except the vineyardist, he knows that it is right. The next spring you may leave one vine two or three feet long, depending upon the vigor of the vines, also leave two spurs of two or three buds to get bearing canes the next year as bearing canes should come out of as young wood as possible. The third year you can leave two canes and of course two spurs and in future years you should always remember that the stronger the growth the more and longer canes you may leave, but they should not be over four feet, and if the growth gets poorer you have to cut less and shorter canes.

Summer Pruning.—Pinch off one joint beyond the last bunch; this should be done before blooming to force them quickly over blooming. Leave four to five sprouts from below for bearing canes and spurs for the coming year; tear off all the rest that may grow out from below.

If you however want to train your vines high, you may do so. From

the beginning leave one cane as high as you may wish, and then from there go to work as described herein before, or renewal system as it is called.

To those interested in vineyarding I have to say that the renewal system is still the most popular here in Hermann. Experiments have been made to train the vines on "Overtrellis," the entire vineyard is like an arbor. Already large vineyards have been made this way, but it still is under the "Experimental Stage," and will take several years to say something definite about this training. Object is to do away with spraying.

Today with you Fruit Grower Brothers, I would like to be,
To meet you face to face, to learn and to see
What great things God the Creator, has allowed us to achieve
But again "till here no further," He must have said I believe.

DISCUSSION ON GRAPES.

Question.—Is this the proper season for layering?

Mr. Wallis.—It is better to layer early in the spring. We use layering to raise young plants from the young shoots.

Mr. Erb.—I had a vineyard for twenty years but finally cut it down. Table grapes in Southwest Missouri are a failure commercially. Wine grapes are the only ones that are profitable.

Mr. Wallis.—The Hicks is the finest wine grape.

J. M. Irvine.—Northwest Missouri has good results from table grapes.

Mr. Sylvester.—Pure grape juice, unfermented, ought to be profitable as there is much shipped in and used from New York.

Session then adjourned.

FOURTH SESSION,—FRIDAY, JUNE 10.

After calling the meeting to order President Whitten gave a talk on shrubs, during which Vice-President Dutcher occupied the chair.

NATIVE SHRUBS OF ORNAMENTAL VALUE.

(Prof. J. C. Whitten, Columbia, Mo.)

During the spring we have at the station been making a collection of some native shrubs and bushes and vines which are of ornamental value. Great interest attaches to something rare, especially if brought from some remote corner of the world, or if some novelty makes it attractive, although it may be of no more intrinsic value. You may find

wild bushes in the Botanical Garden of London and of Paris, which people admire when seeing them for the first time as we do one from Australia. We want new acquaintances and novelties, but for intrinsic beauty we find species from the prairies and woods equal to any.

So I mention some Missouri shrubs that we see often and do not appreciate. Some species respond to cultivation and take on a new symmetry and freshness, as for example the Buck bush. We have tramped over it but it rarely calls the attention because it is so abundant. Still it is handsome, and you can not kill it, it grows without trouble. Plant it where it is at home and indigenous and it will make a perfect development and look finer than an imperfect and undeveloped foreign variety. An intrinsically beautiful but puny shrub grown poorly in uncongenial soil is not as satisfactory as one at home in peace and prosperity. The new growth on the Buck bush in spring takes on a pink tinge, the older leaves are dark and glossy, rich and luxuriant, but fade again to pale green and pinkish; so we get all shades from sunshine to shadow. Grown in blue grass it will be ragged, but grown in the shrubbery border it is symmetrical. Another point of beauty is its fruit, so rich and prosperous in quantity it suggests a land of plenty, another its beautiful color. It is indeed a fit emblem of a rich state.

The Flowering Dogwood develops finely on our Missouri streams and bluffs. It is an early flowering shrub with white blossoms, and color in the bracts under the flowers. This in comparatively small quantities to make a mass is effective with the Buck bush to hide the stems and fill in. Red Bud is good for the main mass, with finer ones for the details of planting and finishing. Elderberry, like Dogwood, gives a large amount of color. It is not to be used close to the door step, but for screen to hide the stable fence. The coarse foliage melts into fine lines when at a distance. It is good for filling but not for fine detail. The fruit is a rich wine color. The June or Service berry grows in the tree and shrub forms. Put the tree in the rear and use the finer dwarf variety for filling and finishing.

For fine detail St. Johns Wort is good. It has rich yellow florescence and fine leaves, so that it bears close inspection and we do not need to take only the distant view. It blossoms late after others cease to bloom. I wonder it is not grown more in the nursery. I remember a mass of it in Brussels which was much admired because it was rare, while we scarcely notice its beauty. The Butterfly Milk Weed has a luxuriant growth of foliage and handsome inflorescence, in August and September, after other things have blossomed. In rich soil it takes on an added luxuriance, and if cultivated is not the same as in the pasture, but a wonder to your friends.

Vines.—The Trumpet Creeper can be used as a porch cover or as a shrub in a mass. The flowers are gaudy and showy. The leaf is finely divided, making it suitable for close-by places. The conspicuous blossoms and fine foliage make it handsome for a screen. The Five-Leafed Ivy clings to walls and is better than the Boston or Japanese varieties which are used in the east, but are not so effective here. When taken from the weeds and given culture you will hardly recognize this ivy as wild.

HARDY SHRUBS.

(Prof. H. O. Irish, Missouri Botanical Garden, St. Louis, Mo.)

I have seen a specimen of a shrub related to the Dogwood (*Cornus cerrissia*) which grew a single stem and spread to cover a space twenty-five feet in diameter, it was not cultivated nor pruned, but taken care of itself and grown well balanced. It is perfectly hardy.

In Kansas there is a collection of wild plants which have been cultivated. It is a valuable collection and a sight worth coming miles to see.

In the right place wild plants are not weeds; but do not let them interfere with your crops and gardens. Plants may be used for two purposes, either for the specimen or for a part of the landscape, there is a difference, and I would not use the same plants for the two objects. A bed of shrubs in the center of the lawn shows off the plants, but is not best for the picture. We are not confined to hardy varieties today, but hardy ones are preferred, because they take less care.

Hardy Perennials.—Hardy Phlox has become popular and the number of varieties has greatly increased. The descriptions in the catalogues are sufficient for a means of choice. The blooms do not last as long here as in the East, for they blossom here for only three or four weeks. Of the Lillies the *Crinum Longiflorum* takes care of itself and produces a large white bloom.

The Common Rue is quite showy even when not in bloom. Spiraeas are numerous and beautiful in their varied and abundant bloom. Of hardy Chrysanthemums there are a hundred varieties. They are the last flowers of the season, blooming from September to October. As they are liable to injury from freezing it is better to have a little protection in the way of a mulch in the winter. The Common Yarrow is fine with a bright blue flower. Bell Flowers are not very common but hardy and showy and satisfactory. The stalks should be cut away after blooming. The Common Oriental Poppies are most showy, but require care and

cultivation and a rich soil. The blooms will be from six to eight inches across and show striking red in the garden.

A plant to grow on a bank or terrace is *Artemesia*, the small variety, which grows two or three inches high. If you plant two dozen of them eighteen inches apart they will spread and in six months cover the ground. It does not get to be a nuisance as some others, and holds the soil well. Of the tender perennials for bedding, the old varieties are not as popular, but the rare ones appeal now to our fancy. The *Geranium* has some popular new forms which are better than the old. The best is *S. A. Nutt*, which is hardy and showy. *Lantana* is one of the best bedding plants and once established, blooms through the summer and is not influenced by the hot dry months.

Hardy Annuals.—These grow from seed sown, then after blossoming they seed themselves and come up again the next season. *Portulaca* may be used with pretty effect around rose plants, white by white roses. *Portulaca* are out of bloom part of every day and stands all conditions of weather. The California and Mexican Poppies are also prolific and attractive bloomers. Tender annuals must be seeded each year. Annual *Phlox* is one of the best, although it may not live through the summer, so it is well to plant a second crop when the first one lags. Chinese pinks are not showy in beds but are satisfactory for vases. *Zinnia's* too are satisfactory though they drop off in the summer as *phlox* does.

THE PASSING OF THE BIRDS.

(Otto Widmann, St. Louis, Mo.)

The question is often asked: Why is it that we have so few birds now in places where they were plentiful formerly? Many are inclined to believe that the gun alone is to be blamed for this rapid diminution of bird life in all well settled parts of the country. Fortunately we here in the Mississippi Valley cannot yet complain as much as those in the older parts of the United States, especially New England. When we take up a late list of the Birds of Massachusetts we find repeatedly the gloomy annotation "once common, now rare," and among them are such well known, beautiful species as the Red Headed Woodpecker, and the lovely, much admired Purple Martin.

In Europe conditions are still worse; much so in the United Kingdom of Great Britain and Ireland, from where nearly all the larger birds have disappeared, and on the continent conditions are not much better

in many parts. But Europe never did have so much to lose as we have. Europe never had such beautiful birds as we have. Europe had nothing which can compare with our Meadow Lark, Flicker, Red Headed Woodpecker, Yellow Bellied Sap Sucker, Scarlet and Summer Tanagers, Cardinal, Indigo Bird, Red-winged Blackbird, with our many beautiful Warblers, our Orioles. Yes, it has an Oriole, a nice, golden-yellow bird with black wings, but it is so rare that not one in ten thousand Europeans has ever laid an eye on it; it is so shy that it seldom leaves the deep woods where it frequents the densest tree tops.

The European Woodpeckers cannot compare with our Woodpeckers at all; they are a comparatively plain looking set; they have nothing which can come up to our gaudy colored Redheads or our Golden-winged Flicker; and the few kinds of woodpeckers they have are now so scarce and so shy that one may wander through rural districts and deep woods for days without meeting more than a single one. Europe had once a few brightly colored birds; a Kingfisher with dress like our Blue Bird, a bright azure back and rich chestnut breast; it used to be an ornament to all streams some fifty years ago. On my last visit to Germany two summers ago I did not see a single one. Those who lived in southern Germany fifty years ago will remember how closely the call of the Quail is connected with their walks through the field; from right and left the lively "sexparweck" came to the ear from near and far; now the Quail is almost a thing of the past; in all my wandering through the fields two years ago I did not hear a single one, and my brother who lives in the country and passes daily through fields where Quails used to be plentiful said that he had not heard one for several years.

Magpies and Jay Birds, the latter not nearly so beautiful as our Bluejay, but still a handsome bird, were formerly of common occurrence throughout all rural districts; where are they now? One has to keep a sharp lookout for days to detect a single one and has to use a field glass to observe it, so shy and retiring have they become in consequence of continued persecution.

Shall it come to this here? It will certainly come to it, if we do not take steps to keep them from a similar fate, with the only difference that we will lose so much more than the Europeans because our birds are indescribably more beautiful than theirs.

To take steps toward prevention we must analyze the causes for their disappearance. The gun, it cannot be denied, plays sad havoc with all the larger birds, including some of the so-called game birds, and those whose fine feathers are serviceable for the adornment of our women. The game laws try to preserve the game birds, and the Audubon societies

are doing their best to suppress the traffic in bird feathers for millinery purposes; but the "man with the gun" who is responsible for the approaching disappearance of all the larger birds, cannot easily be suppressed. All we can do is to correct his savage propensity by instruction in the school room, and if possible, in the court room.

A hunter sees in every large bird a competitor in the chase. He accuses every large bird of preying on game, poultry or fish, or on their young and eggs; in short he feels it his duty to help in the extermination of every kind of hawk or owl, heron, crane, gull, cormorant or pelican, and he is only too easily convinced that everything that flies does some harm in some way and should therefore be destroyed.

I was surprised at the greatly reduced number of Storks in Southern Germany, where they are great favorites with the people, especially in the country, not only for what they are supposed to bring—spring with their arrival and good luck with their stay—but also for what they take, as they are expert catchers of field mice. But the hunters found out that once in a while a Stork gets a chance to pick up a litter of newly-born hares, and such a crime is in the eyes of a hunter unpardonable and must be avenged whenever it can be done without exciting the ire of the populace. It is everywhere this dread of competition on the part of the hunters and the fear of the loss of a young chicken or duckling on the part of the farmer which seal the fate of the most useful of our hawks and owls, those who live mostly on mice and other injurious rodents, while the only two kinds of hawks who really do the mischief are seldom caught, being too quick in their movements and too watchful to be taken unawares.

Here instruction of the right kind in schools and in the press is needed, and should be given freely, not only by our National Government, which does its share fully through the Department of Agriculture, but by all who take interest in the welfare of our country.

Less than twenty years ago in whatever direction one traveled one could see from the railway car over almost every large cornfield one of our handsome Red Tailed or Red Shouldered Hawks watching for mice or a fence post, or could see a Marsh Hawk beating its way low over the meadows in quest of its favorite prey, field mice. Now, you may ride over these same roads for an hour before you spy a single one. What has become of them? They are gone, killed by the zealous hunter or farmer who mistake them for the hawk which took his chick, while he should know that these kinds of hawks do not touch a bird as long as they can catch mice, frogs, snakes, craw fish, etc. As late as fifteen years ago those who traveled from St. Louis to Hannibal or between Belleville and

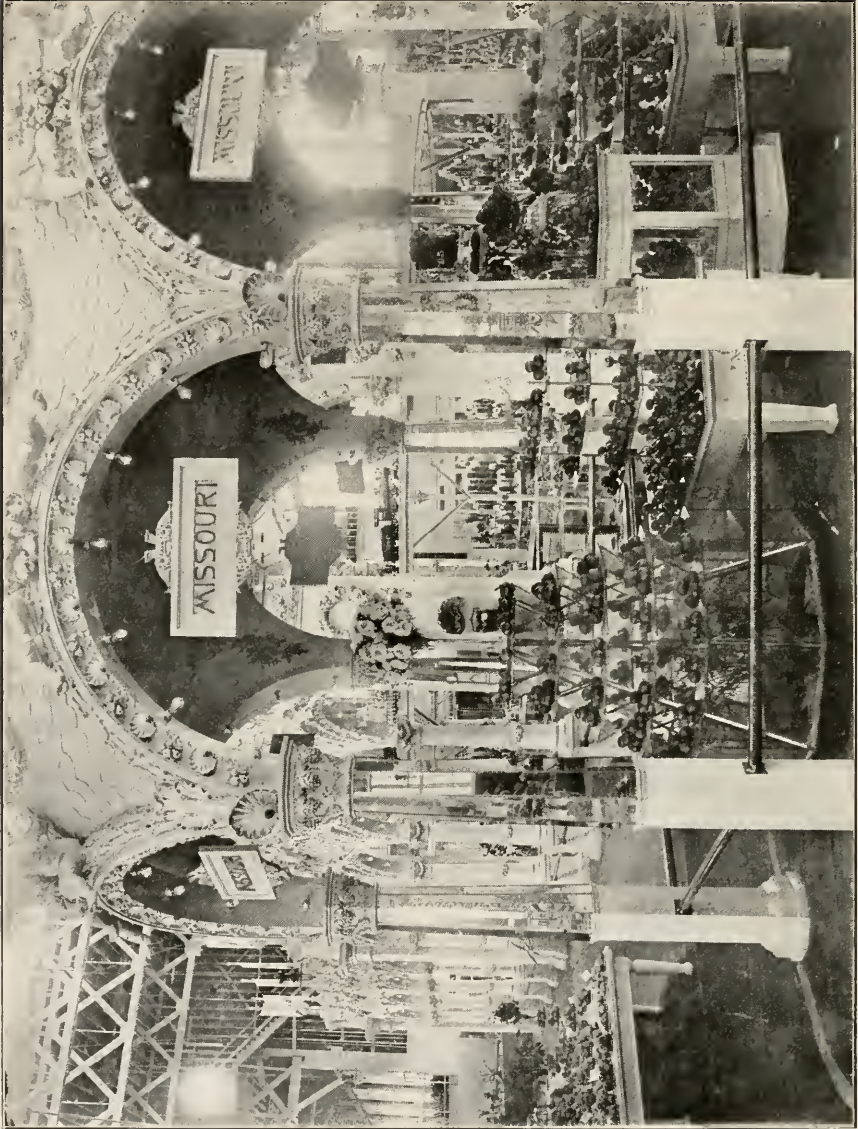
St. Louis had beautiful sights while riding through the Mississippi bottoms. Hundreds of snow white Herons populated the lakes, wading in the shallow water or standing and sitting along their shores. There are no such sights to be had any more; dreary and deserted appear the lakes, only once in a while a solitary Blue Heron may be sighted yet, and his days too are counted.

Every now and then the newspapers bring the glorious news that Mr. So-and-So killed an eagle. We have only two kinds of eagles, the Golden Eagle and the Bald Eagle. The former was greatly in demand by the American Indians for its tailfeathers, and was always a rare bird; the Bald Eagle, our emblem of liberty, is such an innocent chap, living mostly on fish and offal which he picks up from streams and their shores, that we see no reason why its destruction should be regarded as a boon to mankind, and its killing as a deed of heroism.

As a symbol of unrestrained wing power this king of all birddom inspires us with admiration by its large size and majestic flight, but, if its numbers continue to dwindle as they are doing now, the mounted specimens will soon outnumber the living birds and the next generation will place the American Eagle where we have now the California Vulture, on the list of animals on the point of extinction. Only a generation ago the California Vulture, a bird with a spread of wing of ten feet, ranged from the Columbia river to the Colorado river; now a very few individuals are left in the mountains of southern California. But the story of the California Vulture is only a repetition of that of the Great Auk, or the Pallas Cormorant and the Labrador Duck, not one individual of which species is in existence now, and all that is left of them are a few skins and bones in the museums and private collections.

There are very few hunters, even of the educated and conservative class, who can resist the temptation to shoot at a large bird that happens to come into the range of their firearms, and in spite of all progress of culture and so-called civilization, the number of Nimrods is still on the increase. Neither is such an increase hard to explain. In the first place, it is the in-born love of nature coupled with the desire to make up for the expense of time and money by obtaining something of tangible, pecuniary value. Then, it is the result of false teaching on the part of the press, assisted by railroad companies who do their share by reducing rates to hunters and inducing their patrons to make frequent trips to favorite hunting grounds.

The newspapers and railroad companies are right in telling their patrons that frequent trips into the country are conducive to the good health of penned-up city people, but I do not see what the gun has to



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
PAGODA.

do with it. On the contrary, I firmly believe that, were the gun substituted by a field glass, tramps through woods and fields were ten times more conducive to the health and a hundred times more pleasurable.

Can we not bring ourselves to admire the beautiful things in this wonderful world without feeling any desire to capture or destroy?

Most of the hunters admit that they do not kill their game for the little meat that they usually get out of it; they do it neither for gain nor for the pleasure of killing; it is simply a perverted love of Nature, the same which prompts the child to pick the flower and after seeing it wither, throw it away.

While man and his gun are the great destroyers of large birds, the smaller ones have many enemies among all classes of the animal kingdom; but since these enemies have existed for untold ages, the birds have learned to guard against them, and have succeeded in holding their own in spite of all of them. Nature itself is a cruel destroyer: a severe rain and windstorm may kill hundreds of nestlings; a sudden rise in a river, an inundation of lowland, will drown thousands of helpless young; winter's rigors reduce the number of the brave little birds who dare to risk their lives, but Nature always finds means to make amends for the damage which she does, may this be ever so severe.

After the phenomenal period of glaciation throughout the south Atlantic and Gulf states in February, 1895, only one-tenth of all the Bluebirds of the Eastern United States returned to their breeding stands, nine-tenths having perished. Gradually their numbers increased, and today, nine years after the calamity, they are fully restored, Bluebirds being as numerous as they ever were before.

Fortunately this loveliest of birds is one of the few who have adapted themselves so thoroughly to the new conditions that civilization imposes, and they have found so much favor in the eyes of all, that their future seems to be safe enough as far as human interference is concerned. I only wish I could say as much of many more species, but I cannot.

Next to man there is no other enemy so diligent in the destruction of bird life as the house cat, because of its universal distribution and unchecked activity. Few people know that the cat is the arch-enemy of all ground-feeding and ground-building birds; if it does not get the parent it is sure to get the young ones before they can fly. Many of our song birds are ground-builders, but they invariably disappear from neighborhoods where cats can roam. The Nightingale, the renowned songster of Europe, is a ground-builder. Its steady decrease, in spite of all protection, is mainly due to the cat. Some dogs are nearly as bad as cats in this regard. While visiting a large private park, where

all conditions for the presence of Nightingales were given and where no interference from man was possible, none were present. Inquiry brought the answer that no cat was allowed in the park, but that the owner kept several dachshunds—German terriers—and allowed them to roam in the park. No ground-builder could raise a brood, all disappeared. We see the causes for the decline of bird life are manifold, but the most important of all is the change of former conditions of the heavily wooded regions into the present cultivated land, and with the last remnants of virgin forest many species of birds must disappear. To a certain degree some will adapt themselves to the new conditions, some will not. Adaptation with many is a slow process. It took ages to form the present nesting habits, and to change them will be a matter of long time with a great loss of life.

A bird which is used to build in the shelter of the deep forest cannot, even if it should try, possibly find the necessary conditions in a clearing, thinned wood, or park-like grove. The consequence will be that most any attempt at reproduction will be frustrated, the species will become scarcer and scarcer, and finally disappear entirely from the locality. Many of our woodland birds nest in cavities in the forest: the titmice and chickadees find old woodpeckers' holes or rotten stumps in which they can carve their own holes. In our orchards they find no such places, though they would find enough insects and their eggs and larvae. If we would provide them with suitable nesting sites, they could be induced to remain in our fruit and ornamental gardens and would be a great help in the warfare against insect pests.

Fortunately, there is still some of the glorious primeval forest left in our State, and the object of this paper is a plea for the preservation of some of it. Once gone, the primeval forest can never be re-established again, and its unique plant and animal life will be lost forever. But, if individuals or societies who do not have to see that every dollar invested brings returns in cold cash, but who, from patriotic, humane and æsthetic reasons, like to do something for posterity, will take hold of such pieces of forest, favorably situated, they would benefit mankind as much as by founding libraries and donating universities. Such forests should be spared from the axe entirely; also from the fire; no grazing animal of any kind should be allowed in it; no cat or dog; no hunter and no vandal; strong fences should protect it and efficient guards should police it; but the gates should be open to the public during daytime. Driveways and footpaths should cross it, with benches at intervals, and possibly a sheltering roof for visitors in case of rain. Such veritable forest parks would be of immeasurable benefit to all nature lovers and

naturalists of every description. City parks are in their place a great blessing for many people, but a city park is no wilderness and should not be one. It is a different thing altogether; it harbors few wild animals and gives a chance to others to adapt themselves to such conditions as it offers, that is all.

In Europe the indiscriminate cutting down of forests has been stopped as long as a hundred years ago, and the governments see that no tree is felled without permission of the forester. Here, too, the national government has begun silviculture, but this offers no substitute for the original forest wilderness. Silviculture resembles agriculture in so far as the forester wants only those things to grow which have a marketable value. He cuts down everything else and the result is a very clean forest with certain kinds of trees growing to perfection, but there is little or no undergrowth, no climbers, no dead treetops, no litter and decaying logs on the ground. Such forests are almost as monotonous as a cornfield, with the only difference that trees take the place of corn. They are poor in birds and flowers and no comparison at all to our original Missouri forests with their fifty different kinds of trees and an equally great variety of climbers, shrubs and smaller plants. Here life of every kind abounds, birds of many species populate the treetops, others the branches, high and low; others again make their home in the undergrowth and some claim the ground floor itself for their domain, making their nests and raising their young in safety among the brush and brambles which so abundantly cover the ground and make access difficult or impossible to their enemies.

A forest preserve, which comes nearest to our ideal, is found in the famous Yosemite Valley, a State Park within a National Park, where firearms, herds and fires, as well as the axe, are barred, where the policing is done by a state guardian assisted in summer by a detachment of U. S. cavalry. And what a paradise it is for the nature lover! It is not its granite walls and waterfalls alone which make it so attractive; it is the undisturbed natural beauty of its vegetable and animal life, its peace and quiet which make a sojourn within those high walls so exceedingly pleasant. Last summer during a short stay of three and one-half days I noted 57 different species of birds within those granite walls, and some of them were in surprising abundance. Nearly all were song birds and of extraordinary tameness.

How different would all this be if the valley had not been a preserve almost since its discovery. Man would have cut down the beautiful trees to make fire wood; they would have killed every living thing for gain or sport; grazing animals and fire would have done away with every wild

flower, and where there is a paradise today there would be a desert or something very much like it.

Why can we not have such paradise spots in Missouri? The true Nature lover does not need grand scenery to be happy; Nature in its undisturbed state is all he wants. He sees the wrong which has been done to future generations through the destruction which is going on everywhere. The axe and the gun, fire and the plow are laying waste the broad land. You may look out of the car window for miles and miles without seeing more than a dozen kinds of wild flowers and those mostly of the commonest kinds.

People would not flock from the country into the cities, if country life did not become so very monotonous. Just think a country without birds, trees and flowers, with nothing but fields and barb wire fences and shadeless, dusty roads! Would it be a wonder if such a life would be regarded as unbearable, and could we blame our sons and daughters for their growing dissatisfaction with country life?

It is therefore of great importance to all, city and country people alike, that as much as possible of the beautiful in Nature be saved from destruction in the transformation of virgin soil into cultivated land. This can of course not be done without some sacrifice on the part of the owner, but does not our present fifty million World's Fair prove that we have lots of spending money for the higher and nobler aims in life? Let us hope that we, the fruit-growers of Missouri, will always bear in mind that we are willing to sacrifice a few of our cherries, grapes and berries for the good of the country and not do murder as long as there are other means to keep fruit-loving feathered songsters from our trees and vines.

Mr. Erb—That was a most excellent paper, and I hope that the secretary will publish it in our report so that the sons of horticulture can read and learn.

Pres. Whitten—You echo the sentiment of this audience. The horticulturist is a friend of the bird.

BIRD LEGISLATION.

(W. J. Blakely, President Missouri Audubon Society, St. Louis, Mo.)

This world without birds would be a dismal place. Every tree would be a tombstone to the gentle beings that personify nature, and this end is inevitable as it seems to the friends of birds as we see the great destruction that is going on. Self interest is a proper feeling if

it does not degenerate into selfishness. The hunter loves the pleasure of the chase, but also the addition to his table. Audubon loved birds and nature for their beauty's sake, and took note of the life about him. The agriculturist, the orchardist and the farmer love birds because they help preserve their products and add to the revenue by destroying those insects that prey upon their fruit. A year's produce is worth \$160,000,000, but ten per cent of this is destroyed by the bugs and worms that multiply and increase because of the destruction of birds. This destruction amounts to eighty per cent of the wild insectivorous and game birds in a year, and the causes are murder, the venality of our legislatures and the sluggish indifference of the tax-payers in not forcing their representatives to vote for the laws. In New Jersey there were three attempts to get such a bill through. The first fish and game bill was turned over to a committee and there were many petitions for them to bring it in and they did finally, notwithstanding that only five days of the session remained. It was then turned over to the senate to a committee on miscellaneous business and they did not act. There was a disgraceful record and Missouri has the same. The last and the previous legislature did the same with our bill on account of money from the game dealers. The president and secretary of the Audubon Society spent days and days trying to bring out this bill. After assurances they went home and stayed until alarmed, when they went again to Jefferson City. Col. Crisp said to us, "Go back, your bill is killed in the Senate by money." Your own representatives killed it. If you want to reproduce the birds and see the insects destroyed and the crops protected, instruct your representative to vote for the bill to be introduced this year. If money kills it again it will be because the horticulturists have not had a true interest in it. All around us the states have laws as framed by the Audubon Society, they exist and are in force. You may spray, but there is nothing like the birds to get rid of the insects. The game birds are also insect destroyers.

Money to pay the game warden and his deputies must be appropriated, and so this should be incorporated in the bill. Tax the hunter as in other states and he will gladly pay. Let us redeem Missouri and set her in the line of progress, even Arkansas is ahead of us in this line. We must prevent the killing of robins, woodpeckers and such or they will be substituted for the disappearing game birds. They are killed for food and in wantonness, and for woman's vanity. In pity spare the birds,

"For the great God who loveth us He made and loveth all."

MISSOURI FORESTS.

(N. F. Murray, Oregon, Mo.)

Originally Missouri was quite well supplied with forests of valuable timber such as oak, walnut, sycamore, cotton wood, poplar, cypress, hickory, pecan, beech, locust, pine, cedar, etc. The larger forests are found in the southern part of the State, and include the pine, cedar, cypress and beech. In the northern part of the State some splendid forests were found along the Missouri river and her tributaries, mainly of oak, hickory, elm, hard maple and cotton wood. But these once beautiful forests are fast fading away to supply our own people, and those of less favored states who draw upon Missouri for a vast amount of lumber, cross-ties, piling, and posts. We have in the United States (approximately) thirty thousand saw mills, that cut up one thousand acres of our forests every hour to feed the remorseless jaws of commerce. The original growth of our most valuable forests is nearly exhausted. The forests of north Missouri have been robbed of their cream, and the pine of south Missouri will soon be a thing of the past; and her fine oak is going rapidly for cross-ties, piling, posts, and agricultural implements. What is true of Missouri forests, is also true of the forests of other states, they are fast melting away, and there is no hope of any relaxation on them, but on the contrary, there will ever be a growing demand for all kinds of lumber, for building purposes, for cross-ties, for pole lines, fuel, wood pulp, cellulose, etc. It may be of interest to note that the word "book" comes from the old germanic word for beech, because the Anglo-Saxons and Germans wrote on beechen boards before paper was used. Also that the word "library" comes from the Latin "liber," the bark of a tree. The first paper makers were hornets which scrape off the weather-worn wood of stumps, rails and boards, and convert it into a kind of paper, out of which they construct their nests. The amount of wood which is consumed in the manufacture of our paper is immense. A prominent New York newspaper uses one hundred and fifty tons of paper daily. To produce this amount of paper, two hundred and twenty-five cords of spruce wood are consumed. There are many other firms that use as much, and a greater number that use a less amount, and our supply of spruce wood is so nearly exhausted, that the Government is now experimenting to find out, if possible, other varieties that will do for paper. Our common postal card is made from the pulp of the tulip (our poplar). Common newspaper material is simply wood from which

the bark and knots have been removed which is ground into pulp and then pressed into paper. Nearly all books are now made of wood pulp. The demand of the future will increase rapidly.

Our two hundred thousand miles of American railways have and will continue to make a heavy draw upon our forests. It requires six hundred million cross-ties to lay them once, and ninety millions per annum to maintain them, to say nothing of new lines to be built.

Pole Lines.—The vast number of telegraph and telephone lines, from the Atlantic to the Pacific, and from the lakes on the north to the Gulf on the south are rapidly exhausting the cream of our young forest growth. The ever increasing demand (usually at advanced prices) for all kinds of lumber, cross-ties, piling, bridge timber, posts, pulp and fuel, should be sufficient proof to convince every doubting Thomas in Missouri of the commercial value of our forests and our cultivated groves, and stimulate every land owner in the State to a greater effort in this line of work.

What can we do to save our forests?—Nothing, simply nothing! The hungry jaws of commerce must be fed and our beautiful forests of Missouri are going, and will continue to fade away. While this is true, we have the consolation of knowing that it is within our power to re-forest all the land we wish to with the most valuable varieties of timber. Will we do it, and will it pay? These are vital and important questions that every land owner must settle for himself. We have before us a report of the Yaggy tract of five hundred acres of planted forest near Hutchison, Kansas, that has been under cultivation for twelve years. In that time they report that they have sold thirty thousand dollars worth of fence posts, which have been secured by thinning out, and leaving the larger trees which are now reported worth thirty thousand dollars. This will serve to give an idea of the immense profit in forestration.

A large majority of the two hundred and fifty thousand farms in Missouri contain some rough spot, possibly some nook or corner inconvenient to cultivate, some hillside, or stony spot of little value to cultivate, that might be planted to valuable varieties of timber. If all of our farmers would go to work and plant from one to twenty acres, owing to size of farm and suitability of land, with black walnut, black locust, catalpa, etc., and then care for them a few years, they would soon become a thing of beauty, a source of pleasure, comfort and profit to their occupants.

In south Missouri we have a large amount of land from which the heavy timber has been cut, much of this land has a good second growth well worthy of the attention of the owners or of those who are seeking

cheap lands, they can be bought at from two to five dollars per acre, and, while they are rough and rocky, yet the second growth of timber will rapidly enhance their value, and pay as well if not better than any other investment, and that, too, without the worry and vexation that so often besets the fruit grower and farmer.

At present we find in most all of the lumber yards of north Missouri, cedar posts from the Pacific coast selling at high prices, and they will last no longer than black locust posts, enough of which might have been grown on the farms of Missouri to supply all our own wants at a trivial cost.

We of the present owe it as a duty to coming generations to reforest a portion of our lands. We have been reaping where nature planted the forests with a lavish hand, then let us plant forests and groves with a liberal hand, and thus provide a blessing for those who shall come after we are gone to our reward. *

EVERGREENS.

A Plea for Their Use and Not Their Abuse in Landscape Planting.

(Sid J. Hare, Kansas City, Mo.)

My first recollection of an evergreen carries me back to my childhood. When scarcely three years of age, I saw an evergreen, and I have always remembered it because it was so ridiculous. I can give no other reason why the recollection of this tree has remained in my memory these many years. It was one that had been sheared into a series of balls, one above the other, reminding one of "time balls," of various sizes, all on one pole, the larger at the bottom, diminishing to the smaller at the top. I remember also that people's clothes were just as ridiculous in their cut as was the tree referred to.

In some neighborhoods the topiary craze seemed to be infectious. Evergreen trees were sheared into all manner of ridiculous forms, peafowls, tea-pots, pigs, cranes, bears, chairs. We send missionaries to the heathen Chinese who distorts the foot of his child, yet we do even worse in many ways. There was a time when it would have been a sight good for sore eyes to have seen a natural evergreen tree. Times have changed, yet today there still lives some old fossil of former days who now practices the art of butchery on our city shade trees, and hopes to keep them looking "just so round like a bullet," as one said to me not long since.

We have no fear for those who read; it is only for those who do not that we may still look for such barbarous methods, for our daily papers and our magazines are full of good articles telling when and how to prune; volume after volume has been published on plant culture and care. These, with lectures and lantern slides, we hope will eventually educate all.

When it comes to real features, real lasting features in a landscape, we must turn to the evergreens, for winter and summer they remain the same, changing only in brightness as the seasons come and go.

As for color we now have varieties enough to satisfy the most fastidious, from black-green to yellow-green; blue-green to silvery bronze, and brown-greens, purple tinted and cream, all these in varying forms from the upright, fastigate, pyramidal, spreading, round-headed oval, to drooping, weeping, angular, low, flat, creeping and climbing forms, what more could we ask? With them we can effect the sublime to the ridiculous, the careless to the precise in our planting.

The uses of evergreens are many. In the landscape their value ranges from hedges or fences, to enclose grounds, to pot-plants for windows, or porch decorations. Planted as screens they hide objectionable features in the landscape; for windbreaks they protect our homes, our orchards or our gardens. As back grounds for other planting they give contrasts and help intensify the bright-colored fruit and bark of many deciduous trees and shrubs in winter; for ground covers where grass refuses to grow; and for individual specimens on the lawn.

Aside from their value in the landscape, their economic value in the trades in furnishing lumber, oils and varnishes, make them of great value to the home builder. I am glad to say that there are few places left where they furnish means for an idle man to kill time shearing them into nonsensical forms.

To give you a list of those you should use in planting your home ground is not necessary, since catalogues describing them can be had for the asking. No yard is too small, no, not even the house without a yard, "the city flat," to be without some evergreens. In our city flats we hang our yard out of a window. During the summer we can plant annuals and vines; in the fall we can replace them with a few select dwarf or young evergreens; fill in between with *Santolina* and *Vinca minor*, and occasionally stick in a fresh branch of holly, *lucothia*, California pepper or huckleberry, and you have a touch of green outside the window that will help to reduce the outside temperature about 10 per cent in appearance.

In the yard a little larger than that hung out of the window we may

have something a little more pretentious and elaborate. We can begin with an evergreen screen for the garbage can, and at least shut it out from full view of our neighbor's dining room, or we may plant a screen to shut out the view of our neighbor's cow lot or trash pile, that our guests do not view it while seated at our table.

A bed of evergreens can be equally as attractive as a bed of shrubs, and afford us pleasure 365 days each year instead of five or six months of this time. One may arrange them in formal designs or as irregular border, using the taller growing varieties in the center or back ground, and the lower growers in front, bordering with the *nana* and *pigma* varieties, and filling in with the ever green vine *Vinca minor* and the silvery white *Santolina*, with a *Yucca* now and then to assert its contrasting growth, and to protrude its bayonet-like leaves above the drifting snow.

Broad-leaved evergreens are not enough used and some of us forget that they really belong to the evergreen family, because we see them so seldom, and we associate evergreens with pines, arborvitaes, firs and spruces. Mahonias, hollies, laurels, ilex, box, yuccas, privet, some magnolias and some ferns, when given protected situations where the sudden thaw of a winter sun does not burn the south side of them, do well enough to warrant their use. Some of them stand even the changes of our climate without this precaution.

There are many plants half evergreen, the leaves of which remain green until late winter or early spring; among these are a few vines and herbaceous plants that retain the summer colors and fall tints to make their presence appreciated.

Bright colored fruit and bark, seed-pods and spikes, unique and curious, all combine to make winter attractive to the lover of nature.

I will close with a few kind remarks to those who object and criticize the use of evergreens in the planting of home grounds and parks "because they remind one of a cemetery." How ridiculous and far-fetched is such an educated dislike for these beauties of the vegetable kingdom. I wonder they do not object to bread made on a board since coffins are made of the same material. Why not rule out marble and granite in the construction of our homes and public buildings for the same reason.

There is not a tree or shrub, evergreen or deciduous, used in landscape work, that may not be found in our cemeteries; in fact, the modern cemetery contains a greater variety of the rare and beautiful trees, shrubs and plants, than are to be found in our city parks or in private grounds; and all plant lovers have learned this and go there in preference to the parks to learn of the plants suitable to that locality.

The beauty of a picture is enhanced by its proper framing, a gem by its setting; a song by its harmony of sound free from discords. In the home ground harmony is as essential as in music—harmony of colors, harmony of form, harmony even in contrasts, without discord—planting that enhances the beauty of the house and brings out its architectural features, and causes one to see something attractive and pleasing to the eye. How different the planting appears in our home grounds; many show the mark of skill and taste, while many more show the work was that of a tree vender who planted what he had to sell, not what should have been used, reminding one of a fine painting in a cheap frame.

Few home grounds are in keeping with the house and its interior decorations, and many "look like a stray box on a park lawn" as one writer recently expressed herself. In beautifying a home ground a definite plan should be decided upon, then follow it.

The following letter was read:

Kirkwood, Mo., June 8, 1904.

Dear Mr. Goodman—My father is very ill from a trouble from which there is but little reason to hope that he can ever completely recover, though he may be temporarily better. He wishes me to send his greetings to the Horticultural Society, which he had anticipated much pleasure in attending. I also inclose his brief paper which it would please him to have some friend read. I have copied it and hope it will be found legible.

Should my father's condition improve so that one of my sisters can be spared to accompany me, and other circumstances are favorable, I will go in on Friday to read my paper on insects.

With best wishes and regards.

Yours sincerely,

MARY E. MURTFELDT.

SHADE AND ORNAMENTAL TREES FOR STREETS.

(By Chas. W. Murtfeldt, Kirkwood, Mo.)

Mr. President, Ladies and Gentlemen—The privilege has been accorded me of presenting some thoughts and observations on what has always been a favorite theme.

The object of planting trees along streets and highways is two-fold, namely, for use, comfort, and for adornment. The shade of trees on streets in cities on hot summer days is as grateful and desirable as an

open fire of hickory or maple wood in midwinter; one will gladly walk a square farther to enjoy the former rather than to endure the fierce blaze of the sun when the range of temperature is from 90 to 100 degrees even in the shade.

The choice of trees for the purpose under consideration does not include all the species and varieties that may be seen in the park or on the extensive lawn. It is limited to those of proved adaptation on account of hardiness under—in some cases—unusual and unfavorable conditions, and because of certain characters of form, foliage and flowers. These qualities do not always receive due consideration. The variety of tree generally planted is apt to be the one most readily obtainable. For instance; in our little city of Kirkwood about thirty years ago Mr. John Hoffman, a public spirited citizen of ample means, bought what nursery men call "a block of elms," of a European variety. Some of these he planted himself along certain streets. Others he sold or donated to friends to be used in the same way; hence, Kirkwood became, like New Haven on a smaller scale, a "city of elms." Some of these trees still live in good form and vigor, but a large proportion succumbed to the drought of three years ago. The elms of which New Haven, Connecticut, boasts are so tall and spreading that their branches interlock over the drives and the same is true of those of Kirkwood, although those surviving are probably scarcely one-third the age of the Eastern trees.

Experience has proved that the elms, especially our native species (*Ulmus americana* and *rubra*) are among the best for shading both city streets and country roads. Rockford, Illinois, has been called the "Forest City," because the streets are so lined with trees that the city seems actually to stand in a forest. Here the varieties of maples predominate. The Norway maples have far overshadowed all other kinds and seem peculiarly well adapted to the soil and climate. Before some of the residences the Norway and the black maple or box elder (*Negundo aceroides*) stand side by side, the former more formal and symmetrical, the latter more graceful; the one a very dark green, the other almost yellowish, presenting a beautiful contrast. Our friend, Willard P. Flagg, a well known authority on trees, singled out the box elder as his especial favorite. It yields to training, but needs a careful pruner.

The sugar maple has always been a highly prized street and roadside tree. So much admired is it in Kirkwood that very few of the more extensive residence lots are without one or more specimens, and a wealthy resident recently paid an extravagant price for the removal of a half dozen large trees from some obscure position to the front of her residence. This species, like the Norway, is of rather slow growth.

As is well known, the pride of the German Emperor and of all Berlin is the famous drive and walk "Unter den Linden," although the trees do not appear so very imposing to Americans used to the towering forest growths of this country. The European Linden thrives well in every part of Missouri. Its foliage is more delicate and glossy and its habit of growth handsomer than in our native species, and, so far as it has come under my observation, it is a perfectly hardy tree. In my native city in Germany, I well remember a beautiful linden *allee* or walk, where no driving was allowed. Abutting against one end was a longer one shaded by horse chestnuts which, when in flower with their pinkish spikes of bloom, each about a foot long, resembled nothing so much as a German Christmas tree, with hundreds of lighted candles. This was a lovers trysting place and, as it was open to the public, needless to say it was much frequented by the youths and maidens of the city.

The white ash (*Fraxinus Americana*) should not be overlooked in making a selection of trees for planting. It is handsome in form and foliage, and of quite rapid growth and has but few insect enemies. For rapid growth and beauty of foliage the soft or silver maple (*Acer dasycarpum*) has deservedly many admirers and in many towns is the most numerous of all the street and lawn trees. When planted to a good depth and in rich soil its shade does not kill out the grass, as is a prevailing objection to it, nor until it is very old does it throw out the brace roots so near the surface of the ground as to be objectionable.

The Ailanthus, introduced into this country from China more than a half century ago, and only objectionable on account of the ill smelling pollen from the staminate blossoms, is of such quick growth and such great endurance of unfavorable conditions that it ought not to be omitted from any list of city shade trees. The pistillate trees are really very handsome with their tropical looking leaves and rose tinted blossoms and winged seeds, and were there any characters by which they could be distinguished, when young, from the male trees, would deserve a prominent place in this list.

The sycamore or plane tree (*Platanus occidentalis*) although growing naturally along river bottoms and rich low lands, adapts itself readily to city conditions, where it in a very few years affords ample shade to sidewalks. The principal objection to this tree is the sensitiveness of its foliage to frost either late in spring or early in the fall. This causes the leaves to drop unseasonably and litter the sidewalks and lawns.

Here and there in Missouri, Illinois and Iowa we still see rows of Lombardy poplars. I confess I like them, especially in the country, as land marks. It is true they hug themselves so closely with a *noli me*

tangere air that they do not afford much shade. They are also gross feeders, though not directly inimical to other trees. The Carolina poplar also is growing in favor and some roads known to the writer are lined with them, alternating with the soft maple, the varying shades of foliage producing a very pleasing effect.

As blossoming trees the two of prominent beauty are the horse chestnut (*Castania*) and our native (*Catalpa speciosa*). In some cities entire streets are lined with these, and in the blooming season it is difficult to decide which is the most showy. The horse chestnut, taking into consideration its greater compactness and beauty of foliage, is generally ranked as superior, but, on the other hand the *Catalpa* grows more rapidly and begins blooming at a very early age, and, if given a little training becomes a tall and elegant tree.

These include very nearly all the trees best adapted for shading streets and roads, and most of them thrive in all, except the most southern and most northern sections. They include a sufficient variety to prevent a wearisome monotony of form and habit.

REPORT OF COMMITTEE ON NEW FRUITS.

Your committee on new fruits desire to submit the following:

1st. A Seedling Strawberry from Mr. Turner from Johnson county.

Mr. Turner says this berry was produced by himself two years ago, by crossing the Marshall and Gandy. It promises to be a good bearer. It is a vigorous grower, a perfect bloomer, ripens later than the Marshall and earlier than the Gandy. We find as follows:

Size.—Large, possibly not so large as the Marshall, but decidedly larger than the Gandy.

Firmness.—Firmer than the Marshall—a much better shipper.

Color.—Dark red throughout, ripens evenly and is attractive.

Form.—Roundish, smooth, regular, good shape, early, persistent, abundant.

Stem, short, good size, strong.

Quality, good, not quite as sweet as Marshall, hence not likely to be injured by insects before picking.

It is a desirable berry and may become a favorite; is worthy of a name and should be further propagated. The name Turner is short, easily written and in no way objectionable. Hence we recommend it to be named Turner in honor of its producer.

2nd. A Seedling Strawberry from Mr. Bower of Monett, Mo.

The producer, Mr. Bower, says it is a cross between the Brandy-

wine and the Marie. Plants are strong growers. Ripens last week of May.

Size—Large.

Firmness—Good, and will ship fairly well.

Color—Light red throughout, ripens unevenly, otherwise attractive.

Form—Irregular in shape, elongated, somewhat rough, but not enough to make it specially objectionable.

Calyx—Persistent, abundant.

Stem—Short, strong, good size.

Quality—Medium to good.

We think this seedling will become desirable. May be a favorite. It is worthy of a name and we recommend its further propagation.

Bower is a short word, easily written and to us unobjectionable; hence recommend it be named Bower in honor of its producer.

K. B. WILKERSON,

C. H. DUTCHER,

Committee.

The motion to accept this report was seconded and carried.

REPORT OF COMMITTEE ON AWARDS.

The following awards are recommended:

For single boxes largest berries—

W. E. Bower, Monett.....	\$2 00
A. T. Nelson, Lebanon.....	1 75
H. W. Jenkins, Boonville.....	1 50
E. S. Katherman, Warrensburg.....	75

For single boxes, best quality—

Chas. Steiman, Dalton	2 00
A. T. Nelson, Lebanon.....	1 75
E. S. Katherman & Son.....	1 25
W. E. Bower	1 00

Single boxes firmest fruit—

W. E. Bower	2 25
A. T. Nelson	2 25
E. S. Katherman & Son.....	1 00

Best Seedling—

E. S. Katherman	3 50
W. E. Bower	2 50

Best new variety—A. T. Nelson, for Uncle Jim..... 6 00

Best commercial variety—

A. T. Nelson, Gandy.....	2 50
H. W. Jenkins, Greenville.....	2 00
E. S. Katherman & Son, Warfield.....	1 50

For collection of five commercial varieties—

E. S. Katherman & Son, for Haverland, Warfield, Greenville, Tenn. Prolific and Brandywine	4 50
H. W. Jenkins, for Ridgeway, Haverland, Bubach, Greenville and Warfield	4 00
A. T. Nelson, for Gandy, Haverland, Bubach, Excelsior and Bradley	3 50
Chas. W. Steiman, for Haverland, Aroma, Bederwood, Gandy and Parker Earle.....	3 00

For collection of five varieties for family use—

A. T. Nelson, for Gandy, Bradley, Bubach, Ruby and Haver- land	6 00
E. S. Katherman & Son, for Crescent, Brandywine, Warfield, Greenville and Tenn. Prolific.....	5 00
Henry Schnell, Glasgow, for Clyde, Marie, Haverland, Bu- bach and Windsor Chief.....	4 00

Collection of ten varieties—

A. T. Nelson	12 00
J. E. Hall, Warrensburg.....	10 00
Henry Crecelius, Mehlville	8 00

Crate arriving in best condition—

H. W. Jenkins	4 00
A. J. Russell, Butterfield	3 50
A. T. Nelson	3 00
A. J. Russell	2 50
G. T. Tippin, Nichols.....	2 00

For single boxes—Aroma

H. W. Jenkins	1 25
Chas. W. Steiman	1 00
Henry Schnell	75

Bubach—

A. T. Nelson	1 25
H. W. Jenkins	1 00
Henry Schnell	75

Crescent—

E. S. Katherman & Son.....	3 00
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Gandy—

A. T. Nelson	3 00
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Haverland—

H. W. Jenkins	70
E. S. Katherman & Son.....	65
Henry Schnell	60
A. T. Nelson	55
Chas. W. Steiman	50

Jesse—

E. S. Katherman & Son.....	3 00
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Sample—

A. T. Nelson	3 00
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Splendid—

Henry Schnell	3 00
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Warfield—

H. W. Jenkins	3 00
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Senator Dunlap—

Henry Schnell	3 00
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Total\$141 00

We also found upon the tables several entries by Messrs. Katherman, Steiman, Schnell and Jenkins, for which no provision had been made, and hence no award is given them.

Garland Park of Washburn also enters twelve boxes.

Respectfully submitted.

L. R. TAFT,
ORLANDO HARRISON,
W. P. STARK,

Committee of Awards.

Prof. Taft.—One of the difficulties in making this report has been that we could not get all the committee together at one time, and part of the fruit was on the tables the first day and part of it later, so could not be judged alike.

The report of the committee on awards was adopted by motion.

FINAL RESOLUTIONS.

We, your committee on final resolutions, beg leave to submit the following report:

Resolved, That we do most heartily express our appreciation of the magnificent horticultural exhibit of our State at the Louisiana Purchase Exposition. We are gratified that by its extensive collection, artistic

installation, it places Missouri among the first, at this, the greatest of all World's Fairs.

Resolved, That we do most sincerely express our full appreciation of all the influences and labors that have made it possible to work this great achievement. To the Hon. Frederick W. Taylor, Chief of Horticulture, we extend our most hearty congratulations upon the successful manner in which he has carried out this great work for the entire fair, and especially for his courtesy and interest manifested towards our Society, and extend to him a vote of thanks for his favoring this session with his presence and interesting address. To Prof. J. T. Stinson, Pomologist of the World's Fair for his efficient services contributed to the great work of making the World's Fair Horticultural exhibit a crowning success. To the Missouri Commission we especially express our full appreciation of their manifest interest in making Missouri's exhibit a credit to the State, to the galaxy of states composing the Louisiana Territory, to the nation of which we are so proud, and to the World, and making it the pride and joy of every Horticulturist of Missouri, our beloved Society, and every citizen of the State, by setting apart so liberal an amount of the State appropriation for the Horticultural Department, by their untiring labors, and standing faithfully by those directly in charge of the work. To Superintendent L. A. Goodman, our efficient Secretary, we extend the glad hand of congratulation and deepest assurance that all his labors are recognized in their fullest sense. His crowning work in Horticultural labors bringing together the greatest fruit exhibit probably ever made in the history of the world by any state is indeed gratifying to us, and to him we say well done good and faithful servant. To all fruit growers of the State and all members of the Society who have contributed to the success of our exhibit in any way, the Society feels indebted and expresses its sincere thanks to them. We extend congratulations to Dean H. J. Waters, and those associated with him in the Agricultural Department of Missouri, upon the magnificent exhibit which has been prepared and installed by them, and assure them that every citizen of Missouri will be proud of their work which so ably credits our great Agricultural interest. No citizen of Missouri should miss seeing our Agricultural and Horticultural exhibits. We also extend thanks to the Santa Clara County Prune Growers' Association for a box of most excellent French prunes, and to Mr. Galloway, Superintendent of the Oregon Horticultural exhibit, for a box of Italian prunes.

GEO. T. TIPPIN,
JAMES M. IRVINE,
C. H. DUTCHER.

The resolutions were unanimously adopted.

ADDITIONAL PAPERS.

NOMENCLATURE.

Over twenty years ago the Society adopted the rules of the American Pomological Society as then sent out in their report. The Society has followed these rules in the naming of all the fruits which have been presented for name or which have been shown at any of our meetings, never allowing the renaming of any old apples and always insisting on only one word for a name.

Our Society therefore, by the action of its Executive Committee gladly acquiesces in the "New Rules of the American Pomological Society."

In order that our Society may fully understand the rules of nomenclature as adopted by the American Pomological Society at its last meeting in Boston, and approved of all our State Horticulture Societies of the United States, it has been ordered by the Executive Committee that these rules be embodied in our report, and the report of W. H. Ragan, Expert in Pomological Nomenclature as far as it refers to some of our Missouri fruits, be published for the benefit of our fruit growers, and those contemplating the orchard business.

It was also decided that in view of the statements which have been sent out, and in justification of the action of the Society in its decisions, and in order to re-affirm the position it has taken in regard to its findings as to the names of our Missouri apples and nomenclature in general, the following should be prepared and published:

A WISE COURSE REGARDING NOMENCLATURE.

It seems to us that the annual horticultural meetings should take note of the importance of a standard nomenclature. This is a matter of direct interest to both fruit grower and nurseryman. Fortunately a standard is available; the subject has been considered by the leading men of the great fruit industry. At the expense of considerable time and money, the American Pomological Society composed of the best thought and the ripest experience in fruit matters, has prepared a list of names of fruits of this country which is rightly regarded as the standard. The nursery trade has had occasion during the present year to note the importance of having such a list and of guiding its actions by it.

In its report at the Boston meeting of the American Pomological Society, in September 1903, the committee on nomenclature which had been engaged four years in formulating a code of rules for the more perfect naming of fruits, said:

"In the light of past experiences, the unrestricted naming of fruit varieties by originators, discoverers and introducers has resulted in complexity, confusion and frequent duplication of fruit names, alike destructive to scientific accuracy in pomology and detrimental to the best interests of both amateur and the commercial fruit grower."

The Code of Pomological Nomenclature, adopted by the American Society at the Boston meeting, consists of five rules which may be summarized as follows:

RULE 1—Priority. No two varieties of the same kind of fruit shall bear the same name. The name first published for variety shall be the accepted and recognized name, except in cases where it has been applied in violation of this code.

A. The term "kind" as herein used shall be understood to apply to those general classes of fruits which are grouped together in common usage without regard to their exact botanical relationship, as apple, cherry, grape, peach, plum, raspberry, etc.

B. The paramount right of the originator, discoverer, or introducer of a new variety to name it, within the limitations of this code, is recognized and emphasized.

C. Where a variety name through long usage has become thoroughly established in American pomological literature for two or more varieties, it should not be displaced nor radically modified for either sort except in cases where a well known synonym can be advanced to the position of leading name. The several varieties bearing identical names should be distinguished by adding the name of the author who first described each sort, or by adding some other suitable distinguishing term which will insure their identity in catalogues or discussions.

D. Existing American names of varieties which conflict with earlier published foreign names of the same, or other varieties, but which have become thoroughly established through long usage, shall not be displaced.

RULE 2—Form of names. The name of a variety of fruit shall consist of a single word.

A. No variety should be named unless distinctly superior to existing varieties in some important characteristics, nor until it has been determined to perpetuate it by bud propagation.

B. In selecting names for varieties the following points should be

emphasized: Distinctiveness, simplicity, ease of pronunciation and spelling, indication of origin or parentage.

C. The spelling and pronunciation of a varietal name derived from a personal or geographical name should be governed by the rules which control the spelling and pronunciation of the name from which it was derived.

D. A variety imported from a foreign country should retain its foreign name, subject only to such modification as is necessary to conform it to this code or render it intelligible in English.

E. The name of a person should not be applied to a variety during his life without his express consent. The name of a deceased horticulturist should not be so applied except through formal action by some competent horticultural body, preferably that with which he was most closely connected.

F. The use of such general terms as seedling, hybrid, pippin, pear-main, buerre, rare-ripe, damson, etc., is not admissible.

G. The use of a possessive noun as a name is not admissible.

H. The use of a number, either singly or attached to a word, should be considered only as a temporary expedient while the variety is undergoing preliminary test.

I. In applying the various provisions of this rule to an existing varietal name which has through long usage become firmly imbedded in American pomological literature, no change shall be made which will involve loss of identity.

RULE 3—In the full and formal citation of a variety name, the name of the author who first published it shall also be given.

RULE 4—Publication consists (1) in the distribution of a printed description of the variety named, giving the distinguishing characters of fruit, tree, etc., or (2) in the publication of a new name for a variety that is properly described elsewhere; such publications to be made in any book, bulletin, report, trade catalogue or periodical, providing the issue bears the date of its publication and is generally distributed among nurserymen, fruit growers and horticulturists; or (3) in certain cases, the general recognition of a name for a propagated variety in a community for a number of years shall constitute publication of that name.

A. In determining the name of a variety to which two or more names have been given in the same publication, that which stands first shall have precedence.

RULE 5—Revision. No properly published variety name shall be changed for any reason except conflict with this code, nor shall another variety be substituted for that originally described thereunder.

These rules are brief, even in their full form, and we suggest that it would be well to incorporate them in the published proceedings of every horticultural society. They should be given wide dissemination and should be available for all nurserymen and fruit growers at all times.—*American Fruits.*

The official report of the U. S. Department of Agriculture at Washington, D. C., by Prof. W. H. Ragan, expert in Pomological Nomenclature just published, gives a list of all the varieties of apples from 1804 to 1904, (100 years), aggregating about 14,000 names and their synonyms.

This publication being the result of a number of years of study, investigation and practical examination of hundreds of specimens from all parts of the country, by all the experts in that department, is the most correct report on nomenclature ever given to the world and will be accepted by all Horticultural Societies as correct.

The following is a report of the names of some apples and their synonyms as found in Bulletin No. 56, published by the Department of Agriculture.

“GANO, synonym Black Ben Davis, Payton, Red Ben Davis.

“Black Ben Davis, synonym of Gano.

“Black Ben Davis, synonym of Ragan.

“Red Ben Davis, synonym of Gano.

“REAGAN, synonym Black Ben Davis, Ragan [Ragan?]*—*Now thought to be Gano.

“Ragan (incorrectly) synonym of Reagan. (Reagan now believed to be Gano.)

THE DECISION OF THE COMMITTEE.

December 10, 1903.

“To the Missouri State Horticultural Society:

“Gentlemen.—Your committee appointed to investigate the origin and characteristics of the Black Ben Davis and Gano apples respectfully beg leave to report as follows:

“Inasmuch as some horticulturists are positive in their opinions that Black Ben Davis and Gano are two distinct varieties and others were equally positive that they are one and the same variety, the committee decided to secure all possible data concerning the origin of Black Ben Davis and Gano, to visit bearing orchards where the

trees and fruit could be compared and to secure fruit that could be kept in storage and compared from time to time during the winter and spring.

"A letter was addressed to the introducers of Black Ben Davis, asking for data concerning the origin of this variety and the location of the trees from which they secured their scions, in order that the committee might visit these trees. This request was promptly responded to by the introducers. One of the leading members of their firm accompanied the committee to the Arkansas orchard from which they secured their Black Ben Davis scions. Every possible effort was made by them to put the committee in possession of the necessary facts and materials for the investigation and they co-operated with the committee throughout with enthusiastic zeal to facilitate a thorough and impartial investigation.

"The committee was able to locate then the original Black Ben Davis tree so far as it was known in the neighborhood, but could obtain no positive evidence as to whether or not this tree was a seedling. It was found also that the variety had locally sometimes been called Reagan, in honor of the owner of the farm at the time the variety was being propagated there. The introducers used the name Black Ben Davis, selecting the word Black in honor of the owner of the place where the first tree started in the neighborhood and the name Ben Davis because the apple was of the Ben Davis type and in some respects resembled the latter variety. The committee also saw Black Ben Davis growing on younger trees in the neighborhood of Lincoln, and took specimens of fruit and twigs from various places to compare with Gano.

"Since Gano has been named and has been disseminated as a distinct variety attention has frequently been called to old trees of this variety, growing here and there in Missouri and adjoining states. In some cases the old Jacks orchard in Missouri has been definitely traced as the source from which these trees came. In other cases where the source from which the trees came cannot be definitely determined the orchards frequently contain Ben Davis and other varieties which were being disseminated mainly from the old Jacks orchard at about the time these trees must have been planted out. Two trees of Gano have been definitely reported from an old orchard in Kearney, which was planted out about 1840, the two Gano trees being apparently of the original planting.

"The committee secured fruit from the Black Ben Davis trees in the Bain orchard and also from other young trees of the same variety growing in the vicinity of Lincoln. Fruit was selected from old and young trees in different orchards in order to fairly represent the variety as grown under different conditions. Fruit was also secured from the Gano trees

to compare with the former variety. In order to fairly test the keeping qualities of Black Ben Davis fruit from Ben Davis trees was secured from the Bain orchard where they were growing under conditions comparable with those of Black Ben Davis. It is generally admitted by fruit growers that the Ben Davis and Gano are much alike as to keeping qualities. Twigs were also secured from the same trees so a study of their characters might be made. Each member of the committee took portions of these specimens and kept a part of them in cold storage and a part of each in ordinary cellars, so as to observe them at different times during the winter.

“Some of the points of difference which different fruit growers have from time to time stated to exist between Black Ben Davis and Gano are that the former possessed a more yellow flesh, was firmer and a better keeper and possessed a more sprightly flavor, especially toward spring than did Gano. Some have also suggested that there was a slight difference in the shape and that the former might be of higher color. After a careful comparison of the apples once each month during the winter and spring the committee are unable to find any difference between Gano and Black Ben Davis. Black Ben Davis differed no more from Gano than did the individual specimens of each sort differ among themselves. Both Ben Davis and Gano kept as well as did Black Ben Davis. So far as the committee could see Black Ben Davis and Gano were of the same color of flesh, of the same flavor and of identical varietal character throughout. In each variety certain specimens kept better than others and the firmer specimens of each sort were more crisp and of better flavor when cut from time to time than were the riper specimens of the same variety.

“Some authorities have suggested that there was a difference between the twig and leaf characters. The two-year-old wood of Black Ben Davis has been pronounced more hairy than that of Gano and the venation of the leaves has been said to differ. This committee has not been able to distinguish any difference between the trees, twigs or leaves that did not exist to an equally marked degree between different specimens of the same variety.

“The phenology of Black Ben Davis and of Gano has been recorded for trees of similar age in the same orchard, where they were given similar treatment. There was no difference in the time of starting into growth in spring, in the time of blossoming, in the color or other characters of the flowers or in the time of shedding of the leaves in autumn.

“Specimens of Black Ben Davis and Gano were taken to Washing-

ton by two members of the committee and submitted to test by the pomologist and his staff on March 3, 1903. This staff of officials comprised Col. Brackett, Pomologist; Wm. A. Taylor, Pomologist in charge of field investigations; G. Harrold Powell, H. P. Gould and W. P. Corsa, assistant pomologists, and Allen Dodge of the clerical force.

"The fruit was examined and tested by each of the above men separately. Neither the identity of the two lots of apples nor the opinions expressed by others concerning them were shown to the examiners; though the conditions surrounding the growth and subsequent conditions of storage were explained to them.

"It was the opinion of the staff, with one exception, that the two lots were one and the same variety. Mr. Dodge of the clerical force expressed the opinion that the lot marked (Gano) contained specimens of slightly firmer texture and of slightly greater acidity, which might be due to the varietal difference. In other respects he also pronounced them to be the same.

"The committee secured this opinion from what should no doubt be considered the highest source of opinion in such matters in the country, not to any way bias the opinion of the committee, but in order to present the strongest possible evidence that could be secured from a test of the fruit alone.

"After finding no differences, either in the fruit or in the trees by which they can be separated, your committee is forced to conclude that Black Ben Davis and Gano are one and the same variety; and that their having been regarded locally as being different sorts is only another case where isolated trees of variety, having been brought to notice in somewhat widely separated neighborhoods, have each for a time been given different names and each been honestly regarded as being of distinct seedling origin. The original notes, correspondence and other data upon which this report is based are herewith delivered into the possession of the society."

J. C. WHITTEN,

J. C. EVANS,

W. T. FLOURNOY,

Committee.

"N. F. Murray moved that the report of the committee be received and adopted and that the committee be discharged.

"The motion was seconded and carried unanimously."

Since the report of the Committee was adopted by the society, every member of the Executive Committee during the World's Fair took

special pains to watch all the specimens of the Gano and so called Black Ben Davis that were shown at the World's Fair. Specimens were shown from Oregon, California, Washington, Colorado, West Virginia, Iowa, Missouri, Kansas, Arkansas and possibly other states and in every instance they were pronounced identical. Specimens varied in size, shape, color, and quality, but in no instance was there any greater differences than could be found on the same tree, and no greater variation could be found in any specimens than occur from different localities or caused by different soils and climate. There were far greater differences in the shape and appearance and color of the Winesap, grown in Missouri and that grown in Oregon or Washington, than in the Gano as above mentioned. Not one, of the twenty or more judges on the fruits, although they came from all parts of the country ever made a report that the Gano and the so-called Black Ben Davis were different, but on the contrary every one of them who were shown the specimens and asked to name them invariably called them Gano: even Prof. Van Deman, in the presence of Prof. Ragan, said that "He could not see any difference in the quality, texture, or size of the specimens, but thought there was some difference in the color and markings."

In testing and examining hundreds of specimens from all over the land we confess our inability to find any difference in the nature or quality, and in no instance did we find the flesh "yellow like a wine-sap" or any other color except the regular color and texture and quality of the flesh of the "Gano."

One year later the U. S. Pomologist, G. B. Brackett, re-affirmed his decision, as given to the committee, that those apples were identical. The other members of the staff, Messrs. Ragan, Powell, Taylor and Gould, judges at the World's Fair, gave it as their opinion after further examination that the two apples were the same.

APPOINTMENT OF THE COMMITTEE.

The acceptance of this committee appointed by Mr. Robnett and a desire for its appointment is given in the following letters:

Columbia, Mo., August 22, 1904.

The enclosed shows that C. M. Stark was willing to go to Arkansas and work with the committee, also thought them O. K., even to Flournoy and Evans at that time.

D. A. ROBNETT.

Louisiana, Mo., October 8, 1902.

D. A. Robnett.—We thank you for your kind favor, we appreciate your fairness and consideration and it is a great satisfaction to have such a man at the head of the Mo. State Horticultural Society. Our C. M. S. has received a friendly letter from our mutual friend Prof. Whitten, which he fully appreciates as he enjoyed being with the professor very much, in fact Col. Evans, Mr. Flournoy and others. Again we say it is a satisfaction to have an honest man in a public position which means so much to the great State of Missouri.

STARK BROS., N. and O. Co.,
W. P. STARK, Treas.

Louisiana, September 9, 1902.

D. A. Robnett.—It is needless to add that we shall be glad to do everything in our power to aid the committee in getting the real facts in the case.

STARK BROS., N. and O. Co.,
C. M. STARK, President.

The following letter gives Mr. Flournoy's report in November, 1902:

"While on a recent trip to Arkansas with others of the committee to visit the original Black Ben Davis trees growing on Mr. Bain's place in Washington county, to show what the Black Ben Davis might be in variations, I took on the 24th of September two small inferior striped apples from two of the trees. The apples were striped just as any ordinary Ben Davis. I took the only striped ones found; this may account for others, who might come after, not finding such fruit and possibly I might have found more such specimens if such ones had not been removed by previous visitors."

From these reports and records it is plainly seen that the Executive Committee and the State Society have been pursuing the right and proper course to help simplify and correct the nomenclature of our apples. Then all these insinuations and innuendoes and attacks and charges made upon the Horticultural Society, the Executive Committee in general, the Treasurer especially, and the Secretary in particular, were made because the Society reasserted the finding of the committee and re-affirmed its belief in the justice and uprightness of its decisions.

If there ever were any doubts about the similarity of these two apples there is certainly now, no question in the minds of the Executive Committee that they are identical and the Society has done only the right thing in endorsing their former decision.

As a conclusion to this whole matter, then, the Executive Committee finds as follows:

1. The "Gano, Black Ben Davis Committee" decided correctly when they said, there was no difference between the two.

2. The State Society did right when it endorsed the findings of this committee unanimously.

3. The U. S. Pomologist and the Department of Pomology by all its staff have given their decision that the two are identical.

4. The careful personal examinations made every day during the World's Fair by every member of the Executive Committee, justify their hearty approval of this finding.

5. The various judges who passed on the fruits shown at the World's Fair never called them distinct varieties. These judges were some twenty or more of the most expert pomologists in the United States and came from all parts of our country and not one of them pronounced them different.

6. The U. S. Department of Pomology, Prof. W. H. Ragan, Expert in Nomenclature, has published a record from the Department and he declares the Black Ben Davis is a synonym of Gano, just the same as he declares the N. Y. Pippin a synonym of Ben Davis.

7. The "Black Ben Davis," now listed as "Black Ben" by some, is the same in every respect, shape, size, quality, texture and color of flesh; color, spots or dots, characteristics of stem and blossom and keeping qualities; growth of tree and productiveness, each varying as to color and stripes somewhat, because of locality, soil and climate. No difference can be discovered which would justify the payment of any greater prices for the trees than for Gano.

GANO APPLE.

Although this apple dates back to the year 1839, the first record we have of the appearance of the Gano apple before the State Horticultural Society for name is found in its annual report of the year 1883, where it is described as follows by the Committee on New Fruits. The apple was shown by Mr. Gano of Platte county and supposed to be a seedling:

"Size, above medium; slightly oblong, varying to roundish ovate; color, beautiful bright carmine to dark red; stem, medium in size and length, set in a deep cavity surrounded by greenish russett; calix closed or partly open in a medium basin; flesh white, tender, medium juicy, mild, sub-acid; core and seed large; skin thick; quality good to very good; season, early winter; well worthy of trial."

In our State report for 1884 there is a quotation from the Committee on Fruits exhibited at the fifth annual meeting of the Mississippi Valley Horticultural Society, in January, 1884, which reads as follows:

"Of the new and promising varieties in the Missouri list are, the Gano, by W. G. Gano of Parkville, etc."

From our printed reports we also find that specimens of the Gano were sent to Chas. Downing, both in the fall of 1883 and the early part of 1884, who was delighted with the "beautiful specimens," "so large and handsome," and acknowledged them as a new variety and authorized us to name it the Gano, which name had already been given it by the Missouri Valley Horticultural Society.

In 1884, also, Mr. Gano offered to turn over to the Society all the scions that could be obtained from the original tree, for the purpose of propagation and distribution through the Secretary of the State Horticultural Society. These scions were delivered to Mr. M. Butterfield and to Blair and Kaufman for propagation.

The apple was also exhibited at the State meetings as shown by the reports of the Society for 1885 and 1886. In 1887, Mr. Butterfield and Blair and Kaufman presented to the Society these trees which were distributed to the different State Societies; also to prominent local Societies of Missouri, Kansas and Arkansas.

In the report of 1886 an apple called the Payton was exhibited which was decided to be the Gano, and, in the same year, a question was asked about an apple called the Black Ben Davis, and the answer was given that it was the same as the Gano. In the report of 1899, Prof. J. T. Stinson of the Arkansas Experiment Station exhibited apples called the Black Ben Davis, Etris and Ark. Belle, and the committee, in making their report on these, decided "they are so much like Gano, that the committee are not able to distinguish between them and the latter well known sort."

FINANCIAL STATUS OF THE SOCIETY.

The Executive Committee believe it due the members of the Society that the following statement made by the secretary and published in August should be embodied in this volume:

1. Each and every step of our Society work has been taken with the full knowledge and united action of the Executive Committee.

2. By order of the Executive Committee, Mr. A. Nelson, former treasurer, deposited one thousand dollars in his own name as treasurer for one year at four per cent, and renewed this deposit at the close of that year for one year longer.

3. When Mr. Nelson died, Mr. Butterfield was appointed in his place. The deposit certificate which was for one year, was finally returned to the Executive Committee. They found it would take some time to get matters settled and the transfer of the money made, so finally decided to let it remain where it was until a treasurer could be elected at the next meeting.

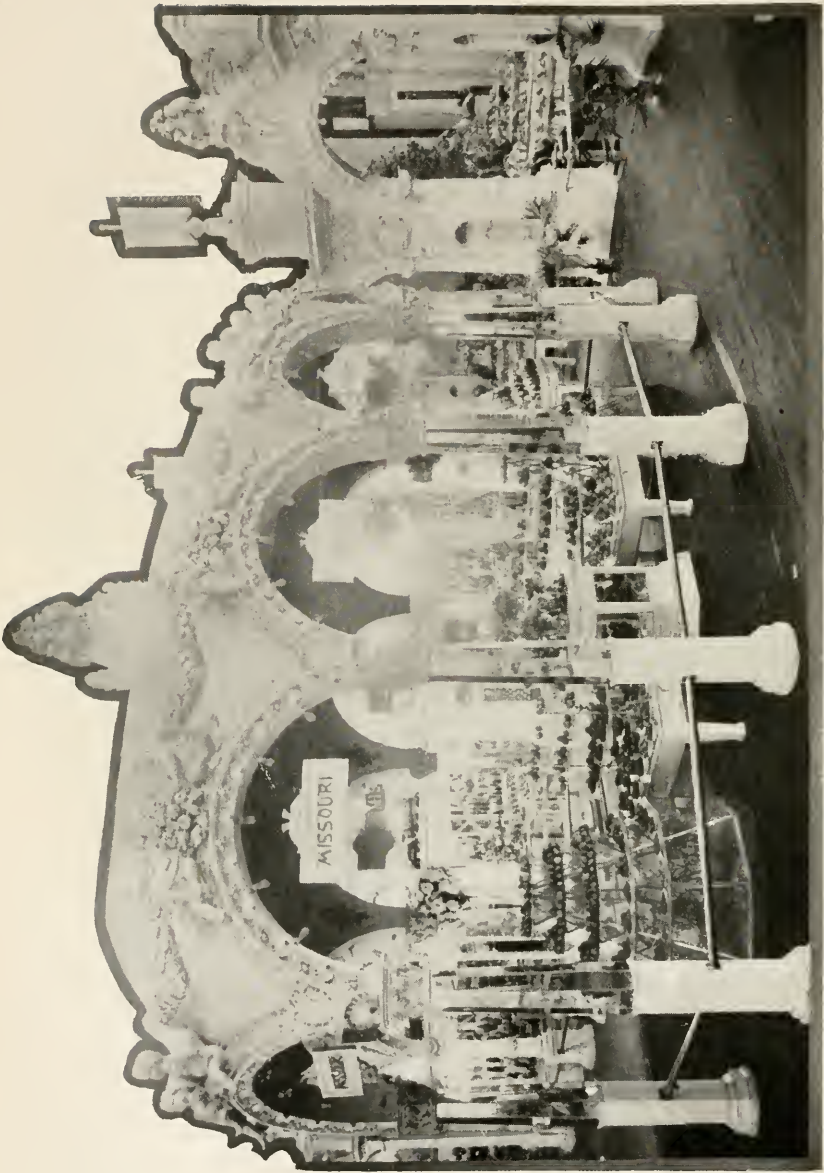
4. Mr. Gano was elected treasurer, and this fund was finally adjusted; but from the close of the second year mentioned above till the time of final settlement, it drew only two per cent. The fund at this time amounted to \$1,092.62.

5. Upon the advice of an attorney, the Executive Committee decided to deposit this money in the name of the Society. The Vice-president of the Mississippi Trust Company, in which the money was deposited, also advised us to deposit in the name of the Society, so that the Treasurer, who ever he may be, could draw the money upon a written order from the Executive Committee, signed by the President and Secretary. This money was so deposited by order of the Executive Committee, and has been drawing two per cent interest ever since. This money is just as much in the hands of the Treasurer, and subject to his check, and to his check only, as any other money; but requires an order of the Executive Committee, instead of the President and Secretary alone.

6. The last report of the Treasurer shows that there was nine hundred and ninety-two dollars and sixty-two cents and accrued interest in the hands of the Trust Company; and the check book and bank book show that only one check has been drawn on this fund—that of one hundred dollars—for desks and chairs for use at the World's Fair Exposition, and then to belong to the State Horticultural Society.

7. The report of the other money in the hands of the Treasurer, showing receipts and disbursements and the dates thereof, is according to the plan ordered by the Executive Committee years ago, and one which has always been followed because of its simplicity, and the belief that it was as good and as safe a plan as any other.

The Secretary has often collected money due the Society, charged himself therewith, and used it to defray current expenses before the State appropriation was available. But when available, full settle-



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
PAGODA.

ment was made with the Treasurer, and all receipts and disbursements entered upon the Treasurer's books. Furthermore, when no funds were coming in, the Secretary would use his own money to pay Society bills, always keeping an accurate account of debits and credits till funds were on hand, when he would be reimbursed. Of this every member of the Executive Committee was cognizant and had full knowledge of every dollar so used. This led to the plan of settlement by balances, always followed by the Secretary and Treasurer, approved by the Executive Committee, for they knew it was safe, fully protected the work of the Society, kept the little bills always paid up, thus saving a vast amount of annoyance and red-tape to those furnishing material or rendering assistance. The seventy-two dollars sent to the Secretary by the Maryland Society was received, used and reported to the Executive Committee, and then to the Treasurer in perfect accordance with the above plan.

8. No State Society of our land has done more work or earned a better reputation for work done, and no Society stands better among fruit growers, State or National Societies, than does the Missouri State Society. No State Society has done as much for the development of the fruit interests of its State, or shown such wonderful results as the Missouri State Society. All of which is the result of the unity of effort among the members of the Missouri State Society; and this unity will never cease among the fruit growers.

9. No Society of our country has done what this Society has done. At every Horticultural gathering, at every fruit display made at Expositions, and at every World's Fair that has been held in this or foreign lands for the last twenty-five years, we have upheld the honor of our State, sometimes without a dollar of appropriation by our Legislature, and yet we show a savings fund in our hand of over two thousand dollars.

Then why this issue? For twenty-two years the members of this Society have expressed their confidence in the Secretary by annually electing him to this office, and at the last meeting formally affirmed their implicit confidence in the Secretary and out-going Treasurer.

But other issues of which the Society is now fully cognizant, have arisen. The Executive Committee tried in a friendly way and in every possible manner consistent with honor and fidelity to adjust some of these controverted matters; but failing in this, the Society upon the recommendation of the Executive Committee, re-affirmed its former resolutions and decisions unanimously. Thus it gave our

fruit growers plainly to understand that the Society reasserts its belief in the justice and uprightness of its decisions.

The work of the Executive Committee, the work of every officer individually, the united and harmonious work of all the members, make the record of the Society for the last twenty-five years one that will stand well in comparison with that of those persons who have never lifted their hands in any way, or under any circumstances to the upbuilding of our Society by word, or assistance in fruits, or in time or money in a single one of its enterprises. The Society has made its record and maintained its position because of the assistance given it directly by our fruit growers, in all its displays, and to them belongs the credit.

L. A. GOODMAN, Sec'y.

STATEMENT BY G. T. TIPPIN.

We do not believe, nor does any one who is not directly interested, and is acquainted with the facts and workings of the Missouri Horticultural Society, that the inspiration and objects of the attack upon the officers of the Society had their conception in the desire to do the Society good or protect its interests. Exactly the opposite was intended, as far as the Society was concerned, and more especially was it an excuse to accumulate free advertising.

No demand has ever been made or investigation asked for by any one except those interested in the Gano-B. B. D. decision, and that not until after the recent meeting, when they had failed to sustain their contention with reference to the Gano-Black Ben Davis. The attack was made out of petty spite and was not supported by a single member in the State outside of those directly interested.

The Society, in taking steps to justly settle the Gano-B. B. D. question, did so for the interest and protection of the public and not to injure any individual. In doing this it only discharged one of the important functions of its offices, a duty it owed to the public in imparting correct information upon all questions of Horticulture for the benefit of those directly engaged in its pursuits. If claims made by individuals as to special merits of grafting on whole roots or renaming new varieties, the latter on a par with the first, are not sustained, the public is benefited.

The Society has only done its duty, and criticism emanating from those who are not willing to submit to the honest and fair find-

ings of those in charge of the work done in the interest of the public good and correct nomenclature, can do no harm. These contentions have not been worthy of consideration in the past, nor are they at present, for the public does not give more than an ordinary patent medicine advertisement-weight to news matter that has to be paid for to get into print, and only in as far as they cast a reflection upon the officers of the Society would we make any reply.

If all the citizens of Missouri could have been at the St. Louis meeting it would not be necessary to do even that. The officers of the Society court investigation, and in this connection I desire to state that, while some through spite have tried to cast reflections upon Secretary Goodman, the records of the Society are open to the public. Every cent of its funds are accounted for with a nice balance in the treasury, part of which is deposited with the Mississippi Valley Trust Company, St. Louis, in the name of the Society, subject only to the check of the Treasurer by the authority of the Executive Board. Formerly this money was deposited in the name of the Treasurer, subject to check by the authority of the Secretary and President. This was the case when Treasurer Nelson died. The funds being in his name at the time, it took some time to get it in shape so it could be checked out.

After consulting with legal authorities and the officers of the Trust Company it was decided that it would be best to deposit this fund in the name of the Society subject to the check of the Treasurer, after being authorized by the Executive Board. This was done so in case of the death of the Treasurer, his successor could check it out on the same authority without any delay as was before experienced.

I have been a member of the Society the past two years, during which time the Gano-B. B. D. investigation was made, which has caused all the trouble (and had the findings of the committee been on the other side there would not have been any trouble and no charges), and if they could have succeeded in getting the Society to rescind its action there would be no trouble now.

No act in this connection has been to serve any selfish or personal interest.

Recognizing the importance of the work done by our Society for correct nomenclature, and in view of the fact that many of the most serious experiences and losses to fruit growers come from misnaming varieties, the National Pomological Society, at its last annual meeting, took similar steps looking to the correction of abuses along the same lines, adopting among others, the following:

“As in article three, that in the light of past experiences the unrestricted naming of fruit varieties by originators, discoverers and introducers has resulted in complexity, confusion and frequent duplication of fruit names, alike destructive to scientific accuracy in pomology and detrimental to the best interests of both the amateur and the commercial grower.

Also Rule 2, article A. “No variety shall be named unless distinctly superior to existing varieties in some important characteristic, nor until it has been determined to perpetuate it by bud propagation.”

At the recent meeting of the Missouri Society in St. Louis, no objection was made except from the source referred to and the question raised by them was satisfactorily explained to every one but themselves, and unanimously sustained, and when, as you have stated, the parties casting reflections by innuendo were asked by the Society to put their charges in writing, they failed to do so.

It was the general opinion of all those fully acquainted with the matter that the object of their pernicious attack was to force the Society, rather than to submit to the insinuations, to shut them off. Then they could say they could not get a hearing before the Society on account of prejudice and use the statement as an advertisement.

The frequent use of the statement “that it was the first opportunity” they had had to present their grievances, leaving the impression that such opportunity had been denied them, when they or no one else had ever been denied any opportunity before the Society, gave proof of this conclusion. One of the Starks asked to be appointed on the finance committee, probably for the same purpose, thinking more than likely he would not be appointed, but when he was appointed, made an excuse that he could not serve.

We are not one who believes in condoning the misdeeds of a public officer, political or social, nor are we willing to see them wrongly condemned.

We are so familiar with all the facts and motives patent to this case that we would be derelict of our duty did we remain silent. We do not claim that any one is dishonest in their views, claims or opinions in this controversy.

The Society unanimously adopted a statement at its last meeting reaffirming its position on the Gano-Black Ben Davis controversy. This statement was recommended by the Executive Board after being duly considered. They declined to accept a statement that had been submitted to them for their signatures, compromising the former action of the Society.

This original statement is in the possession of the Board, those members of the Board having signed it having erased their names after discovering its full purport, thereby annulling the whole thing, and consequently it never became a signed instrument. We have understood that some who claimed to have a copy of the original would publish it. However, we do not think any one would resort to demagogery like this, even for advertising purposes, as in fact, the copy was never signed at all and would be a forgery, as the original never became an instrument in fact.—George T. Tippin, in *American Truck Farmer*.

MISSOURI HORTICULTURE.

The following articles were prepared at the request of Walter William editor of the book "State of Missouri," published by Missouri World's Fair Commission as giving a somewhat complete record of Horticulture in Missouri, her opportunities, her successes and her possibilities, and the position of the State Society in this work.

L. A. GOODMAN,

Superintendent and Secretary.

MISSOURI FRUITS AT WORLD'S FAIR.

No one can enter the Horticultural building without being favorably impressed with Missouri's large and artistic display of fruits. At the entrance is a fountain and palms breaking the harsh lines of the large entrance space. At the top of the arches are statues of Pomona and Flora and over the main aisle another large arch over which stand guard two or more statues of the same goddesses. Just back of the main entrance begins the fruit display proper. Large beautiful tables mirror-covered; tables in pyramid form for plate and jar exhibit; a large pyramid next to the wall, where are a thousand jars of all the fruits grown in Missouri; the exhibit of the Missouri State University Agricultural College, consisting of over 400 jars and 200 varieties, all help to make the exhibit one never even approached and one hard to excel.

First, then, there are 2,400 jars of fruit of over 430 varieties, embracing nearly all the varieties of fruits grown in Missouri, showing what Missouri is capable of producing both in a commercial way and

in an amateur way also. Here are to be seen all the more prominent fruits of Missouri in an educational exhibit.

The space occupied by Missouri is much larger than any other state—7,000 square feet—and is kept entirely filled to its utmost capacity. There are on the tables about forty barrels of apples all the time and from twenty-five to thirty barrels have been used every week during the summer to keep it up to the best standard. During the peach season there were on the tables at one time about fifty bushels of peaches.

Since the opening of the strawberry season there has been no time but some of the tables have been filled with fruit of their season. Sixty-five varieties of Strawberries, fifteen of Raspberries, twelve of Blackberries, and Currants, Gooseberries and Dewberries in abundance during their season. The Grape season is not passed, and yet over one hundred varieties have been shown. Peaches and Plums of every variety which we grow have been on the tables. Pears and early Apples of their time and season have been on the tables for the education of the visitors. Now the later Apples are being in evidence in large quantities and of peculiar beauty and perfection, making the fruit exhibit of Missouri the largest and finest and most comprehensive of any ever shown.

Lessons learned. The value of care in cold storage. The temperature of 32 degrees as the best. The keeping qualities of different varieties. The value of adaptation of varieties to different soils and climates and elevation. The variation of varieties in different localities, as to color, size, shape and quality. These and many other questions are presented to the student in horticulture and offers us a fine field for investigation.

The Horticultural Exhibit at the World's Fair will be the most notable event in Horticultural Exhibitions that we have ever had, and with the record kept by the judges, as they are keeping, this exhibition will be worth much to the fruit interests of the West and to Missouri in particular.

L. A. GOODMAN,

Supt. Mo. Hort. Exhibit.

CARLOAD OF MISSOURI PEACHES GIVEN AWAY.

Thirty thousand people ate peaches in the Horticultural building at the World's Fair on Monday, August 15. The unique feast was

held to celebrate Missouri Peach Day at the Exposition, and all that was necessary to obtain an invitation to join the banqueters was to climb the Horticultural hill. The combination of Children's Day and Missouri Peach Day was viewed with some anxiety by the emergency hospital corps, but no serious cases were reported.

A carload of ruddy Elberta peaches from Howell county had been collected for distribution by L. A. Goodman, superintendent of the Missouri exhibit, and were the best that could be found in the famous Ozark mountains fruit districts. The announcement that one peach was to be given every visitor brought the largest crowd that has ever visited the Horticultural building in a single day. Although children appeared to predominate in the long line that stretched from the distributing point in the Missouri section to the east wall of the building, there were thousands of mammas, papas and big brothers and sisters present, and they enjoyed the feast as heartily as their tiny charges. At 5 o'clock in the afternoon the estimated supply of 50,000 peaches was exhausted, with several hundred disappointed visitors still in line. The peaches distributed were donated by the Missouri State Commission.

The Missouri exhibitors were so delighted with the success of their first Peach Day that they are considering the announcement of another similar day for the near future. Superintendent L. A. Goodman stated that while the day had been appointed primarily to afford a popular demonstration of the quality of goods delivered by the peach trees in Howell county, it had been found a very effective medium for attracting larger crowds to both the palaces of Agriculture and Horticulture.

"In the latter building there are 430 varieties of products on exhibition all the time," said he. "Before the season closes there will be 500 varieties of fresh fruits to be seen here.

"In the past five years the State of Missouri has climbed from tenth to first place in the list of Horticultural states. She has five times the acreage of orchard land to be found in any other state. The Ozark mountains fruit district is conceded to be the finest in the West; not only for the production of apples and peaches, but for the growing of strawberries. Two thousand carloads of strawberries were shipped from that section this season.

"Along the Missouri river are thousands of acres of Loess lands—glacier formation, and the finest fruit land in the world. Now, in the course of plantation in this district are orchards of from 500 to 1,000 acres each, and within a short time Missouri will be first in horticultural value as well as in scope. Missouri now has 24,000,000 apple

trees in orchard. New York ranks second with 18,000,000. The development of the fruit industry in the West for the past few years has been phenomenal—300 per cent increase in the last fifteen years. The red lands of the Ozarks and the loess lands along the Missouri river, are unquestionably the finest fruit lands in the world. We suggested the appointment of a Missouri Peach Day at the World's Fair in order that these facts might be demonstrated to the public. We shall probably ask for another day of the same sort."—Am. Truck Farmer.

THE MISSOURI HORTICULTURAL DISPLAY AT THE WORLD'S FAIR.

(L. A. Goodman, Superintendent.)

Upon entering the Horticultural building from the north, you at once enter the Missouri fruit display. A beautiful facade surrounds the space, the State seal stands above its large arches and the letter "M" on its shields. Cornucopias of fruits correctly colored are above each arch and electric lights on the lower span give a beautiful effect to the whole design. One of the center spaces is covered with a pagoda which is of itself a fine display. A small fountain is at each end of the pagoda covered with a pyramid of glass which is loaded with apples. At the entrance is a larger fountain, water plants and palms surrounding it. The tables, cases and exhibit pyramids are of special design covered sides and bottoms with plate glass mirrors giving a beautiful effect. The exhibits now consist mostly of apples; about 40 barrels are kept on the tables continually, and these are generally almost perfect specimens. It takes about 20 to 25 barrels of apples each week to keep up the display. Ten to twelve barrels are put on the tables every Monday and every Thursday, removing those which are decayed.

These apples have to be taken from the cold storage as we come to them, thus sometimes getting one person's, or county's exhibit, and at another time some other county. When these apples, or, in fact, fruits of any other description, are put on the tables they are at once entered for the judges to pass upon; first, entered in the name of the person who grows them; second, all different individual's exhibits are entered in the name of the county where they are grown; and third, all county exhibits are entered in the name of the State. As soon as these entries are made the judges are notified and they pass upon them, giving them a score of points, and this score is re-

tained until the close of the Exposition, when the awards will be made.

LESSONS FROM COLD STORAGE.

The keeping of the apples put into cold storage last fall has given every one in the Horticultural building some good practical lessons. If we can profit by them we have one of the most valuable results of this exhibit that we can secure.

First—Then the fruit must be properly grown, well colored, properly picked, well handled and packed, put at once into cold storage, held at the correct temperature, and for long keeping wrapped in paper.

The great differences in the keeping qualities of different varieties are plainly shown. Some varieties keep without scald or other injury, while others seem to be injured by the same temperature. This difference (from our present knowledge) seems to be due to the varieties themselves, and not to condition of temperature. The trouble seems to be in the skin of the apples themselves. It may be possible that those varieties which scald worst may have to be put into a different temperature colder or warmer than the varieties which do not scald, or it may be that some chemical can be used in the room which will help resist the scald.

To our surprise and delight we find such varieties as Jonathan coming out in good condition on September 1st after being in the storage for one year. The Gano is proving a good storage apple. The Ben Davis where well colored shows a good record also. Willow Twig and Clayton again prove their value as storage apples.

The best temperature we have thus far found is 32 degrees, or perhaps 1 degree lower. The government reports on the results of this display will bring out all the facts more strongly.

Our exhibit has been one beyond criticism, by even the most artistic, and the largest one in the whole building, occupying about 7,000 square feet of space, entirely filled full of the best Missouri fruits.

We have thus far had a fine showing of early fruits, strawberries, raspberries, currants, gooseberries, blackberries, cherries, early apples, pears, peaches and plums of almost every variety grown in Missouri.

Our exhibit has been one beyond criticism even by the greatest fault finder, and we shall keep the display up to the high standard we have adopted. Our 2,400 jars of fruit, put up last summer, consisting of over 400 varieties, is the most complete display ever attempted by any state, and, with the fresh fruit shown this summer, will make the

largest collection of varieties ever collected and shown. The exhibit is one which is the pride of every Missourian and the wonder of every visitor. It is doing more to extend the interest in the fruit lands of the State than was even expected it would.

There are certain lessons to be learned by the fruit grower in the examination of the various State shows that are well worth the learning. First, the adaptation of varieties to special localities and the increase of value in color, size, quality and productiveness, where so adapted. It is certain that some varieties should never be planted in some localities. Second, the value of the subsoil in giving character and quality to the fruit, and healthy growth and long life to the tree. Third, that care and cultivation are as necessary to success as is attention to business in any other calling.

HORTICULTURE IN MISSOURI.

(L. A. Goodman.)

Years ago "Horticulture in Missouri" would have been a by-word of our Eastern people, but in 1904 it is an acknowledged fact and very important factor when considering the fruit interests of our Nation, and at this date we can truly count on Missouri as holding the first rank.

The climate of this central West is a modification of all of the East and West, and North and South combined, having neither the rigors of the North nor the heat of the South, nor the extreme humidity of the East nor the droughty conditions of the West. Being in the center of this grand Nation, and partaking of the good things from the four quarters of the land as to location, it has also taken the good things of climate from these same four quarters.

Location, peculiar as it is, the value is not the least by any means of the State, even in a horticultural way. On the highway of the East to the West as well as the West to the East, and the North to the South, it is more favorably located for the growing and distribution of fruits than any other of our states.

Geologically, the location embodies the semi-mountainous district, the bottoms of the lakes, the "loess" of the glacier formation and the loam of the river deposits. The soils are such, that for fruit-growing we can find the best that the world affords. Not all the lands of Missouri are fruit lands by any means, and there is where

the mistake has been made by the failure of some of the orchardists throughout the State to observe this fact.

Without question, the best soil in the world, for fruits, is the "Loess" formation, along the Mississippi and Missouri river bluffs, and some few of our larger rivers in north Missouri. This "loess" is of wonderful fertility and depth and is very specially valuable for fruit production, allowing the roots of the trees to penetrate to a very great depth, oftentimes 20 to 30 feet, giving the rains an opportunity to penetrate easily and quickly when they come, and allowing the moisture to rise promptly when the weather is dry; this makes the ideal soil for fruit-growing.

The Ozark uplift stands close second to this "loess," and wherever the lands are underlaid with the red-clay-porous-shale, through which the water filters easily we here find also in south Missouri ideal lands for fruit-growing.

To a greater extent does the Ozark region spread in south Missouri, than in any other state, and this "red soil of the Ozarks" has become noted the world over in the production of the "big red apple."

Not only the apple, but also the strawberry and other berries, the grape, and especially the peach, is in its peculiar home where it reaches its utmost perfection. The naming of the Ozark region now, at once causes one to lose sight of everything but the fruit district. And when speaking of the strawberry, the peach, the red apple land at once the Ozark region of South Missouri is called to mind. The iron in the soil and the lime in the subsoil all give character, quality, color and size to the fruit.

The grand river system of our State is one which gives us another peculiar advantage for fruit-growing. The Mississippi along the east border, the Missouri through the center of the State and along the western border. The smaller rivers branching off from it on the north and south with its many hundreds of tributaries give on their hills many thousands of acres of good fruit lands and the best of air-drainage, which is just as important as water drainage.

These hills are virtually the fruit lands of our state. They are usually underlaid with subsoil which is porous enough to let the water sink when weather is wet and rise when it is dry. Water flows off these hills easily and quickly, and the cold air in early spring, late fall or cold winter flows down just as easily and just as quickly, and just as surely, and it is just as necessary in each instance.

The gravelly soils come next in order. The timber lands always being best, provided the subsoil is porous enough. In fact, the subsoil

is a very much more important factor than the top soils and undoubtedly these timber lands has abundance of this kind.

Rainfall is just sufficient for the best growth of fruits. Plenty of rain when needed in the spring and early summer, and less in the fall and early winter. The record kept at Columbia for the last number of years gives the following results which plainly shows how regular and timely the rain supplies our State: January, February and March the rainfall is over two inches each month; in April, May, June and July it is nearly five inches each month. In August and September over three inches each month. In October, November and December again over two inches each month, making a total about forty inches per year.

The flora of our country seems to centralize here in Missouri. That from the North, running well down in Missouri. That from the East, extending well over the entire State. That from the South, spreading up into and onto the Ozark mountains, while that from the vast prairies of the West laps over our western border, and as a result, all the State shows the most wonderful adaptability of its soil and climate, to the production of all kind of fruit and tree growth, as is evident from the development now already made. This adaptability of our land to the production of all manner of wild fruits, not only native here but those also which have been brought in from the four points of the compass is a very important fact to keep in mind when locating fruit lands in this country of ours, and Missouri occupies this peculiar condition that is needed for the production of our tame fruits.

So as these natural flora from the four points of the compass seem to all overlap here in Missouri, we begin to understand how favorable a position Missouri occupies for fruit growing. The native wild crab and June berry of the North seems perfectly at home here and with them flourish the southern pawpaw and persimmon, the "Missouri banana" and "Missouri fig." The Northern and Southern, the Eastern and Western grape as well as all their cultivated varieties seem perfectly at home in the fertile soils of our Missouri hills.

The Souldard crab, the native plums are all of them fingers pointing to Missouri as their home, while sand plum and sand cherry of the sandy West seem happy and contented when they get into Missouri soil.

All these items of nature prove surely and truly that Missouri has a wonderful adaptability of soil, subsoil, climate and elevation for all these fruits to thrive so happily and perfectly.

What is true in these matters is just as positively true in regard

to all our tame or cultivated varieties of berries, cherries, plums, grapes, peaches and apples.

No wonder, then, is it, that Missouri has taken such wonderful strides in this fruit business in the last score of years? When we see orchards covering our lands by the thousands, and that of not only a few acres but of orchards of hundreds, and of thousands of acres, we understand that it is all on account of its adaptability as outlined by the wild fruits which grow and succeed within its border.

Horticulture in Missouri began with the first settler way back more than one hundred years ago. When the pioneer came to make his home among the Indians and wild beasts, he brought with him seeds and seedlings, scions, cuttings, grafts; and wherever the log hut was built there the fruits of civilization were planted and grown, each year, little by little improving and bettering and developing; and we are reaping the result of their careful selection of seeds and cuttings and scions. About twenty-five years later we find a wonderful improvement in the varieties produced; grafted or budded trees were planted and orchards of budded or grafted fruits began to be scattered over the state in the more settled portions or, as was more often the case, these old seedling trees were top grafted over again to some good budded variety until whole orchards were turned from a lot of wildings, to a lot of civilized fruits which made their owners happy over these new fruits. There are apple trees now standing in Jackson county; Montgomery county, Jasper county, and St. Charles county, which were planted eighty years ago and are now still bearing fruit. Some of these trees are nine feet around the bodies and one of them has a spread of branches of over 100 feet and has borne over 110 bushels of fruit in a single year. One section of a tree nearly 100 years old grown in Jackson county measures 10 feet in circumference and is shown in the Horticultural exhibit at the World's Fair.

For the first twenty-five years of the last century we find, fruits for the farmer's use with little market for surplus to be the condition, which confronted the horticulturist. This was the time of almost spontaneous growth, at least it was the time when orchard trees grew with little care and less cultivation. All that seemed to be needed was to plant the trees and nature would take care of them. Little trouble was had with insects, less with the fungous diseases, but more loss was sustained from birds than any other cause, and as a result the farmer and fruit grower began the war upon birds which continued for fifty years, until our feathered songsters and friends

have become almost entirely exterminated, before we found that they were the farmers' best friends, and now, almost too late, we are seeking to protect them in every way possible. What a careless, extravagant, destructive man our American settler did become to his own best interest in the destruction of all that was meant for his happiness in this goodly land of ours. Sadly now we are reaping the result of this profligate plan of the destruction of our forests, bird life, and the loss of fertility of our soil by careless cultivation.

About the middle of the last century an impetus was begun in fruit growing because of the demand of our towns for fresh fruits, and when fruit growers began to plant orchards of twenty or forty acres there came the cry that "there will never be a market for them." But some brave hearts did plant and did care for, and cultivate their orchards well and began to realize some dollars for their good judgment and labor.

MISSOURI STATE SOCIETY.

In the year 1858 the interest seemed so great and the possibilities so vast that a few enthusiasts began the discussion of a united effort to help themselves in their experience and to let other people know of the empire west of the Mississippi river.

In the winter of 1859, therefore, pursuant to a call, there met in Jefferson City some of these men and organized the Missouri State Society. Of this organization it is only necessary to say that its history is the history of Horticulture in Missouri. Its first president was Norman J. Colman, the first Commissioner of Agriculture at Washington, and now still editor and proprietor of Colman's Rural World.

For forty-six years, therefore, this society has been doing valiant battle for the cause of Missouri horticulture and the results have more than fulfilled the most sanguine prophecies. From this time of the first organization of this society we find more and larger orchards being planted as transportation advantages seemed to be provided for their marketing. Again, we find the same cry being made that when all these trees came into bearing fruits would not be worth the gathering, and again we find that the demand was greater than the supply.

About twenty-five years ago there was another advance and great development in orchard planting all over our State and we then began to see the planting of our large and commercial orchards of forty, eighty, one hundred, five hundred, and even one thousand acres, over many parts of our fruit soils. How did the cry again go up "Now surely you will see the fruits drop down to zero mark."

But shipping facilities having improved, new markets being offered, buyers coming from other lands and the demand growing faster than the supply, prices seemed to increase rather than grow less.

From that time to the present has the growth been steady and upward until at this date we have a few orchards of over 1,500 acres, a number of orchards over 1,000 acres, a very large number of over 500 acres, and thousands of them over 100 acres, to say nothing of many, many more of the smaller and yet the most profitable orchards of them all.

About this time also began the wonderful development of the Ozark region of South Missouri, and the extensive plantings there made have been the wonder of our pushing West, the astonishment of the Eastern fruit growers, and entirely beyond the belief of the people living across the waters. It is certainly amusing to hear the expression of some of these foreigners when visiting our largest orchards and seeing where peach trees are bearing loads of peaches where only three years before was the virgin forest; such things are beyond their belief.

No more wonderful work has taken place in this wonderful State, in this wonderful West, than this work of fruit growing in Missouri. A few years ago we were the tenth in the list of States, then ten years ago we were fifth, but in 1900 we find that we are first in number of trees in apple orchard, and by 1905 we shall be first in peach orchards also.

In 1890 Missouri had about 8,000,000 apple trees, while in 1900 the number had increased 150 per cent or 12,000,000 more, making a total of over 20,000,000 apple trees in orchard. In 1905 we have estimated the apple trees in Missouri to be fully 25,000,000. These trees are in a large measure young trees, and not in bearing and other states still lead us in value of products for this reason. As soon as these trees come into bearing and the late planting of peach trees also we shall find that Missouri occupies the first position in apple orchards, and its products; the first in peach orchards, and its products, and the first in strawberry plantations and its products.

The peach trees of Missouri were four and one-half million in 1900 and in 1905 will number at least 6,000,000 trees.

Other states follow Missouri as follows: New York second, Illinois third, Ohio fourth. Missouri has shown the largest increase in orchard and increase in plantings. Since 1900 apple planting, peach planting also, has increased accelerating rapidly; well trained good

business men have investigated the subject thoroughly and have invested hundreds of thousands of dollars in the enterprise as a commercial investment. Professional men are investing their savings in orchard lands and orchard planting as a safe and profitable investment, one which improves in value as it grows older, and one which will always pay well for money properly and judiciously spent under intelligent direction of an orchard man.

We find today the same cry going up louder than ever, "You can never sell your fruits," "the market is more than supplied," "overproduction" is still what we hear. But times have changed, demands have increased, markets have opened, railroads have provided quick means of distribution, refrigerator cars are delivering all their fruit to distant market in splendid condition. The large cities are asking more and more for fresh fruits, fruits from the tree to market in good condition. Manufacturing centers are wanting more fruits and less meat. Mining sections demand every day abundance of fresh fruits as one of the best health preservers to be found. Demand from districts in the north, south and west where fruits cannot be grown have increased a hundred, yea even a thousand fold, and people generally are using more fruit, more people are using fruit and more people everywhere are using more fruits of all kinds and where they used it a part of the time, they are now using it all the time. Markets are opening across the waters and the call each year is more and more for American fruits until now millions of barrels are taken by Europe and many millions more can be used just as well if they can only secure them.

The question is not one of "over production," but one of "distribution." The supply is not greater than the demand, but the supplying this demand by the railroad companies is required.

Adaptability is the question for us to settle, and we may say the only question for us to settle. Missouri has the climate, the soil, the subsoil, elevation, the location, the rain-fall, the water drainage through the rivers, the cold air drainage down the valleys from the hills, the varieties or kinds of fruits which succeed well, the plans and manner of cultivation, the men of intelligence and knowledge who are able to do these things, and the main question to settle is the adaptability.

Adaptability of soils, and subsoils, kinds and varieties of fruits to these soils and elevation, adaptability to markets, to demands, adaptability of varieties to certain soils, and peculiar locations, to resist diseases, to being exempt from attacks of insects, to keeping qualities, to ease of gathering and handling.

This study of adaptability is one of the most important in all the line of study and still the hardest one to settle finally and correctly. It is one which needs a lot of experience and observation to settle profitably.

THE MISSOURI HORTICULTURAL SOCIETY.

(L. A. Goodman.)

The Missouri State Horticultural Society is now forty-six years old. The first meeting was held at Jefferson City, January 5th, 1859, and it was called the Missouri Fruit Growers. Prof. Swallow, N. J. Colman and George Hussman were among the members; Colman, president, and Hussman as secretary. Their discussion was then on varieties of apples. In September at St. Louis, they were again called together, and the third time that year at Jefferson City, in December. William Muir was then made secretary. Colman had 700 pear trees and they discussed pear blight. One great difficulty they had was to straighten out the varieties of apples, some of them having a half dozen or more names for the same kind. The meeting of September, 1860, was held at Hermann. At St. Louis in January, 1861, again at St. Louis in January, 1862, and still again in January, 1863, did the society convene at the same place. It was at this meeting that the name was changed to Missouri State Horticultural Society.

In the year 1881 this Society met in the old hall of Agriculture in Columbia, to organize and put the society on a footing equal to that of other states. From that small gathering of six persons, there went out on impetus of will and work that has accomplished much in the interest of fruit growing in our State, until today we need not fear the best of any of our sister states in any competition that may arise, or in the lessons they may give to the fruit grower.

The growth of the Society and of the fruit industry has been a steady, regular solid growth, one which develops with the intelligence and knowledge of our workers. It is not of spasmodic or uncertain kind which grows only for a day and is then cut down like the grass of the field; but this continued, earnest, energetic, intelligent, and systematic planning and working has made the State today what it is in orchards and vineyards and small fruits. What this Society has had to do with this work is already written in the hearts of men and their lives, as well as in the library of twenty-three volumes it has issued.

The Society by its officers and working members, has visited 500 towns of the State and told them how to develop the fruit industry. It has sent out articles of instruction and practical information from more than a thousand men of experience in fruit growing. It has published, in circulars and reports, information that has brought to this State buyers from nearly every northern and eastern state to take our fruit products. It has sent out over 100,000 volumes of the annual reports of the society, and the work of experienced fruit growers. Who will say what these 100,000 volumes, State reports of 400 pages each, have accomplished? Who will measure the results? Over 200,000 letters and circulars of information, of instruction, of advice, as to location of orchards, character of soils, varieties to plant, how to grow, prune, cultivate, gather, market and make money out of fruits have been distributed. Only those who are thus called upon to answer these questions can realize the magnitude of this one item of its work.

But let me call your attention to another and more important part of our society work, and that is in teaching our members how to think and how to study and how to learn. It has taught them how to see and how to draw conclusions from what they see. This is science. It has taught them how to observe closely what they do. It has taught them to apply their thoughts (and control them) to one subject for a definite time. All this is education. It has taught them to use their brain more and their hands none the less. It has opened up a field for our young people to enter, in the realm of thought and study and observation that they never knew before, and it has led them to think that there is something more than drudgery on the farm. It has opened up to them a new life and new interest in what they do. Did you ever realize what a difference it makes in your work if you are working to some end or to accomplish some result, or to prove a fact, or to discover some new plan of operation, or to create some new fruit, than if you simply worked and worked without any end in view? One is pleasure, the other drudgery. Well, this is part of our work, and a very important part, too, and we have been in love with it all these years, and we are happy that we have such results to show, and have a hand in producing them.

For twenty years, or until 1882, the work of this faithful band was to sow the seed, sow the seed. About this time the Society was at its lowest ebb. Troubles with varieties, the great mixture of Eastern varieties scattered all over the west and their entire failure as money producers discouraged thousands from planting commercial orchards

to any extent. But this meeting of '83 in Kansas City, the then wonder of our State, gave a renewed impetus to our fruit growers, and from that time began the upward turn of our Society. From that time to this, the last twenty years, there has never been a gathering of fruit men but the Society was the leader, never was there a National gathering of horticulturists but the Society stood up for Missouri, and showed the Missouri fruits whenever opportunity offered, and has never gone away empty handed. Over and over again, has this Society taken as its burden the honor of the State, and carried her fruits to a winning goal. At Boston, at Rochester, Cincinnati, Philadelphia, at St. Louis over and over, year after year; at Grand Rapids, New Orleans, New York and Columbus; at the Mississippi Valley meetings; at the American Horticultural Society, at the American Pomological gatherings; at the World's Fair at Chicago, Omaha, Paris, Amsterdam, we see our society doing valiant service for the State.

While thinking these matters over it occurs to me that I should give a synopsis of what this society has done in this way to help the fruit interests of our State. In this matter I shall not go back of my own participation in this work. Outside of the State reports issued and the personal contact at the State meetings, I feel free to say that the greatest and best results to the fruit industry have come from displays of fruits made in other parts of our country. It brings to us thousands upon thousands of the best people that our country can produce, and brings our State prominently to the notice of other people. In 1880 then we began the first of these great displays in the Merchants' Exchange at St. Louis. For ten days the Exchange was a bower of beauty, a sea of fruit. Our display was the admiration of all the eastern people as well as western, and as a result of that exhibit we brought away \$400.00 in 20 premiums. At the Kansas City and the Kansas State exposition the Society captured more than \$500.00 in premiums. At the American Pomological Society meetings the society was awarded a Wilder medal as follows: At Cincinnati, at Rochester, at Boston, at Grand Rapids, at Philadelphia, all these occurring between 1876 and 1886. Meetings every two years. Again at New Orleans in 1883 under the Mississippi Valley Horticultural Society, a display was made, and again in 1885. A car load of fruit was taken for exhibition to the Cotton Centennial. This collection was made entirely by the State society, and shown by favor of the railroad company, and money paid out of our own pockets, which was afterwards refunded by the legislature. As a result we

secured 26 prizes and \$500.00 in money. At the St. Louis Fair for three consecutive years the society won prizes of \$100 each year on "best collection" and 12 other prizes of small amounts. In 1888 the society kept up an exhibition at the St. Louis Exposition for 40 days and 40 nights. At this exhibit we had 3,500 plates on the table. No award was made for this, and only a letter from the exposition was secured. At the close of this exhibit there were on the table nearly 100 barrels of fruit. In 1893, at Chicago, was made the greatest show ever attempted. For six months the tables were filled with fresh fruits and the society received six awards, besides special mention for artistic display. Again the Society stepped into the breach and did the whole of this immense amount of work, preparing the year before all the jar exhibits and putting a car load of the finest specimens in cold storage in Chicago, to draw from. The management of this exhibit was in the hands of President Evans, and he untiringly and devotedly gave his time and means to this work for nearly two years. In 1894 the society again kept up its show at the St. Louis Exposition for 40 days, and it became the means of bringing many fruit growers and buyers to our State and interesting many others. For this display we received about \$250.00.

In 1895 again the society did this same work. No awards were made in either case, but the State received the same beneficial results. These two exhibits cost a great deal of time and care and a large amount of fruit donated by our fruit growers. The Society earned \$160.00 in money.

Again and last in 1898, the society took up the fruit show at Omaha. For five months there was never a day but that the tables were full of fresh fruits. Beginning with the strawberry and following with each fruit in season, there was made a special show of strawberries, raspberries, blackberries, grapes, plums, peaches, pears, quince, apples and all the wild fruits of the woods on the tables during their season. Some 78 awards were made the Society.

I venture the statement that we will never begin to realize nor appreciate the results obtained by the influx of new comers directly and indirectly as a result of the Society's work, so faithfully done by its loyal members. Not only this, but we see many drawn close to our Society and taking a lively interest in her welfare, whom we have never seen put their shoulder to the wheel before. This new help and power will assist us in another step forward, if we will but unite in a vigorous pull. There are many strong men in our State whose influence and power we shall appreciate, if they will but put their

experience and their successes at the use of Society. They would gain also, and be men of larger and grander power.

Practical questions, solid facts, correct experiments, true results, sure conclusions in every department, are the things we are seeking, and we have the men who can do these things when called upon. No truer or more faithful or more devoted people can be found than are the men of our Society, who for twenty-five years have responded to every call made upon them, for time, money or fruit, for the good of the State. A noted man once said Missouri has such wonderful resources in the grains, grasses, live stock, fruits, flowers and vegetables, in the mines and woods, in the manufactures, railroads, commerce and trade. But all these do not make a State. "It takes men." It takes men to make a State Society, and happy are we in the fact that Missouri has plenty of just such men as have made this Society one of the best in the land.

For the last forty-six years, but more especially for the last twenty-five, have we been trying to teach these facts to our people and to instill them into the hearts of our fruit growers. First, a love for the work. Second, a study of your business. Third, adapting the experience of others. Fourth, perseverance, application, industry, energy, enthusiasm for the work. Fifth, think for yourself, watch your work and draw conclusions from what you see.

THE HORTICULTURAL SCHOOL OF THE AGRICULTURAL COLLEGE.

This school is an opening wedge that will in a few years have the educational feature so prominently before us all, and the practical application made so plain that we will wonder why it was that these things were not brought out before this late day. Here comes a class of students bent on learning something of a particular topic, and their minds are ready to receive, and their thoughts are ready to be directed in just that path which will do them the most good and bring them the best results. This Horticultural school and the Experiment Station are doing this work. We find, too, that this school is directing its work in the lines suggested by the State Society.

The line of investigation so well outlined by Dr. Schweitzer of selection of typical trees, is being well put into use. Trees, the most hardy, the most productive, the most regular in bearing, have been selected and the scions used in grafting. This continuous selection will be of as much value to us as is the selection of typical seed corn or seed wheat. Followed up, this will of itself give wonderful results.

Again, this horticultural education should have its beginning

right at the University. Our teachers need to be properly directed; then they will take hold of the work and give us just such teaching as we need in our public schools. The Society has brought this matter so emphatically before the people that they are discussing it in all directions. At Shaw's Garden the topic was up for discussion one whole evening. Teach! Teach! Teach! Teachers who know how to do are what we want, in order to present this subject clearly and prominently before our schools. Teaching pupils how to think is better than cramming into them bushels of knowledge.

It looks now as though our grand State is to be the Mecca of apple growing for the west, and, indeed, for fruit growing in general. Our spacious rich valleys and high table lands, our sunny slopes and airy heights, and above all, our highly organized mineral soils, and our central location give us advantages which are combined in no other State so fortunately and profitably as in Missouri.—American Truck Farmer.

THE OLD FRIEND, BEN DAVIS.

(L. A. Goodman.)

We will take care of him for the good he has done and the good he will yet do for us. I wish I had known Benjamin of old, but not knowing him, I want to say in addition to what I have said: The Ben Davis is one of the best market apples, pays the most money per bushel, bears the most, and pays the best per acre of all varieties. The following are ten reasons why it is one of the best market apples:

First, it is a good grower in the nursery.

Second, it makes a handsome tree in the orchard.

Third, it bears young.

Fourth, it bears oftener and more abundantly than any other.

Fifth, the apples are usually large and fine.

Sixth, they always sell well.

Seventh, they cook well before they are ripe.

Eighth, they cook well when ripe.

Ninth, they are the best for drying purpose.

Tenth, there is money in them.

The other best apples for Missouri are the Gano and Jonathan.

I see much is now being said against good old Ben Davis. It may be that much is true for eastern or northern grown Ben Davis.

but for southern grown, and Ozark and Missouri grown Ben Davis, the accusation is not warranted. Well grown, picked at the proper time and kept properly, the Missouri Ben Davis is a good apple. It is the best apple to cook, to evaporate, to keep, to ship, and while not equal to Jonathan by any means, it is really a good apple to eat, if the above conditions have been met. We find it giving us apples when others fail. We find it in demand, when we have no other friend to call upon. The great trouble has been that it is also grown where it is of very poor quality, and should never have been planted, and its reputation has had to suffer in consequence.

The fact that the Ben Davis is not wanted as much as usual is no argument against good Ben Davis. I have seen the time in Michigan when Baldwin were not wanted, but no one would condemn it on that account. I have seen the time here in Missouri when Wine Sap and Janet were not wanted by the buyers, and yet we all know them to be good apples. Too many jump at conclusions and say all Ben Davis are alike, and then condemn them all alike, whereas if they only looked into the matter more closely they would buy varieties grown where they are adapted to the soil, location and climate, then there would be no complaint forthcoming. We have only to cite the utter failure of some of the eastern and northern varieties grown here in Missouri; for example, there is no comparison in the quality of the "Snow" grown in the north and in Missouri, those of the north being so far superior to those grown in the south. I have tested over and over again the Ben Davis grown in Michigan and Wisconsin with those grown in Missouri, and the difference was so perceptible that no one would have called them the same, by the taste alone, but the Missouri grown was so superior in quality to those from the north that they could be called good apples.

Buyers some years are shunning the Ben Davis because of the indiscriminate use of those grown in all localities in previous years. But even this was not an unmixed evil for that year, because there were none others to be had, the evil effects came the next year, because all kinds of Ben Davis were put upon the market. The Ben Davis is too profitable an apple, too prolific a bearer, too good for evaporating and making into butter or jelly, too large and handsome, too good a shipper, too good for cold storage, too good a keeper, too good to cook, and there withal, too good to eat, to lightly be thrown aside because a few buyers have blundered in their judgment of what, where and when to buy them.

SOCIETY WORK.

(L. A. Goodman.)

Our work continues to grow and grow, and the demands upon the Society and the calls upon our fruit men increase as each year rolls by. The coming to Missouri of thousands of people from other states has created a new impulse among our people and we are getting more and more calls every day for information and advice as to orcharding, location, soils, varieties, training and cultivation, nurseries and where to secure trees, insect pests and how to destroy them, marketing, buyers, cold storage and all kindred subjects, until our office becomes like a horticultural paper, a bureau of information, and a school of instruction. A labor of this kind is a work for the good of the people, and it well behooves us not to hide our lights, but be free and generous with what we know. No doubt that many a man of our Society could have made more money if he had kept all things to himself or worked things out for his own profits, than by giving them freely to the public, but of what use is such a man to his State? It is this continual giving out that makes a man rich in heart and mind, and causes his fellow-man to admire, respect and love him. Our fruit growers are almost universally of this kind, and I could call to your mind a number of such in our State and Nation whom you surely delight to honor.

We wish to confess before you and to you how much we owe to the unselfish support of our grand army of fruit men all over the State for the position which this Society occupies among the societies of the Nation. It is because these have never failed when called upon to uphold Missouri, it mattered not how much effort or labor or time or money even it may have cost, it is because of the unity of feeling, this sympathy in aim, this faithfulness of labor that we are today what we are.

The fact is, simply, that we are stepping upon a higher plane of horticulture year by year; we are learning new facts day by day; we are grasping some of the wonderful opportunities which are opening to our views; we are realizing the wonderful possibilities of our loved profession; we are beginning to see the magnitude of this fruit business; we see before us a field as broad as our land—avenues, opening in all directions for young men and women, and positions ready and waiting, with no one to fill them.

Botany and its delightful study, the knowing of our plants, shrubs and trees by name, learning the uses and actions of leaves, roots, branches and bodies, watching the development of flower or bud growth, learning how plants grow, how plants feed, seeking to find if possible if there be any way to feed plants, and trees and fruits so that we can know the results as we know the effect of corn on our hogs and cattle, feeding our strawberries so that the berry will be firm instead of soft, growing our trees so that they will be more hardy. The improvement of our apples by selection of special individual trees, for propagation is being more and more brought to our attention. I am so thoroughly convinced of its value that I hail with gladness a confirmation of the statements I have made so many times. In geology you will see another opening for study; the knowledge of our soils, knowing where certain varieties will succeed best, seeking out the secrets of our soils have so long held.

Today I say that there opens up no broader or more desirable profession in all this land of ours than this one of horticulture, no better line for study if you want to study, no better opportunity for investigation than is here offered you, no surer gain from a field of work than Pomona and Flora stand ready to pour into your lap, no more delightful scope of thought and beauty, of love and intelligence than is placed before you in the decorating of our waste places for planting our yards, our parks, our orchards.

If we have anything to be proud of, after being proud of our State, it is to be proud of the development of horticulture, which has given us avenues of profit and pleasure, open ways for any to follow, as well as great work still to do, great studies still to be pursued and great problems still to be solved.

Our work has grown and grown until now its influence is felt in every state of the Union; and I speak the truth soberly and earnestly when I say that no other state has a better State Society nor more earnest workers than has Missouri; and with unity and sympathy of feeling, all pulling together, united and strong, we shall step upon a higher level of usefulness. There are grand possibilities before us yet, and it is our aim and ambition that our Society attain this highest point.

HORTICULTURAL INSTITUTIONS.

This school at St. Louis, in connection with the Washington University, gives an opportunity for a few boys or girls to get a practical education in greenhouse work, botany, fruits or vegetables or ornamental tree planting, and a four years' course is provided for

the student. This is one of the best schools of the kind in the land and shows us how to educate our heads while we are educating our hands.

The State has also provided an Experiment Station at Mountain Grove whose work it is to secure all the information it can from practical fruit growers, also to carry on a series of experiments for themselves, and give these results to the people of the State. If any information is wanted by the fruit growers of the Ozark region, or if they have any diseases or insects troubling them, or if any person wishes to know about soils, varieties, cultivation, pruning or any other matter, he is at perfect liberty to inquire of this institution or call upon the staff for assistance or information, and they are ready to respond and give the answer. This is of untold value to the fruit grower.

The Normal Schools are also taking up this line of study in their required course and teaching the teachers how to teach this study of "tree life" so as to be of value to young people of the State. They are bringing up these matters so that everyone or anyone has an opportunity to learn about these items if he only wishes to do so.

AGRICULTURAL COLLEGE AND EXPERIMENT STATION.

The last and best educator and helper in all these departments of this work, the theory, the principle and the practical facts in regard to fruit growing, the greatest instructor of them all is the University of the State, the Agricultural College and the Experiment Station.

Here any young man or young woman can get the best horticultural education that can be obtained anywhere in the land without money and without price. Here he can secure the study of sciences, the theory of fruit growing, and the practical work as well in the orchards and vineyards, nursery and green houses, garden and hot beds, so that the student may know thoroughly well what to do and how to do it.

Horticulture in Missouri would surely be incomplete without the presentation of the advantages for the study of horticulture at our Agricultural College. Other states like New York with its Cornell University has a greater reputation for its Horticultural School because of its age, but no state offers greater advantages for this study in all of its branches, nor better opportunity for the practical work than does the Horticultural School of the Missouri State University. Here the young man will find the teachers in Chemistry, Botany, Entomology, Geology, Agriculture and Horticulture the equal of any of those that can be found anywhere in the land.

Missouri, then, offers to the horticulturist the finest climate, abundance of rain-fall, the best soil and subsoil, the proper elevation of land, for water and air drainage, the most central geographical location, the peculiar adaptation of varieties to our orchard lands, the most extensive markets in the country, railroad facilities the best to be found, the most complete arrangement for securing the experience of the best fruit growers for teaching the principles of fruit growing, and above all, the best equipped Horticultural School that can be found anywhere in the United States. All these good things only await your coming and the utilizing of them.

VALUE OF ORCHARDS.

(L. A. Goodman.)

The orchards of the State run up into millions of dollars, reaching thirty millions for the apple orchards themselves, ten millions for the peach orchards, three millions for the other orchard fruits, and at least five millions for the berry and grape plantations. The value of the products from these orchards and fruit plantations would be far up into the millions also in a seasonable year. The apple crop, the next full crop we have, will be worth \$12,000,000. The peach crop, \$4,000,000, the other fruits \$1,000,000, and the berry and grape crops \$3,000,000 more, making the value divided about one-third for North Missouri and two-thirds for South Missouri, and in about three years the value will be added to about 50 per cent.

Cold storages are now taking care of our apple crop so completely that varieties which could not be held years ago can now be easily kept for months in a temperature of 32 degrees where they will hardly change in texture. These cold storages are being built all over the State in our large cities, so that abundance of room can now be furnished the fruit grower or the apple buyer, and prices are kept uniform throughout the whole season, very nearly.

Canning factories and evaporators and cider mills are also being built in all the smaller towns and on the large orchards so that they can take care of all the surplus fruits of all kinds and still secure some profit from them.

Horticulture in Missouri would not be complete without the flowers, vegetables and nursery stock all over the State. The floral and green house interests of the State are some of the largest in the

country and this work is growing and increasing in proportion as rapidly as the other horticultural interests. Hundreds of thousands up into millions of dollars of flowers and plants are sold each year, and yet it has not reached its climax. Nearly every community has its green houses and flower gardens and the cities are demanding as one of their necessities, rather than luxuries, flowers every day. The sales in our large cities are something astonishing to those who have not examined into it closely. Value \$2,000,000.

The truck gardens for vegetable growing are another strong feature in the horticultural line. The truck business about and around our larger towns and cities has grown to such proportions that hundreds of thousands of people are daily employed in the work and their products have become worth dollars beyond our belief. Many of the smaller towns nearby the larger towns and cities have begun to develop this same business in connection with fruit and flower growing and much money is made by the growers of these horticultural products. Many of these smaller towns still offer to the truck growers golden opportunities for this growing of vegetables, and shipping them to our large cities more cheaply than persons can haul them into market. Value \$3,000,000.

The nursery interests stand as the foundation stone of the fruit interests, for without good reliable nurseries to grow our trees we should never have our large commercial orchards. To these good responsible nursery men who sell trees upon honor, we owe the large expansion in our fruit interests. Hundreds of the very best men of the State have been making this a study for years and they have become as expert in this line of work as have our fruit growers in their line.

Nurseries are now scattered over the State so largely that no man needs to go far or send far for his orchard trees. These nurseries can supply every demand that our people can make upon them and then have some to send to other states for planting.

The State has within its borders a number of the very largest nurseries, and trees are shipped to almost the ends of the earth. What the value of these nurseries is or the capital employed, or the value of stock sold, or the number of trees, plants and vines scattered over this State every year no one can tell, but their value runs up into millions of dollars and a fair estimate has been made of \$4,000,000. It is fortunate that all trees and plants do not live and bear, for if they did the nursery men's business would soon be over.

The last feature of this horticulture in Missouri, but by no means the least, is the educational advantages which Missouri offers to the

student of these kindred subjects, and the different means of obtaining these items or facts or experiences which helps to give the man success in his enterprise.

First, then, is the fact that all our public schools are taking up this nature study, and learning that plants and trees are alive just as much so as are cats and dogs and cows and horses, and what they need is treatment as if they were alive, not as dead. This instilling into the minds of these young lads and lassies this fact of life and growth and propagation and improvement makes them interested at once in plant growth and fruit production.

Second to these are our local Horticultural Societies scattered all over the State in over sixty different counties where the real practical knowledge of fruit growing in all its branches and all the experiences of every member is at the services of every other member. These Local Societies are a power to themselves, to their counties and to the State in no small way.

The influence of the State Horticultural Society during the 46 years of its existence has been a power for good which no man can estimate. Probably to it, more than any other influence, does the State owe its prominence as the first in orchards in all this Union. It has been working faithfully and honestly and earnestly during all these years, and especially the last twenty-five years, to give true facts of experience, as secured from the best fruit growers about the State, about the soils, varieties, cultivation, care, pruning, insect pests, fungus diseases, picking, packing and marketing so that every man can know if he will only read or study or question. It has helped to locate and direct more settlers to this State and direct them as to care of orchards than any other influence. It stands always ready to give exact facts, as far as it is possible to obtain them, to every citizen of the State and thus help save them from loss when planting their orchards.

FRUIT GROWING IS A BUSINESS.

(L. A. Goodman.)

A business it is getting to be. The berry business alone is such that it takes a hundred thousand men, women and children to pick them when ripe. Hundreds of thousands of acres of our best fruit land is adapted to berry growing. There is no fruit, not even excepting the apple, which produces such an abundance of fruit every year,

grows so surely, yields so quickly, and is so productive and so profitable as the queen of fruits, the strawberry. Some parts of the State are becoming noted as the greatest strawberry districts of the world. Hundreds and even thousands of acres are planted to berries near some of our Central Missouri towns, especially down in the southern part of the State. Instances of such are Neosho, Peirce City, Sarcoxie, Monett, Marionville, West Plains, Olden, with hundreds of places where smaller acreage is grown. Car loads are shipped from many of these berry centers each day and in some instances 10, 12 or 15 car loads per day, while the total product from these centers will be 20 to 100 car loads each per season. Each car load will hold about 600 crates and brings from \$600 to \$1,200 per car. This work brings many people into the places, gives employment to thousands of them, returns good money for the labor and makes many happy homes.

Instances can be given where the sales from these berry plantations run up into larger amounts, like \$200, \$300 and even \$500 or more dollars per acre, but they are oftentimes misleading because the large amounts are the exceptions and not the rule; \$100 to \$200 per acre is a good average crop. The advantage of the berry business is its quick returns. Good, proper soil and porous subsoil planted to the best varieties in April will the next year produce a beautiful crop, and only a partial failure can come when the rains come too copiously and prevent gathering, or it is too dry so that they will not ripen. The very best of care and cultivation must be given them the first year and after the ground has frozen in the early winter cover them with straw. Among the best varieties are the Crescent, Warfield, Aroma, Parker Earle, Bubach, Haverland. There are others probably just as good, and the only thing to do is to study the adaptability of varieties to the soil and location.

All the other berries pay well when properly cared for and planted in congenial soil and adapted to the location. Of the Black Caps, the Hopkins, Ohio, Kansas, Evans and Cumberland are the best. Of the Reds, the Cuthbart, Thwack, Loudon, Miller. Of blackberries, the Early Harvest, Snyder and Taylor, and among the dewberries, the Lucretia.

The grape along the Missouri river hills and in some parts of the Ozark is as truly at home as it is on the borders of the Rhine or in the Chautauqua belt in New York or the southern shores of Lake Erie in Ohio. While the grape industry is not carried on as extensively as are the other fruit industries, yet it might be, could be, and should be, done just as profitably. No better grape soil in the world than the

loess hills of the Missouri river and all they need is proper selection of varieties, and proper care and cultivation, and results will be assured.

Missouri occupies a notable position in regard to great men in both the berry line and grape growing by the introduction of new varieties. Among them are Herman Jeager of Neosho, Jacob Rommel of Morrison, Samuel Miller of Bluffton, J. C. Evans of Harlem, and George Hussman, formerly of Columbia, Mo.

One of the most profitable fruits for North Missouri is the cherry. "When cherries are ripe even baby wants one." The cherry does much better from the Missouri river north. The southern part of our State seems to have too long summers for this northern fruit and the trees shed their leaves too early in summer or fall and thus become summer killed or summer injured and the winter finishes them. The high dry hills along the Missouri river and north seems peculiarly adapted to this fruit production in a very profitable degree.

Three or four or five varieties are the profitable ones to grow in a commercial way and they give us a succession of the fruits for a considerable season. The markets are always calling for the cherry and they are never supplied. The call from the west for the appetizing cherry is becoming greater and greater each year and the supply does not keep pace with the demand. No better opening offers to the fruit grower than the planting of large commercial orchards close to good transportation lines for shipment to our large cities, small towns and the far west in particular. A number of orchards containing a hundred or two hundred acres of cherry orchard would bring returns beyond our imagination and make Missouri the cherry state as well as the peach and apple state of the Union. Among the best varieties are Early Richmond, Ostheim, English Morello, Dyehouse, Montmorency and Wragg.

The next fruit in importance and the one most grown over the State and only surpassed by that king of fruits, is the luscious peach. The peach grows everywhere in the State, but in its perfection and to the greatest profit in a commercial way only the high hills of the river bluffs on the "loess" formation, and on the Ozark mountains where there is the proper elevation and congenial soil with proper porous subsoil.

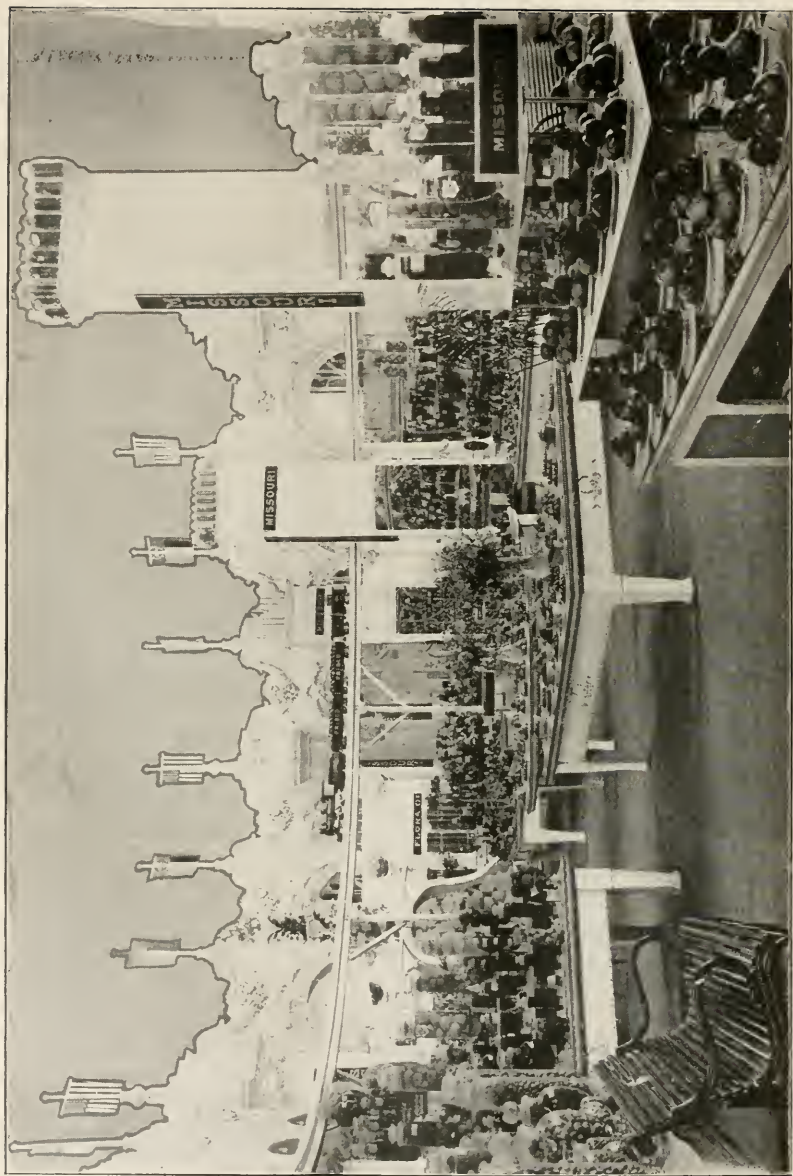
The most extensive development in peach growing has been noted here in Missouri that was ever known, probably. Hundreds of thousands of acres of the red lands of the Ozarks have been cleared of their black jack oaks and other scrubby timber and planted to the

peach, bringing luscious fruits to eat instead of the bitter acorn. In three years from planting many of these orchards have brought in money, returned more than the cost of the land and clearing, fencing and the planting, the cost of the trees and their care for three years. Points in Southern Missouri now ship not only their car loads, but their train loads of peaches every day during the Elberta season. Oftentimes a small town like Olden or Koshkonong in South Missouri have shipped a train load consisting of 11, 12 or 13 cars of peaches from their small station in a single day. There are thousands upon thousands of other acres there adapted to this peach growing and only waiting the hand of the husbandman to open and plant and cultivate and gather. Lands which are cheap, which never will be cheaper in the world, lands which are well located, lands which will produce profitably, lands which will increase in value rapidly, lands awaiting the settler to come and occupy, lands which will give returns to the planter, as they have done in thousands of other instances, these lands await your coming.

Not only, however, are these the only peach lands, but the bluffs along the Mississippi river and the Missouri river and its large tributaries are just as valuable for peach growing as are these Ozark lands if they are only properly planted and cared for. Close to a body of water, high above the valleys, having good air and water drainage, rich soil and porous subsoil, in this famous "loess" formation, are hundreds of thousands of acres of other fruit lands all through Central Missouri that are the very best lands for peaches and all other fruits that can be found anywhere in the State, and, of course, anywhere else in the world. There is one thing we are proud to boast of and that truthfully, Missouri does not have to go out of the State for climate, soil, rain-fall, locations for fruit growing nor for fruits themselves nor in fact any other good thing. When we say it is the best in Missouri it is the best in the world. Among the best varieties of peaches are Mountain Rose, Champion, Carmen, Family Favorite, Elberta, Old Mixon, free and cling, Pickett's Late, Wheatland, Salway, Wilkins, Bonanza, Henrietta.

The last and greatest fruit, the king of them all, the apple, has a greater breadth of kingdom than all the rest. It is marketed over more of the land and pays greater returns for the time and labor expended than the others. It is a great mistake to think that it will pay in a commercial way anywhere, on any soil, upon any locality, or in every kind of subsoil, even in the State of Missouri.

As before stated, Missouri holds first rank in apple orchards, and



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
FRISCO TRAIN.

it will be to our greatest benefit to see that it not only holds the banner as to numbers, but as to quality of fruit, care in handling and packing and marketing, as well as to the care and cultivation, spraying and management of the orchards themselves. The best apple lands in the world without any exception are the "loess" hills along the Missouri river and why more of these lands have not been utilized, improved and developed has been a wonder to all our fruit men. Missouri contains more of these lands than any other state in the Union. The next best land are the Ozark hills when underlaid with the red clay shale mixed with iron and lime and potash. Here we have seen the greatest development that was ever known, more than 500 per cent during the last ten years.

This improvement has been due to the assistance and energy and push of the railroads seeking to develop the resources of that land as rapidly as possible, for the returns come to them first and last and best of all.

The grower gets his results in the shape of dollars after the railroads first take their toll. The railroads can easily and quickly make or break a community of fruit growers by their fostering care in the one case or by their overcharges in the other case. The greatest lesson of success in the history of the State has been shown by the railroads in the case of the Ozark fruits, and their acts show plainly for themselves more strongly than words.

The virgin soils, with its scrubby oak growth, or the grand forests of the river hills which only need to be removed when the apple orchard is ready and willing and anxious to take its place and bring dollars to its owner. It is right in the one instance to remove the large forests when they are ripe and ready for gathering, and there plant the apple orchards, or to exchange the scrubby black jack oaks for the beautiful and profitable apple trees. Lands thus taken and planted and cultivated and pruned and sprayed will be just as sure to return crops to its owners as will the planting of a field of corn or sowing a crop of wheat. No more risk in the one case than in the other, not absolutely sure, but at least reasonably sure. We have no certainty of any matters here below and must be satisfied if we do have failures once in a while. Accidents and discouragements have occurred and always will occur.

The planting of varieties must be considered as the next essential requisite to successful commercial orcharding. These varieties must be what the markets demand at that particular location or failure will result. If markets demand the early apples then plant some of them.

If they want fine quality alone in winter or fall apples then plant them. If the demand is for shipping long distances then plant those varieties that handle and keep well.

The requisites for success are, therefore, first, porous subsoil; second, good soil; third, varieties adapted to the soils—that is, hardy and productive—fourth, varieties adapted to the markets; fifth, properly caring for the orchard (cultivation); sixth, spraying for diseases and insects; seventh, picking, handling and packing with a guarantee behind them.

The apple industry, apple orcharding in Missouri, in a commercial way, then is only in its infancy. Not one hundredth part of the available good hard lands in the State have been touched, and as the orchards of the east and north grow less and less each year those of Missouri will grow more and more, greater and greater until we shall see the most wonderful expansion of the fruit growing business that it has entered our hearts to conceive of. The only limit that can be made is the limit of transportation facilities and the means in the hands of the railroads to handle the business.

The location of our State is peculiarly well situated for the marketing of all kinds of fruit. Railroad facilities are the best and lines run in every direction with good connection to all points of the country. Apples we expect of course will go south, but are not even surprised when orders are received for the shipment of hundreds of crates of peaches daily as far south as even Galveston and all intermediate points. Still more surprised are people to get orders for thousands of crates of strawberries from the same direction. The Railroad company, the Refrigerating car companies, the Express companies are all three of them doing their very best to distribute this fruit to the best advantage so that returns will be profitable to the fruit grower. It is a well known fact that if the fruit grower cannot make some money he will soon quit the business and so if the transportation companies cannot help do this work to the advantage of the fruit grower then both of them must lose their business.

Berries, peaches, apples, are the three money makers from Missouri in all directions, over all districts, under all favorable conditions of soil, and may be called the universal fruits of Missouri. While the grape, plum and cherry are also money makers when conditions are favorable as to location, soils and adaptability, many of these fruits not only find a market in the cities, but also in many of our smaller towns, and here we find the very best markets obtainable. Home markets are the best markets any fruit grower can find and should be encouraged and fostered in every way possible.

For locations where early apples find a good market the following are among the best: Yellow Transparent, Early Harvest, Red June, Benoni, Early Pennock, Duchess, Lowell.

For fall varieties, Maiden Blush, Wealthy, Jeffries, Grime's Golden, Jonathan, Rome Beauty.

For winter, Gano, Ben Davis, Winesap, York, Black Twig, Ingram, White Winter Pippin, Huntsman.

The picking, packing and marketing of these fruits are important considerations if we wish to secure and maintain a good reputation for fair, square dealing with the buyer. We must either let the buyer pack his own fruit or we must guarantee what we pack so that the buyer will feel safe in buying. Good, sound, ripe, well colored, fruit, free from scab or insect pests, must be our standard and must be strictly adhered to if we are successful. To this end all fruit growers are working and the new comer to Missouri will find here every opportunity to maket and everyone to help him maintain this reputation. He not only gets the help of those in his community, but also the assistance and reputation of others and of the State itself in disposing of its products. The advantage of this reputation is hardly appreciated enough by those who have never tried its value. But when the reputation of the State or county or location has once been made everyone who comes into that location reaps the benefit of it. It is much easier to sell if you have buyers hunting you than if you have to seek after the buyer. In the one case they come to you and in the other case you go to them.

WINTER MEETING.

NEOSHO, NEWTON COUNTY, DECEMBER 20, 21,
22, 1904.

FORTY-SEVENTH ANNUAL MEETING.

"The annual meeting of the Missouri State Horticultural Society was held at Neosho on December 20, 21 and 22, and was, beyond question, one of the most successful meetings ever held by the Society. It was the concensus of opinion that the beautiful town of Neosho, situated in the very heart of the famous fruit growing section of the Ozark country, was a most ideal place for the meeting of the Society. It was to the untiring zeal and efforts of Mr. F. H. Speakman, and his associates in the preparatory work that this opinion among the members present was so general."—From American Truck Farmer, St. Louis, Mo.

FIRST SESSION—TUESDAY, DECEMBER 20th, 8 P. M.

The meeting was called to order by President Whitten. The opening prayer was given by Rev. Henry Marshall. Miss Patterson played a beautiful piano solo.

ADDRESS OF WELCOME.

(Mayor T. W. Lamson).

In addition to the customary greetings, expressing our appreciation of a convention of practical earnest brainy men, we especially welcome you because your instruction results in adding wealth to the community and comfort to the people.

Land is a safe investment for the present and future. It is the basis of productive wealth and the reliance of the toiling masses of humanity. The trend of population is to centralization. As the years pass, relatively more people congregate in cities and towns, lessening the number of people who grow cereals, meats and fruit, and increasing the number of people who consume bread, meat and fruit without producing either. Under these conditions, tillers of the soil should be the money makers of the future. Every farmer should read the merited compliment to agriculture told in the wonderful story of American agricultural prosperity by the Secretary of Agriculture in his annual report. We are dazed by statements that the corn crop of 1904 would pay the national

debt and interest and leave much corn in the granaries of the farmer; that the value of the products of the American farm for 1903 and 1904 exceeds the world's production of gold since the discovery of America. He who reads will not ask whence comes the wealth of the land. Modern Agriculture offers great inducements to men of energy and determination to till the soil. Its requirements are too exacting for the indolent man. No trade or profession demands greater care or more skillful management.

Fortunately, the privilege of membership in organizations like this, requires no man to enter the field of Agriculture a stranger to the soil or its possibilities, because here the object lessons of every community are focused. The intemperate, the theorist without practical ideas, men wanting in business judgment, failures, are not instructors, but here practical men submit definite results. Text books and schools of instruction are necessary and proper, but the practical horticulturist should learn more in the sessions of this convention than could be learned elsewhere in the same time.

Agriculturalists should be contented. It requires a financier to count the value of their 1904 crop—more than five billion dollars. Their bank accounts in the agricultural states of the Mississippi valley have increased more than 200 per cent in the last six years. One hundred eminent financiers were recently interviewed to ascertain the foundation of their business success. They came from every section and sphere of life. A majority had only a public or high school education—eighty-eight gave the farm as their home. The farm is the great school for the development of those traits of character that make for success.

Successful agriculture depends largely upon diversified farming, judicious selection, practical and thorough cultivation, organization and markets. Organization is a necessity. We live in an age so rapid that the tenure of life is too limited for the individual to stand alone. In all of the great industries of today, the individual is last in organization. Tabulated reports of allied interests are essential to the farmer, and furnish him and his best friend, the purchaser, with definite information. Marketing a fruit crop is half the battle for success. Every grower is not a business man, and his output is limited to his acreage. By uniting with his neighbor, the output is increased and a larger market available. Marketing requires employing trained talent, and when well done, good prices are secured. The 20th century farmer who succeeds is an all round business man. He studies the soil and its needs. With judicious selection and thorough cultivation, he can estimate annual yield and profits as definitely as other avocations. Modern farms are fields of diversi-

fied interests. A portion is devoted to forage plants of known value and fed to best stock; another part to horticulture and set to desirable trees and vines. In the future every avenue will be made to pay interest upon investment.

The modern farmer is a combination of brain and muscle, and, organized, is an educated power in the land. His services are in demand wherever men of character and determination are wanted. In the field of literature and commerce, he is respected in every sphere of life.

Twenty years ago the farm mortgage was the terror of Southwest Missouri. There was apparently no hope for the farm but bondage to the money lender. This has changed. Farmers are freer of debt, and it is a fact that farmers have bank accounts in excess of merchants and other business men. Success has come from land development and practical experimental demonstration that our soil and climate conditions are favorable for a diversity of horticultural enterprises. Horticulture, which should be known as the mortgage lifter of Southwest Missouri, and organization, have give us this rapid growth. A few years ago, a few local men, who have walked the floor until weary, saw, and grasping the opportunity, gathered the scattered aimless and antagonistic threads of local horticulture and wove them into an organization. Organization everywhere, means the same thing. It means control, and control means prices for products that justify the labor and energy expended in production. Neosho has ceased to be a cheap market for local products, and we are glad because we all, in varying degree, share the profits of prosperous horticulture.

The welcome Neosho extends you is most cordial. We are sure your sessions will be interesting and profitable. We hope you will carry home pleasant remembrances of our prosperous city and people.

WORDS OF GREETING.

(J. B. Graves Neosho, Mo.)

Mr. Chairman, Ladies and Gentlemen of the State Horticultural Society:

Representing the Neosho Fruit Growers' and Shippers' Association, of which I am a member, and for them, I am here to extend to you the glad hand; to give you a warm and generous greeting. There is no body of organized laborers on the earth, in the earth, or under the earth to whom we would give a more enthusiastic greeting than to you horticulturists of our own beloved State, together with your guests and co-

laborers from sister states and territories; for you and your predecessors are and have been the unpaid agents though whose wisdom and energy, and patience, and sacrifices one of the greatest and best industries of our commonwealth has been built up.

This is a wonderful age in which we live—wonderful on account of the stupendous progress that has been made in all departments of thought and action; marvelous on account of the rapid improvements in all trades and professions. Be it said to the undying honor of the pioneers of horticulture in Missouri, living and dead, that they were not left behind in this onward march. They were not asleep when others were awake. They were not indifferent when others were electric. They were not standing when others were stampeding. Not willing to be left in the rear, covered by the dust of oblivion from the wheels of the general progress, they forged forward to the very front with their investigations and discoveries, trampling beneath their feet all obstacles and difficulties, and planted their ensigns of victory along the firing line. And as they made their triumphal march they were beautiful as an army with banners. It is the achievements of those grand men, made under dark and discouraging circumstances, that have put us in possession of the brilliant potentialities of the present hour.

Be it said also to the credit of you horticulturists of the present generation that you are the worthy sons of your noble sires. Filled with their spirit imbued with wisdom, and fired by their zeal and success, you have wrapped about you their fallen mantels, and are walking in the light which they discovered. With brave hearts and skillful hands you are mightily pushing forward the work which they so nobly began. You go ranging abroad in hitherto unexplored regions of plant life seeking the goodly pearls of horticultural truth, and when you have found them you sound the trumpet, call us together, and give them to us freely without money and without price. It is your object to search out the highest wisdom and adopt the best methods of doing things, for your own sakes, and not only so, but so to instruct and enthuse the fruit growers of the land as that they shall be able to produce plenty of choice fruit for all our own people at a fair price, and to break into the great markets of the distant Orient to feed the hungry millions with the fragments that remain after our own people have eaten and are full. It is for these reasons that we meet you and greet you.

I cannot forbear to mention that it is the work of Secretary Goodman, Col. Evans, W. G. Gano and others, long time officers of your Society, that have made it what it is. Years ago they took hold of its work when it was but a nucleus of its present self. Through their unselfish devotion

to its interests, through their tireless energies in its behalf, through their unsleeping zeal, their sound judgment and sterling worth, they have bought it up to its present proportions and power. They have budded, and grafted, and pruned, and sprayed and fertilized your Society so that it has become a tall and fruitful tree. Although planted here low in the Mississippi valley its top can be seen by New York on one hand and California on the other. It now has the proud distinction of being one of the best fruit societies in the world. The men whose work made it such deserve the thanks, the praise, the confidence and the love of the fruit growers of Missouri, and they have them. It is more than a pleasure to have these veterans among us. It is a delight. We greet you as our helpers, as our teachers and trainers, and as our gracious benefactors.

We fondly cherish the hope that during your itinerancy here we shall be able to receive at least a modicum of the knowledge which you have come so generously to impart, and to find your enthusiasm which you hope not to lose. May our hearts burn within us while you talk to us by the way and unfold to us the mystery of the production and disposition of good fruit. May we be inspired by your teachings and example "to forget the things that are behind," the dying year with its early floods and latter drought, despoiling our fields, to "reach forth unto the things that are before," the coming year with its labors and triumphs; and to "press forward towards the mark for the prize" of every persistent, progressive fruit grower—success.

May the blessing of the Most High be upon your convention in all its work, and at its close, may we all feel that we have attended a real fruit Chatauqua.

Vocal Solo—Miss Diva Rudy.

RESPONSE TO ADDRESS OF WELCOME.

(President Whitten.)

In behalf of the Society I desire to thank the people of Neosho for their cordial greeting. We realize fully how much this cordial welcome signifies, coming from the people of Neosho, for this Society has met here before and has experienced the hospitality of your city and of your people. It is a great pleasure to us collectively and individually to again renew these pleasant relations and to consider with you the subject of

horticulture, a subject in which you are so largely interested, and not only financially but from the aesthetic and the home improvement standpoint as well.

In the two able addresses to which you have just listened the full significance of the broadening influences of horticulture has been pointed out. Perhaps no where in the State can we find a locality where horticulture means more to the people or where the people in turn have contributed more to horticulture in its various aspects. Your orchards and gardens demonstrate that your wealth and industrial activity rest largely upon your horticulture; the excellence of these orchards and the intelligent care bestowed upon them show that you are awake to this fact, and that you are making the most out of the natural opportunities which surround you. You are located in a section which presents beautiful natural surroundings, green hills, clear streams, salubrious atmosphere—just the place for a home; your beautiful homes, surrounded with ornamental plantings show that you appreciate and develop these natural advantages to the upbuilding of home life.

The word home evidently signifies to you all that it should mean in the English language, and particularly in America. Our word home is translated in other languages by use of the same word that means house, or the domicile which shelters one. In this country the word home means not only the house, but it embraces the grounds about it, the shade trees, shrubs, clustering vines—in fact the entire surroundings. It embraces all the tender associations, memories and traditions which cling to one's place of birth. It affords a unit, out of which grows patriotism, love of country and native land. It is the unit of our civilization and of our strength as a people. In our language home means more than a mere post office address. The homes about Neosho demonstrate the fact that the above facts are to you a living reality. They are not merely good houses, they are homelike.

The man who plants a large orchard or berry field and succeeds with it does well, he who combines with it a home, where horticultural knowledge and skill beautify the place with trees and flowering plants does better. The proceeds of the former support life, the associations and traditions and the aesthetic enjoyment which grow with the latter make life. The interests of this Society do not stop with the orchard, the influences of its work also extend to the home and its surroundings. We have met then in good a place for our work, and our work has auspiciously begun.

SOME REMARKS ABOUT SPRAYING.

(E. H. Favor, Assistant Horticulturist, Columbia, Mo.)

The growers of good fruit today never expect to get much from their orchards unless they use some method of spraying to destroy insect pests and fungi which injure the health and productiveness of the trees. The operation of spraying has been practiced in some form for a great many years, but the methods and materials which we now use were unknown until just twenty years ago. Previous to that time plants were sprayed with various substances, none of which had much effect in controlling fungus diseases.

At the present time the commonest fungicide in use is Bordeaux mixture in the liquid form. Within the past few years orchardists have called for a spray mixture which could be more easily applied than the liquid Bordeaux mixture, and this has given rise to the many dust preparations which are now springing into existence. All investigators are agreed that the best substance to use in controlling fungi is some form of copper, and the spray mixture must be an inexpensive substance which can be applied with ease and facility. There are many serious objections against the use of our standard Bordeaux mixture, the principal one of which is the amount of labor required to apply it. This difficulty, however is overcome, so it is said, by the use of a dust spray.

Investigations as to the efficacy of liquid sprays have been quite thoroughly and carefully made and we know well how to use them, but the dust mixtures have so recently come into existence that they have not yet been well enough studied for their real usefulness and value to be known. The Missouri Experiment Station during the past summer tried some of the dust preparations which are being recommended for orchard use, with a view of finding out something of their value as fungicides and to devise better and easier methods of preparing them. It needs not be said to any one who has tried to make up any of the dust sprays that some more rapid and less disagreeable way must be devised before they can be made at home with the ease of the old standard liquid Bordeaux mixture. During the progress of the work at the Station last year it was found that a much easier method of making up the dust invented by Dr. Bird could be had. At the winter meeting of this Society last year Dr. Bird gave a demonstration of the method of making up the dust according to his formula. Up to that time this dust had never been prepared in a commercial way, and the work of the past season has clearly shown that this method is impractical for the commercial place. The

time required for shifting the dust through the very fine sieves and the great amount of irritating dust which fills the air and nose of the makers rendered its preparation not only difficult but expensive. An easier and cheaper way might be briefly described, as follows: Take four pounds of blue stone and dissolve in four gallons of water in a wooden tub; in another tub slack four pounds of quick lime and as soon as slacked to the finest powder possible add four gallons of water and allow to stand till cool. These two lots are then poured at the same time, into a third vessel and stirred till no greenish streaks are visible in the blue mass. Two hundreds pounds of air-slacked lime are then poured out in a heap on a clean dry floor, and an opening made in the top of the pile sufficiently large to hold the eight gallons of blue material. The blue material is then poured slowly into the pile of air-slacked lime and quickly mixed with it. We have found that a garden rake or hoe is the best tool to use in mixing these materials, and the work can all be done in about half an hour. As soon as the liquid mass has all been added to the lime and the whole well worked together it should be immediately run through a sand sieve and spread out on the floor as thinly as possible to dry. This will take two or three days or perhaps more if the weather is wet, but as soon as thoroughly dried sift again, using a fine sieve, one slightly finer than window screen wire. In doing this, one will enjoy less inconvenience from the irritating dust if he can stand where a gentle draft will carry the dust away from his face, and less dust will fly if the sifting is done as close to the floor as it is possible to work. The use of a much finer sieve, one having sixty or eighty wires to the inch is highly recommended, since it will give a much finer and more thoroughly mixed powder, and less waste, but the great amount of time required to sift through the fine sieve probably will not pay for its use.

Now as to the value of the various spray mixtures; during the past season the dust mixture as prepared according to the formula of Dr. Bird, was used by the Station in two commercial orchards, together with the dust made up according to Mr. Maxwell's formula, and the standard liquid Bordeaux mixture. In one of these orchards the entire crop of apples was lost, owing to the fruit having all been entirely killed by scab, in spite of the sprayings which were given. In the other a fair crop was had with the following results: The plat sprayed with liquid Bordeaux mixture gave 50 per cent of the crop as No. 1 apples; the plat sprayed with Dr. Bird's mixture gave 29 per cent of No. 1's, and the plat sprayed with Mr. Maxwell's gave 30 per cent of No. 1's. It is our intention to carry on this experiment for series of years, spraying the same trees with the same materials each year and perhaps after eight or ten years some

definite conclusion can be reached as to the value of either of these spraying materials. Although the work of the past season seems to have given some definite result as to the value of these materials, no reliance should be placed on them, because of the many conditions surrounding the experiment, such as the weather, severity of the attack of insects or fungi, time of application and general condition of the orchards, all of which will vary from year to year.

In closing I would say that no matter what spray mixture you are using, spray thoroughly or not at all, and don't get discouraged because the scab got your apple crop this year. Keep the spray machines going, for in that one has to put much of his dependence of getting a good crop. "An ounce of prevention is worth a pound of cure," and the appearance of any disease on our fruit trees should only stimulate us into more thorough work, rather than discourage us into doing nothing to save the trees and the crop.

CULTURE IN THE HOME.

(Mrs. Asa Chandler, Randolph, Mo.)

"Could ye but bid the hand and pen,
From the dead years again to come,
That once imbued with magic power,
Wrote words of 'Home Sweet home,'
Think you he'd tell of broad estates,
Of gilded halls and sumptuous fare?
Were these the best that life could give,
Then happiness were rare."

When Howard Payne composed the song "Home, Sweet Home," the words which convey such depth of feeling, he must have had in his mind's eye the Cultured Home, and if we follow the course of his sweet strain, we find it can be ever so humble, there is no place like home. We believe we can take him as good authority, as his song became so popular seemingly to express the sentiment of the people. It is yet so loved and revered.

Home has a greater depth of meaning than just a dwelling place. "Home is the sacred refuge of our life." It has been so beautifully expressed in these lines:

"'Tis where we find a sure retreat,
Tossed by the storms of life,
And from its blessed influence
Take new courage for the strife."

"Tell me about home life," said a philosopher, "and I will foretell the destiny of your country. As the families, so the nation of families." Then of what vast importance that the home should be right.

“A stream cannot rise higher than its fountain.”

What we want is higher, better, more ennobling principles implanted within our youth. Only the cultured home can attain this. When we consider how much depends upon the attributes of the home, the far-reaching influence that goes out from under its roof; the subject is broad. There are so many essential points, I scarce know which to mention as the first requisite. However, we shall give order pre-eminence, as it was “God’s first law.” If we would study nature more and apply it to our home life our lives would be much more peaceful and serene. The world needs more cultured homes, homes that will cast out rays of refinement. I am sure this cannot be done from disorderly homes. The old adage wears good: “A place for everything, and everything in its place.”

Cleanliness comes next to mind; it “is next to godliness.” I know it is a constant warfare with broom and brush for our weapons, yet the good housewife’s mind is broadening, and I am glad that today she realizes that she has a field of labor other than the confines of the kitchen. She should learn to do her work with method and system and some sleight of hand, and still have clean homes.

Books and magazines must be in the cultured home, but very little of the daily paper. The literature must be such that will give pure thoughts. A table well filled with horticultural matter will give aspiration and inspiration. Country life should be there. Its beautiful engravings that interest young and old. Bailey’s Encyclopedia is an education in itself. Our own Fruit Grower, that is a real personal friend. The National Fruit Grower, The American Truck Farmer, and a host of others.

Flowers must be in this home. The surroundings inviting. Some may argue that they have no means to beautify the home. I will admit that money is a great convenience when rightly applied. More palatial homes can be built with plenty of means at one’s command. But, alas, how many hopes have been blasted and parents’ hearts wrung and fortunes squandered by allowing their children the too free use of money. As pertains to the boy, as to the girl, every wish being gratified, petted and pampered. We ask, is she fitted to meet the realities of life and fill the place God has assigned her, the true wife and mother. I cannot believe that money is the one most essential thing in making a happy home; but time, strength, energy and contentment can produce it.

We need to get the child so enraptured with the home life that he or she will not want to leave it. Love, kindness, sympathy, patience must be practiced in this home. Dr. Parkhurst writes: “A benediction remains upon a man or woman whose heart is printed with lines of grace

and sweetness caught from scenes enacted in a home dominated by motives of love and sacrifice and piety. The most natural years of our lives we live while we are children, and there is always rest and purification in getting back in touch with them. When the burdens press a little heavily and the future is thick with uncertainties, the wish will sometimes shape itself that we might be back again among our free, fresh childhood days."

It is in the every day of life that the world's best work is done. Some one has so ably put it: "Anybody can do well on special occasions. Anybody can do a heroic thing once or twice in a lifetime, but it requires more strength to be faithful in the ninety and nine commonplace duties when there is no special motive to stir the soul to its best effort, than it does for one stern conflict which calls for heroism."

Sweet content must reign. Live within our means and be happy. Better is a little with righteousness than great revenues without right. Be content to do a little, and we will be a link in the great chain of humanity. "Life's fullest gifts are poured about the feet within whose soul is found content." And thus we find from the cultured home depends much. The influence is untold. A few lines from the sweet poet—

"Tissues of life to be, we weave in colors all our own,
And in the field of doubting we reap what we have sown."

Piano duet—Misses Patterson and Harvey.

Aspects of Fruit Growing—Prof. S. A. Hoover, Warrensburg, Mo., was read and will appear later.

President Whitten.—Tomorrow we take up the orcharding question, and will be glad to see you all here at 9 o'clock sharp. Until then we stand adjourned.

SECOND SESSION—WEDNESDAY, DECEMBER 21, 9:30 A. M.

After the call to order by President Whitten, prayer was offered by Rev. W. J. Simmons.

The subject of the morning session was the apple orchard, and the first paper was on Pruning and Cultivation, by A. T. Nelson, Lebanon, Mo., which will appear further on.

TREATMENT OF THE ORCHARD AFTER IT COMES INTO BEARING.

(D. Lowmiller, Parkville, Mo.).

There are not many of us here today who have not tried it, realize the magnitude of the undertaking, and the necessary amount of work

required in the proper care and treatment of an orchard after it comes into bearing. Obstacles and disappointments innumerable are often our portion, and we of the faint heart are prone to quit and place the blame exactly where it does not belong.

Now, in my way of thinking, if you want to have a good bearing orchard, and I take it that we all want it, then you must start at the beginning, begin with the selecting of the trees, and select them carefully, because more depends upon a right selection than many of us think, and especial attention must be paid to the kind of tree, to the soil, to the climate, to the slope and to the digging of the holes and setting, because it takes all this and more, too, to produce a fine, thrifty, rugged tree, and without such a tree, you can't expect a prolific bearer, at least, I have learned not to expect it.

Then comes the season you have to contend ; if it is a cold, wet spring, like last spring was, you are almost sure to be knocked out, with the very best treatment you could possibly give.

This is where it stands you in hand to have your trees in the very best and healthiest condition in which it is possible for them to be. Then, and then only, can you depend upon them to withstand the adverse season and weather, and still maintain their vigorous, rugged, healthy condition ; this cannot be without working on them for years beforehand.

I will give you my way of treating a bearing orchard. It is probable that there are many people here who will not agree with me along these lines, but remember in criticising me and my plan, that individuality and stick-to-it-ive-ness does more to accomplish results than all the theory and science in the world ; any way, such has been my experience, and experience of the right kind is a millionaire compared with theory.

When one meets with such success for three years as I have with my orchard, the third year being an off year, and my neighbors' orchards being almost a failure, and not only here, but in the whole country, the experience is worth following up.

Please do not think for a minute that I am laying out a plan for every fruit grower in the State. I am not ; it is possible that nine-tenths of you would fail, and then I would have to hide ; I am simply giving you my experience and my plan, and you can adopt it or not, just as you please ; there are so many failures that there can be no iron clad rule, but each one must rely solely upon his own orchard and his own judgment. Where one succeeds, others fail.

In my orchard work I use the liquid spray, which I think is far superior to the dust ; it adheres better, absorbs quicker, and penetrates to every little nook and corner in the leaf. I have an Empire King pump

with a hundred gallon tank, two hose attached, using a double vermicelli nozzle. It takes three men to handle the outfit.

I use the regular Bordeaux mixture and for two years have used Paris green as an insecticide; this year I used in its stead Disparene, which has given me much better results, as my fruit is rusted but very little. In going through the orchard, I spray from both sides of the wagon to center of tree, making two stops at each tree, following back next row till orchard is finished. So thorough has my work been done, that when my orchard is completed it looks as though it had been painted.

My first spraying is done about four days before the buds open, and my next about the time when blossoms are falling, just before the calyx closes; this, I think is the most important spray. But spraying is not all it takes to raise good apples; it takes thorough cultivation, and that, too, till the middle of July or the first of August, owing to the season. In cultivating I use Clark's cutaway orchard plow.

One plowing I throw to tree, the next reverse, throwing it from the tree, thus keeping my ground perfectly level, repeating this from four to six times a season. For cover crop, I let nature furnish it, running mower over ground a couple of times, so as not to allow any weeds to go to seed. Now, these are just the high bumps of my plan, leaving out all the minor details and attentions. It may be your plan too, for there is nothing new in this world, and common sense and good judgment suggest the same thing to one man that it does to others.

The fruitage of the apple tree,
 Winds, and our flag of stripes and stars
 Shall bear to coasts that lie afar,
 Where men shall wonder at the view,
 And ask in what fair-groves they grew;
 And sojourners beyond the sea
 Shall think of childhood's careless day,
 And long, long hours of summer play,
 In the shade of the apple tree.

La Plata, Mo., December 18, 1904.

Hon. L. A. Goodman, Kansas City, Mo.:

Dear Sir—I am sending you the paper on girdling. Use it as you see fit. Could not think of any way to put the treatment of the injured tree only in plain language, and you may change that if you see fit. I simply told our experience. Wish I had used the method on all my York and M. B. Twig in June, 1903, as it would have made us over a thousand dollars this year. I send you under separate cover two photo-

graphs showing the girdled York tree with $9\frac{1}{2}$ bushels on, and the tree standing next to it with a bushel on. You will notice that while the apples do not show very plain the limbs are touching the ground. In the picture of the treated tree we got part of the tree next to it and the left side does not show so full, but it was. A successful meeting is my wish.

Yours truly,

J. E. MAY.

SUCCESSFUL EXPERIMENTS IN GIRDLING FRUIT TREES.

(J. E. May, La Plata, Mo.)

Mr. President, Ladies and Gentlemen—After listening for two or three years to the talks and discussions on the girdling of fruit trees in order to bring them into bearing, I decided to experiment on some apple and pear trees growing on my farm that did not bear, although old enough to do so, and telling our Secretary of my success, he asked me to prepare a paper on the subject. The paper will be short, as the experiment was conducted only during the present year, having girdled the trees during June of 1903. We planted our orchard during the spring of 1895 and up to the present time Ben Davis trees have given us four crops, while such varieties as York Imperial, Mammoth Black Twig and Wealthy have only produced a few scattering apples. After thinking the matter over for some time I decided to girdle a tree of each of the varieties that did not bear, and so on the 9th of June, 1903, took my knife and proceeded to the orchard and took a strip of bark from a York, M. B. Twig, Babbit and Wealthy, and also girdled one branch of a Flemish Beauty pear nine years old, that had scarcely had a bloom during the nine years. Should say that on the Wealthy I only girdled one branch. I did not tell my family what I intended to do, but after I had finished I took some strips of the bark in and they asked what I had been doing, and told them I had concluded to make my trees bear or know why. The hired man said, "They are dead trees, sure," and my son said, "They will be wilted before night," and they looked at me as though I was a fit subject for the asylum, but the trees failed to die or even wilt, and in a day or two one could see the new bark forming where the cut was made. It was with a great deal of interest all watched those trees during the fall of 1903 and spring of 1904.

At blooming time the trees and branches girdled were white with bloom, as were most of the other trees with the exception of the Wealthy



YORK, GIRDLED, 1903. CROP, 1904, 9½ BUSHELS.
J. E. MAY, LA PLATA.



YORK, NOT GIRDLED. CROP, 1904, 1 BUSHEL.
J. E. MAY, LA PLATA.

and pear, which only showed a few blooms where not girdled. It looked a good deal as though we would have had about as many apples if the trees had not been touched. It was only a few days, however, before we noticed the bloom on the ungirdled trees showed signs of blasting, and in a few weeks there were scarcely any apples on them, while on the girdled trees the blooms stayed and set large quantities of fruit, which hung on well and colored very much more than on the other trees. In order to know what we gained by girdling we picked and measured the apples from the treated York tree and also from one growing by the side of it not treated, and there was a difference of $8\frac{1}{2}$ bushels in favor of the girdled tree; we picking $9\frac{1}{2}$ bushels from it. In the case of the Black Twig the difference was about the same. The Wealthy branch treated nearly broke under the weight of fruit, while the balance of tree had scarcely an apple. The result proved the same in case of the pear tree. Had we girdled our York and Black Twig trees in 1903 our apple crop would have been over 2,000 bushels greater this year. Do you blame us for girdling them this year?

Now, a word of caution, and I am done. Don't take your knife and go to your trees "just any old time" and girdle any old way. Judgment must be exercised in this as in spraying. Some spray at the wrong time with the wrong mixture, or use it too strong or not strong enough and get no good results, or perhaps kill their trees, and then condemn the practice. In our girdling this year we had an experience on some 200 seven-year-old trees that, had we not been on the watch would have proved disastrous. Three days after doing the work we were out looking at the trees and found the thick sap had dried up and wood getting dry and trees in good shape to die. To say we were somewhat wrought up would be putting it mildly. Don't like to be laughed at, you know, and then did not like the idea of losing 200 seven-year-old trees. We started two men at once to binding them up, putting fresh cow manure on the wound and binding it on with strips of cloth, and today every tree is healed over in good shape. Think the sap was not thick enough and too hot and dry when the work was done, and so I say use caution and do the work on a day or days that are damp and cloudy if possible and notice that the sap under the bark is thick, and use care not to injure it, and you can make your trees bear and pay for their keeping.

DISCUSSION ON PRUNING AND CULTIVATION.

Secy. Goodman—Mr. May undertook the above experiment at my suggestion, and I am glad to note his report. In confirmation of this plan I can quote similar results from girdling over 1,500 apple trees be-

longing to the Ozark Orchard Co. The varieties were Ben Davis, W. W. Greening, Winesap and Jonathan, and in every instance the trees have not only borne more apples, but the apples have hung on the trees much better. I consider this girdling as important as any step in cultivating or pruning, especially where the trees grow too rapidly.

Captain Lincoln, Bentonville, Ark.—I have one hundred acres all in orchard and I endorse nearly everything said in the two papers. I believe in pruning, cultivation and buying good trees and planting right. I also believe in doctoring trees and advise putting on manure as you see it is needed. As soon as the ground thaws go over the orchard with ashes, put the wrappers on and look after the trunks and wounds. It is a question what to do with the ends of the limbs which are too thick and hold too many blooms, so that they cannot hold all of the fruit formed. I say cut out the bushy limbs and open up the tree. I believe in clovering the orchard. I have had it three years and mow it while it is fresh.

W. A. Gardner.—I would like to ask Capt. Lincoln what about heading the trees?

Capt. Lincoln.—Mr. H. P. Gould of Washington, D. C., asked for a model Ben Davis tree to photograph and chose one, the limbs of which came out as high as my neck. My idea of an ideal tree is for the head to be about four or five feet from the ground after twelve years; for when only eighteen inches high the limbs lie on the ground and have to be cut off. The limbs must come out horizontally from the trunk.

W. H. Barnes, Kas.—We are between two fires if the head is five or six feet high then the limbs and apples are too high. President Wellhouse says we can't afford to pick apples over twelve feet high.

Capt. Lincoln.—My oldest trees are twelve years and no limb rises over twelve feet from the ground, because they are grown horizontally.

F. H. Speakman.—What time should we trim the tops. Some trees have thick heads, but we don't know when to trim for best results, that is, to thin and not lose too much wood growth.

H. B. Francis, Kas.—The advice of eastern growers has made failures here. You should get your trees from the nearest reliable nursery, plow and fertilize and subsoil. Grow the orchard on level ground or else the rain will run off. It is just the easiest thing in the whole apple business to have the trees make branches so as to get the fruit from the ground. Never cut the center out and you will never have a high tree. Grow only one tree on a stem and not three or four. Shorten the outside limbs the second year from planting. Concentrate growth to the center. Later the branches droop low enough so that you can gather most of the

fruit with a step ladder. Don't lean a tree to the southwest, but let the center grow over as the wind makes it, then shorten in the side limbs and branches will come out and balance the top so that the tree will set even. If the branches come out on the northeast side and make that side heavier so that it will be blown over by the southwest wind, the tree will become sunburned. Sunburn comes from freezing, which loosens the bark so that it dries out and fungi and borers get in. Keep the sun off of the trunk of a tree in the winter and there will never be any sunburn, for it is in the winter that sunburn occurs. Protect the trees with wooden wrappers. The wind doesn't blow the apples off if the limbs hang low. I once ran across a nurseryman who was going to revolutionize the apple business by selling apple trees budded on seedling roots, but it can't be done. It is easy to grow a tree according to my plan. I have put my ideas down in this little book and have given some of these ideas to you.

Capt. Lincoln.—I will say in answer to Mr. Speakman's question, that I selected ten rows of trees and pruned the trees at different times throughout several months of the year. I began in October and finished the 17th of July. When a gentleman asks when the best time is to prune I show him the trees. The best time to thin out the little branches is from the time they begin to bloom, up to the time that the apples are as large as hickory nuts.

W. A. Gardner.—If you prune in June it will take the tree just a year to get to the same stage again. Mr. L. H. Bailey says prune "when the knife is sharp." That is the best time.

T. C. Love.—I differ with Capt. Lincoln about having the limbs droop; for apples which hang to the limbs even if these are on the ground take on a good color if they stick to the limb. I agree with the Captain that the apples color up well on the limbs above twelve feet. I am using twelve foot ladders but I believe I will have to have eighteen foot ones made to pick my fruit. I believe in heads so as to run the mower and cultivator under. On my trees the limbs come out four feet from the ground so that I can't cultivate when the apples are large. When the limbs are drooping they will be bent still more by a heavy crop of fruit, but as soon as the crop is picked the limbs straighten up. Any that stay down should be cut off. I agree with Mr. Gardner that the best time to prune is whenever a limb needs to be taken off. I carry a knife and shears with me every time I go through the orchard and cut where it is needed. I like the disk harrow to work the soil with, as it is better and cheaper than the cutaway. I pull the dirt away from the trees for eight or ten inches. The disk harrow pulls the grass down and you must go over it with a spring-tooth harrow; then mow, to keep down the weeds,

E. G. Mendenhall, Kinmundy, Ill.—As regards the pruning business, it becomes a very important part to watch the limbs and keep those that cross cut off. It takes study to cut off the unnecessary limbs. We shouldn't hurry as, at the best, we often find that we have missed limbs that cross and rub. This pruning can't be done in one year. February and March are the best months to begin in, as we can tell better when the leaves are off. Cut off the limbs close to the body and smooth, and paint well, give a second coat if it is freezing.

Pres. Whitten.—What cultivator would you use?

N. F. Murray.—I will say use Clark's Cutaway harrow.

L. C. Wilson.—I say the same. It is the best for the sod, if you use an ordinary harrow on the sod and then use a double four-foot cutaway you will see the difference.

J. C. Evans.—I am glad to see that the tendency among the orchardists is toward more thorough cultivation. I have been preaching this, but people are too slow to adopt it because they are so greedy. We think we can make twice the profit on eighty acres that we could on forty, but I think we could double it on forty by good cultivation, spraying, plowing, washing and wrapping the trees and all these things that mean good care.

E. G. Mendenhall.—We cultivate late in the fall and early in the spring to get the insects out.

Dr. Whitten.—We need a tool to turn the soil over.

N. F. Murray.—I have been interested in the disc harrows, as I have not been able to get my trees to do as well as I wanted them to. We do not study sufficiently the individuality of the variety and the location. I was in an orchard of the Panhandle of Virginia, in which they were using thirty foot ladders to pick the apples from trees which were sixty years old. In another orchard they fertilized heavily with barn yard manure and bone meal. Successful men do something and we must concentrate our attention and our work. We must cultivate and put in clover and disc down in the fall. The matter of pruning depends on the age and variety of the tree and nature of the orchard; in some cases it is necessary to cut the tree down. I do not believe in an orchard forty feet high nor very old. Missouri orchard life is about twenty years, and it doesn't pay to try to get them to live longer. The Clark's Cutaway harrow is the best paying implement. I would not do without it if it cost \$100.

T. C. Love—If turning the soil is what is wanted I prefer the solid disc as the cutaway will not turn as much of the soil, but leaves solid bits between.

L. C. Wilson—I would like to ask what is gained by turning the soil?

Dr. Whitten—Briefly we might say the gain is in the killing of the weeds, airing and pulverizing the soil, letting the spring rains soak in and letting the roots air out. Cultivation and turning the soil releases the plant food, mellows and slacks the earth so as to increase its capacity for holding moisture and food. It improves available food material as well as the mechanical condition of the soil by actually turning it over. Warming is important in the early spring as the roots should start when the buds do. The turning destroys the fungus spores if done at the right time and also the insect eggs by burying and covering or by bringing to the top so as to freeze or bake them.

L. C. Wilson—I have asked this question and it has been answered and I hope it will be remembered by these young men for this is one of the most important operations in orchard culture.

E. G. Mendenhall—I would like to ask Col. Love if he has ever used a cutaway??

Col. Love—No, I have never used one, because I do not think it will cultivate the surface of the soil as well as the solid disc.

Mr. Mendenhall—If a cutaway is used on sod it cuts clear under the grass and across to the other line of the disc and the same with soil. The grass is turned up in ribbons. This machine will cut weeds as high as a horse's back and by going across four ways the weeds and soil will be well stirred.

J. W. Graves—How would a disc work on stony lands such as we have around Neosho?

Mr. Wilson—The cutaway slips over stones and cuts more than the others.

Mr. Mendenhall—The discs will not be injured by the stones.

N. F. Murray—We have used both kinds in the orchard and the difference is that the solid disc will not cut with as much force, but slides over the hard parts, while the cutaway comes down harder and cuts better.

B. C. Auten—How many horses does it take to pull a four foot cutaway.

Mr. Wilson—For a 16 disc it takes a good, stout team. One team can do it, but it has to be a good one. A cutaway finishes and throws both ways in and out.

Mr. Auten—At the fair I saw a traceless harness, can any one tell me if it is any good?

W. H. Barnes—A neighbor of mine has one hanging on a fence that any one can have for the asking.

B. Logan—The Clark cutaway is too high in price. I like it all right, but prefer the New York harrow made by Johnson Plow Co., at half the price.

J. A. Orr—There is a difference in soil, the sandy soil does not need such deep turning.

J. M. Irvine—I would like to ask if any one knows of an orchard on the Missouri river hills that is cultivated in this way and the soil does not wash. Is this cultivation given all the spring and until August.

D. Lowmiller—I give this kind of cultivation to my orchard until July and when it washes go across and turn the soil over the other way. My land is not very steep.

J. M. Irvine—On a piece of the experimental orchard at Parkville the rain had washed the hills badly.

H. B. McAfee—That is so, and that method is a disadvantage in steep land. Mr. Lowmiller's is not so steep. The soil washes less, if well cultivated and a cover crop grown, than where the cultivation is spasmodic. The Clark cutaway is right according to our experience, but you have to keep away from our limestone rocks.

N. F. Murray.—The best orchard I ever had was on Missouri river hill land and was cultivated and it washed, but we never omit cultivation because land washes in a corn field. I cultivated, manured and put clover on part of the time, and after the orchard was cut off the land gave sixty bushels of corn per acre. This orchard paid me \$800 per acre in twenty years.

G. W. Logan.—We have used Clark's cutaway several years and before that had trouble with washing. First we put manure on, but the fertilizer washed to the low parts and since we have with the cutaway thrown the ridges together, this holds the water well. My soil is poor red clay and tended to wash badly, but I can now control the washing by the Clark's Cutaway. When the cow pea vines had been cut the second time you couldn't tell the cow peas had been there. The cutaway turns over the vines and works the soil fine and kills the weeds and grasses. There is no better implement for orchard cultivation made.

J. W. Hitt.—In a five-year-old peach orchard which is in fine condition the soil never has been turned, for it gets too hard by turning. It is impossible to use a harrow around Koshkonong because we have so many rocks. We have had thirty-five hundred loads of rock hauled off of a hundred acres.

B. C. Auten.—I plow with a bull-tongue to stir the soil, but not to turn it. This brings the small stones up and keeps a stone mulch and prevents washing. I use a spring-tooth harrow to stir the rocks.

Mr. Furgason.—In a field of sixteen acres which was very steep nothing but corn had been grown for sixteen years and all this time it had been cultivated with a bull-tongue plow. We began using a hill-side plow which in turning left a smooth surface and nothing to hold the water and in two years had gulleys that a horse couldn't jump. I believe that the little furrows of the bull-tongue allowed the water to spread out, but with the turning plow big furrows were left and washed. In an old orchard the dirt was thrown up to the trees like a mound and next year plowed away from the trees, thus leveling the ground.

J. A. Orr.—Water will cut our hard flint soils unless they are filled with humus. Humus takes up the water like a sponge, but if the humus gets used up the water tears out the soil. If the ground is kept open and porous the water will sink in, therefore, we must use clover and cow peas to get humus which holds the water and lets it out in dry weather.

L. A. Goodman.—In cultivation we lose sight of one important matter, that is of rotation. We find that in this Ozark land the soil burns out with thorough cultivation. We have adopted this plan. In the fall we plow as shallow as we can and turn up the earth as rough as possible and continue this plowing all winter. This gets the land ready for sowing clover or cow peas next spring. If the ground is planted with cow peas for one season we then have the best of conditions for seeding clover the following spring. In some parts of the orchard we leave this winter-plowed land alone and let weeds grow for cover crop. This is the cheapest cover crop we can get. In our hundreds of acres of orchard we cannot easily treat all alike so allow the weeds to grow on parts of it each year. Where the trees are in bearing we run the mower to cut the weeds. Part of this winter plowing we leave for summer fallow, part we plant to corn and part to cow peas. We leave the orchard in clover only two or three years. The ground that washes we winter plow and leave rough with a weed mulch plowed under which helps to keep it from washing. We could not plow some of the rocky land at first very well, but after the winter plowing it can be broken without any difficulty. Owing to the rotation of cow peas, corn, weeds, summer fallow and clover we have the land in good condition. Turn the clover after two years, not before.

Mr. Furgason of Howell county.—When we left off cultivating and let the weeds grow for mulch we had fifteen or eighteen inches growth on the trees.

W. A. Gardner.—I came to a point where I could not plow, then I gathered Japanese clover around the trees and had the best crop

of apples in the section, and the trees were healthy. The mulch was better than constant cultivation, and paid because there was less expense. The bodies were healthy and the trees made a beautiful growth. There has been no plow in this orchard for six years, the trees are from nine to thirteen years old. The insects did not bother much and the trees were not sprayed. Bitter rot was not half so bad as when we cultivated. This is true also of two other orchards in the midst of the bitter rot district. The bitter rot struck in the top, the dust rose from the adjoining orchards which were cultivated and where cultivation was given under the trees we have bitter rot first on the bottom limbs. We are now getting rid of bitter rot and our orchard is comparatively covered with a mulch of Japanese clover. I believe the mulch keeps down the spores of bitter rot.

Member.—I agree with Mr. Gardner in my observation that the orchard cultivated had bitter rot and lost trees. I approve of the mulch.

DISCUSSION ON SPRAYING.

Mr. Shank.—I tried spraying for two years, but was not satisfied. The first year I prepared my own dust and failed entirely on apples. This year I sprayed more thoroughly, eight or nine times, and failed to get any apples that keep, all had the fungus.

Mr. Hall.—The canker worm got into my orchard, but I saw a sermon by Prof. J. M. Stedman in *The Western Fruit Grower* and tried his receipt of Paris green and lime. I sprayed once, then the wet weather set in and then the harvest which kept me from spraying, but when I examined the trees I could find no living worms, but plenty of dead ones, and I had a pretty crop of apples. I sprayed again this year, and had a good crop of apples.

G. T. Tippin.—Success is governed by local conditions, certain things cannot be successfully used in one place and be as satisfactory in another. For it is often a matter of climatic conditions. I have been somewhat skeptical about spraying, but it is conceded that success comes oftener to those who spray than those who do not. This is seen from experiments in Illinois, New York, Michigan and other states. As a general proposition success comes to those who diligently spray.

Many spraying solutions have been recommended to farmers and horticulturists for apple trees and potato vines. The Canadian government has made extensive experiments with a spray and has recommended its general use. Some of the best orchards have had

repeatedly clean crops where this spray has been used. Following is the solution recommended:

Twenty pounds of blue vitriol, 1 pound of white arsenic, 1 pound of Paris green, 2 pounds of sal soda, $87\frac{1}{2}$ pounds of lime and 250 gallons of water.

Prepare the arsenic by boiling one pound of arsenic with two pounds of sal soda in two gallons of water for forty-five minutes.

Dissolve vitriol and strain in your barrel or tank, filling two-thirds full with water. Slack the lime in another barrel or tight box, and add enough water for the other third; then through wire screening strain your lime water in with the vitriol and keep well agitated while doing so. Then add the Paris green by dissolving in a little water, agitating well, then add the arsenic solution, again agitating.

This mixture gives best results by using as soon as made, as after standing two days is considered worthless.

Spray apples, first, just as buds begin to swell; second, just before buds break open; third, just as soon as blossoms fall.

Spray potatoes just as soon as the bugs begin to eat the vines, again just before the potatoes blossom.

You need not be afraid of burning the foliage with above solution, if properly made and agitated, so spray very thoroughly and see the apples grow free from worms and scab, and the potatoes from bugs and blight.

For each spraying of apples seven gallons should be used for each average sized tree.

W. A. Gardner.—I do not mean to say that spraying is not good.

L. A. Goodman.—The Canadian formula, it seems to me, would cost too much in a large way and be too much trouble, as it is more work than other formula.

Pres. Whitten.—I do not intend to advertise by calling on men who have machines to sell, but we would like to hear from Mr. Johnson on dust spraying.

Mr. Johnson.—Mr. President and fellow members: I appreciate the opportunity your kind invitation affords me, of laying before you a condensed statement of the comparative results as obtained and reported to me by the growers, who have used both systems. What we are interested in as growers is results in the orchard. The simple statement of the subject on your program, spraying, liquid and dust, materials, machines and time, is sufficiently comprehensive to draw out the best points in both systems, and indicates that our worthy Secretary has a broad and intelligent view of the situation. I wish

to commend the course you have taken, Mr. President, to get at the facts, as the practical work in the orchard has developed them. The individual experience of every grower, who has used both systems is good, the collective experience of a large number of growers, under varying conditions, climatic and otherwise, on all kinds of fruit grown in our diversified climate is better. Our reports this season cover all the fruit growing sections of the United States, on all kinds of deciduous fruits and vegetables as well as the citrus fruits of Florida and Southern California. Our reports also embrace the application of the dust process to the Walnut Blight in California, as conducted under the auspices of the Walnut Growers Association of Southern California, with the result that the disease has been controlled. In general, the reports show, without exception, that on all kinds of stone fruits, grapes, all kinds of vines, gooseberries, currants, strawberries, potatoes and all kinds of vegetables, the dust process is far superior to the liquid. The past season has developed the fact that the dry formulae are the only ones that can be used successfully on peach and grape rots. The Department of Agriculture at Washington, D. C., instituted a comparative test for the peach rot at Fort Valley, Ga., under the direction of Prof. Scott. We had the pleasure of meeting Prof. Scott at the World's Fair, and he reports that his tests were without result, owing to the absence of rain in the section in which he operated, the rot did not develop, the first time that section has been free from it in eleven years. We also had the pleasure of a visit from Prof. Woods, of the Division of Plant Pathology at Washington, D. C. He stated to us that the dust process was the only successful one for the treatment of the rot, and that the department was now engaged in perfecting the dry formula. As an insecticide, the reports show the dust formula to be superior to the liquid for the same purpose, due, no doubt, to a more perfect distribution of the arsenic, and the limitation of the arsenic necessary in the liquid form, being removed by the change of the conveyor from water to dry form. On Scab Fungus, the reports of the past season show, that as between the two systems it is six of one and half a dozen of the other. In our own orchard we had complete control of the disease on the foliage and fruit. We do not mean by this that our fruit was free from scab, but we do mean, that the application of the dry formula we used killed the fungus on both foliage and fruit, but owing to the excessive rains, we could not keep the dust on our trees, and the fungus stole a march on us between times. We sprayed our apples eight times, peaches, plums, cherries and grapes four times

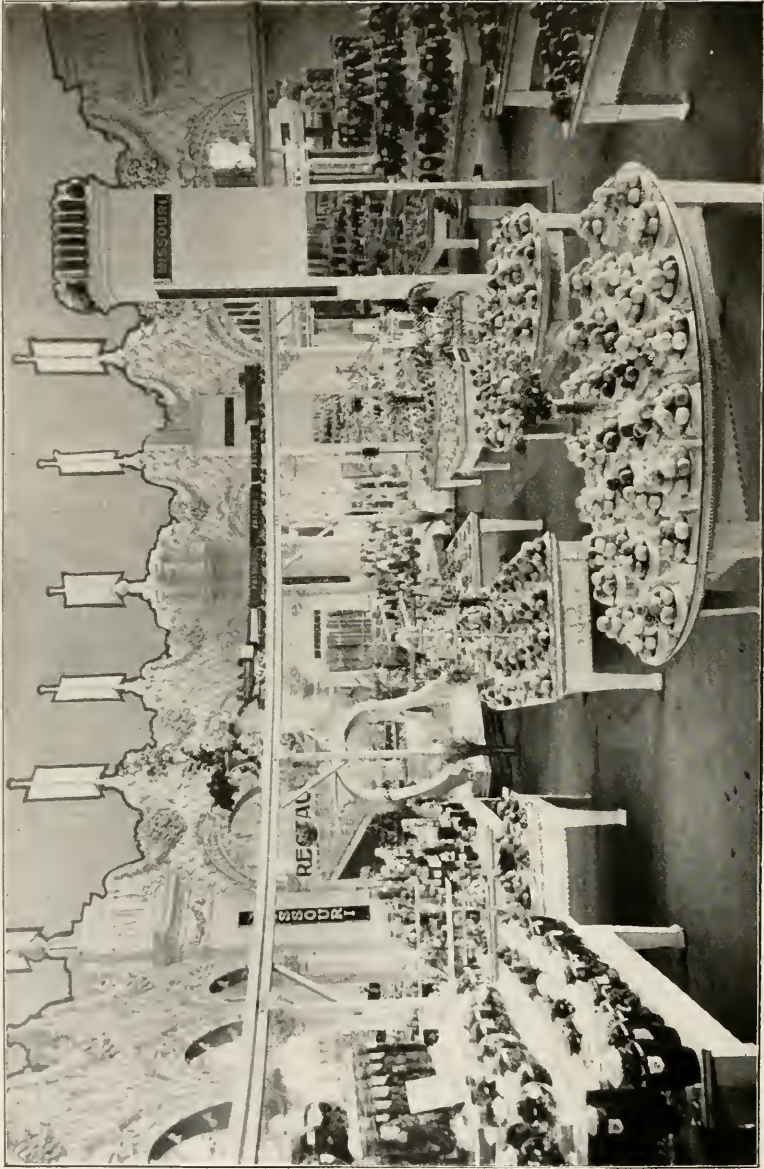
each. We had a good crop of Triumph peaches, a variety that is very susceptible to rot and hard to handle, but we harvested them in good condition. In other sections of the country where they had not the adverse climatic conditions we have had, and where the fruit set full, the percentage of No. 1 fruit outranked liquid sprayed orchards, both in yield and in quality. During the last season, we used our Sal Bordeaux preparation exclusively in our work. In this preparation the sulphate of copper is held in suspension until applied to the tree and fruit, then nature furnishes the moisture to dissolve the bluestone on the tree instead of in the compounding tank. We did not urge our old friends, who have stood by us from the first, and some of them now present, to use this specially prepared blue stone. We concluded they knew as much and perhaps more, in regard to combining the blue stone with lime than we did, and we wished to test its work on our own ground. We laid the facts before them as we had found them in the laboratory, sent them samples of the Sal Bordeaux, and allowed them to use their own judgment. We believe we have the solution of the difficult problem of combining the blue stone with lime in this preparation, avoiding all chemical combinations until after the sulphate of copper has done its work. We sent samples of this compound to various experiment schools including our own, requesting an analysis to determine this point, whether it contained as much, or more, or less sulphate of copper than the 4-4-50 formula. We regret to say that we were not successful in this as none of the colleges complied with our request. From our own experience, and that of others, who used the preparation, we will increase the ratio of the Sal Bordeaux in our formula next season. In the dry process, we have gained a very decided advantage over the liquid, from the fact that the danger of burning the foliage and rusting the fruit is entirely overcome, the only question to be determined is, the proper ratio to use for best results, practical tests in the orchard can alone determine this, but we can use the arsenic in dry form, of any required strength, and on any kind of foliage; therefore, the question of adjusting the ratios is simply adapting the means to the desired end. The simplicity, ease of application, and the total absence of the danger element in the dry process appeal very strongly to the practical grower. This point was very forcibly illustrated by a commercial grower from Mississippi, who visited our booth at the World's Fair in August. He returned to the Fair near its close, and coming to our exhibit, after looking over the machines again, he said, "I want one of your 'Cyclones;' since I was here before, I have read your book on

Dust Spray; I have corresponded with several of your references, and I sized the situation up this way. The dust spray is yet in a crude state; it has had no help from our colleges; it has stood the test of practical orchard work, pitted against the liquid process, perfected and improved, as far as money, time, and ability can perfect it and has more than held its own on its merits. When the dry process gets the recognition its merits deserve, we will have little use for the old system." Our experience at the World's Fair, and our correspondence since its close fully warrant the statement of our friend from the South. The system is now used in every section of the United States and four foreign countries, and is engaging the best thought of the best minds engaged in agricultural and horticultural work throughout the world. We learned, during the World's Fair, from the representatives of the agricultural and horticultural interests of France and Germany, that these countries are in advance of us in the use of dry fungicide and insecticide, and that where the dry process has been introduced it has superceded the old system; this is especially true in regard to the treatment of their vineyards. Mr. B. K. Brant, the president of the Orange and Lemon Growers' Association of Southern California, has used the dust exclusively for the last three seasons. His neighbors use the liquid. We sent Mr. Brant some dust to experiment on the San Jose Scale last spring; in writing to us about it, he states, "I have used the dust exclusively for three seasons; my farm is as clear of all kinds of insects as my neighbors, who have used the liquid, and I have protected my crops at one-third the cost they have; so I shall continue to use the dust." We met Mr. Brant's neighbor, to whom he referred, at the World's Fair. We told him what Mr. Brant had written; he replied, "That is just about the size of it." Mr. Chairman, these are the conditions as we find them from reports in our possession. Our statements are necessarily condensed, as we do not wish to take up too much time of the meeting. If it is the desire of any member present to get fuller information on any point of interest to him, I will cheerfully answer any questions.

E. Fosley, Neosho.—For a wash to keep the rabbits off, use 1 bucket of white wash, 1 tablespoon of copperas, 1 tablespoon of carbolic acid.

H. G. Richardson.—Please explain why it is best not to spray while the trees are full of bloom.

Prof. Whitten.—We can accomplish all that is needed by the spraying before and after the blossoming. The spray is sure to fall



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
FRISCO FRUIT TRAIN.

on the tender parts of the blossom and the essential organs are sensitive to the spray poison, so the flower will be injured, and we get an imperfect pollination, and consequently imperfect fruit. The spray also poisons the bees.

W. D. Maxwell—Spraying is one of the most important questions that confronts the orchardist and is not fully solved. Spraying is the only check for insect and fungous pests. I have been spraying for fifteen years, for eight years I used the liquid spray three or four times a year according to the best authority and with some success. I heard of the Hillis dust spraying. I began experimenting with the dust. I platted off the orchard and sprayed with the dust and liquid on different plots and had apples even the bad years where I used the dust. In fact for three years I had fine success with the dust but the last two years I have lost out although I sprayed eight times. I don't think any man ought to spray when the blooms are out as it hurts the blossoms and the bees. This spring I had fine prospects but the last of May the rain and fog came and the fruit was gone in four days. I believe that we can get a perfect Bordeaux in the dry form. We have it good now. The lime is an advantage alone, slack it with caustic soda. I never expect to spray with the liquid again.

D. Lowmiller.—I used the liquid but did not use the dust on account of the rain. My neighbors sprayed with the dust but had no crop. I had a good crop of apples and my trees held their foilage well, the leaves began to be shed on the 10th of August and there were none left by September, but the foliage was fine, dark and smooth. I used Paris Green as an insecticide. The Ben Davis I sprayed twice but they did not come out in good condition. Disparene gave me best success.

G. T. Tippin—It is best for the tree that the foliage should be conserved.

President Whitten announced the appointment of committees as follows:

On Fruits—J. C. Evans Jr., Olden, Mo.; G. T. Lincoln, Bentonville, Ark.; W. T. Burkam, St. Louis, Mo.

On Finance—N. F. Murray, Oregon, Mo., B. Logan, Logan, Mo.; Dan Lowmiller, Parkville, Mo.

On Obituary—G. T. Tippin, Nichols, Mo.; W. G. Gano, Parkville, Mo.; W. H. Barnes, Topeka, Kas.

On Final Resolutions—J. M. Irvine, St. Joseph, Mo.; J. F. Christian, Neosho, Mo.; H. S. Wayman, Princeton, Mo.

THIRD SESSION—WEDNESDAY, DECEMBER 21, 2:30 P. M.

STONE FRUITS AND STRAWBERRIES.

PEACH SEEDLINGS.

(Rev. John Brereton, Springfield, Mo.)

I am not here to advocate planting seedlings but to plead for hardy fruits adapted to our respective localities. We want good fruit, but anything that bears is better than the best that is always barren. I am a champion of seedling peaches because they bear. Old settlers say their trees have missed but two crops in thirty-six years.

To assume that seedlings are no good, because the average is small and tasteless, is like assuming that humanity is a failure, because few equal Washington, Lincoln, Beecher and Moody. But of these four giants only two had a pedigree. History proves that those of lowly origin occasionally move to the front. Horticulturists may be guilty of the caste spirit in fruit planting as the Brahmin is in family exclusiveness. In America it is often but one generation from the bottom of the social scale to the top, and vice versa. So in fruits; the standards lose stamina, while the despised and unknown rise to prominence.

A Chinese tradition tells of a peach tree which bore fruit only once in a thousand years, but he who was fortunate enough to sample a specimen became immortal. There is much comfort in this to those who have been waiting for their Elbertas to bear. The story also tells of another tree which bore annual crops, but was guarded by a hundred demons, because its fruit was said to produce instant death. This last tree was the parent of the Ozark seedling and the devils are the agents and commercial growers who tell us that seedlings are no good.

Every well known variety was once a chance seedling—not one having originated by purely scientific methods. They are popular because of success amidst local conditions. The mistake has come from assuming that they would yield equal results in other localities. Time has proven that each locality must find varieties adapted to its own soil and climate.

G. F. Espenlaub has said: "To improve the hardiness of peaches, selected seeds of the hardiest varieties, should be planted; when these come into bearing, the choicest and hardiest among them should be cared for and the inferior and tender cut out. Each generation would thus move a step toward the ideal."

James Lavelle says: "Before planting, first visit all orchards in your neighborhood, selecting such varieties as have done well amidst conditions similar to your own."

J. H. Hale recently said: "There has been a peach craze for the past few years. They are all planting Elbertas, and the whole thing will go to smash as soon as all these trees come into bearing." But Mr. Hale's fears are groundless. Half of the Elbertas planted will never bear, so nature saves man from his own madness.

Colonel J. C. Evans, in 1893, said: "We can never raise peaches commercially with the kinds we have. We must find new kinds, hardier than those we now have." His son, Dr. Paul Evans, is now seeking to solve this problem, at Mt. Grove, by searching for hardy, annual bearing varieties.

Mr. Goodrich, of Illinois, says: "We are looking for a hardy peach, adapted to our peculiar changeable climate. Crosby succeeds in Massachusetts, but does not succeed in New Jersey. We have twelve sub-stations scattered all over Illinois to test varieties for each locality."

Mr. Kreybill, of Olden, said: "The peach is a fruit of locality. Some will succeed over a wider range, while others are suited only to a particular locality. There are local kinds, all over the country, equal in quality and much more reliable than those catalogued."

Mr. Baxter, of Illinois, says: "We have a fine yellow peach, earlier than Elberta, large, better in quality, which produces hundreds of bushels to Elberta's ten. It comes almost true from seed." If this be true, would it not be foolish for Mr. Baxter and his neighbors to plant Elbertas if they can get ten times more and better fruit by planting a seedling?

Rolland Merrill, the noted Michigan fruit grower, has won phenomenal success by selecting buds from the best trees that bore in his locality. He continues this selection of trees, and even branches, which show special qualities, for his new orchards.

Mr. N. F. Murray says: "We must select our scions and buds from the most healthy and vigorous trees that produce the largest and best fruit. We believe that in this manner our American horticulture must be improved."

Prof. L. H. Bailey, of Cornell University, says: "Progress lies in selection. Look for a plant which shows indications of your ideal, save the seed carefully, plant apart and in turn save the seed. Nature gives us many starting points, but few are skillful and patient enough to save and improve them. Plants cannot be bred with the same precision as animals. In the animal world each parent is either male or female.

In plants each parent is generally both male and female, with variations in every limb. The element of chance is therefore 100 to one against exact reproduction, even when the most scientific methods are followed." Prof. Bailey made 312 efforts to cross different varieties; 223 refused to cross or yield seed, 89 gave results, but none of them were of any practical value. He agrees with Darwin that nature abhors hybrids, yet in her own way and time produces valuable varieties. Man's work consists in selection of the fittest, and destruction of the unworthy.

Verlot, the French naturalist thinks variations are purely accidental in the first initial movement. Man must take the hint, and by selection get a distinct variety.

Carrires, another authority, says plants begin all deviations from the normal, by what we call an "accident," the cause of which is unknown to science. We can do little toward producing variations, but varieties most often spring up spontaneously. Our work is to take advantage of and improve them by continual selection.

These authorities are quoted on the scientific phase of the question, to show the fallacy of supposing that nurserymen have some magic power to create new things. Indeed new creations are less liable to appear in a nursery than in ordinary gardens and farms, where nature is allowed much of her own way, and where the commercial spirit has not crushed out all sympathy with everything, but the almighty dollar. If we approach this problem for the purpose of making money we shall fail; but if we produce peaches that bear every year, from June to November it will double the value of every home by increasing family attachment for its fruits. The plant breeder must have no time to make money, and live above the commercial spirit. Truth and beauty must be the first and final aim. If money comes, it is all right, but if like other inventors and discoverers, he lives and labors in poverty, let the consciousness of usefulness be his sufficient reward. The discoverer of a new fruit differs from the expert cultivator, who simply compels plants to do better work temporarily, while a superior plant may double products for all time, in all places, for everybody. Burbank suggests possibilities of improvement in cereals showing that if every ear were made to produce but one grain more, it would increase our annual products 50,000,000 bushels.

I am not here to assert that seedlings will bear more regularly than budded fruit, for I do not think budding alters the nature of the tree. There are seedlings that seldom bear, and thousands of seedlings are worthless when they do bear. What I advocate is the selection, and propagation of varieties that do bear, and the best that bear. It is but a

few years since the Elberta was a chance seedling. The original tree was probably as tender in bud as any of its descendants. If it had been transplanted to many of our orchards it would probably have yielded a crop once in ten years, while some of our seedlings, equal to it in some respects, bear a crop nine years in ten. This is no special reflection on Southern and Eastern peaches; other fruits fare no better. There are about 1,000 varieties of apples catalogued; yet we would not risk a dozen of them in a commercial orchard. Varieties of sterling worth at the East, as Baldwins, Famuse, Russets, Greenings, are worthless in Missouri, while our Ben Davis, Jonathan, Grimes Golden and York Imperial may be as useless there. Berries succeeding in one section are often a total failure in another. The habit of ordering stock from highly colored catalogues is as vicious as speculating on Wall street. Georgia, Iowa, Connecticut and California have their charms, but Missourians should stand up for their own state. Before the days of flashy catalogues, our old settlers had peaches every year. Like the prodigal, we left our father's house for other lands. We have tried the husks, but now are coming back to find enough and to spare still growing on the old farm.

Don't allow prejudice to blind us to facts. Even if a million seedlings are worthless, we may find one of royal quality; let us separate and propagate it. Over a bushel of apple seed was planted by Mr. Gideon, in Minnesota without results. For ten years he kept on sowing more, and at last grew one splendid apple—the Wealthy. This was sufficient reward for a thousand failures. Weir raised a million soft maples to get one cut-leaf.

But happily we are not left to grope in the dark or wait for new productions. Nature has already given us a starting point. There are many very fine seedlings that bear annual crops. These await our selection and adoption into the horticultural family of approved fruits. During the past year I have examined thousands of bearing trees, and from among them selected about ten very fine, heavy bearing, healthy, high flavored luscious beauties, worthy of any orchard. In size many are larger than those called Elberta shipped from Arkansas. They were white, cream, yellow and red. They ripened from July to October. Many measured 11 inches around, weighing 14 1-2 ounces. They were free from rot and some of the trees yielded five bushels. In beauty they were a study for an artist. As to shipping quality, I don't know—and don't care, as I am working not in the interest of commerce, but in the interest of the home, where I hope to see every child gathering big peaches, in his own dooryard. However, some of the late varieties might have been shoveled into freight cars like turnips, while others were tender as French candy.

These trees are all individual specimens, differing in variety and time of ripening. Some are evidently derived from Old Mixon and Heath families, others were covered with Indian blood. They have never been propagated, and stand where nature started them. Some are sheltered, others stand apart; some in shade, others on the south side of buildings, in the blazing sun. Several in thickets where other seedlings crowd them; in a struggle for existence, but out of the same foot of soil grew the large free-stone, luscious enough for the epicure, while beside it, with branches interlocked, grew seedlings, with fruit not larger than hickory-nuts—and about as juicy. Some of these trees have a record of missing but one crop in fifteen years. Yet they are chance seedlings, growing from pits thrown carelessly by some unthinking hand. Nature seems to have given them power to resist our changeable winters, and while as fine as the best, they seem as hardy as the worst.

It would not be wise to assume that because they are seedlings, they are hardy. I assume nothing, but simply find them bearing every year, therefore conclude that they are hardy. The Alabama Experiment Station found budded trees hardier than seedlings. Some report the Elberta hardier than seedlings in their locality. Then plant it there, and everywhere it bears. But why should we plant anything which has borne but one crop in ten years for our neighbors? After fifteen years' study of the fruit problem in the Ozarks, I have decided to propagate from trees of native origin. Ozark fruits for Ozark orchards, is the solution of the problem on the Ozark plateau. Let each locality coin for itself a rule to fit its special environment. To you these may seem but theories now, but after testing them under many methods of culture, for a few years, we may appear before you again and give facts. In the meantime, let your neighbors and horticulturists experiment and patronize agents, while you plant the best that bear in your locality.

SUCCESS IN GROWING PEACHES.

(W. G. Gano, Parkville, Mo.)

Remember that we are way down in Southwest Missouri and I do not want to put a blanket on what has been said. I do think that we can grow peaches in any part of the State. We as fruit growers of Missouri have lost sight of a part of the State for we have a section where we can grow peaches and that oftener than one year in ten, even the Elberta. I refer to the north half of the State from St. Louis to Kansas City and to the Iowa line. We have men who have grown

peaches for more than twenty years on the loess formation along the Missouri river but they had some bad years and became discouraged and thought that the Ozark land in south Missouri was the only place to grow peaches. We abandoned growing peaches and moved to south Missouri and lost sight of our own neighborhood. I was fortunately interested in the establishment at Olden but after five years I found we had crops as often in north Missouri as we had in Howell County. In the past thirty years I have a very faint recollection of any injury to the blossom by frost. We are pretty sure of a peach crop if they come safely to that period. Our greatest amount of injury comes from the late winter colds. Our efforts in the last five years along the Missouri river have succeeded beyond expectation. We have had all varieties from early to late on this loess formation and they compare well in quantity, size, color and quality, with those grown in any other part of the country. We are overlooking one of the important things in peach growing when we overlook the soil on the Missouri river hills. We should take advantage of what we have for we have no better place than the loess soil along the river bluffs for all kinds of fruit.

THE PEACH BUSINESS OF KOSHKONONG.

(J. W. Hitt's Sons, Koshkonong, Mo.)

It was with great reluctance that we accepted your Secretary's invitation to read a paper before this Society, for the reason that it seems rather presumptuous on our part to address a body of men far more experienced in all matters pertaining to the culture of fruit. However, we feel highly complimented and appreciate the courtesy with the utmost gratitude.

It may be of interest to some to know how Koshkonong got its name. It is said that a former official of the railroad named it after Lake Koshkonong in Wisconsin, and a resident of Wisconsin defines it as an Indian word meaning wild rice. But now, when the name is mentioned people think of peaches. We are sure there is no wild rice. If there was anything wild sown it was mostly oats.

You are possibly all aware of the fact that the raising of peaches at Koshkonong is practically in its infancy. We have been residents there for only ten years, yet we saw the first orchards set and have seen every year since an increase in the acreage until now there is in the neighborhood of 5,000 acres, and almost entirely Elbertas. Anyone who under-

stands, if only from observation, the natural growth of trees, can set a peach tree and give it the proper cultivation and care to cause it to grow and produce fruit. And that is the extent of knowledge with which many of our growers set their first orchard. What we have learned since is by actual experiment and practical work.

I will state briefly how my brothers and myself start a new orchard. We prefer ground that has been cultivated two to four years. If new ground is to be used, after clearing the timber we break and cross break with double team, using a bull-tongue and colter. This is a slow process, but does the work and does it better in our rough country, according to our judgment, than anything we have tried or seen tried in our part of the State. We grow our own trees and began by setting them in the orchard 16 feet apart, increased that to 17 feet and again to 18 feet, and will in the future set 20 feet each way. We use a pick-mattock for setting the trees and dig the hole and plant the tree at the same time. In order to do this it is necessary to trim the roots closely, but we do not cut to a straight stick, as advocated by Mr. Stringfellow. Others growers in our vicinity dig a large hole, but we cannot see that the trees are benefited thereby. The first two years we cultivate thoroughly until middle of summer; after that one or two cultivations, according to conditions, after the crop is set, is all that we deem necessary. In trimming we try to shape the tree so that the limbs can support a heavy crop and the crop be picked with the least possible expense. As near as we can judge from reading we grow and care for our orchards similar to the way in which it is done in other sections. We have come to the conclusion, however, that growing the peach is the smallest part of the successful management of a large orchard. The picking, packing and marketing, so as to bring fair profits, we think far more difficult than growing a first grade peach.

The labor question with us is one that requires some thought and time beforehand. We have no large towns or cities near to draw from and there come times when one is much worried about getting the required amount of labor at the right time.

For packing at Koshkonong the six-basket carrier is the favorite package, after trying several different kinds. The California box was used a few years back rather extensively but is now practically dropped. The growers are not fully satisfied with the six-basket carrier and there is some talk of making trial shipments from the next crop in bushel baskets.

The marketing of our crop is one of the hardest problems we have to solve. We have worked with associations both local and general; we

have worked individually; and still we are not satisfied with the uncertainty of a profit after a crop is grown, gathered and packed ready for shipment. We are looking forward to the time when, with the increased acreage, we will be compelled to devise cheaper methods of handling a crop. While we are not alarmed yet about an over-production of first grade fruit; still we realize the fact that a continued increase in the setting of peach orchards, especially of one variety, will necessarily have some effect on the profits, and we will be compelled to make a corresponding decrease of expenses. Now to make a reduction of expenses in a business it should, necessarily be proportioned in all branches of the business. Suppose that we can succeed in growing our peaches cheaper, picking and packing them cheaper; then can we persuade the railroad companies and express companies to give us cheaper transportation. We might say to them that we would stop shipping, but that would be like the Irishman who was being lowered into a well. When about half way down he asked to be pulled up again. The man at the top asked him why, and he said: "That's none o' yer business; if ye don't sthoph lettin' me down, Oi'll cut the rope."

We are aware of the fact that methods and rates of transportation have often been discussed before your Society, at the same time the peach business of Koshkonong is greatly affected by the same and we feel obliged to refer to it in this article although we ourselves know very little about it. We have no remedies to offer, but we know there is something "rotten in Denmark." For instance, two express companies handle our fruit between Koshkonong and Kansas City. One as far as Springfield, 130 miles, and the other from Springfield on 200 miles. They gave us a rate the past season of \$1.00 per hundred to either point and also to all intermediate points. If the two companies can handle 100 pounds of fruit to Kansas City for \$1 we cannot understand why the first company should have \$1 to carry it less than half way. During last peach season a gentleman came into our packing shed and gave us the names of about fifteen dealers of fruits at points between Springfield and Kansas City, who said they could not get good peaches and wanted us to make them shipments. We had to decline because the express rate was so high that we could do better by loading in refrigerator cars and shipping by freight, which we did as far as possible. We have no figures that we can quote on a peach crop, but will give a few on a crop of strawberries picked this past season. Five hundred and eighty-five crates sold on the markets for \$877.70. After express charges, commissions, cost of crates, picking and packing were deducted the grower had left \$215.74. The express company received \$237.83, or \$22.09 more for carrying the

berries to market than the grower received for a year's labor caring for them. You will note that the berries sold for an average of \$1.50 per crate. Up until the last two days they averaged much more than that, but when the price of berries drops to \$1 per crate we have to stop shipping at Koshkonong, because there is no money for the grower.

In conclusion we would say that the peach business at Koshkonong differs very little from the same business in any other section. While we have not been forced into a fight against disease and insects, yet we do not know what the future holds in store for us. Our trees have gone into winter with a good supply of fruit buds and bid fair to yield a splendid crop next year. We would be pleased to have any or all of you visit us at harvesting time and feed you a Koshkonong peach that has ripened on the tree. You could also get a better idea of the peach business at Koshkonong in that way than by having listened to the reading of this paper.

THE TRANSPORTATION QUESTION FROM A FRUIT GROWERS' VIEW POINT.

(Louis Erb, Memphis, Tenn.)

It is now nearly twenty years since I first heard of the Missouri State Horticultural Society. Colonel Evans was then its president and Mr. Goodman its secretary. After I got well acquainted with these two men, I felt that the affairs of the Society were in good hands.

When some years later I joined its ranks and became a member, I learned to look upon Colonel Evans, as did the children of Israel, upon their leader several thousand years ago. Like many others I regarded him as the Moses of this Society, who was destined by Providence to lead—not the children of Israel—but the children of Missouri, out of the wilderness and into the promised land. That he did great good in bettering the cause of horticulture in Missouri, while he was our Moses, no one will deny.

I don't know where he led others, but instead of leading me to Mt. Sinai, as the Moses of old would have done, this modern Moses led me to Mt. Ozark, right to the top of it, and I am there yet.

The climate up there is so healthy, the elevation so lofty and the atmosphere so ethereal that good men never die. And even if they did die, the crops as a rule are so short there wouldn't be any money to bury them. So I expect to stay there till the sheriff runs me off, or a

Kansas blizzard blows me back to dear old Tennessee. The other Moses died on Mt. Nebo many, many years ago, but our Moses is with us yet.

His mission on earth is not finished. He is as ready today as he ever was, to give the members of this Society, and all others who may seek it, the benefit of his knowledge and experience without money and without price. Therefore, I say, as Mozart did, on one occasion in congratulating a worthy friend on his birthday: "May he live and prosper till he is a hundred years old, and not die till he is a thousand."

But while Colonel Evans is no longer at the helm of our ship, as he was twenty years ago, Mr. Goodman is still our Secretary.

He, like Colonel Evans, has stood by this Society in times of weal and times of woe, in weather fair and weather foul.

We have good reason to look upon him as one of the main pillars of our temple and as a leading champion of our cause. This Society has confidence in his ability and his integrity, and believes that he will always do his part to assist in guiding and directing our ship of state—even over the occasional rough seas of dissension—into the haven of prosperity and harmony.

If I mistake not, it was General Dix who said on one occasion, "If any man attempt to haul down the American flag, shoot him on the spot." I believe I am safe in saying that should any man, or any set of men attempt to lower the banner of our Society, its members will treat them likewise. At any rate, we will defend the honor of our Society, and if long and faithful service is an index to a man's personal and official character, we will stand by our Secretary.

The Missouri State Horticultural Society was organized in 1859 mainly for the purpose of educating and instructing its members how to grow fruit by an exchange of mutual experience and investigation. Those who have belonged to the Society for many years, attended its meetings and read its reports regularly can testify how well this purpose has been accomplished up to the present time. But no matter how much progress the grower may have made in producing a higher grade and larger quantities of fruit, because of the aid received from this Society, it would benefit him in a financial way but little, without finding a proper market for it. How to find a proper market, it becomes necessary to consider the question of transportation.

During the early period of the existence of this Society, and even as late as twenty years ago, the production of fruit was not so great as to make this question of as vital importance as it is today. In discussing this question of transportation, as briefly as I can, I will say in the

outset there is nothing gained by simply denouncing the transportation companies. It is too often the case that fruit growers individually or collectively, call them all kinds of hard names, when their product is spoiled by delay in transit, or their profits eaten up by excessive freight or express charges. And this is generally the last of it till the next season comes 'round when new causes for complaints turn up, and calling hard names again becomes the order of the day.

Now wouldn't it be much better for the fruit growers to go to the proper officials of the respective transportation lines, state their grievances in a respectful, intelligent manner, and demand such redress as may be due them under existing circumstances? Often I have heard some of my fellow horticulturists, who are good church members, and otherwise very respectable men, "cuss out" the local agent for all the wrongs they are made to suffer. But when I ask them "Have you made your complaint in proper form to headquarters?" they invariably reply "there is no use in that, they are all a set of highway robbers."

Now my experience is that the railroad companies, as a rule, are not unfriendly to the interests of the fruit growers, but they are in business to make all the money they can for their stockholders, and will charge as much freight as they consider any commodity will stand, especially if there is no competition to regulate them. Some years ago I had a conversation with the traffic manager of a leading railroad regarding rates on apples and other fruits, and showed him plainly that they were excessive in comparison with other commodities and with rates prevailing in other sections of the country. He answered me very frankly that his first duty was to serve his company, but if I could convince him that it was to the interest of the railroad to make lower rates, and at the same time do justice to the growers and shippers, he would be glad to consider the matter. He did consider it, and after conferring with other officials, made the reduction I requested.

I am of the opinion that the railroads in Missouri, generally, are inclined to foster and encourage fruit growing, not particularly from a sense of philanthropy, but because they believe it is a goose that will lay them lots of golden eggs. My orchards are located on the line of the Frisco System and I have frequently had occasion to confer with its officials for many years regarding transportation of apples and peaches, as well as fertilizers, barrel and box material, etc., and I am free to confess, that I have always been met in a liberal spirit. For an example I will state that the rate on apples to Memphis—243 miles—is 17c per hundred, and on box and barrel materials, as well as fertilizers, 10c per hundred for an equal distance. I regard these rates as reasonable. The

rate on apples to Texas points, however, is too high—being 58c per hundred and as Missouri should be in position to supply that market, I made it my business last fall, while in St. Louis, to see the general freight agent of the Frisco in regard to this matter.

I told him that the Texas market for apples belonged legitimately to Missouri and Arkansas—but especially to Missouri—and we wanted a rate that would enable us to capture it. I used this argument “If you will make us a rate that will enable us to come in and shut the other fellows out, we will supply the apples, while you carry the freight, and all the money will stay in Missouri; but if you keep on charging 58c per hundred, the eastern apple men who have a low rate on account of water facilities, will get a part of it and the eastern railroads and steamboats the balance, and we will both be left in the lurch.”

As we have no apples in Missouri this year to amount to anything, I did not press the matter for immediate action, but before I left, Mr. Voorhees assured me that he was glad I had called and brought the matter before him, and promised that he would take it up in due time. He said, himself, that “Texas belonged to the Missouri fruit growers,” (and I thought when he said so that he made a very sensible remark), and he led me to believe that a material reduction in freight rates would be made by next season. For your information I will say that I am shipping vinegar from Memphis into Texas common points at 38c per hundred. This is “finished product.” Now why should the rate on the “raw material” be 58c from Missouri, which is several hundred miles nearer? The proud state of Missouri has always stood by Texas until very recently and is therefore entitled to fair treatment. The interest of the railroads and the fruit growers is largely mutual in its character. Both are in business for money and not for health. We need the railroads and they need us.

It is my opinion that all the fruit growers’ Societies and Associations should act in harmony in matters appertaining to markets, transportation and refrigeration. Committees should be appointed to confer with the railroads, express and refrigerating companies. If transportation is found unsatisfactory, freights too high, or not properly equalized, refrigerating insufficient or too costly, let the committees, at the expense of the growers and shippers, visit headquarters and seek redress. I have no doubt there are some things the higher railroad officials like to be informed on. They are not fruit growers like we are, and do not know the comparative value of the different kinds of fruits in the different seasons.

For instance, a car load of Kieffer pears seldom sell for more money than a car load of apples, and yet many of the railroads charge 50 per

cent more freight on them. Kieffer pears are no more perishable than apples. In fact, they are more like rocks during the early part of the shipping season and can be used for ballast if necessity should arise. But the railroad presidents and managers who eat only fancy California Bartletts and pay 5 cents a piece for them, think a high rate must apply for anything called pears. That is the reason some honest fruit growers, with more sense than they are given credit for, stencil the barrels containing common Kieffer pears "Fancy Ben Davis Apples." Should any of them ever be arrested and tried for this offense my verdict, if I were on the jury, would be "Not Guilty."

Then again there are years when there are large peach crops, and a car load of peaches will not sell for as much as a car load of apples. When these conditions exist as they often do, since peach trees have been planted all over the country in such enormous quantities, why should the freight on a car of peaches be double that of a car of apples? The railroad people will tell you because they are more perishable and have to be carried faster. They forget that the grower pays an extra charge for icing, and lose sight of the fact that ordinarily a car load of apples travels about as fast as a car load of peaches. It takes from six to seven days to get a car of peaches to New York or Boston, and from seven to eight days to get a car of apples there, so where is the difference in time that warrants the difference in the charges? Whenever growers and shippers can't transport peaches to markets that will consume them without losing money by the operation, they will soon quit the business and one of the geese that lays golden eggs for the railroads will be killed. Let the railroad companies understand this fully, and they will not let the goose die.

What I have said of peaches applies in a large measure to strawberries also.

You are, no doubt, all aware of the abuses that have existed for many years in the private car line refrigerating business. Thanks to the work of the Commission Merchants' League for what it has done, and is still doing, for the relief of the fruit growers in this direction. Instead of paying private car lines an enormous profit for this service which all comes out of the pockets of the poor fruit growers, the time is near at hand when the railroads will supply this service to us at actual cost.

And while I am on this subject of refrigeration, I will read an abstract from a letter I received recently from Mr. C. B. Ayers of Chicago, who is president of Commission Merchants' League of the United States. It runs as follows: "Vice President Robbins of the Armour car lines in his testimony before the Interstate Commerce Commission, stated that

his line transported 6000 cars of peaches out of Georgia this past year, and in figuring these 6000 cars of peaches on a basis of the published tariff of Armour & Co., produces the fact that for this service the Armour car line took \$396,000 out of the pockets of the growers of peaches in the state of Georgia in one season."

This is an awful lot of money for icing alone, and the question which this statement naturally suggests to a thinking man is this, if Armour & Co. got \$396,000 out of the Georgia peach crop in one season, what did the growers get? From all that I have been able to find out, they simply worked for Armour & Co. and the railroads, and got nothing for themselves. Those growers who were lucky enough to sell a few cars at loading points made something, but entailed a loss on the commission merchant who made the purchase. I can picture to myself that in consequence of this sad state of affairs there will be no happiness on Christmas day among the families of the Georgia peach growers.

Therefore all that is needed is for the horticulturists of the country to stand by the Commission Merchants' League and make proper efforts to have such laws enacted by the national government that will forever protect us from such unjust monopolistic greed.

As we have arrived at a period when fruit is shipped almost altogether by the car-load, the unreasonableness of the express companies is less oppressive to us fruit growers than it used to be, and we can say to them: The time has come for the "wicked to cease from troubling, and for the weary to be at rest." As a rule the express officials are very fine men, and I have the very highest regard for them personally, but officially I don't like them. They want all the cream, and leave us the skimmed milk. I am not an aristocrat like my friend Colonel Agee of the Southern, but I want cream on my peaches and strawberries just as much as he does. But I must do Colonel Agee justice. If he owned the Southern Express Company himself (and I am sorry he doesn't), I believe that he would give us rates over his line that would justify us in giving him a large amount of business.

I like to ship by express to markets that are easily glutted by car-load shipments, and if rates were reasonable, it would be profitable to do so. If we should have a good crop of peaches and other small fruits next season, I suggest that a council of war be held between the fruit growers and the express companies. Colonel Agee is a diplomat; and maybe we can get him and his fellow conspirators to come down a peg or two, by showing them our goose that may lay them golden eggs.

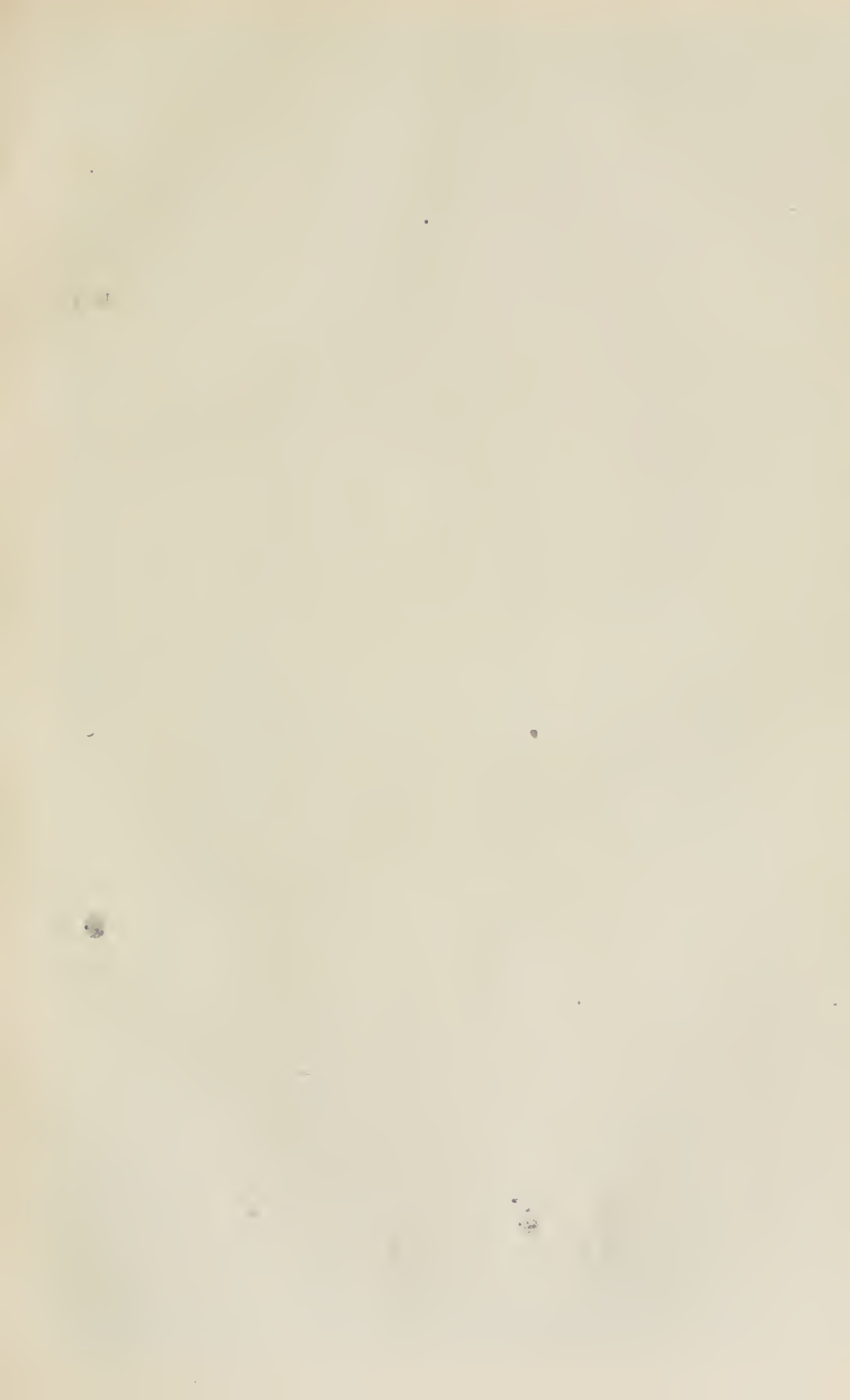
But unless they do come down, and show a willingness to divide up with the fruit growers, we will tell them that our goose hangs high, and that they will get no golden eggs.

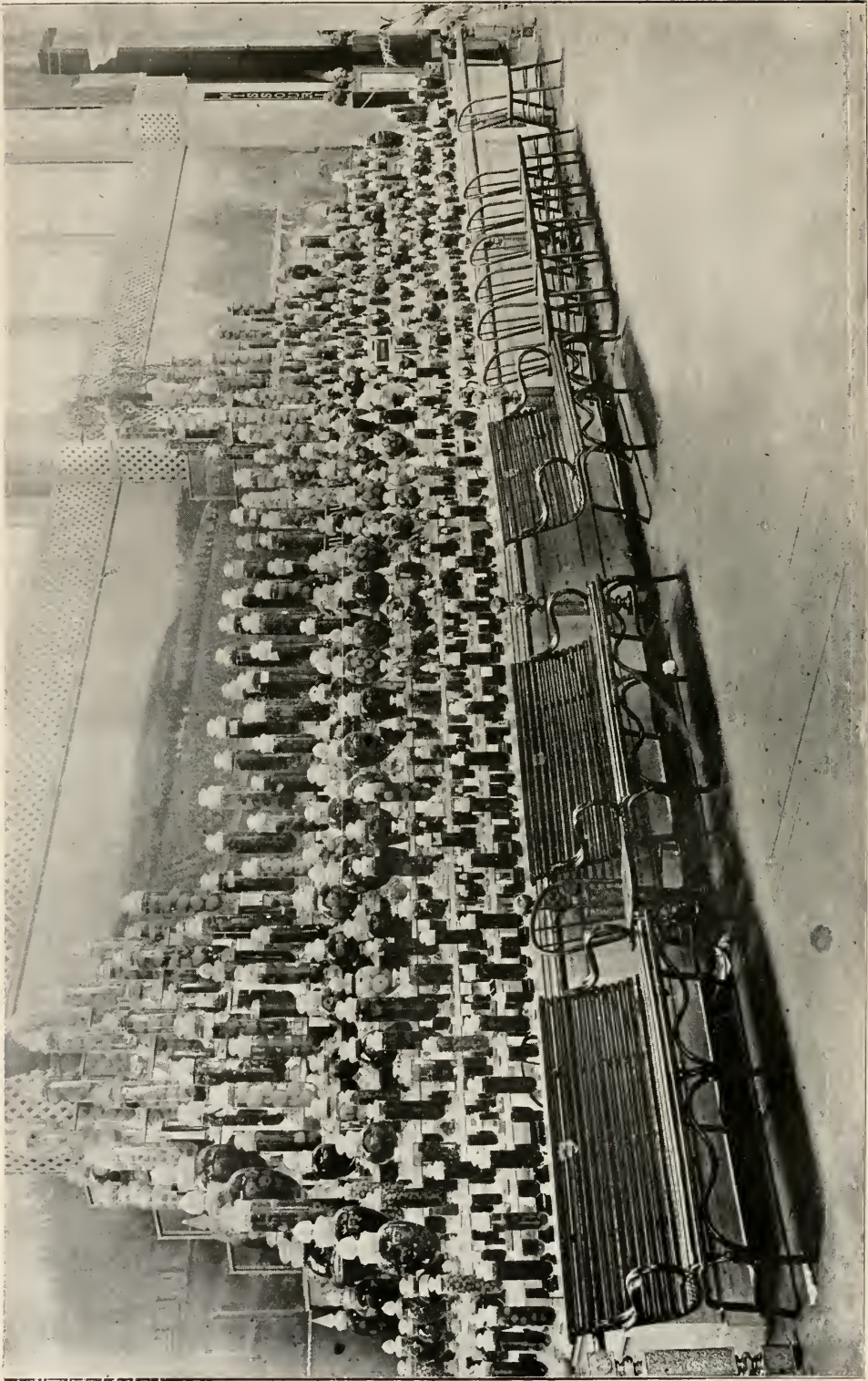
With the increased production of peaches and berries, it is often the case in good crop years that the large markets to which car-load shipments are made become overstocked. This generally results in heavy losses to growers and shippers. Therefore ways and means should be found to avoid this condition. It has occurred to me that there are plenty of people living in smaller cities and towns in different sections of the country, who would be glad to have our fruit, if it could be brought to their doors in suitable quantities and at reasonable prices.

One of the ways to accomplish this is for the railroad companies to grant us the same advantages that are now enjoyed by the watermelon growers—that is, make us a reasonable through rate on full cars with proper refrigeration to certain points, with the privilege of stopping off and supplying each city or town with its respective requirements. This will enable the growers to dispose of a large quantity of their fruits in the smaller markets, and thus avoid over-crowding the larger ones. I hear a good many well meaning, and otherwise intelligent men, talk about the over-production of fruit. It is my opinion that if the fruit growers suffer at all, it will be more from under-consumption than over-production. As I said on a former occasion, there are more people in the United States who do not get enough fruit than there are of those who get too much. All we need is proper distribution and reasonable transportation. And this, as I have already intimated, can largely be accomplished by co-operation between the growers and the transportation lines.

As an example of what this kind of co-operation has accomplished in another state, I will mention that they have in New York an organization called "The New York State Fruit Growers' Association," which has had considerable experience along this line during the present year. Mr. B. J. Case, an apple grower of Sodus, N. Y., who is a member of the executive committee, told me on his recent visit to Memphis, that in 1903, there had been a great scarcity of labor in his section through which is located the Rome and Watertown railroad, a branch line of the New York Central.

In consequence of this scarcity of labor, hundreds of thousands of bushels of apples had not been picked, thousands of acres of cabbage rotted in the fields and large quantities of potatoes had remained undug. This year, he said, the same conditions had stared them in the face, so they called a meeting of their association, and invited the officials of the New York Central railroad to attend. At this meeting, which was largely attended by the members of the association, as well as by a very representative delegation of railroad men, the wants of the growers were made





MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
WALL PYRAMID.

known, and the result was that the New York Central Railroad Company agreed to furnish and did furnish from some of the large cities, thousands of laborers, and carried them over their line at less than one-half the usual fare, so that all the various crops could be gathered in proper time. Furthermore, to enable the farmers to move large quantities of windfall apples in bulk to New York, Philadelphia, and other cities—a distance of 400 miles—the New York Central made them special rates of 12c per hundred pounds. To Southern points covering distances of from 12 to 15 hundred miles, they made a rate of 35c per hundred pounds, on their No. 1 apples in bulk or barrels.

What the New York Central has done in the way of co-operation with the fruit growers of the East, I believe the Frisco system and other lines will do in the West. All that is required on the part of the Missouri fruit growers and all others who are interested in the development of the fruit interest of this great state, is to make known their wants through their various organizations, at the right time, and the proper place, before the railroad officials and they will be met in a liberal spirit because it is good business policy to do so. That it pays the fruit growers to co-operate and act in harmony was demonstrated by the Ozark Fruit Growers Association last summer in marketing the peach crop. Although it was the first attempt, it is generally admitted that much better results were obtained than would have been otherwise possible.

As I have already stated, it is to the interest of the railroads to encourage and foster horticulture, because it is a goose that will lay them golden eggs. In this connection it may be proper to call your attention to the fact, and I do so without desiring in the least to disparage the good work that has been done by other roads in Missouri and Arkansas in the same direction, that the Frisco system and the Frisco Land and Immigration Association has done more to develop the horticultural interest of the Ozarks during the past three years, than ever before in its history.

The credit for this work is largely due to Mr. S. A. Hughes, general immigration agent and his able assistants.

In a letter which I received from Mr. Hughes a short time ago he wrote me as follows: "The class of immigration which has settled in the Ozarks during the past three years, has been a good class, most of it originating in northern Missouri, Kansas, Nebraska, Iowa and Minnesota. These people were attracted to the Ozarks largely by the publicity given this section as a fruit growing section, and you have but to take a trip from St. Louis to Neosho in daylight you will see many new orchards of from 80 to 160 acres located on both sides of the track and extending entirely across the State.

"This department is in receipt daily of many inquiries regarding the Ozark country, as to its adaptability to the growing of fruit.

"During the month of May I made the trip to Western Missouri and was somewhat surprised to learn that the people of that section knew simply nothing of the Ozark country from a fruit growing standpoint, and they were greatly surprised to learn that in one year some 4,000 car loads of apples were shipped over our line, and the great bulk of them from the Ozark country. As a result of the recent advertising and personal solicitation in Western New York, a number of gentlemen have visited the Ozarks and have come back favorably impressed with the country, and are inducing immigration to that section as a great apple producing territory.

"In the handling of fruit lands in the Ozarks during the past three years, it has been my pleasure to drive across the country with a practical fruit man, in investigating the soil, and general adaptability for the raising of fruit. I remember driving over some 3,000 acres in Laclede county, Missouri, in company with the president of the Board of Horticulture of Iowa, and a thorough investigation was made. Some 50 or 60 excavations at a depth of about 18 inches were made in search of hard pan, but we were agreeably disappointed, and fruit experts who were with us gave the Ozarks in general, a very favorable endorsement as a fruit growing section.

"In the handling of immigration to the Ozarks we have been very careful in selecting the section from which our immigration originated. That is to say, we would not place a prairie land man from the state of Illinois in the Ozarks for general farming purposes, but we go into southern Illinois, say Clay and Washington counties, and into the fruit sections of Wisconsin and Michigan, western New York, Iowa and Minnesota, and, while the people in the above named sections may not be accustomed to the rocky nature of the Ozark country, as a rule they are impressed with this section as a fruit growing country by reason of the general adaptability of the soil, and I know of very few failures where the people have handled the proposition in the right manner."

No matter what their motives may be, to a reasonable man no better evidence than Mr. Hughes' letter is necessary to convince him that the railroads and especially the Frisco system are the friends of horticulture in Missouri.

The managers of railroads, as a rule, are shrewd men, and can readily see on which side their bread is buttered; they also know the difference between a turkey and a buzzard. And as human nature is weak even with the best of intentions, it is possible that sometimes in fixing

freight rates instead of taking part of one bird and part of the other, they may conclude to take all turkey and leave us the buzzard. It therefore behooves us fruit growers to see to it that bright men are put at the head of our organizations to champion our cause, so that we get a fair deal.

In nearly all the large cities the merchants and manufacturers have found it to their advantage to organize freight bureaus to protect their interests in all matters appertaining to transportation. They pay their managers salaries ranging from \$3,000 to \$5,000 per annum, and consider it money well spent. All complaints such as excessive rates, discriminations, car famines, poor service, etc., are referred to these bureaus for adjustment. The managers of these bureaus then confer with the managers of the railroad companies, and in nine cases out of ten, satisfactory arrangements and adjustments are made.

But if, as it sometimes happens, the railroad companies are unwilling to comply with the reasonable demands that are made upon them, these same freight bureaus appeal to the courts or the Interstate Commerce Commission, and generally succeed in obtaining redress.

As the interest of the horticulturists of Missouri is one of great importance, and as their prosperity largely depends on reasonable and proper transportation, in order to find markets for the product of their labor, would it not be well to pattern after the merchants and manufacturers in the cities and establish freight bureaus, or such other organizations that would answer the same purpose?

From what I know, the railroad companies, as a rule, are not antagonistic to these freight bureaus, but rather welcome them as a means of adjusting all differences between the shippers and themselves, in an intelligent, fair and reasonable manner.

In conclusion I will state that, while I may not have handled this subject of transportation as well, or as satisfactorily as some one with more ability and greater experience might have done, I trust that what I have said, and the suggestions I have made, will be of some benefit to the members of this society.

IS THE CYCLE COMPLETE?

(J. O. Evans, Harlem, Mo.)

In the meaning of this question is there such a thing as a cycle? We are told by the scientists that the movements and positions of the planets cause disturbances on our earth such as extremes of heat and

cold, wet and dry, floods, hurricanes, cyclones, etc., and that sometimes certain of the planets get into and remain for a time in some unusual position towards other ones, and that that is what causes most of the disturbances on our earth, and that when these conditions continue for a series of years it is called a cycle and during the continuance of that cycle we may expect conditions unusual and disastrous, not only to the farmer and fruit grower, but more or less to the entire commercial world.

Now let us assume that there is such a thing as a cycle and then try to locate one, which I think is an easy task for the average fruit grower of Missouri. Surely we can all agree that we are in the midst of one of these cycles at the present time. If we all had a sufficient knowledge of astronomy we might be able to say just when the present cycle began and when it will end, and where it will end, but without that knowledge we can only judge by actual experience of the past, and by that and matters of record for the future. We all still remember the extreme and disastrous drouth of 1897 when not only our orchard trees suffered by thousands, but forest trees died in some sections of the State by the million. The next (1898) was a fairly good year, but our orchards had not recovered from the severe shock of 1897 when that memorable cold spell of February, 1899, came and finished such trees as were partly killed by the drouth and killed and injured many more in nursery and orchard. The year 1900, like 1898, was a fairly good year, but the orchards and forests had not sufficiently recovered from the disasters of the previous years to withstand the greath drouth of 1901 and again the orchards and forests suffered greatly.

As a result of all these troubles our orchards have not recovered and being so weakened in vitality have not been able to withstand the rigors of the years 1902-3-4. As a rule the apple orchards of Missouri have not had a good, healthy crop of foliage or fruit in all this period. The past year, however, 1904, has shown a marked improvement. The foliage on the average orchard has shown more health and vigor and the wood has made a better growth than any year during this period, and the fruit buds for next year seem to be in perfect condition. Is the cycle complete? How are we to tell? The improved conditions of the last year are encouraging and lead us to hope that we are near the end. The great famine referred to in the Good Book lasted seven years, and after that were years of plenty. The present cycle has lasted seven years.

Is it unreasonable to hope for years of plenty in the near future? Has all this series of disasters taught us anything? I believe that all

will admit that orchards that have had the best care are in much the best condition. It has been demonstrated that thorough cultivation is still the watchword for the orchardist.

STRAWBERRY GROWING.

(L. J. Hartman, St. Joseph, Mo.)

Best Commercial Varieties to Plant.—August Luther is the best early, followed by Aroma, Bubach, Brandywine, Haverland and Clyde.

Strawberry land may be found all over the country, on the hill-sides, on the mountains, and in the valleys. Although strawberries grow on most every kind of soil, there are soils that are better suited to their wants, and where they will reward the producer with better returns.

When early berries are desired, select a southern slope, but if later berries are wanted, a northern slope is preferable. If you have neither, plant a patch somewhere about the farm where you can raise enough for your family, some for the birds and for the honey bees. Really, the best soil for berries is timber land, bordering on streams, or the slopes near the foot of hills. Land where sweet potatoes, melon vines or cabbage grew the year previous is good soil for strawberries and all small fruits.

The strawberry patch may be of any size which will afford the greatest convenience. It may contain from one to five or ten acres, or even a few rods in the garden. When the patch contains acres, it should be crossed by roads both ways, wide enough for wagons, for hauling manure and straw for winter protection.

Preparation of soil for Planting.—We do not approve of spring plowing in Missouri, as we often have dry spring seasons. Hence, we plow our ground in November or December, when the ground is not frozen. Soil should not be harrowed until spring. A few days before planting, and again just before beginning to plant, we run a smoothing board or leveler over it.

Planting the Strawberry Patch.—For horse culture plant in rows three and a half to four feet apart, and in the rows plants may be set from 12 to 15 inches apart. When plants are high in price the distance between them may be lengthened to 18 or 20 inches. With good cultivation and a moderate season for plant growth the space will be filled up, making it a well matted row of plants. Do not set plants on a dry, windy day. For setting plants hardly any two men adopt the same

methods or use the same kind of tools. While some planters use a spade and a boy to carry the plants, others mark off the rows with a narrow shovel plow, opening a furrow three or four inches deep. Boys follow, dropping the plants, while men follow them packing the soil firmly around the plants. We use a line in planting, and for each line have two men with bright garden trowels or dibble, and a small box or basket of plants trimmed and roots moistened in water.

The Strawberry Plant.—At the start the berry plant is feeble. It has been torn from its mother soil, where it first had life. It has stood the racket of being packed and shipped probably from 500 to 1,000 miles, and then if it falls into the hands of a person unacquainted with its needs it may die in a few short hours. So, Mr. Planter, you must nurse this weak prince of the berry kingdom carefully for awhile, until it becomes used to its new home. Its tender roots are its mouth, and if your soil is dry you must give it a drink of water.

Matted Row or Hills.—Lately much has been written about the hill culture of strawberries, and many tests have been made by the Experiment stations and large commercial growers of the country, but it is now the sense of the majority of berry growers that the wide, continued matted row is the best method of berry culture, with possibly one single exception, the Parker Earle. Its natural tendency is to grow in hills. In the hill culture system there is more danger of plants being heaved out of the ground by continued freezing at night and thawing out during sunshiny days of the winter and spring seasons.

The word "perfect" follows the names of all staminate strawberries and the word "imperfect" after all the pistillate varieties. It is thought the imperfect varieties are the most productive, but not so firm, yet are less liable to be killed by the frost. In our planting for market we use an equal number of perfect and imperfect varieties. That is four rows of perfect and four rows of imperfect sorts.

Don't set strawberries on a dry, windy day.

Don't employ or allow small boys in the berry field.

Don't use old or second-hand crates for berries that are to be shipped to distant markets.

Don't be everlastingly grumbling about the weather, whether it be sunshiny, wet or dry, hot or cold.

Don't kill the sweet honey bee; it is your best insect friend. It can fertilize 10,000 imperfect strawberry blooms in a day.

Don't allow plants or trees to lie four or five days at the express office and then abuse the nurseryman if they do not all grow.

Don't wait for your neighbor to do all the experimenting with new varieties, and then try to get his plants at the price of the standards. Encourage the originators of new fruits, do some experimenting yourself, and keep a sharp lookout for the ideal strawberry.

Don't double or quadruple your acreage the year after you have had good prices. Three thousand berry growers might do likewise. Don't you know that the largely increased acreage will knock the bottom out of the market. Great losses to growers and dealers follow glutted markets. Be moderate in your planting, and your profits will be large.

DISCUSSION ON TRANSPORTATION.

J. M. Irvine—The Iowa Society has a standing committee on rates and transportation. Last week I attended the Iowa meeting and the question of marketing came up, and a committee was appointed to indorse a recommendation of President Roosevelt along this line in his recent message to Congress. The Missouri Pacific and Frisco roads have done a good deal for the fruit growers in south Missouri, but north Missouri has not done much. There is an inconsistency in the rates made by the Burlington and Chicago & Alton and other lines in north Missouri and Iowa. The railroads give a rate of sixty-seven cents per hundred from St. Joseph, Missouri to Nebraska, but from Rochester, New York, to Nebraska the rate is fifty cents per hundred. Iowa is alive to this matter and is going to do something. I think this should be taken up by this society and something done for the orchardists in north Missouri.

Sec'y Goodman—This society has a Committee on Transportation consisting of G. T. Tippin, Nichols, C. C. Bell, Boonville, and A. T. Nelson, Lebanon, and this committee has done some good work, but can do more.

E. G. Mendenhall—The Illinois Central Railway gives good rates on fruit shipped to Chicago, the rate is twenty cents per hundred or about thirty cents per barrel. I made a motion in the Illinois society to have a committee go before the Railway and Warehouse Commission and ask for special rates on pears. I was appointed on that committee and we got the same rate for pears as for apples; at first only by the barrel, but now we get such a rate on pears by the basket also.

G. A. Atwood—At the next meeting of the Berry Growers Association we have invited the Frisco officials and want them to be there, this meets two weeks from yesterday, and we want all other horticulturalists

to be present. The Ozark Fruit Growers' Association shipped two hundred and twenty-five cars of peaches and had success from every car load sent out.

S. R. Young (Industrial Agent Missouri Pacific Ry.)—The question of transportation and rates is an all absorbing one throughout the fruit belt of the United States. This question is the first to be considered by a man when he thinks of planting an orchard, and usually, he has many imaginary grievances stored up. The first question asked is, are we going to have better fruit rates when in reality he doesn't know what the rates are. When the market is bad and you get poor returns you want to kick about the transportation charges; when the prices are good you do not think of complaining. Sometimes the bad returns are due to bad packing and bad picking. I am going to speak not only from the standpoint of the railway, but also from that of a commercial fruit handler. I at first condemned the railway and got their ill feelings. I began with the local station agent instead of going to the proper official, when I gave it to him pretty rough he would say that he would take it up with his superiors; later I wrote a rough letter to the general agent and so got turned down. I always got the worst of the deal, but was finally whipped into submission, and I then began to learn how to handle them so as to get favors. I soon saw that I had to change my tactics according to the proverb that you can catch more flies with molasses than with vinegar. Fruit growers make the mistake of going to the wrong officials to make their complaints and not asking the right officials in the right way. The railway officers are not fruit growers, but are financiers, they do not know the competition of the market nor the perishableness of the fruits and for that reason we should go to them in a business way and explain our matters fully. The railway companies are beginning to appreciate the horticultural men and are willing to help them as they do not want to kill the goose that lays the golden egg. In the last few years they have appreciated the great goose of the horticultural interests of the United States that gives more golden eggs than any other.

In the matter of refrigeration we do not want to overlook the fact that it costs a large amount of money to ice from point to point. It takes five tons to ice the car at the start and three tons to re-ice it on the route, this costs \$24.00. The timber to brace the car costs \$3.50 and \$1.50 for the man to do the work. The cost to ice and ship a car of peaches from Olden to Boston costs \$100.00 or \$85.00 to New York, \$65.00 to Chicago. Some of us once asked the railway company to let us do our own icing and it was granted, but we did not do it. I

thought we would save \$25.00 a car by doing it but we would have lost \$50.00 a car. In the drouth year Armour's handled the icing and re-icing of our cars in first-class shape at the usual cost. If he had done it ourselves that year we would have had to ship the ice for south Missouri from Iowa at a cost of from seven to eight dollars, so it was better for us that a regular refrigerating company should do this part of the business. In Michigan a few years ago I was in the peach business and found that I could ship a car to Missouri and ice it for \$20.00. The railroad company did not have stations to re-ice for peaches and strawberries at the proper time so that I found that where I saved \$50.00 in not re-icing I lost \$100 in spoiled fruit.

Louis Erb—The Commission Merchants' League mean to compel the railroad companies to re-ice. For a car of Jonathans shipped to New Orleans in September, four tons of ice were used at a cost of \$10.00, and it went through in the right shape.

S. R. Young—Fruit business is a peculiar business, there is always much to learn. I am a student and learn something new every year. Apples do not require so much ice as peaches and strawberries. What I say I have learned from my own experience. The railway companies have learned that it is necessary to work in conjunction with the growers. It is the inclination of the railway companies to work for the interest of agriculture. In the last few years they have arrived at the conclusion that their interests and those of the grower are identical and both interests advance together.

W. A. Gardner—We have had an example of the difference between refrigerating charges by Armour and by the Illinois Central Railway. The railway from Milan to Chicago charges \$30.00, while Armour's company charges \$60.00 from Humboldt to Chicago, the same distance. It will not be long until all the railway companies will be furnishing their own cars and then we will get refrigeration at cost. The Armour company is not in it for their health. There is much difference between the private car lines and those of the railway and we should do all we can to encourage them to furnish the cars.

N. F. Murray—The papers this afternoon are of a high grade, but I want to refer to an item mentioned by Mr. Erb. I know of a case where the charges were only \$11.00 more on a car shipped from Maryland than on one shipped from St. Joe to a nearby town. The railroad companies will not do much until we go to them in an organized way. The growers should be organized and look after their business. We have never gone to the Burlington as an organization without getting concessions. We have secured the reduction from \$100 to \$70 on a car

of summer apples. Our standing committee on transportation should go to the railroads and let them know our needs.

G. T. Tippin—The membership of this Society is open to all, you should become voting members by paying \$1.00 a year. Members of the local societies receive the books and information, but they are not voting members. We want all to become voting members and build up the State Society as also their local organizations, and this will give more prestige when we ask for our rights.

EXPERIENCES IN A STRAWBERRY DISTRICT.

(H. G. Richardson, Neosho, Mo.)

My first experience in the strawberry patch was picking on an extra day. The patch was planted to Warfields and other small varieties. I was given a crate half full of boxes to pick in, as the owner of the patch was short of trays. It did not take me long to make up my mind that there was very little money in the berry business, especially for the pickers.

In order to get pickers, we have been forced to discard all but the larger varieties. Some of the best pickers earn from \$2 to \$2.50 per day during the best of the season.

My father decided to plant a berry patch, and after reading on the subject, he decided to try the hill system, so he put me in the patch to keep the runners picked off. The more I picked, the more they seemed to grow. Finally the fall of the year came and with it the plants stopped their growth. The plants were large, with a lot of crowns, and we expected to reap a large crop of large berries, but were disappointed in the size of the fruit as there was more fruit set than the plants could properly develop.

We now prefer the matted row. We planted the rows about 4 feet apart with plants 3 feet apart in the row. Cultivate both ways until the runners start, then stop the cross-cultivation; hoe only enough to keep the patch free from weeds. During the early part of the season as we hoe, we spread out the runners so as to get the rows even.

In the fall when the runners become too thick, we take a light potato hook which we call a scratcher, and pull out the weaker plants. Those that do not come out with the scratcher we pull off by hand.

For preparing new land, we prefer a bull-tongue plow—plowing 8 to 12 inches deep both ways during the winter.

The wild berry plants are hard to get rid of in this locality. The winter weeds should be cut out as they will cause the berries to form buttons. Berries on high land succeed best during seasons of late frosts. A few years ago our locality was short of plants for setting on account of the dry weather. Our growers sent off to a number of different localities for plants and received a lot of things that a Missourian would hardly call strawberries. We now try to get plants near at home that we know are true to name. Do not plant a lot of varieties as it makes a lot of trouble at gathering time changing pickers from one variety to another, as different varieties have to be handled differently.

Some have tried sorting the berries at the shed, but this is too much work and bruises the berries. Sorting should all be done by the pickers in the field.

Some have heard glowing accounts of large returns from small investments in berry growing and have decided that all they have to do to make their fortune, is to hire a lot of berry plants stuck in the ground—anything that is called a strawberry would answer the purpose. Such people have usually harvested a large crop of disappointment. Those who plant varieties adapted to their locality and give good care, are reasonably sure of good returns for their labor invested.

MARKETING THE COMMERCIAL STRAWBERRY CROP.

(Dr. E. L. Beal, Republic, Mo.)

The commercial strawberry crop of South Missouri and Northwest Arkansas ranks well with the other fruit crops; and with many farmers is second only to the cereal and live stock interests. The soil and climate are favorable to the production of strawberries of such splendid size, firmness and high flavor that no part of the country excels this section, except the Hood River valley and parts of North Carolina. Our natural advantages are good and sufficient, but the problem of properly marketing the crop is producing in the commercial strawberry grower, unmistakable symptoms of premature old age. The story so rosy and flattering emanating from the market centers has been told us so often that it is getting really old. We have had the same experience of jolly good letters, detailing the many reasons why certain firms can handle the crop so profitably to us—the high quotations, and the many favorable conditions there that when we had finally poured into the markets our entire crops and noted the dif-

ferences between markets on paper in the winter and the actual returns in June that we naturally think of two certain attractions on the Pike—"Creation" and "Hereafter," and now after a few yearly repetitions of this experience, with its sad awakening the commission man's rosy letter does not awaken in the breast of the strawberry grower the enthusiasm it formerly did. To say that results have been far from satisfactory is putting it very mildly. I once heard an eminent surgeon describe what he termed a very perfect and successful surgical operation. The operation was said with some emphasis to have been a complete success—after a respectful silence in deference to the greatness and skill of the operator, I asked with some temerity what became of the patient. Oh, said the surgeon, he died, but the operation was successful. Sometimes when reading these attractive letters I have felt somehow like the operation of marketing the fruit may have been successful enough, but the grower occupied the position of the unfortunate patient; and that with our present mode of marketing the crop the success of the plan is manifestly to the advantage of the fellow at the other end of the line.

TWO SIDES TO THE QUESTION.

There are too many \$2.50 and \$3.00 quotations which finally wind up with a tardy remittance to the grower of 50c to 90c per crate. This result, however, is not always the fault of the firm to whom the shipment is made. There are at least two sides to all questions, and the strawberry question is no exception to the rule. If we intend to grow a surplus for commercial shipment, we must plant such varieties as are known to be large, uniform in size, good color and firm enough to carry well. They must be picked at the proper time, and honestly crated. If we start the crate to market with the good ones on top and the poor ones covered up, we invite the suspicion of the commission man and he at once loses any trace of faith in our integrity, and we may rest assured that our example will be followed by him in his future dealing with us. We can not expect the commission man to deal honestly with us if we paint the package all over and all through with dishonesty in glaring letters. He will certainly go us one better. The worst feature, however, of this manner of packing is the fact that it is unfair to the consumer. If we defraud the consumer (who, by the way, usually pays high enough for our goods), we certainly deserve the skinning which the man in between sometimes gives us. The old proverb that honesty is the best policy is certainly as true in this, as in any other case. Our

plan of marketing is faulty, and, I think, wrong. Still it is much better than it was before we had local organizations. At the present time, one or two organizations consisting of most of the growers in one locality get together, form an association, govern themselves by uniform rules, work in harmony, and ship the product in car loads together. This is good as far as it goes. It has made it possible for most of us to stay in the business, but it doesn't reach far enough. There are more than twenty such associations in this belt, each loading and shipping on the same day. These berries are scattered out more or less independently and within two or three days we usually find that some markets have been neglected while others have two or three times as many as they can dispose of to good advantage. Then the neglected market gets excited, sends out inflated quotations and the result is that too many are sent there, and it gets the same sort of a dose the other one got on the day before.

So it see-saws all through the season and by the time the grower gets in all his belated returns, if he isn't bilious he certainly looks it.

EXCESSIVE TRANSPORTATION RATES.

Another serious drawback to the grower is the excessive rate charged by transportation companies for hauling berries to market. I say excessive because in certain districts where competition is strong, the refrigerator lines carry berries for the simple mileage rate, with the icing added at cost. They certainly are not losing money at this rate, which, by the way, is about one-third of what we have to pay; for they continue to do this year after year, and seem very anxious for the business even at the low rate. Then again you will notice the same cars we use for strawberries, hauling ordinary freight all the balance of the year for the ordinary mileage rate. If there is any good reason why a refrigerator car is worth three times as much during strawberry time as it is one month before or one month after, then I certainly fail to see it. If we could get the ordinary mileage rate for refrigerator cars, and pay a reasonable price for the necessary ice, it would make a wonderful difference in the width of the gap between the market price and the net returns. I do not think, however, that growers will be able to secure this result under the present system of organization. It is in my opinion of the highest importance that all our organizations get together and market the entire product from one fountain head. We have at various times in the past tried to do this, but there have been too many mental reservations. We must try again and try harder. If we can not find

enough men in our local associations who have the time, the energy, and the ability to properly attend to this, then we had better select some men, or an organization of men outside of our local associations, who are capable and honest and whose interests are closely identified with our own, and let them handle the crop. This would not be altogether an experiment for it proved to be a great success in the marketing of last year's peach crop. There is, in my opinion, only one rational and satisfactory method of disposing of the crop, and that is to get it all under one head and sell it on track for cash. This can be largely done if we get together.

SELL BERRIES ON TRACK.

When commission men buy on track, they will not overcrowd their markets for the simple reason that their money is invested, and they will protect it as far as possible. If one firm in the market is buying on track and another getting goods on consignment, the fellow with the consignment is very apt to use the consigned goods as a club to make war on his neighbor who is paying cash. He doesn't lose anything on the deal, for the grower is furnishing the ammunition and yet he gets hurt on both sides. For on the consigned goods the returns are too low and the commission man who has been buying on track soon gets enough of the punishment and he is then looking for a very low price himself, or, he stops buying altogether and takes his chances on consignments to make up his loss and provide him with the necessary funds for a visit to the seashore later in the season. Commercial strawberry growers need lots of money and need it right now. For this reason cash sales are much more desirable than consignments. There is no question in the mind of a veteran grower that returns from consignments are usually slow, and the slower they are the smaller they are. In fact, I have seen them so slow that the grower only got the commission. When they get slower than this the grower is politely asked to lose his berries altogether and help pay the freight. If we get together and protect the commission man who is willing to buy, give him an honest package, and stop sending consignments to his market, we can succeed in marketing our crop for a profit. If we continue to act separately there is only one chance of success, and that is a short crop. Let's lay down petty jealousies and all get together. If we can't do so in one way, let's do so in another, but by all means let's get together.

A DISCUSSION ON STRAWBERRIES.

L. C. Wilson.—I was very much interested in Dr. Beal's paper, but he didn't go quite far enough. I live in a place where your South Missouri berries have come in competition with mine, and I lost my money and you yours at the same time. When there were more berries at home than St. Joe could handle you sent two car loads there, putting the price down from \$1.50 to 90 cents a crate in one day. The commission men gave you nothing for your berries, and but little for ours. This fact fits Dr. Beal's ideas. I ask the growers in South Missouri to ask when our berries are getting ripe and not to ship your berries to our place; consult with us, and don't get into competition with us on our own market, and make us both lose money.

L. J. Hartman.—The Bederwood sells on our market, but not the Brandywine. I sell one grocer 40 crates a day; he wants a bright red berry, and says it is the best seller we have.

L. C. Wilson.—One grocer will buy one variety from one grower but not the same variety from another grower.

N. F. Murray.—The same thing that Mr. Wilson instanced occurs also in our town of Oregon; we have berries shipped in there when ours are ripening. How shall we prevent this overlapping?

Member.—This last season was a very unusual one; the North Missouri berries ripening more nearly at the same time as ours than ever before.

J. M. Irvine.—That is so. In all parts of the State berries ripened together and on our way to the National Nurseryman's Association, in June, the members from New York saw elderberries in bloom all the way from New York to Mobile.

Pres. Whitten announced that a conference of strawberry growers was called at the Spring City Hotel after this session.

Louis Erb.—Dr. Beal's paper I consider one of the best we have had.

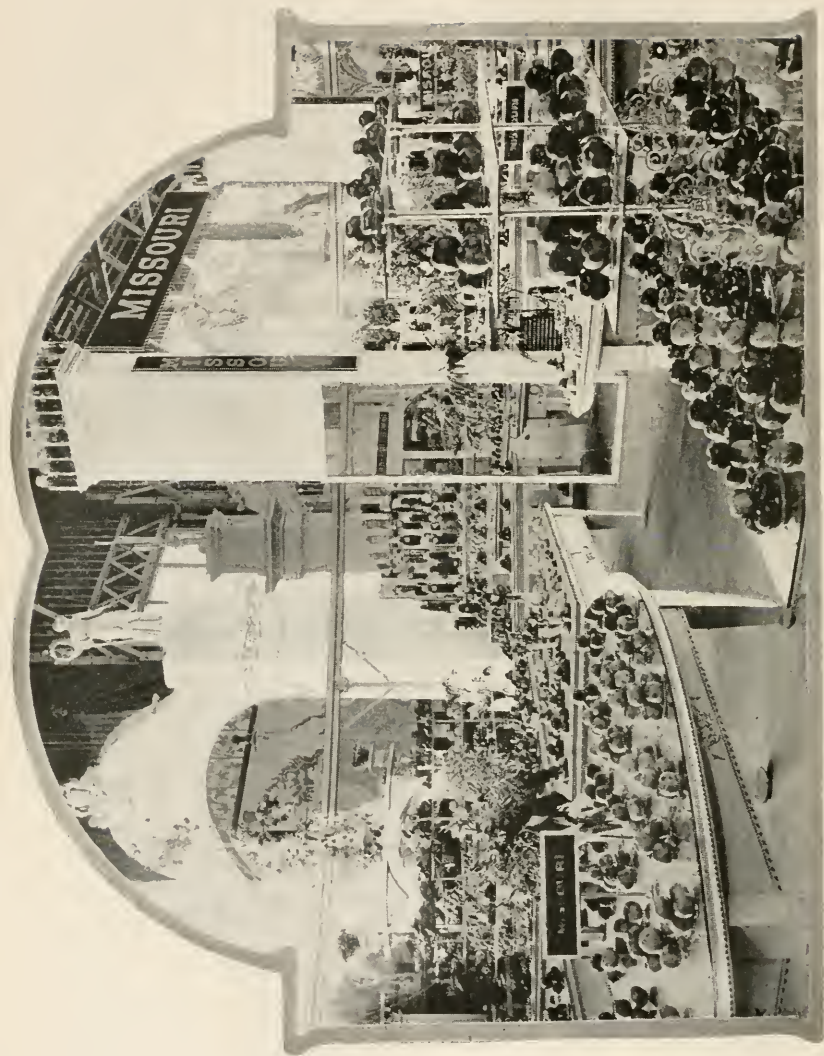
S. R. Young.—There is standing on the track near the station, the Missouri Pacific car, containing a collection of grains which has been on exhibit at the Farmer's Institute. The fruit which we had from the Missouri exhibit at the World's Fair is all gone. You are all invited to inspect this car, and I shall be glad to show any of you through it.

COMBINATION OF ASSOCIATIONS FOR WORK.

(Prof. A. A. Stark, Logan, Mo.)

We trust that at length the time is come when fruit growers will not need to be told that combination is a source of greater profit to them. On every hand we have living examples of the results of combinations. But to know without action renders the knowledge useless. Combination is the key that unlocks the door to greater successes and profits. Combination is the point at which we must now apply the force to draw our interests to a greater success. All other interests are combined; we are scattered to the four ends of earth. They work shoulder to shoulder; we are working separately. If they find it profitable to combine, why not fruit growers? *We sometimes blame others for our failures, when we are not doing all we can to help ourselves. If God helps only those who help themselves, then surely we need not look to Him for any greater success until we have moved from the stool of disunion to that of union.

Our local associations are just where the individual fruit grower was twenty years ago. He found it necessary and profitable to join his interests with other men in the same line of business and form local associations. It now appears more profitable to join these associations into central combinations. One of the strong points in favor of centralization is that it will be a creature of power. It can get concessions and favors where a local association would not have the right to get or even ask. For example, take the buying of package material. The central association could place the order for the whole district early in the season. The manufacturer, knowing exactly how much material to make up could take a less figure for his product. He could ship his goods by the train load. If a car load is hauled cheaper per hundred weight than a single hundred weight, could not a train load of material be hauled cheaper than a single car? Again, being an organization which represents many, it could get better shipping facilities. The car companies would furnish spacious refrigerators and not "hen coops." Ice could be furnished at a reasonable price and always put in at the proper time and in sufficient quantities. Freight rates could be reformed. Our fruit would not be hauled out of the way, just to give a friendly road the business. The accomplishment of these needs alone would amply repay us for all that combination might cost. But this is not all. Uniformity is a factor of success. Under centralization we could have a uniform package, uni-



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
APPLE EXHIBIT.

form picking, uniform packing, uniform grading and uniform distribution.

The last named is of vital importance to our success. If we hope to have our fruit properly distributed, we must do it ourselves; not trust it to another. How can the different associations, miles apart, know to what point others are shipping? They can not. The result is one fruit market gets more fruit than it can consume, and another has a fruit famine. Fruit goes "up" in the latter and "down" in the former. "Colored" prices are sent out from the famine market to draw fruit their way. Everyone makes a rush; the famine is broken and a "glut" prevails. Under centralization there would be no unnatural congestion. Every market would be normally supplied; none would feast to-day and starve to-morrow.

Centralization would materially aid in driving out of business two unprofitable and dangerous men—the dishonest grower and commission merchant. Any dishonesty on the part of a grower could be reported by the purchaser of the fruit or the association's agent to the central association. It could mete out justice to the violator. The dishonest commission merchant preys upon one local association as long as possible and then seeks new territory to work his "graft." Under centralization, he has but one point to work upon. Having been found out here, he is done.

We can not successfully bring a point against centralization. But just how to bring about an effective working organization seems to be a much misunderstood question. We could have one composed of representatives from the local associations, having one member for each one hundred acres in the local association. The organization to be incorporated under the laws of Missouri. The actual work of the central association to be done by an executive committee. It could have the entire disposal of all car lots of fruits harvested for a distant market. Provided, that a local association could make a sale after having first given notice to the central association of the price and destination. The money of such a sale to be payable to the central association: Provided, that such moneys should not be prorated. The committee, knowing the destination of all cars, could easily prevent an unnecessary amount of fruit gathering at one point. The board of directors could be formed of one member from each local point. The executive committee to be members of this board ex-officio. During fruiting and shipping season, this board should meet at least once a week and review the work done and suggest plans for the future.

The central association should have the power to send a man to the receiving stations to see that ice in sufficient quantities is placed in the cars. Also an experienced man could be sent to our greatest fruit markets. His duty would be to report the condition of the fruit on arrival; the time it arrives; the amount of ice in car; and whose fruit had or had not carried well and the probable causes. These reports would teach us much. The central association would have power to appoint and pay one shed grader for each local association and one field inspector for each two local associations. The field inspector could give instructions in the field, how to pick, pack and grade the fruit. This is a step toward uniform grading. At the close of the season each local association would receive the same price per package for a like grade. The expenses of the central association could be defrayed by a levy made on the gross returns of all the local associations. If we could follow these or similar lines of work, we would no longer have our forces divided by our little, partial, local interests. We could have an organization second to none in this great land of combinations.

LOWER EXPRESS RATES.

Willow Springs, Mo., Sept. 26, 1904.

L. A. Goodman, Kansas City, Mo.:

Dear Sir.—I am requested to write to you in behalf of our Horticultural Society. We have concluded we pay too much freight, especially express. Can't the question of lower express rates be brought up all over the State at once, and insist on lower rates? Can anything be done through the legislature? We will have to quit fruit business if we can't get relief. Hoping to hear from you in regard to this matter. Yours respectfully,

ENOCH BROWN,
Secretary Willow Springs Society.

Answer.—It would be well to take up this matter at the State meeting and have it discussed. Think you better prepare an article for this purpose and read at next meeting.

Mr. Goodman, Sec. State Horticultural Society:

Dear Sir.—Some time ago in your correspondence with the secretary of our society, you requested that we prepare a paper on the subject of express charges, to be read at the next State meeting. In

compliance with that request, our society appointed a committee for that purpose. Your committee after due reflection and after consulting several of our ablest lawyers, approach this question with a great deal of hesitation. It is like David going forth to battle with Goliath. Nevertheless, knowing our cause is just, we will cast our pebble and let time declare the effect of our throw. It is admitted by all that express charges are exorbitantly high, and when the companies are appealed to they tell us plainly to go to Texas or some other warm climate, and the holding up continues for all the traffic will bear. It has been suggested that we seek redress through the Legislature of our State. While it is admitted that the Legislature has a perfect right to pass a law regulating express charges, but past experiences has certainly taught us that such a course would prove abortive; for all laws of that character, both State and National, have proven to be ineffectual, either from the defect of the law itself, or from their non-enforcement. Again, a State law would be futile for other reasons. A large part of our products go to other states, and where a road crosses its line and returns to the State, that according to the decision of our Railroad Commissioners, nullifies the law, and we would still be left to the mercy of the rapacious greed of the express monopoly. No, gentlemen, the day for patch-work and remedial measures has past, the case is a desperate one and needs heroic treatment. Must we then sit supinely still and let this legalized bandit continue to rob us in the future as it has in the past and acknowledge ourselves incompetent to deal with our own servant and say to them thus far shalt thou go and no farther? There is a remedy, a sure and effectual one. One that will be universal in its application, founded in absolute justice, and one that will meet every emergency. It can be expressed in one short sentence, two words, "Government Ownership." Your committee are fully conscious that we may be treading on forbidden ground, but notwithstanding the sign, "Keep off the grass," we boldly take the step. Going into politics, are you? No, we are always in politics. Politics means the science of government and if we are to be denied the right of exercising our prerogative as American citizens, we had far better abandon our organization at once. Almost every question with which we have to deal is either directly or indirectly a political question. The temperance question, the subject of good roads and the education of our children are one and all political questions. It is passing strange that all other classes, except the producers of wealth, can and do seek government aid. But the producers and wage-workers must lay like Lazarus and be thank-

ful for the crumbs that fall from the rich man's table. We have simply hinted at this subject. We hope it will be taken up and fully discussed, and if this article should be the means of aiding in some small degree in bringing about the much needed reform your committee will feel that they have been amply rewarded.

Respectfully submitted,

W. H. THOMAS,

G. H. JOHNSON,

C. I. CUSHMAN.

Committee.

This was referred back to committee to include freight rates as well as express. Our society met last Saturday and decided to get up a petition and have all fruit growers to sign it and send it to the Legislature. We as a society appeal to all fruit growers to do the same and I think we can get lower rates, both express and freight.

ENOCH BROWN,

Secretary.

The meeting adjourned until the evening session.

FOURTH SESSION—WEDNESDAY, DECEMBER 21, 8 P. M.

The first number on the program was a piano solo, a Fantasia by Chopin, which was most artistically rendered by Miss Patterson.

For the first paper of the evening Mr. H. S. Wayman read his article on 'The Local Fruit Farm.

THE LOCAL FRUIT FARM.

(H. S. Wayman, Princeton, Mo.)

No subject will appeal to more people than that of fruit growing, because so many people are interested in it financially or otherwise. And because it is an honorable business. I might say a God-given occupation, for when the creator laid out the Garden of Eden and made it both beautiful and useful, with trees and plants, he placed man therein and intended for him to be a horticulturist and today we look in wonderment at the great army of tillers of the soil who have kept the faith and are fashioning the similitude of that garden. As President Roosevelt says in his message to Congress, "Nearly half

of the people of this country devote their energies to growing things from the soil." Wm. Jennings Bryan says, "He who plants a tree plans for the future and gives evidence of his interest in posterity."

What grander monument can man erect to his own memory and what greater blessings can he leave to his community than that of a home adorned and made useful with trees and plants? One of our sister states defines horticulture as "the sweetheart, the bride, the summer dream, the poem of agriculture," and says, "The asperities, the common places, the prosaic details, of corn and wheat and hogs and harrow become tinged with the moonbeams of sentiment and all the alluring and mellifluous words come at our call when we enter the gardens and orchards."

There are times and conditions, however, that would require all of the typical Missourian's philosophy to enjoy such supreme content. But such conditions are usually the fault of the man, for in these enlightened and modern days the lives of two or three orchards together with that of your own, need not be sacrificed in learning what, when and how to do. Refer the matter to your Experiment Station. It is paid for doing this kind of work; read the horticultural reports and papers, they are published in your interest; consult your local fruit grower; he has "no ax to grind" and will cheerfully give you much valuable and reliable information. Meet with your local and State societies; they are interested in your welfare and will do you much good, and then most important of all, go to work; for as Ruskin says, "The law of nature is that a certain quantity of work is necessary to produce a certain quantity of good of any kind whatever. If you want knowledge you must toil for it, if food you must toil for it, and if pleasure you must toil for it." Hence with the liberal application of brain and brawn, the "staying" qualities and the endowment of a hardy perpetual enthusiasm, success will be your crown, but without these qualities better seek some other field, for

"You can not expect to be reapers and gather the bright golden ears
Unless you have first been sowers and watered the furrows with tears."

The development of the fruit farm is measured by the development of the man and the development of the man is measured largely by his instruction and training when a child; hence the character of our future horticulturists depends largely on its course of instruction in our public schools. Various projects along this line have been taken up and much good accomplished, yet they were unable to reach the great masses. The schools of Missouri having realized this and the necessity of some clear connected instruction in this channel are

taking up the work along with other lines. This is being done in various ways, chiefly in nature work, laboratory instruction, and experimental gardens. True, this work is just beginning, and several years will elapse before the plan will be in general operation, but the plan in its inception promises great things.

Park College of Parkville is taking great interest in horticulture in an experimental way, evidence of which I saw a few weeks since at the St. Louis Fair when it was my privilege to assist in unpacking and placing on display a barrel of Jonathan apples of the 1903 crop from their experiment orchard, which was the best barrel of storage apples in the Missouri exhibit. The condition, quality and packing were perfect and Park College should indeed be proud of such a record.

In our own school at Princeton, of which Prof. Fred L. Appleby is superintendent, they are making a beginning of nature work through all the grades and our Board of Education has just expended as a starter two hundred dollars on laboratory apparatus for the High School. In connection with Biology much instruction along agricultural and horticultural lines with experiments is being given this year. These subjects are interesting to most all pupils, developing their own natural actions and awakening them to the beauty and utility of things that are usually passed by without interest or even knowledge of their existence. While this line of thought may seem foreign to my text, yet I firmly believe our future successful horticulturists will build from this very foundation and it should be most carefully laid, for "as the twig is bent the tree is inclined," and the young man or woman thus talented and trained will enter the fields of fruit growing a potent factor, broadening its possibilities and adding thereto still greater achievements of success.

The local fruit farm should grow all kinds and varieties of fruit that succeed well on that particular portion of the earth. No certain list of varieties will succeed in all localities and on all soils alike. Hence, study the conditions of your location. Avail yourself of all possible information and combine it with your best judgment, follow up with the same care that you start in with, be industrious and watch the results. The time for operating the fruit business in a careless, haphazard way is past. You can no longer set out your trees in the yard or hog lot and let nature, the stock and the neighbors do the rest. You must use the same care that you would to succeed in any other line of business. You can no longer bring your berries to market in the milk pail and your grapes in the wash tub

and your apples in the meal sack. Handle your fruit well, carefully grade, closely pack it in attractive packages and make it as nice in appearance as if you were going to ship it to some foreign market, for I believe the people of your home market are just as good as the people of anywhere else and like just as good fruit and will respond to such treatment with a demand for more of such fruit than you can grow.

THE CULTIVATION OF THE SOIL—MY EXPERIENCE AND AIMS.

J. W. Robinson, Springfield, Mo.)

Agriculture is as old as man. And the first man Adam was the first horticulturist; the garden in the East of Eden his own as a gift from his Maker. Who, upon placing him in it said, "Dress and keep." How exalted the calling and how dignified the labor in pursuing it, since it was God given and directed. Realizing that it was not good for man to be alone in the enjoyment of this rich inheritance, He gave him Eve for a helpmeet. How happy this pair must have been while in the enjoyment of their Eden home as they wrought among its luscious fruits and fragrant flowers; and how strange that they should over-leap the bounds of His authority and thus abuse their high office and blessed privileges. (The Adams are not all dead yet, not even in Missouri.) There was a tree in the midst of the garden, the fruit of which they were forbidden to eat. It is supposed to have been an apple tree loaded with fruit, beautiful to look upon and pleasant to the taste. Such as our own Ben Davis or Jonathan grown to perfection only here in the "Land of the Big Red Apple." Is it any wonder that our mother Eve, whose bump of curiosity was over-developed, should be tempted to taste one of those apples and having done so and desiring her husband (woman like) to share its sweetness with her, induced him to take a bite also. By this transgression, then, came death and all our woes. The earth was cursed with thorns and thistles and noxious weeds.

Dark and gloomy indeed must have been the prospect to Cain—the first agriculturist—when upon receiving his penalty as a murderer he exclaimed: "My punishment is greater than I can bear." Banished from Eden, to face the ills of life, they went forth to toil and sweat for their bread. From the days of this first tiller of the soil to the present a war of subjugation has been waged against these

pests—the product of sin. But Divine Justice is ever tempered with mercy. God's laws are inexorable and unchangeable whether they be natural or spiritual. At the same time He inflicted this penalty for this first transgression of law, the promise was given that the seed of the woman should bruise the serpent's head. And this rainbow of hope and promise spanned the ages from the first Adam who was of the earth earthy into the second Adam who was the Lord from heaven, who should come with healing in his wings, ushering in the morning of the glad day as seen by prophet of old when he exaltingly exclaimed: "The wilderness and the solitary place shall be glad, and the desert shall rejoice and blossom as the rose." The finger of time was ever pointing toward the Messiah, and the glad morn ushered in by this coming is hastening on toward the noonday of the Sun of Righteousness.

Scientific research; a study and better understanding of nature's laws, is but the outgrowth of religious liberty and christian civilization. And these we can proudly say are the products of American soil, fostered and protected by Caucasian manhood, which is leading the world in everything that enlightens, elevates and blesses it. Our public school system is one of which we may well be proud, for surely we merit a place in the front rank of the educational world. But to my mind there is one very important branch in the course of study as it now is that has not been provided for, viz.: Agriculture. Why should this, the most comprehensive of all sciences, be ignored while we are preparing our children for all other vocations? It matters not that he ever owns a pig, or plants a tree, the way should be made plain and easy for the young student to know something of how animals and plants grow. The laws governing these makes agriculture a science to which all others must pay tribute. The coming agriculturist who is ambitious and expects to be in the front, whether he pursue horticulture or general farming, must begin preparation in the common school and finish in a higher institution, such as our own State Agricultural College at Columbia. This institution, equipped as it is for educating along its lines of study, is an honor to our commonwealth and will more and more add dignity to the labor of the tillers of the soil. And whenever instruction is begun in the common schools, especially of the rural districts, this institution will have to enlarge itself in every way in order to meet the demands for the instruction it gives.

As one who has gained what little he knows largely by experience and observation, I would advise the young farmer, or the one

intending to be, to avail himself of the means at hand for information, for by this (in the language of Prof. Bailey), "We are now able to comprehend that the soil is a compound of inorganic and organic materials. A realm of complex physical and chemical forces and the scene of an intricate round of life. We must no longer think of it as mere dirt. Moreover, we are only beginning to understand it, and as the very soil is unknown to us, how complicated must be the great structure of agriculture which is reared upon it."

In the foregoing thoughts, so imperfectly put, I have tried to emphasize the importance of cultivating the cultivator, believing that this being well done, the question of how to cultivate the soil will be already solved.

A few thoughts now in reference to my experience and I will relieve your patience. Cultivation cannot always be applied to crops by an arbitrary rule. Differing conditions call for different methods, and when these are met and you, like myself, are short on a knowledge of what the books would instruct you to do, use good common sense. One thing, however, may always be relied on as the proper thing to do. Make thorough preparation. There is no plant or seed but delights in a deep mellow seed bed and labor done in bringing the soil to this condition is usually saved by taking the place of after cultivation. I will give my experience in the cultivation of an eleven acre field this last season, planted in three acres of potatoes, one of Stowel's evergreen corn and seven of field corn. This field had been in clover the past three years and used for pasture. And I attribute the good yield of potatoes largely to it. It is the best growing crop for renovating and keeping up fertility I know of. I turned this ground with a No. 40 Oliver Chilled plow the latter part of February, plowing about six inches deep. The latter part of March I double-disked it both ways and followed with the springtooth harrow. I furrowed it off with a two-horse cultivator, plows three feet apart, using the large shovels making but one row at a time, one shovel following back in the same row the second time. This thoroughly cultivated the rows on each side and in the bottom of the furrow. The seed was Minnesota, Early Ohio and Burbank, cut in one and two eyed pieces and dropped as straight as possible about fifteen inches apart, stepping on each piece, pressing it firmly into the mellow soil. The covering was done with the same plow used in laying off, changing the shovels a little so as to slightly ridge the dirt over the row. I like this way of planting better than any I have tried, because in planting you thoroughly plow the ground and the seed is put in and

all covered the same depth. On account of the cold wet spring they did not come through the ground for about a month, at which time I ran a deep furrow through the middles with a large shovel plow and in a day or two followed with a springtooth cultivator, going close to the plants. This cultivator—properly named the “Daisy”—is the best implement for general cultivation I have ever used, being easily adjusted to suit any crop, such as sweet potatoes or strawberries. This and a two-horse sulky weeder were the only ones used, going over it at least once a week until the potatoes had begun to grow, the Ohio’s being almost large enough to eat. The yield from the two acres of Burbanks was over 300 bushels and one acre of Ohio, 100 bushels. An acre along side the potatoes was planted in Stowel’s evergreen corn, preparation and cultivation the same, except the corn was drilled sixteen inches apart, in rows $3\frac{1}{2}$ feet. I sold from this over \$40.00 worth of roasting ears and have some left for seed. The balance of field, about seven acres, was planted in Bloody Butcher corn of extra fine seed. Preparation was the same as rest of the field, drilled with two-horse drill in two rows, three feet ten inches apart, sixteen inches in the rows. The same weeder and cultivator were used in the cultivation. I consider the weeder the most effective because it got in its work in time to kill the little weeds and lightly stir the surface after each rain. The springtooth cultivator stirred deeper, but never more than two inches. When the corn was tasseling and shooting, a 14-tooth one-horse harrow was run through it once. This was I think the finest field of corn I ever saw, both in appearance and yield. It is still in the shock and I am not able to give the yield. Good judges have estimated it as high as 100 bushels per acre. Now, why did this eleven acres of ground yield such unusually large crops, the proceeds of which in cash at a conservative estimate being \$550.00? My answer follows: Good ground, made better by being three years in clover, thorough preparation before planting, the best of seed planted in the right time, rain enough to supply needed moisture, shallow cultivation enough to prevent its escape and not deep enough to destroy a rootlet.

Had there been a dry spell in August and September as is often the case the results would have been different. I am persuaded, however, that an ordinary drouth may be in great measure overcome by early deep plowing or subsoiling and working thoroughly to a fine and compact bed, thus forming a reservoir to retain the moisture furnished by the spring rains and prevented from escaping by repeated shallow cultivation. I have said nothing about weeds—which it is

said pump from the soil, moisture at the rate of 400 pounds to one pound of dry weeds—for the reason that with the cultivation given as suggested, there will be none. These curses for Cain's sake will all be killed in infancy. I consider it a matter of the greatest importance that the ground be clear of weeds, whether it be in cultivated crops or kept in grass. The prime object in all cultivation being to form a mulch, removing everything that would take moisture from the trees and plants.

For the apple and peach orchard my experience prompts me in saying that for the first four or five years after planting, popcorn is the best paying crop, as well as the one least hindering the growth of young trees. I will add that the fruit buds now formed are unusually abundant, plump and healthy, giving promise of a plentiful yield.

In all the efforts put forth in our chosen calling, our aims should be to faithfully use the rich inheritance committed to us in trust by a beneficent Providence, remembering that we are his tenants at will, and instead of burying or misusing the talent we each possess, use it for the advancement of ourselves and our fellowmen. "In the morning sow thy seed and in the evening withhold not thy hand." Some of us are now toiling in the evening shadows and though we may not enjoy the fruits of our labor, they who take our places will rest in the shade and eat the fruit of the trees of our planting.

Eden was lost by our first parent's sin, let us be diligent in our efforts in helping to again restore it.

Mrs. Keller sang a vocal solo, "My Rosary," and responded with an encore, "Spring Is Here."

Sedalia, Mo., Dec. 19, 1904.

Hon. L. A. Goodman, Sec'y State Horticultural Society, Westport, Mo.:

On account of serious illness in the family, I shall be prevented from attending the meeting at Neosho. I regret this very much, as I have never seen the bright little city, and have read much about its enterprise and progress. I thank the Society for the courtesy extended me and beg to remain, very sincerely yours.

MRS. GEO. E. DUGAN.

In the absence of Mrs. Dugan her paper was read by Miss Marie L. Goodman.

THE TRUE VALUE OF FLOWERS.

(Mrs. George E. Dugan, Sedalia, Mo.)

“Life is real, life is earnest
And the grave is not its goal;
Dust thou art, to dust returnest
Was not spoken of the soul.”

How many times we have heard this quotation, yet how little real thought we have given to it. Life is the chief thing in all the world, the best thing in all the world, and the most mysterious. From the standpoint of life—little as we comprehend it—let us discuss flowers, one of the greatest blessings the Creator has bestowed upon a heedless and often ungrateful people. We are so accustomed to think of ourselves as the only real manifestation of God's love and power, that we ignore other forms of life, or regard them merely as accessories, or appendages to ourselves. Man in his boundless egotism does not concern himself much about other phases of life. Unless he happens to be a naturalist of some sort, he is too apt to lose sight of the grandeur and beauty pertaining to those manifestations in which he has no particular interest. To a large number of otherwise intelligent persons, a plant does not represent life at all, yet nothing grows that does not live, and I am inclined to believe that some plants have an instinct, which might almost be called intelligence. Victor Hugo once said, “All life is a part of the one great life that is the moving power of the world.” When we realize this truth, we feel a solemn awe, as we stand in the presence of the great trees, at whose feet nestle the wild violets. Ruskin has written, “That which we foolishly call vastness is, rightly considered, not more wonderful, not more impressive, than that which we insolently call littleness.” It would be difficult to estimate the value of a flower from a material standpoint. As the intellectual life is higher than the physical, so is the spiritual higher than the material. We cannot value a flower, as we do a beefsteak, or a cabbage head, because the financial is the very least part of the true value of flowers.

The influence of a rose is not perceptible to a gross mind, yet the value is there, as real as though it were perceived; the sad thing about it is, the grossness of the undiscerning mind, and its unperceived but nevertheless real loss. The grandeur of any character lies wholly in force and fineness of soul. Beauty has its own unique place in the world; we may ignore it, and fail to profit by its lessons, but it is here for a purpose, and its purpose is to lift us up to higher

planes of thought. I recall here, that I have been told my essays are not practical, that they are visionary and of no use. I have replied to this friendly criticism by saying that I did not wish them to be practical, and that I intended them to be visionary, for I claim that the spiritual is of far more value than the merely practical, and that the things unseen are of much greater worth than are those we behold with our limited natural vision. As a florist is superior to a butcher, so is the work that appeals to the soul higher than that which appeals only to the material sense. He who grows a plant assists life in its struggle for light and development upward into beauty, while he who kills an animal not only destroys a force concerning which the greatest sages have ever remained ignorant, but he also destroys a portion of the refinement belonging of right to his own soul. It is a fact well known that the Japanese who have made floriculture a special study, and who have done more than any other nation to advance the science of flower growing, were not until recently a meat eating race. When we really become as civilized as we think we are we shall not only cease slaughtering animals for the purpose of eating them, but shall also cease murdering each other, either in wars, or stealthily in the dark places of earth. Do you ever pause in your hurried career, my dear materialist, to ponder on the command of the Saviour, who told his disciples "to consider the lilies, how they grow?" not when they grow, nor where they grow, but how? They toil not, neither do they spin, yet they are abundantly cared for; as we might be, if we loved, and trusted, and sometimes waited for the manifestations of the One "who so loved us that He gave His only begotten son, that we might not perish, but have eternal life." That son told his followers to consider the lilies, not merely to glance at them, and turn away, but to consider them. To consider means to reflect deeply, to think seriously, to make careful examination, to study. This is what I would have you do in reference to the value of flowers. I could tell you how to grow them, any florist's catalogue can do this.

I do not need to tell you that you must have fertile seed, that the soil must be rich, light and well prepared, that you must keep the weeds from crowding them, that some are hardy, and others tender, that you must plant seed in the springtime, and that they must have sunshine and moisture; you all know this as well as I do, but you may not know that it would be better to sell one of your daily loaves of bread (even if you had but two) and buy a flower to feed your soul. If I can, in this essay, cause one person to consider the true value of flowers, I shall have accomplished more by far than as though I should

stand here for an hour and tell you things that you know quite well, and have known always. He who cares for flowers will find a way to grow them. My mission is to try to make you care for them. If they were not of great value in the economy of creation, there would not be such a bewildering variety of them, each vieing in loveliness with the other.

The true value of flowers was exemplified at the great World's Fair in St. Louis. What would the grounds there have been without these silent, beautiful, brilliant creations? They seemed to be about the only spiritual and spiritualizing things there. Amidst all the beauty, they were the most beautiful, amidst all the marvels, the most wonderful, and how profuse they were everywhere; along all the terraces, in the sunken gardens, in plats by the wayside, on the slopes leading up to the great Agricultural and Horticultural buildings, in the small lakes, along the lagoons, surrounding and dignifying nearly all the states' buildings, and everyone of the foreign buildings, there they were in all the radiance and richness of their wonderful colorings, their variety of textures, their brightness of foliage; truly might one have said, with the great Hugo, "When I see a little child, or a beautiful flower, I feel that it would be no sin to worship them." Human life, with its varied experiences, its fleeting joys, and many sorrows, would be much sadder than it is, were there no floral emblems of God's care and love on earth to soothe and cheer our hearts.

On all festive occasions we use flowers. Did you ever think of this? And how much less festive these occasions would be without them. They symbolize every phase of human emotion; they make radiant the wedding day, and whisper of the resurrection when lying in fragrant masses on the caskets of our dead. I have known a rose to woo back to health and strength the life of a little child, the joy that pulsed through its faintly beating heart when it held in its weak hand the fragrant flower, set its pulses going at a steadier and better pace, and because it was made glad, it began to get well. In times of loneliness, of depressions, of sorrow, have you not seen the bestowal of a few flowers from the hand of a friend bring light to an eye dim with weeping, and peace to a heart over-burdened by many cares? My friends, the commercial value of flowers is the smallest part of their true worth. Their value lies in their ability to make human beings see the spiritual side of life and sometimes get clear away from all the hard practical facts (however essential these are) and to spend some precious soulful moments in considering the lilies.

In all ages, among all civilized people, in all nations, flowers have been loved and cultivated by many. They should be loved and cultivated by all. They have always been the chief inspiration of the poet, and the joy of every normal child. Visitors to the Louisiana Purchase Exposition must have learned much concerning the true value of flowers, besides having gained a great deal of practical knowledge concerning them. He must have observed the democratic idea prevailing in all the planting, how few solitary plants there were, and what acres of gorgeousness in the massing of them. He must have seen that wherever possible straight lines were avoided, and the open spaces always left, which served two purposes, one of which was to have the soft rich green of the luxuriant grass as a foil to intensify the beauty of the blossoms, the other—and more important—to allow the sun's rays to have unobstructed access to the plants. Those miniature gardens of Japan must have had his attention, and he must have noticed the landscape pictures in their construction. It is said that many gardens in Japan are a combination of pictures and poems, with the poetic idea predominating; this will illustrate what I mean when I say we must love flowers for what they express, and what they teach. We must love them not for their financial worth, but for their spiritual beauty.

Again I quote from Longfellow:

"In all places, then, and in all seasons
Flowers expand their light and soul-like wings,
Teaching us, by most persuasive reasons,
How akin they are to human things.
And with child-like credulous affection
We behold their tender buds expand,
Emblems of our own great resurrection,
Emblems of the bright and better land."

LANDSCAPE GARDENING AT THE LOUISIANA PURCHASE EXPOSITION.

(C. A. Ohandler, Kansas City, Mo.)

The work of building the Fair was divided into its respective departments with chiefs at their heads. Mr. Geo. E. Kessler of Kansas City was chosen chief of the Landscape Department and the work done is proof of his ability.

The large amount of territory covered by the Exposition and the short space of time in which the work must be completed made the

landscaping one of the gigantic problems of the fair. In order to give the proper results, in some places large trees must be moved. Some three hundred or more ten or twelve inch trees were moved and planted along the lagoons. These trees were found growing in the park and were successfully moved with a loss of only three or four out of the lot, and furnished shade to many a weary visitor during the hot summer months, besides forming views and vista which brought out the grandeur of the architecture of the buildings and the statuary.

The Engineering Department was supposed to do the rough grading. They wore away hills and filled up many hollows, but when the landscape gardener began his work he found it was indeed rough grading—piles of clay, piles of rock, piles of lime, whole seas of mud through which a team could neither pull nor swim, train loads of old lumber, scaffolding and trash of every description and the time for opening of the Fair rapidly drawing near. The landscape work added the finishing touches. It followed the graders, the electrician, the water men, the gas men, the telephone men, the sewer diggers, the carpenters, the plasterers, the painters and too often there was a feeling among them—well we will get our part done—not thinking of the landscape man. Much of our work when away from buildings was carried on from the start; of course, I mean by this practical part, the actually doing of the work, while long before there were many plans worked out in the offices of the department.

Now as to the kind of landscape work that was done; there are in landscape art three distinct styles; first, the natural, where everything is made to look like nature, as if it belonged there or grew there, as it were, here trees, shrubs and flowers are arranged in groups and not in rows; second, the formal style where plants are put in rows and made to form geometrical figures; and, third, the picturesque style, very little of the latter, however, was used.

Examples of the formal style are found in the Cascade Gardens, the Fine Art Court, the Sunken Garden, the Plaza of Orleans and Machinery Garden, the surrounding architecture of these places called for this formal style.

The natural style was used in many parts of the grounds; for instance, beside the buildings and along the lagoons. A good example of this style was the large plantation on the hillside south of the Educational building, also along the south side of the Transportation building. Here first a finished grade was established, then the outline of the bed staked out and a hole dug where every tree or shrub was to be planted. These holes were filled with soil hauled from dis-

tant parts of the grounds and in them was planted the best shrubbery that could be found in the United States. Here the object was for immediate effect, so no attention was paid to future growth beyond one year. Trees such as poplars, ash, willows, maples, box elder, catalpa, alianthus, sycamores, etc., were used for high points of the plantation, often planted two or three feet apart. Then came the grouping in and about these of shrubbery, such as Lilac, Deutzia, Weigelia, Forsythia, Robinia, Philadelphus, Spiraca, Dogwood, Rhomnus, Tamarix, Viburman, Berveris and many others, planted so thick that one could scarcely see through a plantation, and then buck bush, sumach and perennials worked in between. Then when the warm days of spring came thousands upon thousands of green-house plants were brought from the green-houses on the grounds and worked in among the shrubs and in a two-foot border around the shrubbery plantation. The green-house plants were worked in natural, irregular groups the same as was the shrubbery, according to size, color and texture of foliage, color of flowers, etc. Some colors go well together, as gray and red, while red and pink do not. Some textures of foliage go well together, as the castor bean, the banana and the canna, these harmonize. Among the green-house plants were canna, banana plants, brought from Florida, geraniums, ageratun, lantana, pllox, marigolds, petunia, poppies, pansies, balsams, asters, alyssium, coreopsis, stocks, zinnia, portulaca and others all worked together in one grand harmonious whole.

Taken as a whole, the landscape was grand beyond description. Looking between rows of trees and masses of shrubbery the visitor would see broad vistas of lawn bordered by flowers, fine buildings and statuary, while a closer observation, during every month of the Fair would reveal the beautiful bloom of the shrubbery and the many harmonizing colors of the bedding plants.

Without the landscape work the Fair would have been very plain, indeed, the buildings would have looked tall and bare and the statuary have lost half its beauty.

A piano solo was now played by Miss Sybil Harvey.

THE HISTORY, ACHIEVEMENTS AND MISSION OF OUR SOCIETY.

(C. A. Dutcher, First Vice-President, Warrensburg, Mo.)

The history of all that is great and good in this world is the history of growth from below up; from small beginnings to great achievements. The sum total of all these beginnings can scarcely be enumerated by those most interested at the time; surely not by those who came years afterward. The history of this Society is no exception; for while it is the history of great things achieved, the history of its small beginnings forever form an integral part thereof.

At Columbia, in December, 1898, my acquaintance with the Hon. Norman J. Colman really began. He was present at that meeting and the welcome accorded him was like that of a guest of honor. I did not understand it, but soon learned that he, more than any other man, was regarded as the father of our Society.

Prior to 1859, in pursuance to a call for a meeting for the purpose of advancing and directing the fruit growing interest of Missouri and the west, a few persons met at Jefferson City, and organized by calling Prof. G. C. Swallow to the chair. The names of eighteen gentlemen are mentioned as being in attendance, but others are referred to as being present. Of the eighteen, Mr. Colman himself remains unto this day.

At that first meeting Mr. Colman was most properly elected President of the Missouri Fruit Growers' Association, the name then adopted. This office he held till January, 1862. He was again President 1878 to 1880, succeeding J. C. Evans, who became President in 1876. The history of Mr. Colman, then from 1859 to 1880 is the history of this Society. At this time the Society was of age, being just twenty-one years old. It may be interesting but sad to note that of all the grand men who served in official capacities during this time, Mr. Colman and Mr. Evans are the only ones now with us, or in any way active in the Society. A short retrospect of these years would not, therefore, be out of place.

The year 1859 was a busy one, for in January they organized, in September they held a call meeting in St. Louis, and their first annual meeting in December at Jefferson City. The constitution adopted at the organization provided that any person could become a member by paying \$1.00 annually. This was liberal enough; perhaps too liberal for a Fruit Growers' Association. None were barred. Farmers, mechanics

and their hired hands; tree peddlers as well as nurserymen were admitted on the same basis. Men and women too, not only of Missouri, of any other state could be admitted. Whatever may be thought of such liberality in these later years, be it said to their honor, all who were admitted seemed to have sought membership, uninfluenced by mercenary motives, prompted by a favorable opinion of the institution, a desire for knowledge, and a sincere wish of being serviceable to their fellow creatures. While the business of the Society was intrusted to the President and Secretary, the same as to the Executive Committee composed of the elective officers, at a later date, and is even now the case, all were workers. Mr. Colman when not in office served on many committees, lectured, read essays, and made many reports. Mr. Murtfeldt's pen was a fertile one in those days, as well as in these later years, almost to the day of his death. Mr. Evans was active in many ways from the time his name first appears on the list of members, talking up the "loess formation of the Missouri River Bluffs," with even more vigor than now. The name of Wm. Stark early appears, and he was an active and valuable member. The reports of Mr. Stark from the old ninth congressional district, and many of the papers read by him were most excellent. They would read well today and be helpful to many.

The year 1860 was not such a busy one for the fruit growers. The only meeting that year of which any record exists was a called meeting at Hermann, on September 7th. That meeting must have been a unique one, for a single line in the minutes says: "A large number of seedling and specimen apples was presented to the association," and the rest of the entire record is devoted to grapes and wine. What relation this had to no annual meeting that year, I do not know, but they adjourned to meet at the St. Louis Fair grounds September 25th. No minutes of such a meeting are of record. From this time on, however, an annual meeting was held each January, with an additional November meeting in 1868 and '70, and a December meeting in 1876 and '80, with the exception of 1869, '71 and '77. No meetings were held in these years, for in the years immediately preceeding, two meeting were held.

The second annual meeting was held in St. Louis, January, 1861. Yes, in 1861. Who among us having gray hair don't remember that year with thankfulness that it can never come again to our beloved country? Yet they had a fine meeting, a full record of which is preserved. President Colman's opening remarks were very felicitous, and for a few days at least they forgot their "commercial and financial distress," and the political difficulties of great magnitude that threatened them. They calmly discussed seed time and harvest "with the full con-

viction that, notwithstanding these troubles, the soil shall still yield its rich returns to a hungry world, and wheat and corn and fruit and wine shall be still as much demanded and can be as fully supplied as ever."

The next meeting was held at same place in January, 1862. Pres. Spaulding recommended that the name of the association be changed to Missouri State Horticultural Society, as one giving "a wider range of purpose, embracing all the objects of horticultural design and improvement." The suggestion was acted upon and the name changed accordingly.

The January, 1863 meeting, held in St. Louis, was a working one. The number of Vice-Presidents was reduced from seven to five. The first published report of the Secretary was read at this meeting. In it Mr. Muir uttered a great prophecy. He said "The time is rapidly approaching when the membership in this Society will take high rank in the community, and when this Association will be regarded as one of the greatest agents that exists in working out the great future of our State." Our subsequent history clearly demonstrated the wisdom and foresight of the Secretary. At this meeting a committee was appointed to memorialize the State Legislature in regard to the Agricultural interests of the State. This seemed strange to me, and especially so when I learned that the Missouri Agricultural Society had an existence at least four years before the Fruit Growers' Association was organized. How much longer I know not, but surely the Agriculturists ought to think of us very kindly.

The committee agreed at once to petition the Legislature to accept the conditions of the Agricultural College Act of Congress, and to pass an act establishing a State Board of Agriculture. How successful they were may be seen in the fact that on December 1st, following, the act was passed, the Agricultural College proposition accepted and at Columbia you can now see an Agricultural College equal to the best.

But the strangest thing of it was that all this was accomplished without the presence and assistance of the ladies. In his report of this meeting, Secretary Muir made a strong plea that they should arrange and "have a large supply of ladies for meetings, to check any tendency to acerbity in all our future meetings."

The first mention of an opening prayer was on January 12, 1864. Morning prayers are also mentioned in these minutes. I would not conclude from this however, that these good men were as negligent in their prayers as they seemed to have been in availing themselves, as Mr. Muir said, "of the powerful aid of woman in promoting the cause of Horticulture."

The reports of 1865 and '66 were hard to find; but a perusal of them paid well for the labor. The 1865 meeting was held in St. Louis. President Mudd occupied the chair. Politically and socially these were times in Missouri that tried men's souls. It was January 10th, but no one dared hope that the cruel war would end as soon as in April following. Mr. Mudd's opening paragraph was full of religious fervor, and thankfulness for the "ever watchful care and guardianship of Him, who ruleth all things." He then said "It appears to me to be a just cause of congratulation to the members, that we have not only been able to keep up our organization as a Society, while much of our State has been over run by war's destroying trains, but have also made much valuable improvement in Horticulture and Pomology, both in planting and improved arts of cultivation, and in improved varieties of many fruits introduced among our people. Ours is the only State Society organized to promote any of the interests belonging to the great family of Agriculture, which has been able to maintain its organization and annual convention."

From this address we learn that notwithstanding the Legislature had, at our instance, passed an act establishing a State Board of Agriculture more than two years before, owing to the indifference or neglect of some gentlemen named in the act, three separate attempts to organize the Board had proved abortive. This indifference and neglect on the part of the farmers greatly endangered the establishment of the Agricultural College. Less than three years remained, and had it not been for this Society, the State no doubt would have lost the 330,000 acres of land conditionally donated by Congress to provide for the endowment of such a College.

The first published Treasurer's report was made at this meeting, and showed receipts, \$112.00; disbursements, \$109.70, balance on hand, \$2.30. The Secretary said in this report, "The fact that our meetings here from year to year increased in attendance and in interest, even during those years of fearful fratricidal conflict, shows that our Society may well be recognized as one of the fixed facts of our social life." He refers with much congratulation to the fact that at the last annual meeting they had secured the 1866 meeting of that "indefatigable body, the American Pomological Society," to be held in St. Louis.

True to the pace set at Hermann five years before, grape culture received much attention at this meeting. They appointed a committee to memorialize the Legislature for the protection of orchards and vineyards, and another committee to ask for the passage of a dog law. Why this law does not appear from the record, but earlier in the session Mr. Colman stated that Captain Blossom had to pick his apples early as they were

being stolen. From this I conclude they wanted the law to keep the dogs in the orchard. It is well to notice, however, that the further statement was made that Captain Blossom's apples were keeping better than those of any one else. Thus from a mere circumstance they learned a fact too few of us heed today. "Pick your apples just in time. To keep in the best condition apples as well as pears should be gathered before they are quite ripe." A Ben Davis September wind fall will keep longer and cook better than an over-ripe one, though picked and handled ever so carefully.

The seventh annual meeting, January, 1866, was an important one. Being the first after the close of the war, the Association of the Nation's Chief Magistrate, and the emancipation of four million people held as slaves, our brethren found themselves confronted with new and momentous questions. But with Rev. Mr. Peabody to bear them upon the wings of earnest prayer to the Throne of Grace; with Henry T. Mudd to outline the work in his opening address; with Secretary Muir to make valuable suggestions, and with Norman J. Colman, Dr. Morse, Dr. Spaulding, Dr. Clagett, Mr. Guye, Mr. Murtfeldt, Mr. Elliott, Mr. Stark and Prof. Hussman, and a host of others for counsel and work, he who acquaints himself with the grandeur of these men by reading the history of this Society as I have done, will not wonder that they rose equal to any occasion that presented itself. Upon this period I would love to dwell; and the more I read it the more I realize my inability to do it justice. Read it for yourselves. You will find it in the first Agricultural Report, 1865, a copy of which you can now find for the first time in the Secretary's library. The respects of this meeting were largely directed to Washington, and while I had not time to follow out the whole history, I doubt not that one "Philadelphia huckster," Mr. Newton, Commissioner of Agriculture at Washington, lost his official head. They were too busy for a Treasurer's report, and the little balance of \$2.30 last reported, is lost to history for ever more.

In spite of the fact that the Secretary displayed a little bad temper because he thought the business committee had somewhat encroached upon his prerogatives, the 1867 meeting was a great meeting. The minutes cover 166 pages in the Second Annual Report of the State Board of Agriculture. The second Treasurer's report printed, is found in these minutes. W. C. Flagg's paper on the apple is a veritable classic. I wish it might be reproduced in our minutes in the near future. The discussion on the report of the special committee on the location of the Agricultural College was fine. At the close of this meeting Henry T. Mudd retired from the presidency, having served in this capacity five consecutive years. He

was recalled in 1873 and '74. Wm. Muir continued as Secretary four years longer, serving in all twelve years, from 1859 to 1871, and was again recalled in 1875. For three years he was both Secretary and Treasurer. J. C. Evans was President in 1876 and '77, having held no previous office, and N. J. Colman followed for two years longer.

Without going into the labors of these great men in greater detail, I can truly say a careful persual of all the reports from 1868 to 1880, will show an ever increasing interest in the work, a commendable improvement in all the departments of Horticulture, and a constant fulfillment of Secretary Muir's prophecy in 1863. These men were certainly "working out the great future of our State."

They had, however, some troubles of their own. They began with no money. The \$1.00 from each member was their only income, and when there was a deficit, a pro rata assessment was made upon each member. Still the second Treasurer's report, made in 1867, shows a balance from 1866 of \$74.80, and closes with a balance of \$130.55. In January, 1868 there was a balance of \$78.43, and in November, \$66.00. In 1869 there was no meeting, there having been two meetings in 1868, hence no financial report. In 1870 the Treasurer reported a balance of \$39.35, but makes no mention of the last balance, \$66.00. In 1871 no meeting. In January, 1872, the Treasurer did not report the receipt of any balance whatever, but closes his report with a balance of \$668.10 on hand. This increase was due to the fact that the membership fee had been raised to \$2.00 and \$750 had been received from a State appropriation of \$1,000.00, made in 1871.

In 1873 the Treasurer reported a balance of \$391.35, and stated there is an outstanding warrant of \$75.00, and a quarter's salary due the Secretary, \$50.00, which leaves \$266.35. He then deducted the Secretary's salary for the whole of the ensuing year, and artlessly remarked; "thus leaving at the end of the year, a balance unexpended, of \$66.35." Had he deducted the whole expense of that year, he could easily have wiped out the entire surplus. He surely was much interested in the Secretary.

Concerning this unique report, Treasurer Bush stated the next year, 1874, "I have never received a cent from my predecessor, and only \$2.00 annual membership fees, including my own. The Legislature made no appropriation, and I could not, therefore, receive anything from the State treasury." The financial statement of the Committee on Exhibition of Fruits in the fall of 1872, showed a deficit of \$299.85. They issued certificates of indebtedness to all creditors, a popular kind of warrant, from about 1870 to 1875, but very unpopular in 1898. They then resolved,

“that owing to the present financial condition of the Society, the Secretary’s salary be suspended for the present year, unless the asked for appropriation by the Legislature be obtained.”

At the next annual meeting, 1875, the Treasurer sent in no report, nor any balance on hand, but sent word that he was sick and asked that a substitute be appointed. Mr. J. C. Evans was accordingly appointed Treasurer without books, without money, and of course he could make no report. The Centennial, 1876, came on apace, but still no Treasurer’s report. Such a condition may seem surprising with such men as Mudd and Allen, Hall, Muir, King and Lewis, Riley, Wm. Stark, Bush and Swallow holding all kinds of offices, serving on all kinds of committees, reading many papers, yet the treasury in this miserable condition for three years. Mr. President, had you appointed a committee to examine into the condition of the treasury in this early day, your committee would have struck a hot trail.

Careless or negligent or both, these officers may have been; that they were dishonest is no where charged in the record. Incompetent book-keepers, too, they may have been, but that they were unfaithful is not recorded. At the close of the first day’s session of this ’76 meeting a special financial committee, consisting of J. C. Evans, H. T. Mudd and G. W. Gage, was appointed to examine all accounts, but especially the accounts of the Ex-Treasurer of 1873. In December of this year the Treasurer simply reported \$19.00 from his predecessor, and a balance of \$19.30 on hand. We know not what the special committee accomplished, for no report is found. I have not mentioned the name of this Treasurer, for it would do no good to open up the case in these days of “statute limitations” and “constitutional rights.”

In 1877 no meeting. The minutes of the January meeting, 1878 were lost for several years, but parts of them found and published in pamphlet by L. A. Goodman, after he became Secretary in 1883, but no part of the Treasurer’s report was found. But let no one connect him with any of the mishaps, for up to 1881 he was just one of the committee on flowers—simply that and nothing more, officially.

The report of the January meeting, 1879, is not in our collection. But I learned from Mr. F. A. Sampson, Secretary of the State Historical Society at Columbia, that it is in the 13th Annual Agricultural Report, that the only reference to the Treasurer’s report is “Prof. Riley, Treasurer during 1877, presented his report for that year. Prof. Riley donated to the Society the amount of balance due him.” If some one will find the 13th Agricultural Report and place it in our library in the Secretary’s office at Kansas City, we will then have a complete record, at least so

far as one was ever made. As to the numbering of our reports I wish to say one thing. Up to 1878 the number of the report equaled the age of the Society. Had that plan been followed our next report would be the 45th. Whereas it is to be the 47th. This was occasioned by calling the restored report for 1878 the 20th; whereas it was the 19th, and then we had two meetings in 1880, and as no subsequent break to offset one of them as in former years. Hence the age of the Society equals the number of the report less two, and has done so since 1880.

We come now to January, 1880. The committee on appropriations reported \$625.00 in the hands of the Treasurer, and a debt of \$378.29, mostly on account of Fruit Exhibits at Rochester, New York. Mr. Colman is in the chair. His address at the opening of this meeting was simply grand. I wish I could read it to you, or have each one read it for himself. He evidently realized that the Society was now of age and thought his own active years in its behalf rapidly drawing to a close. We now know that he was wrong in so thinking, but such was his thought. Prof. Swallow, Prof. Hussman and himself were the only ones present who helped to organize the Society in 1859. How fitting it was that he who presided over the first meeting should preside over the last meeting of this period of 21 years. The father stayed with the boy until he was 21; in affection the boy is with the father yet.

Thus closes our first period of 21 years with financial perplexities not a few—other perplexities many. Fungus diseases and insect depredations had begun to multiply. Early in the period the suave tree peddler was abroad in the land. Nurserymen had learned how to never be “just out” of any particular kind of tree called for. Orchardists ordered good trees and got inferior stock, paying exorbitant prices therefor. Indeed in the meeting for organization these latter difficulties were discussed at considerable length and with still more earnestness. Mr. Minor moved “that this Association recommend to cultivators of fruit to patronize Missouri nurserys in preference to those of the eastern states.” From his remarks we learn that these peddlers had taken nearly \$4,000.00 out of Cole county alone the fall before; and he estimated that from the entire State—and that meant really only a small part of it—hundreds of thousands of dollars went annually to the East for fruit trees of various kinds.

Mr. Mudd in 1866, in speaking of the tree peddler, said: “Have they not done more to injure the fruit growers of the west than have blight and frost? A planter had better take a rattlesnake to his house than an oily tongued tree peddler to his confidence.” Mr. Mudd surely had had some trouble of his own, and we have them today. By tree peddler is not meant the properly authorized agent of a reputable nursery,

bringing needed information of what his firm has to offer to the orchardist in any given season. This is as legitimate and necessary with the nurserymen as with wholesale clothing or dry goods merchants. The tree peddler is a faddist. He rides a hobby and never gets his steed groomed at an Experiment Station, or by a Professor in a Horticultural College. His selling price is three or four times as much as your home nurseryman will gladly take. You may not recognize him the first time he comes around, but you will the second, especially if you wait as did Mr. Minor, Mr. Mudd and their neighbors. Their trees fruited and were not true to name. Old varieties had been re-named. Even then the whole root and piece root controversy had an existence. And while the Horticulturists of that early day set their faces against every fraud and attempt to deceive, they were saved from the sure cure for pear blight.

Thus far the history seems almost like ancient history, and were it not for a few men whose names I have mentioned, notably Col. Evans, I would be tempted to so label it; but I fear he who feels and looks so young and vigorous would not stand for it. It was a necessary period and in it was laid the foundation for the then future.

The January meeting of 1880 was the last of its kind. For four years they held only December meetings, and the meeting of this year was the last over which Mr. Colman presided. The Treasurer reported a balance of \$160.20 on hand. The debt of \$378.29 had been paid and all expenses to date. From this time Mr. Evans held the Treasurer's portfolio for four years, being associated with Tracy, Ragan and Goodman on the executive committee. In 1881 they secured \$2,500 appropriation from the Legislature, and in December the Treasurer's balance was \$1,425.46. At this meeting Mr. Goodman was elected President, and Mr. Tracy Secretary. At the next meeting, December, 1882, these gentlemen were reversed, Mr. Goodman becoming Secretary for 1883 and Mr. C. M. Stark as Vice-President, was added to the executive committee. Mr. Stark held his position for two years and Mr. Goodman is still Secretary.

In this year, 1882, work began in earnest. For the first time the executive committee had money to do with. That year closed with \$572.00 in the treasury and no debts. In 1883 the balance was \$592.19. Mr. Evans was proving himself a valuable Treasurer. At the annual meeting of this year, Mr. Goodman made his first report as Secretary. Through circular blanks sent to postmasters, county officers and school teachers, in addition to those on the roll already interested in Horticulture, he obtained the names of many men and some women too—widows, no doubt, who owned an orchard, be it ever so small. This helped in correspondence and in advertising. The Secretary earnestly advocated, a,

summer or semi-annual meeting. The first one was held at Springfield the next year, June, 1884, and from that time to this, 1904, two meetings—one in June, the other in December, have been regularly held. In 1884 Mr. Evans passed from Treasurer to President, and served 14 years. The treasury ran low in '84 and half of '85, the balances being as low as \$75.00 and \$83.53 respectively. But in December, 1885 it was up to \$626.47; and till 1890 the balances stood from \$174.26 to \$989.32. In that year the cash available balance was small owing to the fact that \$1,447.76 was tied up in a Nevada bank. In June, 1892, however, the balance was \$591.98, and in December, \$636.61.

In 1891 Mr. A. Nelson was elected Treasurer and held this position to the day of his death—almost ten years. The executive committee consisted of J. C. Evans, President; N. F. Murray, First Vice-President; Samuel Miller, Second Vice-President; L. A. Goodman, Secretary and A. Nelson, Treasurer. In June, 1892, Mr. Goodman reported progress made with the exhibits for the Chicago Fair, and in December the premiums from our exhibits at New Orleans, Philadelphia, Grand Rapids, Rochester, Boston and three exhibits at St. Louis. The Treasurer's report at this time shows a balance of \$302.31, as "savings" from these premiums. This is nearly the beginning of the financial prosperity of our Society. If 1892 did not close a period somewhat peculiar to itself, it opened one. With all the grand achievements of the first period, it closed with a decreasing treasury; this period closes with an increasing one. If that was like ancient history; this is like modern. If only a few of the former workers were present then, many who helped to bring this to a glorious close, are here to day; and we shall not forget that our third and present period owes much to the accumulating forces of the second, as the second was indebted to the first.

The year 1893 was an important one in the history of this Society. In it occurred great changes. Heretofore the President and Secretary could draw on the State Treasurer when they needed money and there were funds available. From the "savings fund" now on hand—the Society's own money—the Secretary and Treasurer kept all bills paid up, and when needed would draw on the State Treasurer for such amounts as would reimburse our own fund. This was done several times each year, and continued to the time of the adoption of the articles of incorporation passed early in session of this year. Soon after the passage of this act the Executive Committee met and accepted its provisions. At the semi-annual meeting at Columbia, in June following, the act was adopted by the Society as a part of its constitution, and the executive committee at its next meeting authorized the President and Secretary

to draw upon the State appropriation by requisition on the State Auditor, signed by the President and Secretary, and attested by the Society seal, whenever funds were needed. But it was found that under the new law no money could be drawn until it had been spent, receipted bills shown, and an itemized account made to the State Auditor. The old plan then had to be continued, at least in part.

As often as it seemed necessary an itemized statement was sent to the State Auditor, and requisition made upon him to cover the same. Sometimes this requisition was made covering the expenses of the Society for one, two or three months, as the case might be. All these bills were paid from money belonging to the Society, and when the amount was refunded by the State Treasurer, it all belonged to the Society itself. In reality the Society at no time has any State money in its hands. The bills were paid as now, from our "savings fund," and the State simply refunds the amounts previously paid out. It is impossible, therefore, for us to squander one dollar of the State funds.

This fund began now to increase from membership fees provided for by the act of incorporating and from premium awards taken by the Society. The wisdom of the Executive Committee in creating such a fund was fully demonstrated by the operation of the new law, under which the Society was reorganized in 1893. Had it not been for this fund, every account would have been held up for at least one month or carried by the Secretary and Treasurer, till a requisition on the State Treasurer could be made. As it is the Treasurer always has enough of the Society funds on hand to pay these bills as soon as the accounts are allowed and warrants drawn. This plan has been annually approved by the Executive Committee, and the order renewed upon the organization of each new Executive Committee. This the Board had a right to do, and in fact is the only body with authority to so order. This arises not simply from the fact that the business was intrusted by resolution to the President and Secretary in 1859, and to the Executive Committee, composed of the elective officers, by an amendment to the constitution in 1883, but by the articles of incorporation in 1893. By that enactment the State recognized the Executive Board as now constituted, as the only agency in the Society in all business transactions between the Society and itself.

The cash balances for the next year, 1894, were low, for our money was invested in the Chicago Fair exhibits. But in June the Secretary said in his report, "The World's Fair matters have all been settled up, and the commission has paid to the Society all the moneys expended for the display made there. Money had been advanced all along through the year by the Society to pay for fruits, express and expenses in col-

lecting fruits, which has now all been paid back to the Society." It is well for us to remember that when, by the operation of law, available money was not in the treasury, the Secretary did not hesitate to advance it for the Society. I find that as far back as 1886, he advanced during the year \$316.36; in 1887, \$383.44; in 1888, \$569.52—the expenses of the fruit show being that year \$872.28—and in 1889, \$175.60 more than he drew from the treasury and collected from fees. The Treasurer's report shows, however, that by the close of the year all the amounts had been refunded to the Secretary when State funds became available. At the December meeting of this year, the Treasurer reported "Balance from World's Fair, \$165.80, and from St. Louis exhibition, \$150.70." In December, 1895, the Treasurer reported cash from St. Louis exposition, \$236.81.

In December, 1899 J. H. Davidson, Treasurer of the Horticultural Committee of the Missouri Commissioners of Omaha Exposition, reported \$323.70 advanced by State Horticultural Society for printing and fruit, and at Farmington, in December, 1900, Mr. Nelson reported the same \$323.70 received from Omaha Exposition. At this same meeting the Secretary said, "The expense of the Paris Exposition was paid from money we had saved from our annual appropriations and from former displays." Such an experience as our Executive Committee had in making an exhibit in far off Paris, without a dollar of appropriation from our Legislature was enough to induce the action taken at Chillicothe, January 8, 1900, and so accurately reported by Treasurer Nelson on page 260 of that year's report. Mr. Nelson reported \$1,179.32 as the total "savings fund," and by a vote of the Executive Committee, he was directed to deposit \$1,000.00 with the Mississippi Valley Trust Co., St. Louis, Mo., at 4 per cent, that, as he said, "we may always have something to use in case of necessity."

This money he deposited in his own name as Treasurer, and it was so deposited at the time of his death, November 10, 1901. This fact occasioned the board some little trouble; but it was finally arranged with the Trust Co., as all such things are arranged in time, and re-deposited in the name of the Missouri State Horticultural Society, subject to the Treasurer's check, upon the order of the Executive Committee, and countersigned by both the President and Secretary. Greater safeguards cannot well be provided, and it so stands today.

The year 1901 found us getting ready for the St. Louis World's Fair—the great Louisiana Purchase Exposition, just closed. In December the Secretary reported the purchase of two hundred large jars at a mere nominal sum for use at this Exposition, and expressed "the

hope that the State would place at our disposal enough money to make by far the greatest show ever attempted." But this was not done in any sense in time for use in 1901 and '2, and early part of 1903. In reality it was never "placed at our disposal," for as we have seen, under the present law the money had to be spent, receipted bills shown, and an itemized account made before a dollar could be drawn. And in this case a great big Missouri Commission of able bodied and careful men, stood between us and the State Auditor. What then was to be done?

It took large amounts of ready cash through all these months of getting ready for the show. We simply used the Society's funds, when money was on hand, and repaid it when the State money could be drawn. But if somebody had to advance money in getting ready for exhibitions at Chicago, Buffalo and Omaha, how much more for the St. Louis World's Fair? And it was done the same old way, \$800 and more a month. He will never ask for our thanks, but L. A. Goodman, as Superintendent of our Horticultural exhibit at St. Louis, deserves, and to him is due, the lasting gratitude of every friend of Horticulture in Missouri. The year 1902 closed with \$240.96 in the treasury, and not one check drawn against our Trust Co. fund; but an order made for one or more, to the amount of \$200, December, 1903, at Columbia.

It has long been the practice of our Society to defray the expenses of its delegates to other State meetings. In December, 1902, our Secretary, L. A. Goodman, received \$72.00 in full of his expenses to the Maryland meeting, the same as did Mr. Robnett, to the Illinois meeting, and Mr. Gano to the Kansas meeting and Mr. J. M. Irvine to the Boston meeting. In February, 1903, the Maryland Society paid Mr. Goodman's expenses by sending him a draft for \$72.00. Of course this money belonged to the Society, and might have been forwarded to the Treasurer at once. But we have shown above "that when by the operation of law, available money was not in the treasury the Secretary did not hesitate to advance it for the Society." This was the case when the \$72.00 was received. Hence he used this money to further our interest at the World's Fair, just as he had for two years, used other funds of the Society, collected by himself, "keeping an accurate account of debits and credits till funds were on hand." All these transactions were reported to the Executive Committee from time to time, but not to the Treasurer as such till State money "could be drawn, when both the Treasurer and the Secretary himself would be reimbursed.

Slightly irregular this may have been, but not hidden; "for every member of the Executive Committee was cognizant and had full knowl-

edge of every dollar so used." The \$72.00 simply followed the course of dues and other money collected by the Secretary under certain circumstances, and in due time appeared as a credit on the Treasurer's account. This is the whole of the "alleged irregular methods and mismanagement of the funds of the Society on the part of the Secretary," and seems to me to be a full explanation of a transaction that has resulted in much criticism of the Secretary. Of these facts the critics were not ignorant, for they had been told to them, "at sundry times and in divers manners." I trust we shall hear no more of the so-called hidden "inside workings of the Society."

As the history of 1904 is not all made and none of it published, 1903 must close our third and last period. I stated above that 1891 marked the beginning of our financial prosperity. The subsequent facts herein stated abundantly substantiate the claim. But dollars and cents by no means mark our entire progress. Orchards have increased by the hundreds, and the acreage of fruit by the thousands. Fruit men from the north and east have come to us by scores and helped to make an increased demand for nursery stock. This large influx by immigration increased the home demand for "wheat and corn and fruit and wine," as Mr. Colman put it in 1861, and if we in any way helped to bring about the results of the last election, some of us didn't mean to.

Surely we have done our part in "working out the great destiny of our State." A reading of the papers, discussions and resolutions for the second and third periods into which I have divided our history, covering a period of twenty-three years, will show you that we have stood no less for honest dealing than did our predecessors, nor have set our faces less "solidly against every fraud and attempt to deceive." This is not at any time a pleasant duty, but owe we it to all new men, whether young or old just beginning in the business of orcharding. In the performance of the duty, however, we should be careful. As I said in Springfield in 1892, so say I again, "Let every claim be thoroughly and carefully investigated, lest we be found throttling original investigation and thoughtful invention."

After reading through a stock of Horticultural Reports four and a half feet high, I confidently affirm that such seems to have been the course and well recognized duty of all our predecessors; though the doctrine did not assume form and take on formal declaration till June, 1892, as recorded in that report, pages 89 and 90. It was then resolved among other things, "that it is the sense of the Missouri State Horticultural Society that it owes to the Horticulturists of the State all the protection and advice consistent with the position it occupies."

Indeed were I called upon to write a formal platform, I could do no better than to copy those six resolutions, with their four preceding whereases. If people will pay \$35.00 a hundred for trees from other states, principally north and east, rather than patronize their home nurserymen, who have reputations to make or to lose, men who will gladly correct any mistake, and with me have always made good any defective stock when pointed out to them, we can't prevent it. We warn, we advise. We resolve and print our resolutions. We report and print our reports at great expense, and still men bite and are bitten. But a great majority heed the warning and reject the oily tongued spieler; hence we must and shall continue in the future as in the past. We have, as all know, accomplished much, and by fair and honest dealing, we expect to achieve far greater things.

FIFTH SESSION—THURSDAY, DECEMBER 22, 10 A. M.

BUSINESS MEETING.

The morning prayer was offered by Mr. J. W. Graves.

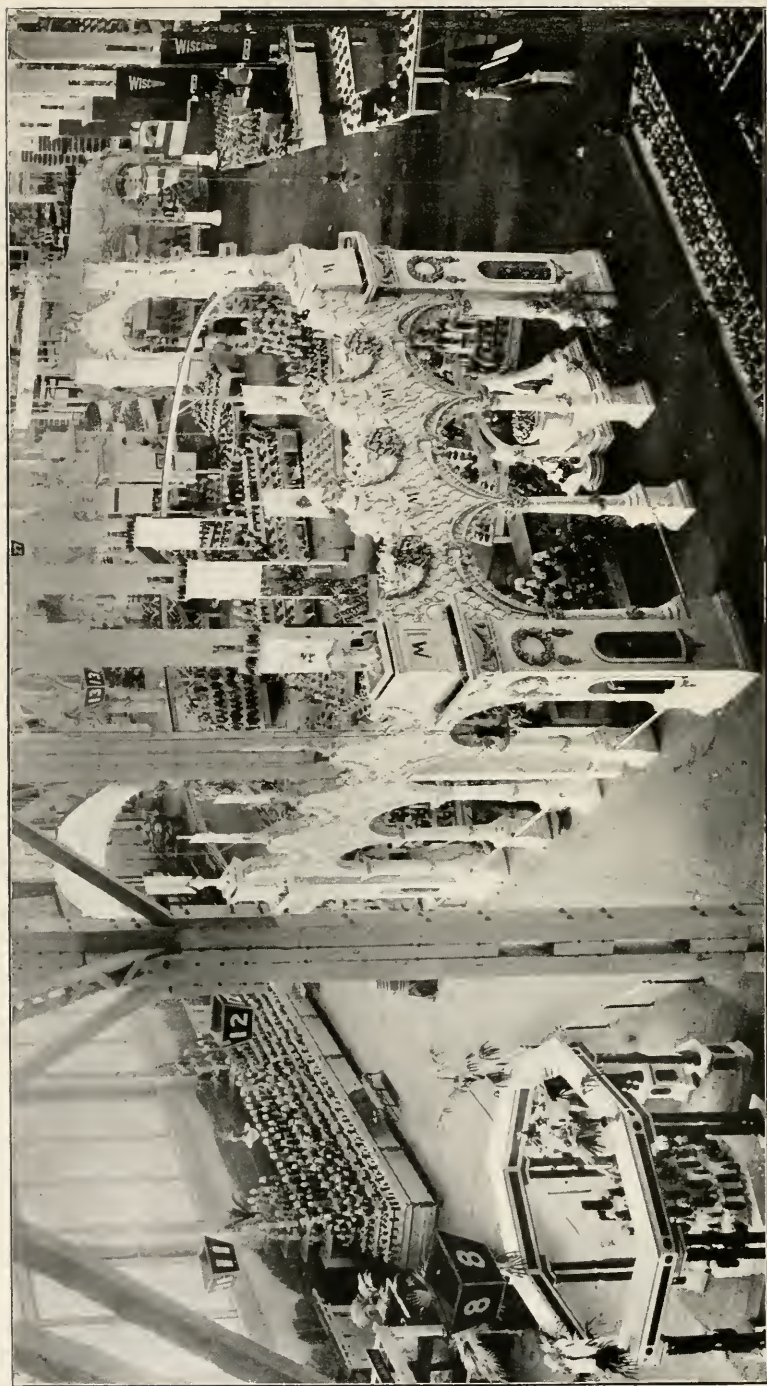
As the reports of the committees were not ready, the President called for the report of the Secretary.

REPORT OF SECRETARY.

(L. A. Goodman.)

No more remarkable year in all our history than that of 1904. Not especially in the fruit line, although that has been much better than was expected but in the line of development and improvement, in extension and intensive work, in study and examination, in new ideas and experiences, and especially in preparation, handling, keeping and exhibiting of fruits at the greatest of World's Fairs. The great work of our society members has been to make the greatest show ever attempted and to keep it up for seven months.

The success of our exhibit and the general approval of the public, the special compliments of the expert fruit grower, the peculiar satisfaction of every man from Missouri, and the generous awards given by the expert judges in the way of fifty more medals than any other state; all show that Missouri did herself proud in the greatest fruit show ever made.



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
GENERAL VIEW.

During the summer the Executive Committee has held three or four meetings at St. Louis to so help order things, as they always do in all exhibitions, that the greatest good would come to the different parts of the State, and for the glory of the Horticultural Society and its members, who have so faithfully stood by us in every item of this work. There could not have been two years selected out of the last ten years when it would have been so hard to make a large and complete selection of fine fruit for exhibition purposes, and this exhibit caused an extra large amount of work for everyone, and made more gray hairs and wrinkles for your Secretary than any five years of other work.

To the Society, to the Executive Committee, to its officers and especially to its members, does the State owe its obligation, for, without their united effort we would have failed in our grand display and our just reward of 412 medals, which are ours. Eight grand prizes—one for the large and complete exhibits of fruit; one for the great beauty of its installation; one for the fine special educational features of the display; and others equally as important; 28 gold medals to counties and large growers; 174 silver medals; 202 bronze medals.

The space covered by our exhibit was 50 per cent more than any other state and comprised over 10,000 square feet. This space was surrounded by the most beautiful facade, decorated with the typical fruits and flowers of Missouri in relief, by arches illustrative of bending branches; a beautiful pagoda, representing a summer house, this surmounted by cornucopias with Cupids guarding the fruits and flowers. Statues of Pomona and Flora, medallions of Missouri, the Great State Seal over it all. The finest relief map of the State, representing all of the best fruit lands. Tables, pyramids, glass shelving, mirrors, vases, punch bowls, urns, all filled just as full as they could hold all the summer long with the fruits of the season, and with apples. Eight cases (300 of all kinds) of large photographs of orchard and fruit scenes, illustrating berry plantations, orchards, packing, shipping, etc., were a feature that gave prominence to many parts of our State and its fruit industry.

Jars (2,400 of them) of all sizes, filled with fruits of the previous season put up in liquid. This exhibit was the most complete one ever attempted, comprising all the important fruits of the State in great variety, of more than 430 varieties and 21 different kinds of fruit. This exhibit was the greatest attraction all the year round, in spite of the fact that there was so much fresh fruit on the tables. At the close of the exhibition we had on the tables about 75 barrels of apples, about 7,500 plates, the largest exhibit ever made by any state at any of our large

expositions, or any other place. These apples and other fruits supplied during the summer came from 96 different counties, and there were over 1,700 entries made during the year, by more than 500 persons, some of them being for only one plate of one variety, others sending in a succession of fruits such as strawberries, raspberries, blackberries, grapes, peaches, cherries, plums, pears and apples, thus making a complete exhibition of their own.

HEARTY SUPPORT OF THE COMMISSION.

While we have had the earnest and hearty support of our best fruit growers in every part of the State, responding to our every call for fruit and for assistance whenever needed, yet we must not forget that the Missouri Commission has been behind it all, and has been the best friend of the fruit exhibit. At no time have the Missouri Commission and Mr. Bonfoey, the Chairman of our Department, failed to give us the most constant, hearty and earnest support in every detail of the work, as to fruit and flowers as to plans of the exhibit, as to installation, as to help necessary for the daily work in caring for the exhibit, and as to the fruit men of our State in giving their time and knowledge for the entertainment and instruction of visitors. In every detail have we to thank our Commission and Mr. Bonfoey for their most hearty co-operation in our every effort during not only the time of the Fair, but for their best wishes and hearty support shown in every detail during the whole of the year of preparation preceding the opening of the great exhibit.

A FEW WORDS IN EXPLANATION OF THE AWARDS.

1. No exhibit of any state was in competition with that of any other state. No state was awarded a prize on best or largest or most perfect exhibit.

2. No variety or collection of varieties was in competition with the same variety from any other state; for example, no state or person of any state took a prize for best Jonathan.

3. No awards were given for best of any variety or on best collection of apples or peaches, or largest collection, or largest specimens, or most perfect exhibit, or most artistically arranged.

4. Not more than one award was given to any state, or person, or county; for example, no one received an award on collection of apples, collection of peaches, collection of grapes, or collection of berries separately, but his award was made on all of them combined.

5. If this combined collection was awarded enough points by the judge, it might receive the grand prize or the gold medal or the silver medal as the case might be.

6. All the awards are made on a scale of points, embracing: Size, color, condition, quality, extent of exhibit. Every day as the fruits were put on the tables the judges passed on them and made a score. At the close, these scores were added up and the awards made on the result of the scores thus recorded.

7. Every state, every county, every person therefore, gets an award upon the merits of the exhibit, and not in competition with any other person or county or state, but on its merits—just the plan, by the way, that our State Society has proposed and followed so satisfactorily for the past ten years, and in our opinion the only correct plan.

8. If an exhibit secured enough points to entitle it to grand prize or gold medal or silver medal and then continues to make entries, the last entries may be entirely lost, so far as awards are concerned. For example, the State of Missouri made enough entries to entitle her to three grand prizes for extent and size of exhibits, but, according to their ruling, only one award could be made to the State on her exhibit.

For example: We had enough apples alone, enough grapes alone, enough other fruits alone to secure a grand prize, but entering them all in the name of the State secured to us only one prize on extent of exhibit. The same is true of county and personal exhibits, they might have enough grapes, or strawberries or peaches or apples to entitle them to a gold medal, but they would, in this case, get only one under this ruling. This has cut us out of many an award, for we had on the tables more than three times the quantity of fruit necessary to secure points enough which would entitle us to the prizes awarded.

I tell you this in explanation of the awards which many cannot understand. But as an actual fact, the truest award given us was the universal verdict of the visiting people that Missouri had the most extensive and most complete exhibit in the building, and this exhibit was not for day, but for all days, every day, special days, all the time, from the beginning to the end. The extent of our exhibit can be understood by the following record of kind and variety and number of plates which have been on exhibition during the whole of the seven months of the Fair:

430 varieties, 2,400 jars of fruit of all kinds, 21 different kinds that grow in the state.

1,200 barrels of apples were used of 1903 crop during the 7 months.

400 barrels of apples were used of 1904 crop during the 5½ months.

No. of varieties.	Kind.	Quantity.	Time on Exhibition.	No. of plates.
196	Apples.....	{ 1,600 bbls. } { 4,800 bu. }	7 months, May 1 to Dec. 1	96,000
64	Peaches.....	300 bu.	5½ months, July 15 to Dec 1	6,000
124	Grapes.....	1,000 plates.	2½ months Aug 15 to Nov. 1.....	1,000
36	Pears.....	1,000 "	4 months, Aug. 1 to Dec. 1.....	1,000
72	Strawberries.....	1,000 "	2 months, May 15 to July 15.....	1,000
12	Cherries.....	1,500 "	2 months, June 1 to Aug. 1.....	1,500
18	Plums.....	1,000 "	2 months, July 15 to Sept. 15.....	1,000
4	Apricots.....	100 "	1 month, Aug. 1 to Sept. 1.....	100
6	Quinces.....	100 "	3 months, Sept. 1 to Dec. 1.....	100
2	Nectarines.....	50 "	1 month, August.....	100
24	Raspberries.....	1,000 "	1 month, June.....	1,000
8	Blackberries.....	1,000 "	2 months, July and August.....	1,000
2	Dewberries.....	100 "	1 month, June.....	100
	Mulberries.....	50 "	1 month, June.....	50
12	Currants.....	500 "	2 months, June and July.....	500
6	Gooseberries.....	500 "	1 month, June.....	500
2	Huckleberries.....	100 "	1 month, June.....	100
2	Paw Paws.....	25 "	1 month, October.....	25
6	Persimmons.....	50 "	2 months, Sept. 1 to Dec. 1.....	50
6	Crab Apple.....	50 "	50
	Thorn Apples.....	25 "	20
48	Nuts.....	1,000 "	7 months.....	1,005
650	22 kinds.			111,150

All the waste apples were either given to visitors or sent to Orphan Asylums in and about St. Louis

500 bushels of peaches were given away on August 16th to 40,000 people. These came from Howell County.—ELBERTA.

500 bushels of apples were given away on October 4th to 50,000 people. These came from Newton County.—JONATHAN.

Making, as a total, over 133,000 plates of fruits used in the exhibit, an amount of fruit never before approached in any exhibit ever made in the world.

9. It is easy to see from this large amount of fruit shown and the number of entries made and the haste in which this had to be done, and the dimness of some of the names on the packages, that a number of errors must have crept into the report of awards, both as to names and places. It is easily to be understood also why some did not receive as high a prize as they were entitled to, because of the difference of the judgment of the different judges, some of them grading much higher than others in their scoring and all the judges serving only about two weeks each: For example: One judge scoring high might award a gold medal, while another scoring low might award a silver medal, since they differ only five points from the lowest of gold to the highest of silver. But taking the whole number of awards and the whole work done by the 25 judges, their scoring has been a very satisfactory one indeed, and we should not find fault with them without just cause. The only wonder is that it was carried through so perfectly.

Prof. L. R. Taft, Chief of Jury of Awards, says of the Missouri Exhibit:

"Of all the states making exhibit, Missouri easily takes first rank upon its general exhibit. As might be expected, the display of apples from this State far surpassed those from any other in the size of the exhibit, and for the most part they had been well grown. While there was a very large display of Ben Davis and similar varieties, the proportion of Jonathan, Grimes, Huntsman, York and other varieties of high quality was very noticeable. There were also from Missouri some 3,000 large jars of processed fruit." (430 varieties, 21 kinds.)

REGULAR WORK.

Notwithstanding all this extra work which the State Society and its members have been doing, we have not lost sight of our regular work. There have been hundreds of letters to answer just the same as usual, as to location, soils, lands, varieties to plant, results of other work in cultivation, spraying and pruning, a continual call for information and statistics.

Reports have been called for more than usual, more printed matter has been given to the public, more call for the fruit crop reports and more criticism of that report as sent out, possibly, but still as results have proven more nearly correct than any other of the reports sent out. Twenty per cent of an apple crop has been very nearly correct, as the results have indicated. From the finest prospect as shown at blooming time, the crop dropped to nearly zero through all Central Missouri and a small part of Southern Missouri; and in only a very few instances has the crop been a paying one, a full crop, or even one-half of a crop.

Prices have been low, grades have been poor, buyers have been few, packages have been dear, insects have been prevalent, and yet, in spite of it all, we have had many bushels of peaches, many barrels of apples, many crates of berries and many baskets of grapes.

The Horticulturist, ever hopeful, looks to the bright prospect ahead in the trees and vines and plants for the new year, and in the promise that the fruit buds now give for a bountiful crop again.

The fruit growing districts are now so extensive that the place which makes the best showing for crop of fruit secures the buyers, and the place which reports a very light crop loses the buyers, so that a very small crop is hard to sell, unless it be to the local market. Wherever, therefore, we find a local market, there we may be sure the best prices will rule. The best business plan of the fruit grower is to develop the local market for himself and thus make himself independent of the regular buyers. This is good business sagacity and enterprise, you may be sure.

SOME LESSONS LEARNED.

These lessons cannot be separated from the show of fruit made during the year. First, then, varieties. Which are the best? Why are they best? Where are they best? What is the best?

At no exhibition was there the opportunity to observe the various varieties and their different characteristics as at the World's Fair. The early apples were a surprise to most of us, because of their great variation. From North Missouri, the Yellow Transparent, the Early Pennock, the Jeffries, the Duchess, the Wealthy, are notable instances because of their size, color, quality and market value. From South Missouri, the Sops of Wine, the Benoni, the Lowell, the Maiden Blush, the Fulton, seemingly better adapted to this district of high upland on river bluffs and tops of mountains, because these give quality and size and color to the fruits. For the late fall and winter we find Jonathan and Grimes, and York, Gano and Ben Davis the universal favorites; while following closely are Black Twig, Winesap, Clayton, Ingram as nearly universal. Huntsman and W. W. Pippin are the best yellow apples. Rome Beauty, Gilpin, Lansingburg for special locations.

Some of the newer ones should be tested in a more general way before any recommendation can be given, because we must consider the hardiness and adaptability and productiveness of the apples, as well as size, color and quality, before planting.

The next most important lesson came from cold storage experience. The best cold storage apples are the Gano, Ingram, Clayton, Jonathan, Ben Davis, Winesap, Willow Twig, in the order named. The only apples of which we had specimens of '01, '02, '03, '04 were the Gano. We had these apples of the above four years' growth on the table during the whole of the month of November. Quite a record, indeed.

Of the 1,200 barrels put into storage in October, 1903, the Gano and Jonathan came out best. These apples (as all our exhibits) were kept at a temperature of 32 degrees—just freezing. There was no day from the opening of the Fair until its close that we did not have apples of 1903 on the table in great abundance. Oft times we had tables filled with apples of 1903 and 1904 of the same variety so nearly alike that they could not be separated—a wonder to all who saw them and triumph for cold storage.

Gano, Jonathan, Winesap, Ben Davis, Willow Twig, Janet, Ingram, Clayton, Huntsman, W. W. Pippin, Rome Beauty, Pryor's Red, Black Twig, Gilpin, Lansingburg, Limbertwig and others of the crop of 1903

were on the tables on December 1st, in a perfect state of preservation. Maiden Blush gave out in June, Wealthy in July, Grimes in August, York in September, Rome Beauty in October. These are examples, and other varieties followed in one or another of these classes.

We feel sure that as a general rule apples must be picked as soon as ripe, well colored, while still firm and hard; handled carefully, put at once into cold storage, cooled down as quickly as possible, held at 32 degrees without variation, and, if held until late in the season, then wrapped in paper, and if for show purposes then double wrapped.

The next most important lesson was the adaption of varieties to soils, subsoils, elevation, location and climate. This is such a broad and open field that we have not the time to discuss it, only to say that it is one of the most important of all the questions in the face of the fruit grower—this question of adaption and the variation of varieties due to soils and elevation and climate. Many very plain lessons were before us during the summer and were well worth the study of our fruit men.

The most interesting of any of the questions was this of variety. Some of the older and familiar apples were under new names as new varieties. Others were found under different names from different states, and yet they were the same variety. The only criticism we have to offer for the whole management was the failure to provide a strong committee on nomenclature, so that all apples would be properly named. This renaming of old varieties and having them passed upon as such because of the variation caused by climate is simply unpardonable, and one which does not have the approval of any horticultural society.

Other lessons of spraying, packing, marketing, kind of packages, time of shipping, results obtained from orchards or berry plantations, methods of selecting specimens, making exhibits, making entries, judging by scale of points, all require a separate paper and time for their discussion, and some of these have been well presented by the able papers at this meeting.

But the best lessons of all are the ones which our young men and maidens, and the older ones as well, have learned in realizing the fact that there are abundant fields to explore still, a thousand of nature's secrets yet to unfold, a world of knowledge yet to be secured, unknown facts to be yet established, a field as broad as the universe, where every incentive is to seek the explanation of facts, and obtain knowledge. All of these ready for the student to take and use if he will. Information that we can have if we put out our hands to grasp

it, but facts and knowledge such as we can keep and make our own, only if we use them. We can have what knowledge we take and use, but no more forever.

At the close of this season, the most important one in our history, I wish to congratulate the members on the position they occupy in our grand Union of States. Missouri stands way in the lead in our apple industry, in the peach output, in the berry shipments, in the broad orchard lands along our great rivers and the tops of our mountains, in the opportunity still open for development and improvement, in all the wonderful possibilities of our wonderful State, in the organization of our State Society forty-seven years ago, and its annual gathering without break in all these years, in the grand organization and the influence of our State Society and its wonderful achievements during the past twenty-five years; and above all, we wish to congratulate the grand, good, noble, unselfish, patriotic men and women without whom all the grand possibilities of the State would have been lost. To you, then, who have stood so faithfully by us in all this work and worry and labor, be all the honor and glory of a successful and united Society, and the glorious results of our World's Fair display.

This has come to you as a just reward for your faithfulness and unity of action as was promised to you by your officers and Executive Committee twenty-three years ago under the reorganization at that time.

To-day, therefore, as we stand beneath the grandeur of our accomplishments, we shall feel proud of what we have been and what we are, and pledge anew our devotion to our cause, and in happy remembrances of our individual friendship and our united work and its result, be glad that we ever knew each other, and had a hand in making this Society the best in our land, and this State the grandest fruit State in our glorious Republic.

COUNTIES.

The following counties have made exhibits:

Adair.	Crawford.	Howard.
Andrew.	Cass.	Howell.
Atchison.	Caldwell.	Holt.
Audrain.	Cape Girardeau.	Henry.
Buchanan.	Camden.	Iron.
Boone.	Callaway.	Jackson.
Hollinger.	DeKalh.	Johnson.
Barry.	Dade.	Jasper.
Bates.	Daviess.	Jefferson.
Barton.	Dallas.	Knox.
Chariton.	Dent.	Livingston.
Cooper.	Franklin.	Lewis.
Carroll.	Grundy.	Lawrence.
Clay.	Greene.	Laclede.
Cole.	Gasconade.	Lafayette.
Christian.	Gentry.	Linn.
Clinton.	Harrison.	Miller.

Macon.
Montgomery.
Marion.
Moniteau.
Morgan.
Monroe.
McDonald.
Mercer.
Newton.
Nodaway.
Oregon.
Ozark.
Osage.
Polk.
Pike.

Pettis.
Platte.
Pulaski.
Phelps.
Perry.
Pemiscot.
Putnam.
Ray.
Randolph.
Ripley.
Ralls.
Reynolds.
Saline.
St. Francois.
St. Louis.

St. Charles.
Ste. Genevieve.
Shannon.
Stone.
Shelby.
Scotland.
Schuyler.
Texas.
Taney.
Vernon.
Washington.
Wright.
Warren.
Webster.
Wayne.

Following is a partial list of fixtures used in our World's Fair display:

- 24 tables (flat and pyramid, 6x8 and 6x12 and 6x4.)
- 12 three-shelve glass shelving, 12 in. x 4 ft. and 12 in. x 6 ft.
- 1 wall pyramid, 10x60 feet.
- 1 pyramid, with recesses, 8x40 ft. center.
- 2 large fruit stands with 3 urns and 6 large glass bowls, 8x12x14 feet.
- 14 large glass show cases, 3x8x4½ ft., with three glass shelves on inside.
- 1 large table, semicircular, 4x32 ft.
- 1 center piece, 8x8x12 ft., recessed, brackets and 8 punch bowls.
- 2 glass shelving cones with fountain, 6x8x10 ft.
- 1 large fountain with palms and trees and flowers and ferns, at entrance.

Railroad train complete in running order, run by electricity over elliptical track, 300 feet in circumference. The most beautiful train ever made, and furnished by the 'Frisco Railroad Company, and kept running continually. Cars always loaded with apples.

Following is a list of awards given us by the Louisiana Purchase Exposition Company:

AWARDS.

Grand Prizes, 8; Gold Medals, 28; Silver Medals, 174; Bronze Medals, 202; Total, 412.

This list of awards has not been revised by the Superior Jury. I have asked for a rehearing on some of the awards, because they should be corrected, modified and some persons and some counties given a higher award, as their exhibits justly deserved. I think this will be granted and this record will then be corrected.—Secretary.

Grand Prizes.

- Missouri Commission—Exhibit of Fruits and Nuts.
 Missouri Commission—Installation.
 State University, Hort. Department, Columbia—Educational features of Display.
 State University, Dept. of Geology, Horticulture and Agriculture—Map in relief.
 State University, Dept. of Botany—Mushroom Culture.
 Missouri Botanical Gardens—Research and Practical Work.
 Michel Plant and Seed Co., St. Louis—Bedding Plants.
 H. J. Weber & Sons, St. Louis—Ornamental Trees and Shrubs.

Gold Medals.

- State University, Horticultural Department, Columbia—Methods of Preserving Fruits.
 St. Louis Seed Co., St. Louis—Bulbs and Plants.
 Jas. B. Wild & Bros., Sarcoxie—Ornamentals, Evergreens and Shade Trees.
 Missouri Botanical Garden, St. Louis—Chrysanthemums.
 State Horticultural Society—Exhibit of Fruits and Nuts.
 State University, Horticultural Department—Exhibit of Fruits.
 Missouri Commission—Fruits in Glass Jars.
 W. Schray & Sons, St. Louis—Canna, "Superior."
 James Young, St. Louis—Geraniums.
 Michel Plant & Seed Co., St. Louis—Palms and Plants.
 C. Young, St. Louis—Palms and Plants.
 Dust Sprayer Mfg. Co., Kansas City—Sprayers.
 Boone County—Exhibits of Fruits.
 Cooper County—Exhibits of Fruits.
 Jackson County—Exhibits of Fruits.
 Howell County—Exhibits of Fruits.
 Laclede County—Exhibits of Fruits.
 McDonald County—Exhibits of Fruits.
 Platte County—Exhibits of Fruits.
 St. Charles County—Exhibits of Fruits.
 St. Francois County—Exhibits of Fruits.
 St. Louis County—Exhibits of Fruits.
 W. G. Gano, Parkville—Exhibits of Fruits.
 D. Lowmiller, Parkville—Exhibits of Fruits.
 Olden Fruit Co., Olden—Exhibits of Fruits.

Ozark Orchard Co., Goodman—Exhibits of Fruits.
H. W. Thies, Ferguson—Exhibits of Fruits.

Silver Medals.

W. L. Rock, Kansas City—Chrysanthemums, Carnations and Decorations.
Fred C. Weber, St. Louis—Chrysanthemums.
C. & M. Wild, Sarcoxie—Peonias.
C. & M. Wild, Sarcoxie—Dahlias.
C. D. Young, St. Louis—Dahlias and Roses.
A. G. Greiner, St. Louis—Cacti.
W. C. Young, St. Louis—Petunias.
St. Louis Seed Co.—Lawn Grass Seed.
Schisler and Co.—Lawn Grass Seed.
Carroll County—Exhibit of Fruit.
Chariton County—Exhibit of Fruit.
Adair County—Exhibit of Fruits.
Darry County—Exhibit of Fruits.
Bollinger County—Exhibit of Fruits.
Buchanan County—Exhibit of Fruits.
Carroll County—Exhibit of Fruits.
Chariton County—Exhibit of Fruits.
Christian County—Strawberries.
Clay County—Exhibit of Fruits.
Clinton County—Apples.
Crawford County—Exhibit of Fruits.
DeKalb County—Exhibit of Fruits.
Dent County—Apples.
Franklin County—Fruits.
Greene County—Exhibit of Fruits.
Grundy County—Exhibit of Fruits.
Holt County—Apples.
Howard County—Exhibit of Fruits.
Jasper County—Exhibit of Fruits.
Jefferson County—Exhibit of Fruits.
Johnson County—Strawberries, Apples.
Lafayette County—Exhibit of Fruits.
Lawrence County—Exhibit of Fruits.
Lewis County—Apples.
Livingston County—Plums and Apples.
Mercer County—Apples and Pears.
Miller County—Exhibit of Fruits.

- Morgan County—Apples.
Newton County—Exhibit of Fruits.
Nodaway County—Exhibit of Fruits.
Oregon County—Apples and Peaches.
Ozark County—Apples.
Pettis County—Exhibit of Fruits.
Putnam County—Exhibit of Fruits.
Ripley County—Peaches and Apples.
Texas County—Apples.
Vernon County—Apples.
Washington County—Exhibit of Fruits.
Wright County—Exhibit of Fruits.
Geo. Addis, DeSoto—Fruits.
Jap. Allison, Rushville—Apples.
G. A. Atwood, Swedeborg—Apples.
J. W. Agee, Spring Garden—Apples.
S. P. Bailey, Versailles—Apples.
J. W. Beatty, Excelsior Springs—Apples.
C. C. Bell Fruit Co., Boonville—Apples.
T. C. Berthold, Bismarck—Pears and Apples.
J. M. Bissel, Rushville—Apples.
M. H. Brommer, Boonville—Apples.
J. S. Butterfield, Lees Summit—Fruits.
E. C. Butterfield, Blue Springs—Apples.
M. Butterfield, Farmington—Exhibit of Fruits.
C. R. Cartner, West Plains—Apples.
J. F. Childs, Buckner—Apples.
A. H. Chevally, West Plains—Apples.
E. R. Clough, Lebanon—Apples.
C. W. Cochran, West Plains—Apples and Peaches.
Hiram W. Cook, Potosi—Exhibit of Fruits.
Henry Crecelius, Mehlville—Exhibit of Fruits.
R. Daken, Skidmore—Apples.
W. T. Davis, Easton—Exhibit of Fruits.
Dr. W. T. Drace, Keytesville—Apples.
J. A. Durkes, Weston—Exhibit of Fruits.
Chas. Eisenhardt, Bellfontaine—Peaches.
Isaac Elliott, Trenton—Apples.
Alec. Fleming, Cuba—Apples.
S. F. Fletcher, Lebanon—Apples.
Lewis Fetson, Keytesville—Apples.

- H. Gassen, Lexington—Apples.
S. H. Graden, Parkville—Apples.
L. D. Grover, Cuba—Apples and Pears.
J. H. Hall, Warrensburg—Strawberries.
C. P. Harper & Co., West Plains—Fruit Exhibit.
Ed. Harriman, Utica—Apples.
T. G. Henley, Spring Garden—Apples.
John W. Hitt's Sons, Koshkonong—Apples and Peaches.
A. J. Hoefler, Jefferson City—Currants.
G. S. Homan, Easton—Fruit Exhibit.
John Howe, Pacific—Grapes.
Martin Hurt, Keytesville—Apples.
Adelia N. Jackson, West Plains—Apples and Peaches.
J. P. Jaynes, Neosho—Strawberries.
J. H. G. Jenkins, Spring Garden—Apples.
H. W. Jenkins, Boonville—Strawberries.
E. S. Katherman, Warrensburg—Strawberries.
S. L. Keis, Mountain Grove—Apples.
H. Krause, Farmington—Apples.
G. W. Logan, Logan—Apples.
J. W. Ludwig, Grabeel—Apples.
Ed. C. Luther, Oakville—Peaches.
W. O. Mather, Oakville—Peaches.
J. F. Marsh, Steelville—Apples.
W. S. Martin, DeKalb—Apples.
J. E. May, LaPlata—Fruit Exhibit.
J. F. Maxwell, Parkville—Apples.
J. W. McAdow, Weston—Apples.
J. A. McMaster, Macomb—Apples and Peaches.
L. C. McSpadden, Salem—Apples.
J. T. Mounts, Maryville—Apples.
T. J. Murphy, Wallace—Apples.
J. F. Murphy, DeKalb—Apples.
Missouri Botanical Garden, St. Louis—Grapes and Figs.
Alfred Nahm, Augusta—Exhibit of Fruits.
Henry Nier, Nursery—Peaches and Grapes.
A. T. Nelson, Lebanon—Exhibit of Fruits.
New Haven Nurseries, New Haven—Peaches.
A. L. Norton, Calumet—Apples.
G. T. Odor, Holt—Apples.
C. H. Oetting, Mansfield—Apples and Pears.

- H. H. Park, Springfield—Fruit Exhibit.
 Park College, Parkville—Apples and Pears.
 J. L. Pellham, Neosho—Apples.
 Mrs. A. Patterson, Wellston—Apples.
 C. O. Raine, Canton—Apples.
 C. L. Reynolds, Mountain View—Apples.
 G. W. Roberts, Boonville—Apples.
 A. J. Robertson, Elmont—Apples.
 A. S. Ruder, Sappington—Fruit Exhibit.
 J. C. Ruder, Afton—Fruit Exhibit.
 A. Ruebling, Augusta—Apples.
 J. J. Shaeffer, Verona—Strawberries.
 T. C. Salveter, St. Charles—Berries.
 J. W. Scott, Sullivan—Berries.
 A. J. Seabring, West Plains—Apples and Peaches.
 G. L. Sessen, West Plains—Peaches and Apples.
 G. H. Shepard, Lamonte—Apples and Pears.
 L. Slegler, St. Charles—Apples.
 L. J. Slaughter, Grain Valley—Apples.
 F. H. Speakman, Neosho—Apples and Strawberries.
 David Stanton, Faucett—Apples.
 C. W. Steiman, Dalton—Fruit Exhibit.
 Steiman & Schulte, Dalton—Apples.
 J. W. Stevenson, Trenton—Apples.
 B. F. Stewart, Rushville—Apples.
 J. L. Stilwell, Doniphan—Peaches and Apples.
 J. L. Staebler, Boonville—Apples.
 L. Southworth, Sargent—Apples.
 M. C. Surface, Kansas City—Apples.
 Dr. L. S. Talbot, Easton—Apples.
 George T. Tippin, Nichols—Strawberries.
 Topozark Orchard Co., Sunlight—Apples.
 Henry Trampe, Black Jack—Apples.
 H. Theime, Springfield—Grapes.
 E. L. Vance, Lees Summit—Apples.
 J. A. Vandeventer, Mound City—Apples.
 F. Vogt, Goodman—Apples.
 P. A. VanVraken, Grain Valley—Apples.
 S. R. Walker, Liberty—Exhibit of Fruits.
 W. S. Walker, Sullivan—Apples.
 H. S. Wayman, Princeton—Exhibit of Fruits.

Isaac Wells, Weston—Apples.

H. J. Weber & Sons Nursery Company, Nursery—Exhibit of Fruits.

J. B. Wild & Bros, Sarcoxie—Exhibit of Fruits.

L. M. Wood, Boles—Apples.

C. R. Worley, Mansfield—Apples.

L. Zellner, Granby—Grapes.

A. L. Zimmermann, Weatherby—Fruit Exhibit.

Bronze Medals.

Callaway County—Apples.

Camden County—Apples.

Cole County—Fruit Exhibit.

Gasconade County—Grapes.

Greene County Horticultural Society, Springfield—Fruits.

Knox County—Apples.

Linn County—Gooseberries.

Pike County—Apples.

Polk County—Apples.

Randolph County—Fruit Exhibit.

Ray County—Apples.

Ste. Genevieve County—Peaches.

Saline County—Apples.

Wayne County—Apples and Pears.

Webster County—Apples.

Benjamin F. Adams, Bristle Ridge—Apples.

A. Allbaugh, Farmington—Strawberries.

W. H. Allen, Boonville—Apples.

M. S. Arnold, Liberty—Cherries and Plums.

W. L. Allen, Boonville—Apples.

J. O. Allen, Huntsdale.—Apples.

Jos. D. Barber, Wallace—Apples.

E. P. Biggs, Lutesville—Fruit Exhibit.

Eli Blakeley, Doniphan—Peaches.

Mrs. R. P. Bland, Lebanon—Apples.

A. J. Blanton, Parkville—Pears.

J. P. Dolan, Burnham—Peaches.

Mrs. J. Bond, Spring Garden—Apples.

C. S. Booth, Hillsboro—Peaches.

W. E. Bower, Monett—Strawberries.

Brandsville Fruit Company, Brandsville—Apples.

H. F. Brockschmidt, Freistatt—Strawberries.

- N. N. Browning, Verona—Strawberries.
Frank Bruno, Wellston—Peaches.
Ed. Bucksach, Dalton—Plums.
John Burke, Excelsior Springs—Apples.
J. M. Charles, Graham—Apples.
T. S. Caskadon, Dalton—Apples.
J. H. Christian, Neosho—Strawberries.
E. R. Clare, Lees Summit—Apples.
A. Clingingsworth, Farmersville—Apples.
J. C. Cobb, Odessa—Pawpaws.
Frank Cockrell, Liberty—Pears.
John Conrad, Olden—Peaches.
John Conner, Jefferson City—Apples.
Jake Cox, Princeton—Pears.
W. S. Crouch, Wakenda—Apples.
J. A. Crowley, Lawson—Apples.
Mrs. Curfman, Maryville—Fruit Exhibit.
S. L. Dart Fruit Farm, Anderson—Apples.
Mrs. D. Davis, Boonville—Apples.
J. D. Davis, DeKalb—Apples.
Dix & Davis, Jefferson City—Apples.
G. A. Dietz, Olden—Strawberries.
Downing & Besterfield, Bowling Green—Apples.
G. W. Dutton, Williamsburg—Apples.
Frank Eastman, DeKalb—Apples.
N. P. Eckles, Parkville—Apples.
E. E. Eiler, Weston—Apples.
Frank Elder, Thayer—Peaches.
William Eine, Catawissa—Pears.
E. C. Evans, Eureka—Apples and Peaches.
J. C. Evans, Harlem—Persimmons.
August Eves, Wellston—Peaches.
H. P. Faith, West Plains—Apples.
O. M. Fry, Louisiana—Apples.
J. L. Finnell, Keytesville—Apples.
D. Gibson, Irondale—Apples.
A. H. Gilkeson, Warrensburg—Apples.
J. W. Goode, Boles—Plums.
S. D. Gregg, Independence—Raspberries.
L. E. Grigsby, Rockport—Apples.
L. E. Hammond, Skidmore—Apples.

- Wm. Hearst, DeKalb—Apples.
Flem Harris, Lee's Summit—Plums.
Hermann Grape Nursery, Hermann—Grapes.
J. A. Hobson, Tacoma—Apples.
Henry Holtgrove, Oregon—Apples.
D. W. Hunt, Huntsdale—Apples.
Ben Hoskinson, Doniphan—Apples.
Howe & Son, West Plains—Peaches.
E. M. Hutchinson, Sargent—Apples.
R. B. Ingraham, Marshall—Apples.
W. A. Irvine, Springfield—Apples.
J. M. Jackson, Smithville—Apples.
R. Jackson, Neosho—Strawberries.
C. S. Jenkins, Rocheport—Apples.
Jack Jeninson, Forest City—Apples.
Jenkins & Jenkins, Spring Garden—Apples.
S. H. Johnson, Parkville—Apples and Peaches.
W. B. Jennings, Moberly—Peaches.
E. Kahnika, Dalton—Plums.
W. K. Kavanaugh, Selma Farm—Apples.
Ed. Kemper, Hermann—Grapes.
Knoxall Fruit Company, Olden—Peaches.
Mrs. E. Krumsick, Washington—Apples.
J. Lambert and J. H. Murphy, Wallace—Peaches.
M. Lathrop, Trenton—Apples.
B. Logan, Logan—Strawberries.
W. S. Lutes, Lutesville—Strawberries.
F. Luehrman, Lexington—Strawberries.
Manhattan Seed and Land Co., Deslodge—Peaches.
C. T. Mallinckrodt, St. Charles—Apples and Peaches.
F. Martin and F. Taylor, Lamonte—Apples.
E. L. Mason & Son, Trenton—Apples.
H. Miller, Graham—Apples.
S. M. Mason, Jefferson Barracks—Peaches.
R. M. Massey, Kearney—Apples.
Levi Mane, Cuba—Apples.
L. A. McCombs, Carrollton—Apples.
Scott McCormick, Monett—Strawberries.
McQueen Bros., Verona—Strawberries.
J. F. Mealer, Bals—Peaches.
A. Mehl, Afton—Peaches.

- Henry Meyer, Bridgeton—Grapes.
W. M. Meyersick, Union—Pears.
H. Miller, Graham—Apples.
W. H. Mikesell, Doniphan—Apples.
Charles C. Miller, Boonville—Peaches and Grapes.
J. B. Millsap, Latty—Apples.
J. C. Monsees, Beaman—Apples.
James G. Montgomery, Maryville—Apples.
Mrs. Montgomery, Maryville—Currants and Gooseberries.
B. F. Moors, Weston—Apples.
Mount Pleasant Wine Company, Augusta—Grapes.
A. W. Mueller, Augusta—Apples.
R. W. Mueller, Augusta—Apples and Peaches.
William H. Mueller, Ferguson—Peaches.
J. H. Murphy, Farley—Apples.
N. F. Murray, Oregon—Apples.
Louise Murtfeldt, Kirkwood—Peaches and Pears.
Peter Nold, St. Joseph, Rural Route No. 2—Pears.
J. L. Northington, Nevada—Apples.
George W. Null, Maryville—Apples and Peaches.
Oberle Bros., Weldon Springs—Apples.
A. W. Orr, Mt. Vernon—Strawberries.
Fred Oetting, Mansfield—Apples.
Ozark Plant Company, Logan—Strawberries.
Henry Oetting, Mansfield—Apples.
Ed. Otto, Washington—Apples.
George F. Parson, Littlerock—Chestnuts.
S. L. Peer & Son, Mansfield—Apples.
J. C. Pfeister, Liberty—Apples.
E. L. Pollard, Summerville—Apples.
Amos Probst, Kirksville—Apples.
F. W. Quick, Doniphan—Apples.
P. Raines, Unionville—Apples.
W. J. Rippetto, Easley—Apples.
J. W. Reed, Bolivar—Apples.
John R. Rice, Walnut Ridge—Apples.
N. S. Richardson, Canaan—Apples.
Gus Riske, Augusta—Apples.
Wm. Robinson, Cottbus—Apples.
D. A. Robnett, Columbia—Apples.
Andrew Roost, Old Orchard—Peaches.

- Edward Roberts, Easton—Apples.
G. R. Robertson, Marshall—Apples.
Simon Rousch, Edina—Apples.
M. Schoposse, Louisiana—Apples.
C. J. Samersby, Macomb—Peaches and Apples.
Benjamin Sams, Warrensburg—Apples.
Mrs. L. E. Scammon, Olden—Peaches.
Albert Schieber, Odessa—Plums and Pears.
H. Schnell, Glasgow—Fruit Exhibit.
C. D. Schutte, Lutesville—Strawberries.
C. C. Schupbach, Chadwick—Strawberries.
H. C. Shire, Odessa—Pears.
Albert Schieler, Odessa—Plums and Pears.
E. E. Siler, Weston—Apples.
J. P. Sinnock, Moberly—Cherries and Gooseberries.
Sloan Bros., Burnham—Peaches.
Chas. Smith, Neosho—Strawberries.
L. P. Snyder, Shaw—Apples and Peaches.
R. W. Smith, Rocheport—Apples.
Guy Slead, Mansfield—Apples.
Adam Stein, St. Charles—Apples.
W. J. Sullivan, Doniphan—Apples.
C. Thorp, Weston—Apples.
Michael Tobin, Maryville—Apples.
Chas. Tuebner, Lexington—Peaches and Nuts.
Henry Utland, Lexington—Apples.
S. H. Van Trump, Orrick—Apples.
Henry Wallis, Wellston—Grapes.
Fred Warnhoff, Cuba—Peaches.
Waveland Fruit Farm, Olden—Peaches.
William Westerfelt, St. Charles—Apples.
West Plains Fruit Company, West Plains—Apples.
W. E. Williams, Nevada—Apples.
C. H. Williamson, Utica—Apples.
W. J. Wilson, Wakenda—Apples.
G. R. Wise, Wellston—Peaches.
M. S. Wycoff, Unionville—Apples.
T. K. Whitmeyer, West Plains—Peaches.
C. R. Williamson, Mt. Vernon—Apples.

"THE MISSOURI BOOK."

The book known as the "State of Missouri" is a work issued by the Missouri Commission of the Louisiana Purchase Exposition, of six hundred pages with 1,200 original photographic illustrations, and is filled with information about all our great industries and concerning every county in the State and their special advantages. It is worthy of being placed in the library of every home in the State. A new edition will be published, including a list of all awards made to Missouri exhibits at the fair. Copies of this book may be secured free of charge until the supply is exhausted, by the head of any family sending thirty-five cents, for the postage, to Walter Williams, Columbia, Mo.

 REPORT OF TREASURER, W. T. FLOURNOY, DECEMBER,
1904.

DISBURSEMENTS.

1904.

June 11, Premiums	\$141.00	
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Warrant No. 554.....		\$141.00
June 11, W. T. Flournoy, Ex. Committee, May 16....	23.55	
J. C. Whitten, June meeting.....	13.30	
W. T. Flournoy, June meeting.....	16.25	
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Warrant No. 555.....		53.10
June 11, W. G. Gano, expenses, June meeting.....	\$23.70	
C. H. Dutcher, expenses, June meeting.....	18.45	
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Warrant No. 556.....		42.15
June 11, D. A. Robnett, Ex. Com., May 16.....	\$11.20	
D. A. Robnett, expense June meeting.....	16.85	
G. T. Tippin, expense June meeting.....	21.75	
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Warrant No. 557.....		49.80

June 11, Deposit in Miss. Valley Trust Co.....	\$500.00	
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Warrant No. 558.....		500.00
June 11, L. A. Goodman and Asst., expenses.....	\$22.00	
Salary of secretary for June.....	66.66	
Salary of typewriter.....	20.00	
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Warrant No. 559.....		108.66
July 19, J. C. Whitten, expense June meeting.....	\$5.00	
P. O. bill.....	20.00	
Freight and express.....	18.40	
Salary of secretary for July.....	66.66	
Salary of typewriter.....	20.00	
Bond of treasurer.....	10.00	
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Warrant No. 560.....		140.06
July 20, Tribune Printing Co., reports.....	\$278.47	
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Warrant No. 561.....		278.47
Aug. 6, Express, etc.	\$2.20	
J. S. Butterfield, expense June meeting.....	20.30	
C. H. Williamson, expense June meeting.....	5.85	
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Warrant No. 562.....		28.35
Aug. 24, Post-card and paper.....	\$13.75	
Freight	7.15	
P. O. bill	5.00	
Salary of secretary for August.....	66.66	
Salary of typewriter for August.....	20.00	
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Warrant No. 563.....		112.56
Aug. 24, J. C. Whitten, Ex. Committee meeting.....	\$11.30	
W. T. Flournoy, Ex. Committee meeting....	15.55	
C. H. Dutcher, Ex. Committee meeting.....	11.15	
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Warrant No. 564.....		38.00
Sep. 16, Scotford S. & S. Co.....	\$3.50	
Hudson-Kimberly Pub. Co.....	65.75	

K. C. Paper House.....	10.16	
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Warrant No. 565.....		79.41
Sep. 16, W. G. Gano, expense St. Louis and return...	\$15.00	
C. B. McAfee, expense St. Louis and return.	10.00	
S. A. Hoover, expense St. Louis and return.	16.50	
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Warrant No. 566.....		41.50
Sep. 30, Express	\$6.48	
P. O. bill.....	6.00	
Salary of secretary for September.....	66.66	
Salary of typewriter.....	20.00	
		<hr/>
Warrant No. 567.....		99.14
Oct. 18, Express and telegrams.....	\$8.18	
P. O. bill	5.20	
E. Westman, stenographer.....	5.00	
Crescent Printing Co.....	3.25	
Salary of secretary for October.....	66.66	
Salary of typewriter.....	20.00	
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Warrant No. 568.....		108.29
Nov. 12, Expense C. H. Dutcher, Ex. Com., Oct. 5..	\$10.15	
Expense W. G. Gano, Ex. Com., Oct. 5.....	12.55	
Expense W. T. Flournoy, Ex. Com., Oct. 5...	16.05	
		<hr/>
Warrant No. 569.....		38.75
Nov. 21 Express, paper and stamps.....	\$8.50	
Salary of secretary for November.....	66.66	
Salary of typewriter for November.....	20.00	
P. O. bill.....	25.00	
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Warrant No. 570.....		120.16
Dec. 13, W. G. Gano, St. Louis and expenses.....	\$16.00	
C. H. Dutcher, St. Louis and expenses.....	9.35	
J. C. Whitten, St. Louis and expenses.....	19.85	
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Warrant No. 572.....		45.20

Whitehead and Hoag Co., 1,000 badges....	\$45.35	
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Warrant No. 573.....		45.35
Dec. 26, Scotford S. & S. Co., 2,000 programs.....	\$15.00	
K. C. Paper House, 1,000 wooden plates....	3.50	
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Warrant No. 574.....		18.50
Express, \$1.15, \$0.75, \$1.65, \$1.05, \$1.30,		
\$16.50	\$22.40	
Expenses of L. A. Goodman and typewriter to		
Neosho and return and meals.....	12.00	
Salary of secretary for December.....	66.66	
Salary of typewriter for December.....	20.00	
		<hr/>
Warrant No. 575.....		121.06
Premiums on fruit at Winter meeting.....	\$50.50	
Express on fruit at Winter meeting.....	10.88	
Hotel bills	50.80	
Stationery	2.90	
Meals and hack hire.....	6.20	
J. S. Butterfield, expenses.....	15.00	
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Warrant No. 576.....		136.28
Dec. 30, Expenses Neosho meeting, H. S. Wayman,		
R. R. fare.....	\$10.30	
H. S. Wayman, hotel bills.....	1.70	
C. H. Dutcher, R. R. fare.....	8.60	
Other expenses.....	.90	
W. T. Flournoy, R. R. fare.....	1.85	
W. T. Flournoy, 'bus and hotel.....	.75	
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Warrant 577		24.30
Dec. 30, Expenses Neosho meeting, S. A. Hoover,		
R. R. fare.....	\$14.00	
S. A. Hoover, hotel.....	2.80	
W. H. Chandler, R. R. fare.....	8.55	
W. H. Chandler, hotel.....	.75	

J. C. Whitten, R. R. fare.....	9.50	
J. C. Whitten, meals.....	3.25	
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Warrant 578		38.85
Dec. 30, Expenses Neosho meeting, W. G. Gano, R. R. fare	\$6.05	
W. G. Gano, meals.....	1.20	
Mrs. M. D. Chandler, R. R. fare.....	5.90	
Mrs. M. D. Chandler, hotel.....	3.00	
P. O. bill.....	33.55	
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Warrant 579		49.70

Receipts.

June 7, Balance on hand.....	\$347.45	
June 11, Recd. of State Treasurer.....	791.36	
July 20, Recd. of State Treasurer.....	813.24	
July to December memberships, L. A. Goodman....	41.00	
Memberships, W. T. Flournoy.....	49.00	
Sept. 30, Recd. of State Treasurer.....	398.96	
Dec. 30, Recd. of State Treasurer.....	746.44	
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Total	\$3195.45	
Total disbursements	2458.64	
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Balance	\$736.81	

The accounts since the meeting of the Society have been approved by the Executive Committee.

ACCOUNT OF FUNDS IN HANDS OF MISSISSIPPI VALLEY
TRUST CO.

July 9, 1900, Deposited by A. Nelson, Treasurer.....	\$1000.00	
July 17, 1901, Interest on \$1,000.....	40.00	
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Balance.....	\$1040.00	
July 21, 1902, Interest on \$1040.....	\$31.20	
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Balance.....	1071.20	

July 21, 1903, Interest on \$1071.20.....	\$21.42	
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Balance.....		1092.62
June 11, 1905, Deposit.....	500.00	
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Paid out of above by W. G. Gano, Treas.....		1592.62
For two desks and four chairs.....	\$100.00	
For Couch	40.00	
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Total.....		140.00
Sept. 16, Warrant 619, E. C. Butterfield, Expenses to St. Louis, 13 days.....	\$35.75	
F. H. Speakman, expenses St. Louis, 12 days	34.25	
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Total.....	\$70.00	
Nov. 21, Warrant 621, N. F. Murray, Expenses St. Louis, 6 days	22.50	
J. C. Evans, Expenses St. Louis, 10 days	30.00	
Hy. Schnell, Expenses St. Louis, 10 days	28.50	
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Total.....	\$81.00	
Dec. 13, Warrant 620, N. F. Murray, Balance.....	3.85	
H. S. Wayman, Expense St. Louis, 6 days	22.50	
W. G. Gano, Expense St. Louis 6 days	12.00	
	<hr/>	
Total.....	\$38.35	
		<hr/>
		\$189.35
		<hr/>
		\$329.35
		<hr/>
Balance in Miss. Valley Trust Co.....		\$1263.27
Not including interest earned in 1904.		

REPORT OF FINANCE COMMITTEE.

Mr. President, your committee on finance beg to report that they have looked over the receipts and vouchers of the Treasurer and find his report to be correct.

N. F. MURRAY,
DANIEL LOWMILLER,
Committee.

J. M. Irvine—I move that the report be accepted.
The motion was seconded and carried.

REPORT OF COMMITTEE ON AWARDS.

Your committee on awards find as follows:

D. Lowmiller, Parkville—16 varieties, 64 plates.....	\$10.00
F. H. Speakman, Neosho—10 varieties, 114 plates.....	10.00
J. M. Hall, Neosho—4 varieties, 50 plates.....	6.00
J. E. May, LaPlata—2 varieties, 50 plates.....	3.00
Mrs. H. T. Wheeler, Kansas City—Preserves and jellies....	5.00
F. Vogt, Goodman—4 varieties, 6 plates.....	3.00
John Roeschi, Neosho—2 varieties, 4 plates.....	3.00
F. J. Gettings, Neosho—2 varieties, 10 plates.....	2.50
H. W. Cook, Potosi—2 varieties, 23 plates.....	2.50
Payne Sisters, Everton—1 variety, 15 plates.....	2.00
Chas. W. Steiman, Dalton—3 varieties, 8 plates.....	2.00
R. S. Garey, Neosho—2 varieties, 3 plates.....	1.50
<hr/>	
Total	\$50.50

We find also a small collection of models of apples made by Miss Rubart, Columbia, Mo., and exhibited by Wild Bros. of Sarcoxie, which deserve honorable mention.

We find also a single specimen of Brewington Pippin, presented by Mr. Wild. This apple was introduced by T. T. Lyon.

J. C. EVANS, JR., Olden, Mo.
GEO. T. LINCOLN, Bentonville, Ark.
W. T. BURKAM, St. Louis, Mo.

Committee.

REPORT OF OBITUARY COMMITTEE.

To the Missouri State Horticultural Society:

Your committee with deep sadness, shared by every member of our society, herewith submit for record upon the pages of the minutes, this tribute in memory of the Hon. Charles W. Murtfeldt of Kirkwood, whose recent death took from our ranks and leadership one of our most valuable and beloved members and officers.

IN MEMORIAM.

In the death of Charles W. Murtfeldt of Kirkwood, on July 13th of the present year, this society suffered the loss of its oldest member in years and one of the few oldest in association. He has worked with it and for it in its infancy and rejoiced in its rapid growth in membership, in influence, industrial and commercial, and in its present stage of development into an educational institution second to none in the State, and its interests continued to be dear to him to the very last. A brief sketch of his life may, therefore, be of interest to those present at this meeting.

Charles William Murtfeldt was born in the city of Bueckeberg, the capital of one of the small principalities in the north of Germany, and received practically all his schooling in the grammar schools of that city. In 1833 he emigrated with his parents and only brother to this country, engaging in the mercantile business in New York, afterwards in agriculture, dairying and fruit growing in Illinois.

In 1844 he followed his father to St. Louis, but soon after, becoming fascinated while on a visit to his brother-in-law, with the noble prairies, the beautiful groves and many crystal streams of Northern Illinois, he resolved—all ignorant as he was of the duties and economics of the profession—to give up mercantile business and become a farmer, and in 1850 he acquired a fine and fertile tract of land in Ogle county not far from Rock river, to which he removed his family. For a specialty he chose the dairy business, as marketing butter in St. Louis, to which there was easy transportation by steamboat on the Illinois river, was less expensive of time and money than hauling wheat to Chicago, a distance of ninety miles. His father, ever an enthusiast in flower and fruit growing, about this time disposed of his property interests in St. Louis and joined his son in Illinois, superintending the planting and care of large orchards, grape vines and ornamental shrubbery on both farms, so the subject of this

sketch was enabled to become experimentally familiar with this branch of agricultural industry also. About the same time he assisted in organizing, and was for several years secretary of the Ogle County Agricultural Society, one of the earliest in the state to hold annual fairs, which had quite extended celebrity for the excellence of their management and the variety and superior quality of the exhibits. He was also a very enthusiastic member of the State Agricultural Society, at which he was a successful exhibitor of dairy, farm and orchard products.

In the early fifties he made his debut as an agricultural writer, his valuable contributions appearing in the *Prairie Farmer* of Chicago and the *Valley Farmer*, "the precursor" of the *Rural World*, while more distinctly literary articles were welcomed in other leading periodicals of Chicago and other cities.

In 1863, in order to secure better educational advantages for his family, he exchanged a portion of his farm for a small but well stocked nursery just outside the city limits of Rockford, Ill., where for several years he conducted a thriving business and increased his knowledge of horticulture and gardening. During this period his pen was employed in editing an agricultural page in the *Rockford Register* and for two years a German edition of the *Prairie Farmer*. In the autumn of 1868 Col. Colman, having been elected Lieutenant-Governor of Missouri, offered the editorship of the *Rural World* to Mr. Murtfeldt and the latter, accepting the position, removed with his family to St. Louis.

The following year he was elected Secretary of the State Board of Agriculture, a position retained for three years. In the meantime he had removed his residence to Kirkwood, where, on the five acre ground of the new home, many farm enterprises, on a small scale, were carried on, and much fine fruit and a wealth of beautiful flowers were annually produced.

In 1874 he took a position in the U. S. Sub-treasury of St. Louis, which he continued to fill for thirteen years, keeping up his interest, however, in all matters of the farm and garden and his association with the agricultural and horticultural societies of Missouri and neighboring states.

In 1890, having retired from active business, he became a special contributor to the agricultural page of the semi-weekly *Republic*, with the editors and publishers of which he maintained for fourteen years the most cordial relations and his weekly contributions to this journal included much of the best and most varied literary work of

his life. After his death Mr. J. R. Trueheart, editor of the semi-weekly edition, wrote to his daughter: "I hardly need say that I feel deeply the death of your father, as a personal and professional loss. For fourteen years he was always personally a most welcome visitor and his writings most welcome contributions to the Republic. His broad information, his native intelligence, his zeal and enthusiasm in all things pertaining to rural life placed him, in my estimation, among the foremost of rural writers in the United States. In his prime between three score years and ten and four score, and beyond the latter limit, his work was better than that of many a man of equal parts at sixty."

This flattering tribute, from one of such distinguished ability and fine judgment in literary matters was much appreciated by the family.

As a man of high character and deeply religious nature Mr. Murtfeldt needs no introduction to this Society. He was for many years an elder in the Presbyterian church in Kirkwood and ever active and zealous in every church work and enterprise and ever happy in public or private to speak a word for the Master.

His long service in this Society has not only left its mark upon our printed pages, but has also indelibly impressed itself upon the hearts of those who knew and came in contact with him. His influence which was always toward a higher and better life will never die. While he rests from his labors every horticulturist can say, he has done his life work well, which is much to leave to us, but more that he has given to this Society, his dearly beloved daughter, Miss Mary, whose able services are ever prized.

To the family we extend our most sincere sympathy in the irreparable loss and feel assured that they are not among those who mourn without hope.

We recommend that a copy of this memorial be sent to the family, and that it be spread upon our minutes and printed in our report.

GEO. T. TIPPIN, Nichols, Mo.

WILLIAM H. BARNES, Topeka, Kas.

W. G. GANO, Parkville, Mo.

Committee.

Mr. J. C. Evans moved that the report and resolutions be adopted by a rising vote. A motion was put and the Society stood to adopt the resolutions.

REPORT OF SPECIAL FINANCE COMMITTEE. :

Pres. Whitten.—In the absence of Mr. Greensfelder, chairman of the Special Committee on Finance, who was unable to be present on account of a meeting of the State Board of Agriculture, I will comply with his request and read the report which I have received from him. Other members of the committee are also unavoidably absent.

Columbia, Mo., Dec. 7, 1904.

Professor J. C. Whitten, Esq., Pres. Mo. Horticultural Society, Columbia, Mo.:

Dear Sir—Have received this day a letter from Mr. Geo. B. Ellis, Secretary of the Missouri State Board of Agriculture, notifying me that the President of the Board had appointed me a member of the auditing committee and to make a report at the next annual meeting of the Board to be held Dec. 20, 1904.

This will prevent me from being present at the meeting of the Horticultural Society at Neosho, which is to be held on the same day, I therefore hand you the report of the committee, appointed by you to examine into the expenditure of a certain fund of your Society, which I had prepared to read at the Society meeting. Sorry I am of the conflict of meetings, as I should have been glad to be with you.

Yours truly,

M. B. GREENSFELDER.

Clayton, September 14, 1904.

Professor J. C. Whitten, President of the Horticultural Society of Missouri:

Dear Sir—On August 31st, 1904, you appointed as a committee M. B. Greensfelder, Clayton, Mo., chairman; Professor S. A. Hoover, Warrensburg, Mo.; Capt. C. B. McAfee, Springfield, Mo., to act as per resolutions adopted at the meeting of your Society held the 7th day of June, 1904, which reads as follows:

“I move you, Mr. President, that a committee of three be appointed to investigate this fund of \$1,000.00 or more, for which no report was made to this meeting by the treasurer, ascertaining who is the custodian of this fund, and (2) by whose authority they are acting; (3) ascertaining from what source the fund was derived, tracing it from its incipency down (4) to the present date; (5) in-

forming the Society who has been handling it; (6) what additions have been made to it; (7) who has been drawing warrants or checks against it and for what purpose such disbursements have been made. This committee further to have the authority to at once take possession of this fund and turn it over to the treasurer who is the proper custodian of all funds belonging to the Society."

On Sept. 8, 1904, the gentlemen named by you met at the Horticultural Hall, World's Fair Grounds, together with Treasurer W. G. Gano of Parkville, and Secretary L. A. Goodman, and as answers to the questions asked in above resolution, report as follows:

1. The custodian of the fund is the Mississippi Valley Trust Co. of St. Louis, in account with the Missouri State Horticultural Society.
2. Checks, when drawn on this fund, are signed by the Treasurer of your Society by order of the Executive Committee.
3. The source from whence the fund was derived, tracing it from its incipency, is as follows:

On December 10, 1892, there was a balance in treasury of \$302.31, as per report herewith submitted as it appears on page 140 of the report of 1892.

Carthage, December, 10, 1892.

Report of A. Nelson, treasurer of the Missouri State Horticultural Society, for the year ending December 10, 1892.

1892.		RECEIPTS.	
June 8.....	Balance on hand at last report.....		\$591 98
July 16.....	Draft from State Treasurer.....		208 33
Aug. 8.....	" " " ".....		208 66
Sept. 10.....	" " " ".....		208 35
Oct. 8.....	" " " ".....		208 33
	Membership.....		21 00
Nov. 5.....	Draft from State Treasurer.....		208 33
	Total.....		1,654 96
	Membership.....		24 00
	Nevada Bank.....		36 19
			<u>\$1,715 15</u>
1892.		DISBURSEMENTS.	
June 9....	Warrant No. 189, postoffice, \$13.93, express, \$2.55, railroad Jefferson City, \$12.55, salary for April, \$66.66.....		\$95 69
June 9.....	Warrant No. 190, postoffice, \$40.44, printing, \$20 00, railroad St. Joseph, \$7.30, salary for May, \$66.66.....		124 44
July 11.....	Warrant No. 191, postoffice, \$13.08, express, \$3.10, salary for June, \$66.66.....		84 84
July 14.....	Warrant No. 192, expense at Chillicothe, cash paid for express, etc.....		37 05
July 14.....	Warrant No. 193, expenses at Chillicothe for society.....		78 40
July 14.....	Warrant No. 194, premiums at summer meeting.....		30 00
Aug. 3.....	Warrant No. 195, postoffice bill \$87.22, freight \$5.18, postoffice cards, \$6.50, railroad to St. Louis, \$13, salary July \$66.66.....		173 46
Aug. 3.....	Warrant No. 196, 40 mounted birds.....		40 55
Sept. 5.....	Warrant No. 197, A. Nelson, expenses to St. Louis.....		13 80
Sept. 6.....	Warrant No. 198, postoffice, \$13.17, freight and express, \$7.68, salary for August, \$66.66.....		87 51
Oct. 5.....	Warrant No. 199, Tribune Printing Co., reports.....		60 50
Nov. 4.....	Warrant No. 200, postoffice, \$35.78, express, railroad and printing, \$37.55, salary for September and October, \$133.33.....		203 66
Dec. 10....	Warrant No. 201, postoffice, \$25.98, printing and plates, \$13.30, expenses at Carthage, \$17.35, salary for November, \$ 6.65.....		143 29
Dec. 10....	Warrant No. 202, premiums, \$90, postoffice, tablets, etc., \$8.80.....		98 80
Dec. 10....	Warrant No. 203, expenses J. C. Evans, N. F. Murray, S. Miller, A. Nelson, M. E. Murtfeldt, etc.....		125 35
Dec. 10....	Warrant No. 204, balance due on birds.....		7 50
			<u>\$1,412 84</u>
	Balance in Treasury.....		\$502 31

A. NELSON, Treasurer.

We, the Committee on Finance, having examined the accounts of the Treasurer and the warrants issued by the President, would report that we have examined the same, and find them correct.

G. W. HOPKINS,

HENRY SPEER,

A. B. SLOAN,

Committee.

On pages 260 and 261 of the report for 1900 there is printed as follows:

Report of Treasurer A. Nelson, Lebanon, Mo., Dec. 6, 1900.

I am glad to be able to report to you such a prosperous condition of our finances. While we have been well treated by our State in all its appropriations, yet we have been all this time doing something



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
CENTER PYRAMID.

for ourselves also; and we have taken part of this fund of our own making and put it in a safe place for keeping, so that we may always have something to use in case of necessity.

At the close of our report on December 10, 1892, as will be seen on page 140 of the report for 1892, we had on hand of our savings \$302.31.

The Society has earned and received in cash from

World's Fair in settlement, June, 1894.....	\$165 80
From St. Louis Exposition in November, 1894.....	150 70
From St. Louis Exposition in November, 1893.....	236 81
From Omaha Exposition.....	323 70
Total.....	\$1,179 32

This money was paid for the Society by the officers giving their time and energy for the upholding of the glory of our State in its fruit displays, and should be kept for some special purpose for the work and honor of the Society. Of this \$1,179.32, by a vote of the Executive Committee, I have deposited with the Mississippi Valley Trust Co. of St. Louis, Mo., \$1,000 drawing four per cent interest for one year, and hold their certificates for the above amount.

RECEIPTS.			
June 30....	900, balance on hand.	\$229 78	
	July, cash from State Auditor.....	1,176 05	
	October, cash from State Auditor.....	490 69	
	From Omaha Exposition.....	323 70	
Dec. 7.....	Membership 49, A. Nelson.....	40 00	
	Membership 17, L. A. Goodman.....	17 00	
	Total.....		\$2,367 22
DISBURSEMENTS.			
	Deposited with Mississippi Valley Trust Co.		\$1,000 00

Farmington, Mo., Dec. 6, 1900.

Mr. President—We, your committee, beg leave to report that we have carefully examined the accounts of Treasurer Nelson, finding due credit for all moneys received and vouchers for all moneys paid and the same to be correct as reported.

GEO. T. TIPPIN,
J. C. EVANS,
T. R. PEYTON,

Committee.

4. The \$1,000 deposited with the Trust Company realized for the first year \$40.00 interest; for the second year at 3 per cent, \$31.20; for the third year, at 2 per cent, \$21.42; so that on July 21, 1903, there was on deposit \$1,092.62.

On page 269 of the 44th Annual Report for 1901, the Committee on Finance report as follows:

"The Committee on Finance beg leave to report that they have carefully examined the treasurer's report and find the same to be correct. Vouchers accompany the report showing the disbursements of all moneys paid out. We also find certificate of deposit in Mississippi Valley Trust Co. bank to the credit of the Missouri State Horticultural Society for \$1,071.20, dated July 17, 1901.

GEO. T. TIPPIN, Chairman,

H. S. WAYMAN,

F. H. SPEAKMAN.

On motion, report of Committee on Finance was accepted."

5. As to who has been handling it, is answered that the fund has been out on interest from 1900 up to date, with one draft made upon it as will appear later on.

6. On the 13th day of June, 1904, an addition of \$500 was made to the fund by order of the Executive Committee of your Society, so that with interest accumulated there was a balance of \$1,512.52 at this date to the credit of the Society, as per deposit book submitted to us of the Trust Company.

St. Louis, Sept. 13, 1904.

Mr. M. B. Greensfelder, P. O. Box 96, Columbia, Mo.:

Dear Sir—Referring to your favor of 12th inst., I beg to advise the balance to credit of account Missouri State Horticultural Society at close of business today is \$1,477.61. This account is subject to check of the Society when signed by the Treasurer.

Your very truly,

H. C. IBBOTSON, Assistant Secretary.

7. The only draft made on the fund to date was ordered by the Executive Committee and a check was drawn by Treasurer Gano December 21, 1903, for \$100.00, which was used to pay for two desks and four chairs bought by the Society from G. B. Carstarphen, trustee of U. S. Trust Co., which furniture is now in use at the Mo. Exhibit in Horticultural Hall at St. Louis, and after the Fair will be subject to the order of your Executive Committee. On page 197 of the 46th Report for 1903, you find as follows:

"The Society also has on deposit in the Mississippi Valley Trust Co. at St. Louis \$992.62 and accrued interest.

We, your Committee on Finance, have examined the report of the Treasurer, together with the vouchers and bills, and find all correct as reported.

(Signed) T. H. TODD, New Franklin,
HENRY SCHNELL, Glasgow,
W. T. FLOURNOY, Marionville."

The \$100.00 expended for the furniture is deducted from the fund as reported by the Finance Committee.

8. The fund being already subject to the joint order of the Treasurer and your Executive Committee on deposit at the Mississippi Valley Trust Co., there was no action necessary on the part of this committee to make use of authority granted to take possession of the fund and turn it over to the Treasurer.

September 30, 1904.

The difference between \$1,512.52 on hand Sept. 8, 1904, and \$1,477.61 in Trust Company on Sept. 13, 1904, is accounted for by an accretion of interest amounting to \$5.09, and a draft on the fund for \$40.00 to pay for a couch now in use at World's Fair headquarters.

Thus reporting, we are,

Yours truly,

M. B. GREENSFELDER,

S. A. HOOVER,

Committee.

Springfield, October 13, 1904.

M. B. Greensfelder:

Dear Sir—If I failed to sign and approve report, it was an oversight. I do approve it; and to save time authorize you to sign my name to report.

Yours, etc.,

C. B. McAFEE.

P. S.—Been absent for the last week.—Mc.

J. M. Irvine—I move that the report be accepted and the committee be discharged.

C. W. Steinman—I second the motion.

The motion was carried and the report was accepted and committee discharged.

Princeton, Illinois, Dec. 19, 1904.

To the officers and members of the Missouri State Horticultural Society—Greeting:

This is to certify that the bearer, Mr. E. G. Mendenhall of Kinmundy, Ill., is a duly authorized delegate from the Illinois State Hor-

ticultural Society to your annual meeting to be held at Neosho, Mo., Dec. 20-22, 1904.

L. R. BRYANT, Secretary.

Hannibal, Mo., Dec. 20, 1904.

Mr. L. A. Goodman, Sec'y Mo. S. Hor. Soc'y, Neosho, Mo.:

My Dear Sir—For the last two weeks I have expected to be with you at this meeting. So sure was I of this that I had myself appointed delegate to represent the A. A. G. Congress at your meeting. Yesterday I received a message from Chicago requiring my personal attention to matters of much importance to me in Lincoln county, Mo., and will go there today to remain until Friday.

I need not say how much I regret this for I am never so much at home as in a meeting of Horticulturists, and I feel that you are having a good meeting. I now delegate my credentials as delegate of A. A. G. C. to you and authorize you to represent the Congress at your meeting. You will remember the fees are \$3.00 and \$2.00, and I will also say that while Missouri has held first place as to numbers all along to this year, Illinois has taken the lead at this time, and unless we hustle we will drop into second place. The printer is now at work on our report, and I hope to have it out early in January. To all new members I will send all three of our reports and one of our buttons.

I enclose list of old members who have not renewed and who are likely to be in attendance at your meeting. Again regretting my unavoidable absence and wishing you a grand and successful meeting I am

Very truly yours,

T. C. WILSON.

It will pay any apple grower to become a member and secure all these reports. Mr. T. C. Wilson, Hannibal, Mo., is the Secretary, and all orders and memberships should be sent to him.

ELECTION OF OFFICERS.

N. F. Murray.—I am proud and happy to say that we have plenty of material with which to fill the positions of honor that are ours to give. The rule of this Society is that no officer except the Secretary can hold his position for more than two terms, but our precedent is

for all the officers to hold their positions for the two terms. The present incumbent of the office of President has filled most ably this position, I therefore take pleasure in putting in nomination for re-election the Hon. J. C. Whitten.

The nomination was seconded by W. P. Stark and C. W. Steiman, also by Louis Erb for Tennessee and by Capt. Lincoln for Arkansas.

N. F. Murray.—I move that the rules be suspended and the Secretary cast the unanimous vote of the Society for Dr. Whitten for President. Motion was seconded by a number of members.

Applause followed and Mr. Murray put the question which was unanimously carried and the Secretary cast the vote and declared Dr. Whitten elected. Calls were heard over the house for a speech.

Pres. Whitten.—I had thought that at the close of my present term the position should go to some one who is practically interested in fruit growing. Last year I accepted the position as a special courtesy and appreciated it more than I can tell. I am busy in my professional work with other things, but I assure you that the extra amount of work and energy required for the duties of this office have for the last year been a great pleasure to me, because I get in professional touch and close acquaintance with the other officers and members of the Society. I have felt that at the end of this year all courtesy had been fulfilled, but in accepting your graciousness I am even more grateful and want to express my heartfelt appreciation. I mean to serve and work with you and do as you wish. The position is that of servant to the Society and I solicit your co-operation. The service of the Society is a great pleasure and privilege to me and I thank you for it.

The next office is that of first vice-president, and nominations are now in order.

Louis Erb.—I nominate Mr. Dutcher.

The nomination was seconded by Mr. Murray and Mr. Burkam and by Capt. Lincoln on behalf of Arkansas.

G. A. Atwood.—I move that we suspend the rules and the Secretary cast the unanimous vote of the Society for Mr. Dutcher for first vice-president.

C. W. Steiman seconded the motion which was carried and the Secretary cast the ballot.

Pres. Whitten.—You have elected Mr. Dutcher as first Vice-president, and nominations are now in order for second Vice-president.

Mr. Murray.—I put Mr. W. G. Gano in nomination, and as I hear no other name I move that we suspend the rules and the Secretary cast the unanimous ballot for Mr. Gano as second Vice-president.

Mr. A. Chandler and Mr. Steiman seconded the motion. The motion was put and carried and the Secretary read the vote and declared Mr. Gano elected. Call for a speech.

W. G. Gano.—I thanked you last year for electing Prof. Whitten and Mr. Dutcher, but I can do it again.

C. H. Dutcher.—This is all according to the scriptural idea that the first shall be last. The Republican party is represented by an elephant and the Democratic by a long eared but not a sick mule, probably because he was too stubborn to go to the polls. I have enjoyed all the courtesies that you have extended, and all that I am entitled to and more and I will do so again. I do not balk now as I did not in November. I will attend the meetings, do as I am told and do my level best.

H. B. McAfee.—I think I speak the sentiment of this Society when I say that we do not throw empty boquets, but give these re-elections because of duties and work performed and grand achievements accomplished.

Pres. Whitten.—Nominations for Secretary are next in order.

F. H. Speakman.—I put in nomination our present Secretary, Mr. L. A. Goodman.

Mr. Evans.—We have had a tolerably good Secretary for the past year, and I think it would be well to give him another year's trial, and maybe he will come to be a first class Secretary. I move that the rules be suspended, and that Mrs. Moore cast the unanimous vote for Mr. Goodman as Secretary. Motion was seconded by a number of the members.

Capt. Lincoln seconded the motion for Arkansas, Mr. Erb for Tennessee, Mr. Wheeler for Kansas, Mr. Mendenhall for Illinois. The motion was unanimously carried and Mrs. Moore cast the ballot and the President declared Mr. Goodman elected. Call for a speech.

Mr. Goodman.—The success that has been given us in this work comes from your hearty support. I try to be a leader and helper but I could not be without your co-operation and united efforts. The position that Missouri now holds with her Society now ranking as easily one of the first, is due to your union. I am sure my work for the past years has been that of love and my heart goes out to you for your appreciation and kindness to me; to you, then, be the honor of our State Society's success. It was my ambition a few years ago that it should stand high, and hold the position that it now does—one of the first in the country. I thank you again for this honor to me and your hearty appreciation of my work. For twenty-two years I have worked with you in perfect unison, and I shall ever do so.

Pres. Whitten.—Nominations for the office of Treasurer are now in order.

Mr. Logan.—I nominate Mr. W. T. Flournoy and move to suspend the rules and have the Secretary cast the ballot.

The motion was seconded by Mr. Steiman; also by Capt. Lincoln for Arkansas, by Mr. Erb of Tennessee for himself and Mr. Lawhorn and by Mr. Mendenhall for Illinois. The motion was put and unanimously carried. The Secretary cast the ballot and a speech was called for.

W. T. Flournoy.—I thank you for the honor you have given me and I will do my best.

N. F. Murray.—I believe in giving honor to a man while he is living rather than after he is dead. I move you that we elect Hon. Norman J. Colman as third Vice-president for life.

C. W. Steiman.—I heartily approve and second the motion.

C. H. Dutcher.—Mr. Colman is a worthy man and his work for this Society and as first United States Secretary of Agriculture, is entitled to the highest honor we can confer.

The motion was put, and unanimously carried.

Sec. Goodman.—This is the office of highest honor in the gift of the Society. It was first held by Samuel Miller, then by C. W. Murtfeldt as long as he lived, and is now given to Mr. Colman as the most honorable office that the Society can bestow.

St. Louis, Nov. 30, 1904.

Mr. L. A. Goodman, 4000 Warwick Blvd., Kansas City, Mo.

Dear Mr. Goodman—I take this opportunity of congratulating you on the success that you have made on the Fruit Exhibit at the Exposition. I feel sure that the horticulturists of the State of Missouri will appreciate the efforts that you have put forth here. It is certain that the horticultural interests of Missouri have been helped by the exhibit that you have so successfully maintained. I also want to personally tell you that I appreciate the exceptionally agreeable relations that have existed between the different superintendents in the Horticultural Building and this office. I feel that you are to be congratulated on having the hearty support of Hon. M. T. Davis, President of your Commission, and B. H. Bonfoey, Chairman of your Committee, for without their hearty support you could not have accomplished what you have done.

Very truly yours,

JOHN T. STINSON,

Superintendent of Pomology.

DESCRIPTION OF SECTION OF GRAPE VINE EXHIBITED AT
THE WORLD'S FAIR.

This section of the grape vine was taken several feet above the ground. The part below though larger, was fractured. The part still above, near the same size all the way for thirty-five feet being near fifty of main shaft to where it became attached to the top of a tall elm, as it was in a thick forest the vine now branched out in every direction forming a network among the tops of trees adjacent for say, fifty feet square.

This being too high up for the boys, a harvest for the raccoon and birds. As to the amount of fruit, we are left to imagine a good crop on such an immense space.

This vine grew on Cane Island Farm of W. H. Fugate, Pratt, Missouri, Ripley County: 26 inches in circumference; 100 years old.

Easton, Mo., Feb. 5.

Mr. L. A. Goodman—I am in receipt of a letter from you and I find it very interesting reading. While no doubt you have accumulated a few more gray hairs and wrinkles in serving us you have reaped laurels for yourself and we may reasonably hope laid up useful knowledge that will aid us in the future. I regret very much that I could not give the exhibition more of my time, but I am just ever so thankful that I ever beheld it at all in all its wondrous magnificence. I am also glad that I met you there and that I was not disappointed in the man, I also want to thank you for whatever you may have done in securing an award for Dr. I. S. Talbot of Easton, an old christian gentleman whose work is about done and who will certainly rejoice that his efforts in scientific horticulture have been rewarded by a prize on apples grown by him on his eighty-acre orchard here, coming as it does from the World's Greatest exhibition. Thanks, also, for award given my co-worker, G. W. Homan of Easton, on exhibit of fruit. For myself, to say that I am proud would not express it, yet if only our State were victorious, I were well repaid for the part I performed. How like we all are to the fellow who carried bricks back and forth from one side of the street to the other, "We are all carrying bricks." Again let me thank you in behalf of the cause, for those of the future who will reap what you have sown, who will speak with praise of the valuable work done by such noblemen as L. A. Goodman.

Respectfully yours,

W. T. DAVIS,

Easton, Mo.

Baden Station, No. 30, Dec. 14, 1904.

Mr. L. A. Goodman:

Dear Sir—Looking over the premium list of Missouri fruit exhibit at the World's Fair, I had the pleasure of seeing my name among the silver medal awards. I should be pleased to have you send me the information as to where I could obtain the medal which I am anxious to possess. Awaiting your reply, I remain,

CHAS. H. TRAMPE,

Baden Station, St. Louis.

R. F. D. Route No. 30.

Randolph, Mo., Feb. 8, 1905.

Friend L. A. Goodman—We acknowledge receipt of your report of exposition, which we have read. We send you greeting and congratulate you that you could make so full and favorable report, it not only commemorates the present but will be a stepping stone for the future conquests.

The peaches I fear are gone. This exceptional cold winter compels us to remain at home.

Sincerely yours,

ASA CHANDLER and WIFE.

Corvallis, Oregon, June 28, 1904.

Secretary L. A. Goodman, Kansas City, Mo.:

Dear Sir—I am in receipt of a bundle of your 46th report. I find it a very interesting volume. The cuts are a credit to any publication and you are to be commended for such selection and finish as permeates the whole volume.

Sincerely,

E. R. LAKE, Secretary,

Oregon State Hort. Soc.

Holt, Clay County, Mo., Jan. 20, 1905.

Mr. L. A. Goodman, 400 Warwick Ave., K. C., Mo.:

Dear Sir—In reply to your card will say as the apple trees all lost their leaves in August and first of September, except Yorks and Jonathan, I do not look for many apples this season. Peaches are all dead on low land, haven't examined them on high land. I think plums and cherries are all right. There are no raspberries here to amount to anything, blackberries and strawberries are in good shape. I have a half acre under intensive culture. I think it shows the finest prospect in the

State. If they do as well as I expect will write something about them for the summer meeting. Have a few of the newer varieties on trial. I find, like Fuller, many kinds do well under high culture, that fail under common usage. As I was unable to attend the World's Fair have often wondered how my apples showed up.

Fraternally,

G. T. ODOR.

Vista, Mo., January 31, 1905.

Mr. L. A. Goodman:

Dear Sir—I want to acknowledge the receipt (at this late date) of the Horticultural report you sent me promptly on request. I have read every article in it, I value it highly and think any one with no previous experience could successfully grow and prepare for market any of the fruits or berries described, besides there is other very useful information that it contains. Thank you also for the information regarding the culture of ginseng and the nut trees.

Yours truly,

GEO. D. BRATSCHL.

Ithaca, N. Y., Nov. 16, 1904.

Mr. L. A. Goodman, St. Louis, Mo.

My Dear Goodman—I shall vote you a medal for your promptness in forwarding such a nice consignment of your mid-west apples for the benefit of my students. This is exactly what we wanted, and you have the grateful thanks of yours truly and the boys.

Hoping that your exhibit will have a very satisfactory finish, believe me,

Yours sincerely,

JOHN CRAIG.

Baring, December 28, 1904.

Hon. L. A. Goodman:

Dear Sir—As I have been making some observations of the condition of the different varieties of fruit trees, and also of small fruits, I will state that the condition of young orchards is fairly good, but older trees not very good, as apple scab has prevented them from making a healthy growth and caused the leaves to have a sickly appearance. As there are scarcely any commercial fruit growers near me, there was practically no spraying done, and as the forepart of the season was wet and cold, scab had full sway. I had intended to send you some fruit for

the World's Fair, but did not find any worthy of exhibit. We had a good crop of pears, a half crop of plums and cherries and some fair strawberries. No peaches, but peach trees made a fine growth, and if we have moderate winter once again, we may expect a good crop of peaches once more. Strawberry beds are in the best condition with me that they have been for years. My pear trees have shown no blight for three years, while those of others not far from me have blighted and died more or less every year. It seems strange that mine have remained healthy as I manure and cultivate mine every year, and that others in sod and not cultivated should blight and die. As most claim that trees highly manured and cultivated would surely invite the blight. Well sir, I will not change my mode of care for my trees, as long as they continue to do as well as they have. Dear Mr. Goodman I have been vexed and sorry, to read in the *Western Fruit Grower*, in regard to the Black Ben Davis muddle and also of the charge of some financial irregularities, casting a reflection on some of our best, most honest, and trusted men in our State Society, to whom great thanks and gratitude are due from at least every fruit grower in our and also neighboring states. Now if the Black Ben is so near like the Gano as to deceive, even good judges of fruit, where would the honor come in, to introduce it at a high price, as something new, and above price. I hope you will have, or have had a rousing good meeting, this winter, and as I have never been so fortunate as to be present at any of the meetings of our State Society, I am never the less present with my best wishes, and kindest regards. My dear sir, if you have any copies of the 46th annual report of our State Horticultural Society, I would be ever grateful to you for one. I also hope to receive present years report, as I am getting too old for traveling, but would be glad to learn how our State exhibit compared with other states, that had better fruit crops.

We had within 48 hours, rain, sleet, and snow, with a young blizzard all day yesterday, clear today, with two below zero this morning. Ground was very dry all this fall, with no rain for nearly three months. I will close with best wishes for you and family and for a happy new year and hope the Giver of all good, to whom be praise forever, will be pleased to bestow upon us His blessing and a bountiful year next season is my prayer.

Yours very truly,

PETER DAILING,

• Baring, Mo.

SUGGESTIONS FOR THE GOOD OF OUR SOCIETY.

(N. F. Murray, Oregon, Mo.)

Our worthy secretary has been very liberal in assigning me a broad subject, one that might take in an endless variety of suggestions, all of which might either directly or indirectly prove to be for the good of our Society, but I shall be brief and speak plainly to the subject presenting for your consideration some of the more important things we may do for the good of our Society.

All personal interests and ambitions of each individual member should be subservient to whatever is for the general good of the Society, and all questions, of whatever nature, that can not be agreed upon and amicably settled, within the Society in a reasonable time, should be thrown out and left to a verdict of the common people. We should have a home for our Society, permanently located, where we could have a spacious room in which to hold our meetings and where all our annual meetings should be held, and in addition, to this we ought to have rooms for our library, and our jar and other fruits.

I would suggest Columbia as a suitable place for a permanent home. for the reason that it is centrally located, a seat of learning, the home of our State University with all of its departments, and splendid equipment; and if located there it would give an opportunity to all of the students to attend our meetings, which would certainly be of special interest to the students of agriculture, and horticulture. In addition to this it would place our library within the reach of the students, interested in the pursuit of horticulture, which in the end would certainly reflect credit upon the work of our Society. Our little library of splendid reports containing the best thoughts of our most able and practical horticulturists, should be enlarged by continually adding thereto not only our own reports, but in addition thereto the very best works obtainable on horticulture, forestry and landscape gardening.

It would no doubt help the Society very much if all the individual members would read and study a library more thoroughly than we do, and then put the knowledge gained into practice; and in order to get time to do this I suggest that we relegate a very large percentage of the worthless literature, that now invades our homes, to the waste basket and to the bon-fire. It would be for the good of our Society and the individual as well if our young men would give less time to sport and more to the study of horticulture. I am not forgetful of the old saying that

"all work and no play makes Jack a dull boy," but I wish to add that all play and no work makes Jack a very worthless boy, and a trifling good-for-nothing man.

I believe it would be for the good of our Society and the great satisfaction of the public if we would give less time, thought, and worry to Old Ben Davis and his several sports, that are but very little, if any better than the old gentleman himself, and spend more time, thought and care on brother Jonathan, Grimes Golden, Wealthy and other high grade apples that are in demand for table use.

It will bring new life into our society and prove a glorious boon to each individual member if we will all get to work and pull ourselves out of the slough of despondency into which we have drifted, by reason of the very lean years through which we are passing, but let us take on new hope that better seasons for the fruit grower are near at hand. It is a law of nature that one extreme follows another, and now having had a number of very unfavorable years, we are sure to have good years to come. It is a long lane that has no turn. No night so long as to prevent the return of day. No storm so dark and raging as to prevent a returning calm.

And remember "If thou faint in the day of adversity thy strength is small." I know quite well that human nature at best is weak and liable to give way under repeated disappointments and as fruit growers we are surely having them, but who has not? Those engaged in general farming have their failures and disappointments, in many places in the last few years they have in various ways lost all or part of their crops, yet be it said to the credit of the American farmers, that by their energy and perseverance, they have in the last two years, according to a recent report of the Agricultural Department, produced more in value than all of the gold mines of the World have produced since Columbus discovered America.

Too many of our fruit growers are now giving way to discouragement and neglecting their orchards. On a recent trip east I observed that most of the apple orchards of Illinois, Indiana, Ohio, New York, Pennsylvania and West Virginia were old and for the most part were neglected and going down into a state of decay, and scarcely any new ones are coming on to fill their place. In some places I found them picking apples from very old large trees, with umbrella shaped tops, where it required ladders thirty feet long to reach the fruit, and it took a good stout man to elevate one of these ladder, although made of light material. And I pause to suggest that it will be for the good of our

Society, and for our physical endurance, to cut orchards down before they reach such an age and size and plant new ones.

One of the most successful orchards visited was that of W. F. Brown and Brothers, at Browndale, Hancock Co., West Va. It contains one hundred and twenty-five acres, and has proved a financial success. A portion of this orchard is on second Ohio River bottom land, some on a very steep hillside running up two hundred and fifty feet high, and ten acres is on a comparatively level hill top, their best crop was in 1896 when the one hundred and twenty-five acres produced ten thousand barrels which sold for seventeen thousand and five hundred dollars. The ten acre lot on hill top referred to was first planted with Northern Spy thirty-three feet apart each way, and at eight years of age they were grafted with Willow Twig; at seventeen years from top grafting and twenty-five from planting it produced three thousand barrels, an average of eight barrels to the tree (the two best trees produced twenty barrels each) but how is this to help us out? Let me tell you the secret—this ten acre hill top was very poor land when planted, so poor, that it would only bring five bushels of wheat to the acre, but Mr. Brown and Brothers are wide awake intelligent gentlemen, that understand their business, and hang on to their business with the indomitable will that will only surrender to man's last enemy. They fertilized, pruned and cultivated, in one year they hauled and spread upon this ten acre orchard two hundred wagon loads of barnyard manure, and in addition applied one thousand pounds of bone meal to the acre.

Now I suggest that it will help our Society very much, and prove profitable to the individual members, if we imitate the example of Mr. Brown and Brothers, and other successful fruit growers, not that we are to do the identical same thing they have done, for our land and climate here in Missouri is better than theirs, and the same intelligence, and perseverance that has given them a measure of success on their poor land, would have given better results here. One thing is certain to my mind if we expect success in the future with our orchards, we must continue to put out new plantings from year to year, cultivate, prune, manure, fertilize and spray, and last but not least I suggest for the good of our society, that "United we stand, divided we fall," if the latter it will be to our everlasting shame.

APPLES AT THE WORLD'S FAIR.

(J. C. Evans, Harlem, Mo.)

The recent World's Fair presented a fine opportunity to make comparison from the various states and from different sections of some of the states. Take, for instance, one apple of a certain variety from each state and you have about four different and distinct types which show each its own peculiarity in size, shape, color, texture and quality. A committee from the American Pomological Society took up one by one all the leading varieties and made notes on their variations. These notes will be published in the next report of that Society. From that report some valuable lessons may be learned as to what varieties to plant in the different localities, etc. We have seen by this great exhibit that apples of some kind or other may be grown most everywhere in the United States and some in Canada, but not everywhere are they profitable as a commercial crop. Some of the Northern states, since the introduction of some of the better Russian varieties, are producing some very fine apples and not a few of them. Of course, they have not the high quality of the standard varieties grown in the Middle states, nor do they keep as well. They made a fine exhibit on the tables.

The Pacific coast arid mountain states are producing some very fine apples, and will doubtless ere long be felt in the commercial world. Their apples, especially from the mountain states, are comparatively free from insect marks and are large and well colored, and were very attractive on the tables.

The Southern states do not pretend to grow apples commercially to any great extent, but some of them made a very creditable showing of fair size, good quality and well colored fruit.

Canada was very well represented, but like our Northern states her apples all carry more or less Russian blood, and as a rule are smaller than the same varieties grown farther south. New England and the eastern middle states were in evidence, but the more western middle states made such exhibits as to show at a glance that the commercial orchards of America are just west of the center of population. The peculiar characteristics of varieties from the different sections are not described here because the report of the American Pomological Society committee will give it more fully than can be done in a short paper. In that report a complete description of each, giving size, form, color, texture, quality, etc., with a photograph of one whole and one-half of each variety, will be given. By this report we will be able to judge

what varieties are best suited to each particular section of country. I will mention the name of one apple, the Jonathan, because it has proved to be by far the best keeper in cold storage. I will also mention one other that seems to be doing well everywhere; it was on nearly all the tables and attracted more attention and brought forth more remarks than any one other variety. It was always large, well colored and beautiful. It is the Wolf River, and I know of but one use to put it to and that is to show. All together it was the grandest aggregation of apples ever seen in the world and the orchardist who did not see it has missed the golden opportunity of a lifetime.

DISCUSSION ON VARIETIES AND PRUNING.

E. G. Mendenhall (Ill)—I take it for granted that these papers go on record but I wish to take exception to the statement concerning high trees in Illinois. We have no fifty foot nor thirty foot trees and we have as many young trees as any state.

N. F. Murray.—I told only of what I saw in northern Ill., where they have some big old trees but I know they have better ones farther south in the state. My native state of West Virginia is one that is guilty of having worthless old trees, I think it is advisable to cut down the fifty foot trees and plant new ones. In the eastern states I saw no new orchards. The Ben Davis is very poor there and ought not to be grown.

Prof. Whitten.—I have made several trips lately into Illinois and can say that Illinois has some fine young orchards that are beauties. I can bear out what Mr. Mendenhall says.

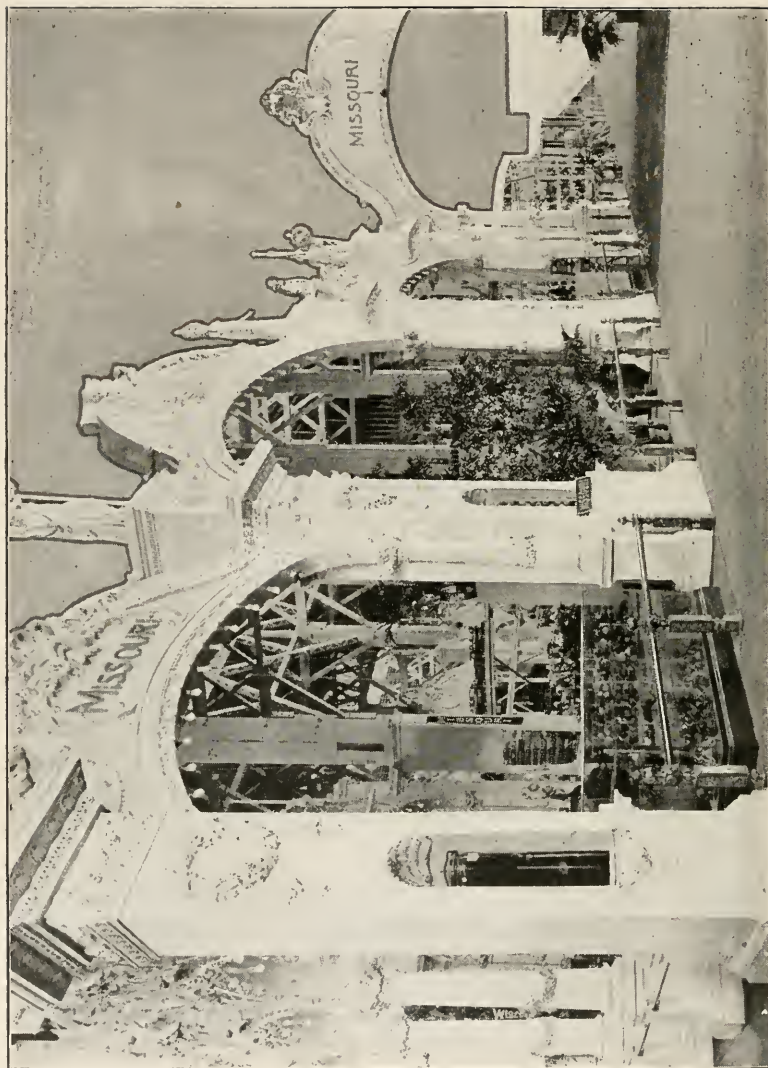
Mr. Mendenhall.—Do you grow Kennards Choice in the Ozarks? In south Illinois this is being grown quite extensively and there is nothing better. I believe that if you are not growing it it might be worth while to try it in the Missouri Ozarks.

Prof. Whitten.—At the Illinois State Society meeting I saw some of this variety and it was most attractive.

G. T. Tippin.—There is one small orchard of it near Springfield, the quality is equal to that of Jonathan and it stores well.

Capt. Lincoln.—There is one small orchard of this variety in Benton, County, Arkansas and it seems to be good.

Prof. Whitten.—Kennards Choice grows as large as a Northern Spy, has a high red color over a deep yellow skin which occasionally shows and adds to the richness of the red like the York, only it is more attractive than the York. It is about the size of the Mammoth Black Twig and is a good keeper.



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
MAIN ENTRANCE.

Mr. Mendenhall.—The Kennards Choice sold this year for \$5.00 per barrel.

W. P. Stark.—Kennards Choice is of the Wine Sap type but a more vigorous tree, it bears as early as the Missouri Pippin and gives favorable results for the first several crops. It is being planted in South Illinois and seems to be giving satisfaction but is subject to scab and for that reason we are not pushing it.

PRUNING AND CULTIVATION OF AN ORCHARD.

(Chas. W. Steiman, Dalton, Mo.)

Pruning is to the fruit tree what training is to the child; both should commence in the nursery. The average fruit grower should purchase thrifty, first-class, two-year-old trees, direct from the nursery. Trees should be heeled in immediately upon arrival, and kept thus until ground is ready for planting the following spring. During the fall months the ground should be plowed preparatory for spring planting. Early in spring the ground should be harrowed well when sufficiently dry, and the trees to be set out. Each tree should be examined while planting it. Cut off with pruning shears all mutilated roots and broken branches; also cross branches and any branch that has grown to form a fork. At this time prune no more than absolutely necessary. For every cut is a wound and checks the tree's growth. While planting, the most prominent branches should be placed so as to be on the side of the prevailing winds and to shade the tender trunk.

When through planting, do not for once entertain the idea, "your work is now finished thou good and faithful servant;" but the trees look to you henceforth for protection, care and sustenance. They should be protected from stock and the ever present rabbit, and cared for, in giving the ground thorough tillage. Trees like animals need feeding; as they cannot walk, fertilizing food must be brought to them sooner or later. Wrap all trees as planted, either with veneer or wire cloth screen. This facilitates close cultivation to trunk of tree with the plow and prevents rabbits and borers doing damage. One sided, broken down, dilapidated trees, so often seen in young orchards, teach us the wisdom of having a good stock fence around the orchard.

Young orchards should have thorough cultivation and weeds kept under control, especially the soil around the trees should at all times

be mellow. There is no tool as yet invented, to take the place of the hoe to accomplish this result. We hoe our trees several times each season, even as late as September, and find that they respond to this treatment readily in growth and fine appearance. Where orchard land is fertile, and not too hilly and broken, crops, such as corn, potatoes, cow peas, pumpkins, vegetables or berry fruits may be grown thereon to profitable advantage. Never put timothy, wheat or oats in an orchard and let it come to maturity. We cultivate our orchard always one way, this leaves a strip of uncultivated land in between the trees, but all weeds are kept down with the mowing scythe and left as mulch. This strip becomes very fertile, as no crops are taken from it, and further, the tree roots are never cut off or molested by plowing. We find that the trees can withstand the winds much better. Thorough cultivation is the means of bringing and preparing the food constituents contained in the soil, to and for the tree rootlets, which are so willing to assimilate whatever nourishes them.

Young trees thus cared for should make a good growth the first season, so that pruning for symmetry and future usefulness may be begun the second spring. A tree should be viewed from all sides and then pruned carefully. A well-balanced, low-headed tree, having no cross branches or forks, with branches far enough apart to let in light and air should be our ideal. Remember you are placing the structure for the future tree; therefore be able to give reason for every branch that is taken off. Again, most pruning of an apple orchard should be done before fruiting age. Some varieties need more pruning and thinning than others, for example, Jonathan needs more than Ben Davis; such varieties as Winesap need very little.

Peaches should be cut back and thinned each spring before blooming period, while young apple trees may be pruned until July.

Pear trees have more advocated systems of pruning perhaps than any other fruit, except the grape vine. Some writers say, "Prune fan shape," some preach pyramid form, others find their consolation in heading low and topping, wishing the tree to spread out, while still another class are absolutely certain that pruning is injurious to a healthy tree, and a tree grown for the purpose of bearing pears should never be touched with a knife. To which class do you belong?

In summing up the whole matter, love your trees while they are young, cultivate and hoe about them. If they look puny, feed them with barnyard fertilizers. "Train them up in the way they should grow, then when they become old they will not depart from it." Train your

boy's hair to look neat, your trees also. Labor so that you may expect good fruits and good fruits will crown your labors abundantly with unexpected measure.

DISCUSSION ON PRUNING.

Mr. Smelzer—In our part of the country it is detrimental to the peach trees to prune just before they bloom, any other time is better, even after the fruit is as large as a hickory nut.

Mr. Steiman—I said before the trees bloom and not just before blooming.

N. F. Murray—I had two hundred peach trees not cut back and got a half bushel of peaches off of them the next season, but the trees made no growth. Those cut back made six feet of growth. Those cut back are hardier and not killed so easily by five degrees. The new growth may come from the cut limbs, but this does not account for those not cut which still stand. Cut back the weakened trees and they will be better than when not cut. You will have more fruit and better and easier picked when the peach trees are pruned.

W. G. Gano—Would like to ask Mr. Smelzer if he cuts the peach back before the fruit sets or after?

Mr. Smelzer—We cut back in the winter if we want more wood growth, and prune while the trees are dormant if they are weak. We prune also when we thin the fruit. But I don't do as much of it as I used to, because I don't think it is necessary.

Mr. Erb—At Van Buren, Ark., I saw a crop of ten bushels on three-year-old trees. These trees bear more peaches if not pruned. They are left to grow twenty feet high and are loaded so that the branches were bent. The trees were twenty feet apart and overlapped. They had to haul the fruit out on sleds, as the wagons cannot get through. Maybe this will prove too much for the tree. Mr. Culver of Koshkonong said he was not going to prune, but would let his peach trees grow.

G. T. Tippin—These trees were not cut back after the second year. The theory of cutting back was based on the idea of getting fruit on the low limbs. Mr. Stewart has done differently; he cuts fifteen to eighteen inches high and leaves three or four buds to grow, and this forms a saddle instead of the ordinary crotch. So, instead of splitting, the limbs bend down and go back when the fruit is removed. In this way no bad forks are formed. We get too much branching and top by cutting so often.

G. A. Atwood—I know of one orchard of one hundred and ten acres from which we had six car loads of peaches.

Mr. Tippin—From three three-year-old trees, six inches in diameter, there were gathered ten bushels of peaches.

Mr. Smelzer—Those who are opposed to pruning come to it after awhile. I am in favor of pruning severely. The man at Van Buren is now beginning to prune in this orchard. If these gentlemen were to go through it now they would find the men at work cutting off some of the lower limbs. He has to keep the low limbs cut off, as the peaches on them do not color and take the substance from the other. He started his trees too low, so he has to take the under limbs off, as the fruit falls from these before it is ripe and his trees are not over five years old. Another man also I know prunes after from three to five years. I do not believe in heading too low. I prefer three to four feet.

Mr. Tippin—I don't want to leave any confusion. I was referring to the three-year-old orchard and not to an orchard which had been pruned. I think pruning is necessary.

L. C. Wilson—If you cut close to a shoot, that will grow, and no other, I had peaches last year on limbs as big as my finger and from dormant buds.

D. McNallie—I left some trees not pruned in order to save the peaches on them, and do not need to prune them to-day, because so many limbs and twigs died, but where I pruned I have many new limbs. This may be due to the season or the variety.

D. Lowmiller—I am a delegate from the Missouri Valley Society and rise to invite you to hold the next winter meeting of this State Society at Kansas City.

A. Chandler—I think, too, that we should have the next meeting with the Missouri Valley at Kansas City.

SIXTH SESSION—THURSDAY, DECEMBER 22, 2:30 p. m.

Mr. G. A. Atwood introduced the following resolution; its adoption was moved by Mr. Murray and seconded by Mr. Tippin and was carried:

Resolved by the Missouri State Horticultural Society, that the President and Secretary of this Society be requested to attend the annual meeting of the National League of Commission Merchants which will assemble in the city of New Orleans January 11-13 proximo, as delegates from this Society, and that they be instructed to co-operate with the league in its efforts to secure just rates for the transportation

and refrigeration of fruit from Railroad and Refrigerator Car Companies, through the Interstate Commerce Commission and the Congress of the United States.

Mr. C. H. Dutcher moved that the title, third Vice-president for life be changed to Honorary Vice-president for life. Mr. W. L. Howard seconded the motion, and it was unanimously adopted.

T. C. Love.—At the Springfield meeting a motion was carried that the President of this Society appoint a committee of two members to help secure an amendment through the Legislature that the Trustees of the Mountain Grove Experiment Station be practical fruit growers. The Legislature is again in session, and I would suggest that the chair be directed to now carry out the appointment of such a committee.

J. T. Stinson.—I would like the members of this Society to understand this matter and I believe it is not the best policy for this Society to undertake to dictate to the Legislature or the Governor what should be done. I raise the point of order that as the resolution was intended for the last Legislature and the committee was not appointed it does not apply now.

J. A. Orr.—I move that we renew the resolution to appoint a committee to secure an amendment that shall make the future Trustees of the Mountain Grove Station only practical fruit growers. This Station should be controlled by some one who understands fruit growing the same as other institutions that have some who understands their business. The law requires that the trustees of the Institute for the blind, or at least one of them, should be an expert oculist. Some of the trustees of the Soldiers' Home must be old soldiers and of the Lunatic Asylum some one trustee must be an expert in diseases of the mind.

Mr. Dutcher.—That resolution was amended from the first form to read a fruit grower instead of a fruit grower from South Missouri. I second the motion that we re-enact that resolution to memorialize the Legislature to make such an amendment.

J. T. Stinson.—I do not believe that it is the best policy to pass such a resolution. The present trustees are some of the best fruit growers in South Missouri, as Mr. Culver of Koshkonong and Mr. McAfee of Springfield. I know the Governor and these men personally, and that they are as careful for the Institution as some of the men who are seeking the place. The Society is going to the Legislature for its own appropriation this year, and I believe that we should leave this matter as it now is.

Col. Love.—The gentleman does not seem to understand; the point is not to remove the present Trustees, but provide for fruit growers in the future whenever there is a vacancy. The proposition is that the men who are on at present are all right, but we want to put fruit growers on when the terms of the present members expire. The fruit growers are as well able to govern that institution as others, they are good business men and managers, and they can be more economical in using and applying labor because they know the business. This Station was made for South Missouri, and we don't want to have a struggle every two years, but want a permanent Station with fruit growers for the Board of Trustees.

J. T. Stinson.—I know these men personally and have a high regard for them, and when you pass such a resolution you are casting reflections upon them. You may say it is not reflecting on these, but it is, if the Governor has selected well. I do not think it advisable for the Society to dictate to the Governor. It is a bad scheme, and I want to protest against it.

Mr. Dutcher.—It was by a motion of this Society that the Legislature was induced to accept the Agricultural College Act, also to incorporate the Agricultural Board, and to pass the Fruit Law, and even the Dog Law. We now ask the Legislature to recognize our work. We wouldn't have an Agricultural College if the Society had not used its influence at that time. It does not reflect on the men to ask the Governor to amend the act so as to have the Board of Trustees composed of fruit growers. I am in favor of this resolution.

There may be objections to this resolution, but the gentleman has not brought any out.

Question was called for and the motion was put and carried.

THE OZARKS FOR FRUIT.

(G. T. Tippin, Nichols, Mo.)

My subject is broad, high and deep. The range of its title covers a vast area. The elevations vary from a common level to 1,800 feet above the sea. Its soil varies from the most fertile alluvial to the solid rock and its crop conditions from the slough of despair to the plateau of eminent success. Its experiences are as the sands of the sea, unnumbered, and while many wrecks are strewn upon its shores, upon its mountain sides and at its summit, yet, standing among these are the innumerable host of successes that contributed their share—if not more—to the greatest fruit show in the history of the world.

Gratified over the conquest achieved at the World's Fair from the Ozarks in Missouri and Arkansas, it is with some degree of pride that we present this subject at this time. Retracing our steps from the summit to the valley we will endeavor to discuss the question assigned us by our Secretary in the most practical way we can.

The development of the fruit industry in the Ozarks has already reached such proportions as place it properly among the successful fruit sections of the country and its products have already taken their fixed place in the markets of the world. While the recent short crops, especially of our tree fruits, have a tendency to discourage—even to cause some with pessimistic inclinations to become disheartened, we believe that the possibilities of its development and the abundance of its Horticultural products have not been realized. The future is to see the fruit producing sections of the Ozarks yielding annually as large crops of all the varieties adapted to its soils as are now produced in the older states. You may ask upon what assurances we base our faith; we reply, on the success that has already been attained and the multiplied advantages that are to come. True, there have been many failures, but in our discouragement we must not lose sight of the fact that in all this territory where all varieties of fruit have been planted that are adapted to the locality, we find where one man only harvested fifty crates of strawberries per acre during the season; another man harvested seventy crates per acre, one day's picking. In another locality one man only realizes one hundred dollars (\$100.00) per acre, while his neighbor receives three hundred per acre for a single crop on the same kind of soil.

In another section one man receives an average of sixty dollars per acre from a twenty acre apple orchard for ten years in succession while another did not realize twenty-five dollars per acre on a one hundred and fifty acre orchard. Again in another section of the Ozarks, one man sells three hundred dollars worth of Elberta peaches from one-half acre for one crop, while another did not realize that much from five times the land.

While the territory of my subject is profuse with similar comparisons these are enough to assure us, and all others who may cast their lot with us, that in the Ozarks we are abundantly surrounded with the natural elements of success; awaiting the application of intelligent selection of soils for what is desired to be planted; of varieties suited to the location; the application of culture and methods best suitable to the environment with which we are surrounded.

Space forbids my entering upon the discussion of what is the best soil for this variety, or that, or cultivation for the other, at this

time. But with the natural adaption of the Ozarks for fruits, all these are and will be, successfully worked out by those desiring to engage in the profitable production of fruits. The fruit grower who observes most succeeds best, avoiding bitter experiences and profiting by the mistakes of others, who recognize that there is more profit in four hundred crates of strawberries grown upon two acres than if grown upon four; more profit in two thousand barrels of apples gathered from twenty acres than from forty acres of orchard; two thousand crates of peaches from ten acres than two thousand from forty acres.

The advantages that are to come to the Ozarks as a fruit section will be the rapid increase of the population of the larger western cities which are our natural markets; the increase of railroad facilities; the proper adjustment of freight and refrigerator rates in the transportation of our products; the more thickly settling up of the fruit sections of the Ozarks and the systematic planting of diversified fruits upon smaller farms as is now done in the older and more thickly settled fruit growing states.

A number of varieties of cherries are a success: most all the small fruits do well. Grapes are in their natural climate; the strawberry reaches perfection; the peach from soil and climatic conditions gathers to itself the most luscious flavor, and the apple adorns itself with such beauty, quality and elegance that it is sought for in all the markets of this country and Europe.

In conclusion, let me call attention to the proper pride we should all take in the character of the fruits we grow; appreciating that nature will do her part and that it is possible for us to so pack and market our fruits from the Ozarks in such a way as that the name will insure it an abiding place in all the markets of the world.

POSSIBILITIES FOR PEAR GROWING IN MISSOURI.

(J. A. Durkes, Weston, Mo.)

All the fruits of our orchards seem to thrive better in some localities than others. Sites in a neighborhood but a short distance apart possessing some ingredient in the soil or position in the land more favorable or necessary to the kind of fruit grown. The pear tree in its wild state is always found on dry soils and high locations. We read of very old and large trees in Europe. Blight, which has been so discouraging to us, is unknown there. True, the trees have not

been forced into early bearing, but permitted to make a slow, steady growth for years. The pear tree has been grown in different sections of the State very extensively. We have numerous records of success in the cultivation of pears. Early in the last century the neighborhood of Boston became famous for pears. The varieties named after some of the prominent growers are witness to their labors in this field. Later the region along the Hudson and Western New York were noted for their pear orchards, and at present are very successful with this fruit. The vicinity of Norfolk, Virginia, is especially adapted to the Bartlett. California, with favored climate for fruit growing, is well known for the large shipments of pears made from there annually. Missouri, too, has numberless localities that are well adapted to the pear tree. The hills and uplands along her rivers will be good locations for pear orchard, the age of many trees and the fruitfulness annually, of which we have record, are evidences of the fact. Mr. Jacob Madinger for a number of years during his lifetime made quite a success in pear growing on his place near St. Joseph. About the year 1846 Mr. Sparks in Platte county planted a large pear orchard, principally Bartletts, that succeeded well and were very productive for more than thirty years. I may say here that during my experience of thirty-five years or more we can name only one failure with pears, while with apples we remember of four. A writer in the last number of the *Fruit Grower* makes this statement from Arkansas that pears do "powerful well" there, and are long lived.

With the supposition that the Garber and Kieffer were hardier and could withstand blight better than other varieties, they are being planted to a very large extent, in fact, almost exclusively by all others. But we find them subject to the defects of all the other varieties and come to the conclusion that they must, like a Duchess, Bartlett or D'Anjou, receive similar treatment. The hardiness and great fruiting ability the Kieffer has caused it to be planted to such an extent that would seem to indicate over-production in the future. This may not be. The taste of the people may be formed to use it more freely, better ways of packing for keeping, so as to prolong the season, new and far away markets and other openings unthought of now, and with cold storage facilities, part of the problem is solved. The early perishable fruits now are in seasons weeks and months after time of gathering. By cold storage the Bartlett instead of having to be forced on market in September becomes a late fall pear, and so with other standard varieties. We want, however, more late keepers. All

growers ought to try and experiment with late keepers until we find some one or more that will fill the place.

Yes we believe that there is hope for a better state of pear culture in Missouri. With such a diversity of soils, locations and the climatic range, it certainly would seem strange that with experiment and trials of many varieties in different sections of the State we should fail to make pear culture a fair success. Let us plant and experiment with various kinds until we find success in our labor, remembering Downing's adage, that "for every tree lost, plant two in its place."

DISCUSSION ON THE OZARKS.

N. F. Murray.—I am not here to tell about the Ozarks, but it would be foolish for North Missouri to grow strawberries for the large markets, as our varieties do not have the solid hold up qualities. We can do well in a local market, but you have the ideal country here for strawberry growing and in a commercial way. Also, I think you should grow enough grapes for the State and to keep us supplied without having to ship in New York grapes. In Dent county there is one vineyard of 200 vines. On October 15th I ate some grapes from these vines which were picked the 15th of September. Each bunch was in a sack and I have never eaten their equal outside of Missouri. There were not more than three bad grapes on each bunch. Why should we buy from New York and Ohio when we can grow our own just as good? The Ozarks will come to be the greatest fruit country in the United States.

Mr. Messick.—I find there is one thing that has been overlooked. I find in Illinois that we have an abundance of wood growth and the tendency to overpower the fruit growing element. In the Ozarks you have an abundance of fruit growth and a lack of wood growth which overpowers the tree and causes it to run down. In Kansas the wood growth overbalances the fruit growth. In an orchard I just visited there was enough wood on forty acres for eighty acres, and the fruit on this forty was too little. I think the time has come when the people will thoroughly understand this relation between the wood and the fruit producing elements.

J. C. Evans.—It may seem a bit egotistical for me to say it, but in 1868 when William Muir was secretary of the Society I made the statement that the future fruit lands of Missouri would be in the red lands of the Ozarks.

C. W. Steiman.—If in South Missouri you cannot grow apples we invite you to come up to North Missouri. In North Missouri we

have good fruit lands; we have no great orchards, but we have the "loess" soil and the elevation and are comparatively free from diseases.

G. T. Tippin.—The future of the Ozark fruit growing section depends on our market. We haven't the markets yet to start largely, and in view of the fact that we are so distant from markets it would be a good plan to plant cherries, pears (as yet only cautiously), plums, vines, and thus diversify our planting. Such a variety of fruits and systems of growing will give good crops every year. I would like to suggest that fruit growers try planting a block of different kinds of fruit; this would stimulate to greater variety and get us away from the idea of having one thousand acres of apples, all of one kind. The people in the more thickly populated parts seldom have a failure because they have a greater number of kinds of fruits in bearing.

Pres. Whitten.—I have been informed by a good many gentlemen that here in the Ozarks your trees are making more wood than fruit growth, that despite your trees bearing so much big fruit, for the last year you have been getting more wood growth than fruit.

Mr. Brereton.—So many persons say they have some fine seedling peaches, but anything that will bear peaches doesn't deserve to be called a seedling if seedling means sourness and littleness. What we produce ourselves, if it is good, we ought to be proud of.

J. W. Graves.—A gentleman invited us to come up to North Missouri when we can no longer grow fruit here implying that they have better land to grow fruit on than we have, but we grow fruit here in Newton county. It is true that we sometimes have scab, but from Newton county came the apples which were given away at the World's Fair on apple day.

Mr. Steiman.—But Mr. Goodman said that the best Grimes' Golden at the World's Fair came from North Missouri.

Mr. Erb.—It seems to be understood that the apples given away at the Fair came from Newton county, but I know of one barrel that came from Wright county. In regard to grapes, Missouri grapes are not good for the table; table grapes from Missouri are a failure in a commercial way as they get the brown rot in a few years and it cannot be stopped for I have tried both Bordeaux mixture and paper sacks. For Missouri grapes we are confined to wine grapes, these can be grown successfully, but the people don't want the wine.

Mr. Zellner.—We can grow better grapes than New York, but we must spray and it does not cost much.

Mr. Murray.—I do not object to the grape juice if it is bottled before it ferments; this unfermented juice is in great demand. I believe

table grapes can be grown here. Here in the Ozarks you have all of the elements necessary for fine fruits. The most perfect apples I saw this year were from the Ozarks. Here you have the firmness of the fruit if you can get the humus in the soil. Land can be bought for from five to fifteen dollars per acre, while in Colorado people pay a hundred dollars for the fruit lands and ship from there to Missouri. You should stand by the Ozarks as a fruit growing country, of course you have failures, but every part does. If we gave one-tenth of the care to our orchards and vineyards that the Pacific coast people do we would be 100 per cent better off.

Member.—I want to ask why a one-year-old tree had one hundred blossoms and at two-years-old bore two apples?

Prof. Whitten.—The tree was probably girdled by a wire or a graft stricture, or by the rabbits, or was infested by woolly aphid.

C. W. Steiman—In regard to growing fruit from year to year, I have seen in my home orchard that some years one variety will be better than others. I believe that we can have apples every year if we select the proper kinds or varieties so as to have some of them bearing and get some profit every year.

D. McNallie—We talk of failures in the Ozarks, but the fault is with the people. If our planting were more diversified, we would have fruit and we don't need to have a failure in a hundred years. As long as we confine our fruits to one particular line, we are going to have failures occasionally. Why should we have great plantations of one variety? Why not plant grapes, apples and strawberries? Why are we confined in this district to the strawberry? While the grape may succeed this year, the other kinds of fruit fail. I had a failure the years we had too many berries, so now I am putting out cherries, peaches, pears, plums and apples, not all Ben Davis nor all Elberta. I am putting out largely in all these, but using many varieties so as to have some fruit to eat whether I have any to sell or not.

J. A. Orr—I have a tooth for grapes. At two years from planting my vines bore and I have had no failures since, except from neglect to spray. One year the new shoots froze because I pruned too soon, and they froze a second time, and then put out a third growth and we had grapes that year. I got a merchant in town to sell them, and after the first trial he was glad to get them. The Missouri grapes are better than any other. From the 1st of August to November, I had my own grapes. I spray and then cover with paper sacks.

Prof. Whitten—This year the Missouri Experiment Station sent one hundred and seven varieties of grapes to the World's Fair, and they

were ahead of New York grapes and had bigger berries and better color than any other, but you in the Ozarks can beat us.

GRAPE GROWING.

(Louis Zellner, Granby, Mo.)

I consider grape growing very profitable, providing the profitable varieties are grown. I have tested at least sixty varieties, and, according to my judgment, I consider the following varieties profitable for commercial use:

VARIETIES.

Headlight—A very fine dark-red grape, resembling Delaware in quality, but a little larger berry; ripens about the 25th. of July.

Moore's Early—A very fine black grape, larger than Concord; ripens about the 1st. of August.

Moore's Diamond—A fine white grape, a little larger than Concord; ripens about the 7th. of August.

Delaware—A light red grape, one of the very best in quality, appearance and productiveness; ripens about the 10th. of August.

Hicks—A black grape, far superior to Concord, of which it is a seedling; ripens about the 15th. of August.

Beacon—A fine, showy black grape, but not best in quality; ripens about the 20th. of August.

Niagara—A beautiful white grape, large bunches and berries; ripens about the 20th. of August.

Kiowa—A fine black grape, berries medium, but large, compact bunches; quality, best; ripens about the 1st. of September.

Ozark—A very fine black grape; berries, medium; very sweet; bunches large, with heavy bloom; ripens about the 15th. of September.

Stark Star—A black grape; berries about the size of Concord; bunch very large; the most vigorous grower and productive late grape in existence to my knowledge; ripens about the 1st. of October, but does not fully mature until frost has stripped the leaves from the vines.

The above-named varieties can be successfully grown in Southwest Missouri.

TABLE GRAPES.

The following is a list which I consider profitable for table grapes:

Green Mountain—A very fine flavored, sweet, white grape; bunch, large; berries, medium; ripens about the 1st. of August.

Erilliant—A large red grape; large bunch and berries very fine flavored and very productive; ripens with Delaware.

Worden—A very large black grape; quality much better than Concord, of which it is a seedling; ripens about the 15th. of August.

Fern Munson—A dark, purplish grape; large bunch; berries, medium; quality, very fine; ripens about the 15th. of September.

Goethe—Very large pink grape; sweet and delicious; ripens about the 30th. of September.

CULTURE.

My experience in grape culture is as follows: I prefer an elevated location, as this very often keeps the young growth from being killed by late frost. I plant 10 feet in the row and 12 feet between rows. I cultivate shallow and as often as weeds start and keep the ground pulverized. I leave the first summer's growth on the ground, the following winter I prune back to two buds from the ground, set my posts and put on one wire about 5 feet high and before the new growth starts in the spring I tie a binder twine below the second bud and to the wire, so that the young vine in the spring can run up to the wire. As soon as the vine has reached the wire, I pinch it off and start two arms, running opposite directions. The third year I prune the arms back to three feet. These arms I wind about twice around on the wire and tie the ends firmly. These arms can be lengthened according to the vigor of the vines.

Summer pruning is very important and I prefer pinching the young shoot off just above the last bunch. This should be done before the shoots get too long and tough, and rub off all the barren or weak shoots and all shoots that may start from the foot of the vine.

SPRAYING.

No certain rule can be given for spraying. We must be guided by the weather. The first spraying should be done before the buds put out. The next spraying should be done just before blooming. The spray should be as near a heavy fog as possible. I hope this may be of value to beginners in grape growing.

GRAPE CULTURE.

(J. C. Ruder, Affton.)

By your request I will give you what ideas and experience on grape culture I have. Previous to the year 1901, I had not been extensively engaged in raising grapes. My vineyard is situated on a southeastern slope, the soil of which is a good loam, with clay subsoil, which I notice gives a good healthy foliage and insures good large bunches of grapes. My past method has been to train the canes to three wires, as the old method was, but my experience with this has been that the grapes are subject to being scalded by the sun. My new method, as shown by accompanying cut, will keep the bunches more shaded and allow the better circulation of air. Severe pruning is essential to insure a good crop. As to fertilizing, I have used none other than well decomposed manure. Good cultivation is as necessary as the planting of best varieties. By a thorough cultivation we can keep the moisture in the ground for a longer period and thereby give them a longer time in which to be harvested. As to spraying, will say I have not used a spray on my fruit, but find that it will have to be done to bear a perfect crop.

The oriole has been my greatest enemy in destroying grapes. Not like other birds will it take two or three berries from the bunch and depart with them, but, instead, it will puncture and drain the juice from as many grapes as it possibly can. Sometimes a single oriole can destroy in a day every grape on two vines, if he is allowed to go unmolested. Many persons believe that this damage is done by bees, but by my experience a bee will never attack a grape unless it has first been punctured by a bird. The white grapes, however, are rarely attacked by birds. I cannot account for this in any other way than by assuming that the birds do not see the bunches, or, seeing them, do not recognize them as grapes of just as good a quality as the blacks.

Varieties most profitably planted in this vicinity are Worden, Moore's Early, Concord, Niagara and Brighton, and I may add Norton's Virginia also. All above mentioned varieties have yielded from twenty to thirty pounds of fancy grapes per vine.

So as to my experience, grape growing is a very profitable crop.

MY EXPERIENCE WITH THE MUNSON GRAPES.

(M. Oliver Cole, Springfield, Mo.)

Many persons learning of my experimentation with the Munson Hybrid grapes have manifested a desire for results.

It is but fair to the originator, and the public as well, to give a description of my soil, topography, etc. The situation is on the crest of the Ozark Mountain range, southern slope, elevation about 1,300 feet above sea level, two miles east of Springfield, Mo. The soil is prairie, formerly black, less than a foot beneath the surface a grayish clay, by continued cultivation and mixing, is now a dark clay loam, subsoiled before planting. Beneath this, red clay, the surfact drainage is to the south and sufficient; the subdrainage is fair, but not ideal. The land is strong, will grow sixty or seventy bushels of corn per acre. As the soil is inclined to bake after summer rains, I almost invariably give it a shallow stirring after each rain. Cultivation is continued till ripening of earlier fruits, then deferred till after pruning in late autumn, it then receives a shallow plowing, throwing the earth towards the vines, leaving an open furrow for winter and spring surface drainage.

I have fruited seventeen of the Munson grapes three years, ten kinds one year, and have seven more to fruit next year. It should be borne in mind that grapes fruited on one soil only, often do not determine what they may do in varying soils and situations. My descriptions are true of their behaviour in my soil and mine only. Note: The Concord, Worden and Niagara succeed well; the Moore's Early, Moore's Diamond, Delaware and Brighton not so well. As the Concord is known to all I have adopted it as a standard for comparison.

Descriptions: *Presely*, red, vigor below standard, health good, bunch two and a half by one and a half inches, berry size of Delaware, thick skin, but little else than skin and seeds, flavor very good.

Rommel—White, puny, berry nearly large as Concord, bunch half that size, skin tender, pulp very tender, flavor sweet and very good.

Brilliant—White, suffers some from cold winters, vigor less than standard, health poor, ripens unevenly, bunch and berry almost large as Concord.

Bacon—Black, fair vigor and health, bunch and berry equal Concord, compact, good bearer, quality not as good as Concord.

R. W. Munson—Black, fair vigor and health, bunch and berry nearly as large as Concord, flavor very good, imperfect pollinator. A good amateur grape.

America—Black, rampant grower, vigorous, healthy, a most excellent arbor vine, bunch and berry a little less than Concord. Although an imperfect pollinator, by the aid of a suitable mate bears a full crop each year, needs thinning every season, needs sixteen feet in the row. This grape is rich in both acid and sugar and a very excellent fruit, but liked only by about one person in ten. It colors the fingers and lips purple.

Carman—Black, wanting in vigor, berry small, bunch small, said to make very large bunch in the south, of exquisite flavor, very late.

Gold Coin—Yellow, berry size of Concord, bunches short, vigor fair, healthy, poor quality.

Fern Munson—Purple, black when fully ripe, imperfect pollinator, bunch and berry a size less than Concord, vigorous, healthy, good bearer, quality very fine. Will hang on the vines until frost. If this were a perfect pollinator it would be one of the most valuable acquisitions to date.

Laussel—Black, bunch and berry about equal Fern, vigorous, healthy, but it pollinates so wretchedly as to be worthless.

Lukfata—Black, berry large as Worden, bunches short, vigorous, very healthy, poor bearer, poor quality.

Champanel—Black, bunch and berry large as Concord, vigorous, healthy, good bearer, fair quality; if it had less acid and more sugar it would be a valuable market grape.

Hussmann—Black, much wanting in vigor, berry small, bunch fair size, quality superior, this year failed to set any fruit, struck by mildew at blooming time. In quality this grape belongs to the aristocracy.

Manito—Black, long straggling bunches, berry less than Concord, bears a full crop each year, flavor difficult to describe but not popular.

Wapanuka—Yellowish white, wanting in both health and vigor, bunch about equal to Concord, berry nearly as large as Moore's Early, pulp soft, much like Rommel. This is the best grape in texture and flavor that I have yet known. It was struck by mildew this year at blooming time and set no fruit. If it only had health and vigor what a grand acquisition this would be. Niagara and M. Diamond but hog feed compared to it.

X L N ta—Black, bunch and berry large as Concord, health and vigor fair, imperfect pollinator, quality much like R. W. Munson but not so good. No fruit this year, mildew at blooming time.

Bailey—Black, a little more compact bunch, otherwise it would pass in every respect for a Concord except a little too much acid and not enough sugar. This grape much resembles the Beacon.

The following ten kinds I have fruited but one year. Both size of bunch and berry, quantity and even quality, often fail to be determined by the first year's fruiting. Nevertheless there are some features that are interesting and somewhat accurate.

Headlight—Red, almost identical in every way to Presley, not quite so seedy, good flavor, puny in vine.

Hidalgo—White, fair vigor, bunch and berry also, flavor much like Moore's Diamond.

Tonkawa—Winter killed nearly to the ground.

Palermo and *Amethyst* also.

I observe Mr. Munson has discarded these last three from his catalogue.

Captain—Black, bunches very long, eight or ten inches, slim, compact, berry large as Concord, vigorous, too much acid.

Cloeta—Black, rampant grower, made a few small nubbins only, but this is no indication of what it may do when older.

Mr. Munson says: This is perhaps the best black American grape yet produced. It certainly has the necessary vigor or that distinction.

Shala—Black, much like Cloeta.

Blondin—White, a few nubbins only.

Eleala—White, bunch and berry much like Concord, very vigorous; in quality almost if not quite equal to Wapanuka, the berry being a little more meaty than the latter. Attacked by leaf folder but it appeared to do no harm as it ripened, both fruit and wood perfectly. This is the most promising white grape I have yet met with; but I observe Mr. Munson has eliminated it from his catalogue.

Tamala—White, vigor medium, quality good, bunch and berry medium. Discarded by Munson.

La Reine—Black, of all the most promising till nearly ripe, the pedicels mildewed and failed to mature a most promising crop. Discarded by Munson. I have tried several others, but the climate or soil not agreeing with them, they died.

I have also fruited the *Hicks* for 3 years, introduced by Henry Wallis of Wellstown, Mo. This is a good grape of the Concord type, but of much better quality. I see no reason why it may not supercede the Concord.

Campbell Early—I have fruited this grape the last three years. If this grape had vigor sufficient to make it productive it would be the best black American grape yet produced. Everybody likes the fruit, and its keeping qualities are remarkable.

Uncle Sam, or *Stark Star* originated by Joseph Bachman of Arkansas, have fruited it two years. Health and vigor good, very productive, enormous bunches, but over compact and so tenacious to the pedicel as to tear the berries to pieces before they will separate from the cluster. Flavor too much like the wild grape. It ripens so late in the season the cool weather prevents its maturing a good flavor. It belongs farther south, but even there, in all probability will be but a good wine grape.

During the last few years great progress has been achieved in the production of new kinds, but the way apparently is still open for the honor of producing the perfect grape.

DISCUSSION ON GRAPE GROWING.

Mr. Zellner—Our vineyard is ten miles east of Neosho, we have four acres and have raised grapes for sixteen years without a failure.

G. A. Atwood—I visited Mr. Zellner's vineyard and found no rot on his grapes. He won a prize at the World's Fair on an exhibit of forty-three varieties. One of the most profitable crops in Springfield is grapes.

A. Chandler—I have more uniform success and profit on grapes in the neighborhood of Kansas City than on any other one crop. We ship to Minnesota and received one-half as much as on our own markets. Grape growing in South Missouri is by no means a failure, as we find here the right soil and place, and that there are fewer enemies here. Where the wild grapes grow as vigorously as here it is foolish to say that you can't grow grapes. They will be a success and yield more in the Ozarks than in other districts.

N. F. Murray—I would like to ask Mr. Zellner where and how he sold his grapes?

Mr. Zellner—We have plenty of good local markets and we raise better grapes cheap enough to compete with the New York grapes, because they have to pay freight. The cost of spraying is so little that we can easily afford to do it. The black rot is easy to control. We do not make a practice of sacking except to keep the grapes from the birds, never to keep them from fungi.

Mr. Erb—I am glad to hear of these successes. Perhaps I took the wrong part of my ground. I took the southeast slope which was rocky, but I fertilized it and followed the prescriptions in spraying. The Niagara succeeded for two years and after that it rotted. Moore's Early is the only one that kept being a success. We must grow the varieties that are like the wild ones.

Mrs. A. Z. Moore—I know Mr. Erb's vineyard, but he is not the only one in our neighborhood to cut out his vineyard. One man pulled up his because he couldn't sell the fruit, another with two hundred vines gave away bushels and had many left, he sacked plenty of them, but couldn't give them all away. On two vines in an arbor there were six bushels, while on another vine, near by, all rotted. This one that rotted was an Elvira, those on the arbor were Concords. Grape vines can be used over porches with most artistic effect. I have two vines which cover fourteen feet of porch and reach twenty feet to a well and bear enormously. I have two wires from the porch to the well and trim the vines back every year to one branch on the lower wire.

In regard to apples the reports were misleading for I saw an orchard within a few miles from me which, although it had scab, yet bore about eight thousand barrels of perfect No. 1 apples, which sold at from forty to twenty-five cents per bushel.

Capt. Lincoln—I had apples this year so large that they were condemned by three buyers. This year \$1.50 was paid per barrel for apples labeled No. 1.

Member—The grape business is developing in this section. I bought table grapes from Mr. Zellner this last season and sent them to my daughter in St. Louis and she reported there was nothing in St. Louis as fine. I heard the same also of his grapes at two other points. Mr. Zellner has raised as fine table grapes as are in the country and Southwest Missouri does raise as fine grapes as New York.

J. A. Orr—The Worden doesn't ripen evenly. Woodruff Red is fine, beautiful and large. The Hicks I consider inferior. The Early Ohio is also inferior. The Green Mountain is delicious, but the Concord is the main crop although it is not so good, it will grow from sixteen to eighteen feet a year, but this is too much. Two hundred pounds of bone meal and sulphate of potash to the acre is better than manure.

Mr. Wilson—What experience has any one had with the Eaton?

A. Chandler—I find it large and thrifty but not productive.

Prof. Whitten—At the Station we find the same, it ripens very unevenly and often cracks.

Mr. Wilson—One man had Eaton sell at St. Joseph for fifty per cent more than other varieties.

Mr. Zellner—The Worden does ripen unevenly, but if it is not overloaded it does much better.

Mr. Chandler—That is true, if it is overloaded it does not ripen evenly.

H. N. Wild—Mr. Zellner's paper was very good and the varieties mentioned suit this country. The Delaware should be planted with caution.

Mr. Erb—The Delaware and Brighton are wine grapes also.

W. T. Burkam—Mr. President, as I have to leave early I would like to present the following resolution:

As we are about to adjourn one of the most successful as well as most pleasant meetings ever held by the Missouri State Horticultural Society; and as the admirable arrangements for said meeting resulting in the comfort and pleasure of those in attendance, were largely due to the untiring work and zeal of our fellow members, Mr. F. H. Speakman and his associate workers here in Neosho; be it therefore

Resolved, That a vote of thanks be tendered Mr. Speakman and his co-workers by this Society, and this official expression of our gratitude be spread upon the minutes of this meeting.

The motion to adopt this resolution was seconded and unanimously carried.

RASPBERRIES.

(H. W. Jenkins, Plattsburg, Mo.)

The Raspberry is the center one of the group of the big three berries which an All Wise Creator made to appease and gratify the taste of man. First in time of ripening and also in popularity comes the "Big Red Strawberry." Then the really more valuable Raspberry, and last but not least—Everybody's berry—the "Blackberry." Of course there are other berries, but none to compare with these three. Each separate and distinct from the other, yet all so good and palatable that no fruit garden is complete unless each is represented.

The raspberry is a native of both Europe and America and like all our fruits has been improved by cultivation and cross fertilization, till now we have well nigh reached perfection, both in size, color and quality. The raspberry is divided into two families, the red and black caps. The first is propagated from suckers from the roots. The latter from the tips of the canes. In both families the roots are perennial. The canes bi-annual, growing one season, bearing the crop and dying the next. The reds are not as prolific as the blacks, nor are they as generally grown in Missouri, as they do better in a cooler and moister climate. Probably the best varieties among the reds are Cuthbert and Miller's

Red. The purple varieties, which are a cross of red and black, like the Shaffers Colossal and the Columbian, have never proved satisfactory, canes are too subject to anthracnose and winter-kill too easy.

The black caps are the most reliable and in every respect, hardiest, most productive, easiest picked, and can be put to the most different uses. Among the many varieties I consider the Cumberland the best all round berry. The Kansas is a good early one and the Munger and Nemaha good late ones. The greatest enemy to the raspberry is anthracnose, which attacks the canes, causing them to die prematurely. The best remedy is to use means of prevention by keeping the patch clean of weeds, removing and burning the old canes and spraying with Boardeaux mixture which, if not a sure preventive, will at least hold this disease in check.

In starting a new patch the ground should be well prepared, the same as for any other crop. The planting of black caps should be done in the spring as soon as the ground is fit to work. The red or sucker varieties can be successfully planted in the fall, but should have a mulch of some kind thrown around for protection against the winter. The plants should be set in rows about 6 to 7 feet apart and plants 3 feet apart in the row. Give good cultivation, keeping the ground loose and free from weeds and grass. When the canes get some 30 inches in height they should be pinched off to make them grow more stocky and throw out laterals. After the winter is passed the canes should be pruned and all the dead and discolored wood removed and even if the wood is fresh and green to the tips, the main stem should be shortened to 3 feet and the laterals not left over 6 or 8 inches long.

One of the best growers I ever saw, Mr. Boggs of Stotesburg, grows his berries by setting posts same as for grapes, and uses two wires, on the outside of the posts and canes, at about 3 feet from the ground which holds the canes up and keeps them tight so the wind cannot break them down. He removes all the bearing or dying canes soon as the season is over which throws all the strength of the roots to the new canes.

The raspberry is a very popular berry from the fact that it ripens its fruit at a very opportune time, completing the gap between the strawberry and blackberry, a season of about three or four weeks, giving the lover of berries a continual feast from the beginning of strawberries to the close of the blackberries without a break. The raspberry is very popular with the good housekeeper because she can use it in so many different ways. It can be served either as fresh fruit with sugar and cream or made into jams or jellies, canned or preserved. When cooked

it does not shrink like the strawberry, nor lose its flavor. Or it can be worked up into soft drinks, such as raspberry wine or vinegar. The latter being a most delicious, grateful and cooling drink for those sick of fevers. A good formula for making the latter is as follows: Take a quart of black raspberries and a tea cup of cider vinegar which pour over the berries and let stand over night; draw off and strain, and add an equal quantity of sugar. Boil 10 or 15 minutes and bottle while hot. This makes a drink good enough for "Mrs. Chadwick," without the "bite of the serpent."

As for the raspberry being a money-maker for the grower, we have never found it so. But it is a berry that is indispensable and cannot be discarded by the fruit grower, be he a commercial one or simply an amateur. It has its place and nothing will ever supercede it.

CHERRY GROWING.

(W. H. Litson, Nevada, Mo.)

Mr. President, Ladies and Gentlemen.—The subject our worthy secretary has assigned to me, "Cherry Growing, for My Part of the State," is one which I doubt I can do justice to, however, I will do the best I can.

First, will be the selection of the location for a commercial orchard. My first choice will be a red clay limestone land; second, black limestone land; third, any dry sandy soil, in either case it should be high, well drained land, as the cherry will not stand wet land.

Preparation of the soil.—If not already rich enough, I would use barnyard manure enough to make the land produce 50 to 60 bushels of corn per acre, with ordinary season and good cultivation. Plow and harrow the land the same as any thrifty farmer would prepare it to raise a good crop of corn.

Mark out the land one way by running a double furrow, with a two-horse plow. Plant cross-wise by stakes, setting the trees in the furrows, prune off all broken and bruised roots, spread out the roots in a natural position as possible; see that the dirt is well sifted in between the roots, tamp the dirt as it is put in around the tree, but leave the top layer loose. Do not plant any deeper than the tree grew in the nursery.

Selection of the trees.—Use nothing but first-class two-year-old trees four feet and up, entirely free from bruises and scars. Shorten the tops

a little when planting. Buy direct from the nearest nursery and get them as fresh as possible, and under no consideration would I buy from a dealer or an agent.

Time of planting.—I would prefer fall or early spring, never late spring.

As to *varieties*, I will have to confine myself strictly to my county—Vernon—as there may be other varieties that would do well in other localities and not in Vernon. I will name them in order of preference: Early Richmond, commonly called Early May; English Morello, Montmorency and Late Richmond.

Cultivation.—I consider this one of the most important points in fruit growing and one of the most neglected parts. I believe there are more failures on account of poor, or no, cultivation, than all other failures put together. Cherries should have thorough cultivation the entire season, not a weed allowed to grow; this should be kept up for five or six years, then sowed to clover, mow the clover twice a year and leave it on the ground, never take it off or pasture the cherry orchard.

SEVENTH SESSION—THURSDAY, DECEMBER 22, 8 P. M.

The program for the evening was opened by a beautiful piano solo, variations of Home, Sweet Home, by Miss Patterson, which was enthusiastically encored.

Vice-President Dutcher presided over the meeting.

THE FIRST TWO YEARS IN A COMMERCIAL ORCHARD.

(W. L. Howard, Assistant Horticulturist, Columbia, Mo.)

It is to be hoped that the facts and figures to be given in this account will not be taken to apply perfectly to all localities, even in the State of Missouri. However, the figures for the different items are actual ones and represent the cost that was necessary for all purposes by one who found it necessary to hire all the work done and to pay cash therefor. The apple orchard is the only one that will be reported on.

The first planting was done on land that had been in cultivation for several decades, although it had been in bluegrass sod for the past seventeen years. The soil is of the well-known loess formation, but the situation was almost a mile from the river and hence there

was slightly more clay than would be found along the high hills and bluffs. The land was plowed in the fall, and the sod being very tough, some difficulty was experienced in turning the sod thoroughly, but all was finally plowed before freezing weather.

The plowed land was marked off twenty-five feet apart each way, with a two-horse turning plow, one round being made in each furrow, thus throwing the soil outward going each way. This left quite a furrow, which made it necessary to do but little digging to plant the trées. No attempt was made to harrow or otherwise molest the remainder of the ground, this work being left until the following spring. The trees were unpacked in the field and heeled in at convenient places in the furrows. Two-year-old trees four to five feet high were used exclusively. At the time of planting the tops were properly shaped and the roots pruned to correspond with the heads. All the trees were wrapped with common wooden veneer wrappers immediately after setting, as the rabbits were very plentiful and earlier experience showed that it would be necessary to thus protect the young trees as they would be injured if allowed to remain unwrapped for a single night. This was especially true along the borders adjoining some woodlands. Although planted as quickly as possible, cold weather came on and it was very difficult to wrap the remaining trees owing to the fact that the wrappers would freeze and would split when being placed in position. Finally, having run out of wrappers, there were a number of trees left that could not be wrapped. The last wrappers were used along the outside, leaving the unwrapped trees toward the middle of the field. The ground being frozen it was impossible to set them in the soil properly. However, after the first thaw it was an easy matter to go along and shove the wrappers in the ground to the proper depth—about two inches. This was even better than if they had been buried in the usual way in the first place.

The unplanted trees were left heeled-in in the field throughout the winter and came through in good condition, although it was necessary to construct a tight woven wire fence around them to protect them from the rabbits. In the spring as soon as possible the planting was resumed and all the trees wrapped as before. The land was rented to a farmer to be planted in corn, the rental being one-half the crop after being gathered, the cultivation of the trees during the season being paid for in cash. There were six rows of corn between each two rows of trees and one row left vacant where the trees occurred. The corn was drilled in the rows, in only one direction.

The season was exceedingly wet and it was very difficult for the tenant to secure a good stand of corn. He even planted part of it the third time. This late corn did not produce much, but the rains of late summer caused it to be moderately productive. The trees did not secure the cultivation that they should have had on account of the wet weather and the impossibility of securing help at the right time. However, on account of the rains they made very good growth. When they were in full leaf all of the leaves over several acres were stripped in a single night. This devastation was apparently due to the ravages of May beetles or some similar insect which came out of the sod. This proved to be the first mistake in the work—planting the trees in freshly turned sod. Later in the summer the leaves were again stripped from some of the trees by caterpillars and it was only the wet season that prevented their being permanently injured. It was impossible to give the orchard personal supervision at all times during the season, which accounts for the last named insect doing the damage it did unmolested.

The total cost of planting this land, including the price of team, drayage, freight, wire, wrappers, labor, etc., amounted to \$7.30 per acre or 10 3-10 cents per tree.

During the fall of 1904 another field was planted. This land was located on the river bluffs in the best of the loess soil. The planting was done on wheat stubble land that had been turned in late summer and was in splendid condition for the work. The rows were laid off with a chain made of wire, each link being 25 feet in length to correspond with the width of the rows. By means of this chain it was an easy matter to construct perfect right angles and hence it was not difficult to lay out the rows perfectly straight in both directions, even though the land was very uneven. A small stake about a foot in length was stuck into the ground where each tree was to be placed. The holes were easily dug with shovels, these workmen being followed by two men who did the planting.

The following are some of the items of expense on an acre basis. The two-year-old trees, including freight, drayage, etc., amounted to \$3.08; 18-inch wooden wrappers, 25 cents; No. 20 annealed wire, fitting this wire in the wrappers, placing the wrappers on the trees and properly setting them in the ground, \$1.27; cost of planting the trees, 85 cents; making a total of \$5.45 per acre. The difference in the cost of planting in 1903 and 1904 is perhaps due to two causes: The condition of the soil, that is, a stiff sod in one case and a thoroughly pulverized soil in the second place; and the price of the trees—trees being much cheaper at the time of the last planting.

It should be noted that the cost of cultivating the trees of the first planting during their first season of growth amounted to only 85 cents per acre for the entire season, but this was abnormal because of the wet season and the impossibility of securing labor at the right time. They were not cultivated as many times as they should have been. The intention is to grow corn in this orchard again next summer and it is estimated that if the season is normal it will cost from \$2.50 to \$3.00 per acre to properly cultivate the trees. The land has been let for the coming season to a tenant who will pay a cash rental that will amply cover the cost of maintaining the trees. This can be done for two or three seasons yet before it will be necessary to cease producing corn. Cow peas will be the crop to be grown when the soil shows signs of becoming impoverished from continuous cropping with corn.

DISCUSSIONS ON ORCHARDS.

T. H. Todd.—When you are cultivating the corn cultivate both ways and do not omit the apple tree row; use the double shovel and plow both ways and there will be little trouble to loosen with the hoe the hard part about the tree. Trees grow well so treated and even without the hoe.

Mr. Howard.—I expect to plant four crops of corn in my orchard, but would not advise this on a weaker soil.

H. L. Messick.—When you take the wrappers off the bark will be tender.

Mr. Howard.—My man drills in his corn and could plow but one way. I have him plow close to the tree, but still I want the hoe used to pulverize the soil. I plant the tree the same as in the nursery or a little deeper so that it will be the same when the dirt settles. I prune both roots and top, cutting off half the length of the branches, shorter toward the top and have the branches eighteen inches from the ground.

Mr. Hitt.—What objection is there to using newspapers for wrappers and fastening with twine?

W. L. Howard.—The paper wrapper will keep out the borers and rabbits, but does not last. It is best to plant the trees perpendicular as when they are planted inclined they stay so. I prefer to have them straight and shade the trunk with the wrappers. I expect fruit the fifth year and by that time the branches will shade the trunk.

FERTILIZERS FOR THE ORCHARD.

(Wm. H. Chandler of Missouri College of Agriculture.)

For almost all crops the best fertilizer is stable manure. It contains all the elements that are necessary to apply to the soil, and its decay there improves the mechanical condition. That is, it makes the soil more loose or porous. Compared with the prices paid for the same amount of plant food in commercial fertilizers, a ton of fresh stable manure is worth about \$1.50 to \$2.50. It cannot be obtained, however, for the larger orchards of Missouri, so if fertilizers are applied to them it must be in some other form.

In taking up the subject of commercial fertilizers it is well to come to a clear understanding of what it is in them that the plant needs. As you probably all know, the elements of plant food that the soil is likely to be deficient in, are nitrogen, phosphorus and potassium. These have a definite action in the plant. Nitrogen gives vigor and health to the plant, causing a rich growth of stem and leaves. Where it is present in excessive quantities there is likely to be a very large wood growth at the expense of the fruit, and trees may continue to grow late in the season when they ought to be ripening up their wood for winter. This condition, however, is not likely to be found in any of our fruit soils. Nitrogen is not found in large quantities in fruit. A ton of wheat, for example, contains more than twenty times as much nitrogen as a ton of apples. Less nitrogen will be needed, then, for orchards than for grain crops. We may say that when the tree is in a healthy condition, making a fair wood growth, no nitrogen need be applied. This does not mean, however, that when a tree fails to make sufficient wood growth it is always due to lack of nitrogen, for lack of moisture, over fruiting, and other conditions more often produce this effect.

The visible effects of phosphorus are much less marked than those of nitrogen. Experience shows, however, that it is very essential to plant growth. It is especially important in the formation of seed, except in grapes; this element also is found in much smaller quantities in fruits than in grain crops, so, perhaps fruit soils may not need as much phosphorus as do grain soils.

Potash hastens the maturity of plants. It is of especial importance to fruit growers. It is contained in all those acids that give fruits their acid flavor. Starch and similar compounds make up the large bulk of all fruits, and the formation of these is very closely

associated with the supply of potash. While an average grain crop removes from the soil a great deal more nitrogen and phosphoric acid than an average fruit crop does, the reverse is true of potash, and if the soil is not rather rich in potash much more of it will need to be supplied than of either of the other two elements.

Nitrogen, when obtained in commercial form, is the most expensive of these elements to supply, costing about sixteen cents a pound. It is supplied by nitrate of soda, sulphate of ammonia, dried blood, tankage and many other materials. Phosphorus costs about four cents a pound, and is supplied by bone products, as bone meal, bone black, dissolved bone, etc., and by the phosphatic rocks of the southern states, especially Tennessee, South Carolina and Florida. Potassium costs about four and a half cents a pound. It is obtained as muriate of potash, sulphate of potash, kainit, etc., from the potash mines of Strassforth, Germany, and from cotton hull ashes, wood ashes, etc. Of course, it wouldn't be possible to secure wood ashes for the large orchards of Missouri, but it will certainly pay to use what can be obtained. Average unleached wood ashes contain about one and a half per cent of phosphorus and about six per cent of potash. Then at the price paid for these elements in other materials, unleached wood ashes are worth about six dollars a ton, or ten cents a bushel. Leached wood ashes are worth about two dollars and a half a ton. Ashes supply not only the potash, but also phosphorus in as large proportion as the orchardist is likely to need, and are rich in lime, which is a benefit to many soils.

For the orchardist who does not wish to grow a rather high grade of fruit it usually will not pay to apply commercial fertilizers. It must be remembered that there is a very large, though constantly decreasing, quantity of these elements in the soil in an unavailable form, and that they are continually becoming available. Good cultivation hastens this process very materially so that it will almost supply the needed phosphorus if not the potash and nitrogen.

Nitrogen at any rate should very seldom be applied in commercial fertilizers, for it can be supplied very much cheaper in leguminous cover crops. If the orchard is not cultivated, clover may be a good crop to grow. It is usually best to cultivate, though, so an annual crop is much better. In the north two ideal crops for this purpose are crimson clover and the vetches, especially the vetches. They may be sown after the orchard has been cultivated for the first half of the season, and they will form a dense mat that stays partly green all winter, thus covering the soil fertility. They do not thrive satis-

factorily in more than a very few sections of Missouri. The best cover crop here is the cow pea. They should be sown about the last of June, and they will not seriously interfere with the cultivation of the orchard, for it may be cultivated up until the time they are sown, and may be harrowed once after they come up, without doing any harm. If the orchard is fenced in so hogs can be turned in for a short time each day, some returns may be had from the crop besides its protection of the soil and the nitrogen it furnishes.

A ton of cow peas contains thirty-nine pounds of nitrogen. Taking the low yield of a ton to the acre, we may be certain that besides this thirty-nine pounds, there will be in the stubble and the roots at least twenty-five pounds, making in all sixty-four pounds. At sixteen cents a pound this would amount to \$10.24. Now, it must be remembered that much of this nitrogen came, not from the soil, but from the free nitrogen of the air, which other plants besides legumes cannot use. Just how much of it came from the air we do not know, but we do know that one such crop in three or four years will keep the soil rich in nitrogen, even when some gross feeding crop, like corn, is grown on the soil during the other years.

If part or all of the crop is left in the soil, another benefit of such a crop is the humus, or decayed vegetable matter it adds. Humus seems to benefit the soil in three ways: It holds very large quantities of water, it holds nitrogen in the soil that otherwise would escape into the air, and what should be especially noted, it forms organic acids that dissolve rock particles in the soil, thus rendering available other plant food, such as phosphorus and potash.

I would say, then, that the cheapest and best way to fertilize an orchard is to grow a crop of cow peas in it at least once in four years, to use what stable manure and wood ashes can be obtained, and if it is seen to be necessary, to apply potassium in the form of muriate of potash and perhaps a little phosphorus in the form of dissolved rock. There may be orchards, however, where it is not desirable to grow cow peas, and where a complete commercial fertilizer is desirable. For such the following may be suggestive:

Food elements, nitrogen per acre, 8 lbs.; use per acre: 50 lbs. nitrate of soda; 60 lbs. dried blood; 100 lbs. tankage.

Food elements, phosphoric acid per acre, 30 lbs.; use per acre: 300 lbs. bone meal; 200 lbs. dissolved bone; 250 pounds, dissolved rock.

Food elements, potash per acre, 50 lbs.; use per acre: 100 lbs. muriate; 100 lbs sulphate; 400 lbs. kainit; 900 to 2,500 lbs. wood ashes.

Nitrogen is obtained cheapest in tankage, phosphorus in dissolved rock and potash in muriate of potash or in wood ashes.

This can only be suggestive. Different soils will require these elements in different quantities. The only way for a man to know just what his orchard needs is to determine by experiment. The orchard might be divided into sections and a mixture of different proportions applied to each section. From the results of this a man might be able to determine just what his orchard needs.

The vocal duet, "O That We Two Were Maying," was sung by Mrs. Kellar and Mr. Rathell and was heartily encored.

The following paper was read for Mrs. Moore by Mrs. J. S. Butterfield:

A WOMAN'S VIEWS OF HORTICULTURE.

(Mrs. A. Z. Moore, Mountain Grove, Mo.)

It has been aptly said, "Eliminate women from all lines of public work and the affairs of the world will proceed as usual, but take her away from the home and disaster and ruin would inevitably follow." In the face of this fact, the most progressive of women need not offer an excuse for the prominence given to home work and duties. An ideal home life is the nearest conception we can have of the great gathering of loved ones in the "Land beyond the sun," and to reach either, or both of them, we give our greatest effort and most earnest thought.

Progression after all is but mankind's desire for happiness. A reaching out and striving for those things that shall widen our knowledge, develop our latent powers and give greater scope for enjoyment of the pleasures of life; and whether we strive but to please self, or to benefit all mankind, any achieved success gives another turn to the wheel of progress. Women were long held back by the fear of public censure, and the social conditions that made it seem bold and immodest to venture into the world beyond the home circle. In my grand-mother's day, even real robust health was a fact to be denied, and maidens were taught to restrain their appetites for fear of losing the languid, delicate look that was the acme of beauty. When, through force of circumstances, or of will, a few ventured into business and public life and were successful, there was almost a stampede away from the homes. It mattered not what a woman's inclinations were, or how closely home duties pressed, she must do something to prove to an uncaring, unbelieving public that she could

sink her more tender and gentle feminine qualities and standing up shoulder to shoulder with men, fight for and win place in business, public position and politics. For a brief time it looked as though the true home life was to be overthrown, and that boarding houses, with men cooks, together with men milliners, dressmakers and nurses, would supply the semblance of home to the nation's future great men and women. But when we got time to think farther, we began to know that great and good a thing as it was to help make laws for the good of men, it was a much better and greater thing to rear the boys and girls to honest, wholesome maturity, with broad sympathies and generous hearts, and with a purity of life gained through knowledge of nature's laws and not through ignorance. But woman never could go back to the home under the old conditions. She must bring the home up to meet her higher ideal and the changed condition of things. Never again will she fear to express an opinion, or to eat pork and beans in public, if she so desires, while weakness of mind or body will be carefully kept in the background, as they are the witnesses of our ignorance of nature's laws.

What has all this to do with horticulture, you ask. Very much, for this is one of the few avocations which fully and beautifully combine with home life and training; for never again will women of ability sit down and cry over the inability of the head of the house to buy her a new spring bonnet. She is a broader, wiser, more independent woman, and she will use her abilities best in helping those she loves, and incidentally, by example, by precept and by the qualities of character instilled into the minds of her children, help the whole world.

What offers greater opportunities for such a life work than horticulture? A home among plants, vines and trees, with lovely blossoms and satisfying fruits, appeals to all that is artistic in a woman's life, while the practical features are visible every day in the year. The home mother can "look well to the ways of her household" and with the company and assistance of her little ones plant and grow and gather in the luscious fruits. If she but grow and train the grapevine on the back porch or arbor, she may teach by practical lessons the very foundation of horticultural education. She need not stop in the dooryard, but reaching out from her home she may plant great orchards and grow them to maturity or she may take advantage of the work of others in this line and push her horticultural products into all the markets of the civilized world. With the aid of the typewriter and telegraph, her business influence may circle the earth



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
NUT EXHIBIT. 48 VARIETIES AND KINDS.

while she sits by her desk in her own home, with her family around her, and if dainty lace work drapes her chair, and her feet rest upon cushions, who shall say her nay? No one has yet learned all there is to learn about horticulture and both practical and scientific knowledge can be gained in home work and study. Best of all, a woman need neglect nothing that is for the true good of the young minds about her, who need all the help that modern progressive women are so able to give.

Many fail to do anything while longing for special opportunity for greatness. I knew one wise woman, the daughter of a farmer and horticulturist, educated in the district and village schools, with home study and application, who later became a district school teacher. When "Nature Studies" first agitated the public mind, she came to school one day with a big red apple—a Ben Davis, I presume—anyway, just such an apple as every child at school had seen many times, and eaten as well and announced that this term they would study about the apple. Now everybody knew all about the apple. They knew how the agent came to the house to sell trees, and how father didn't want any, and mother did, and they got some trees, of course, and planted them and sometimes got apples. They knew apples had color and a stem, a core and some seeds, and sometimes a big fat worm comfortably living within. They knew an apple tree when they saw one, and knew the cows were fond of them, especially when they were young and tender, and the older ones smiled to hear the "teacher" speak of studying the apple all winter. Those lessons began with the planting of the seed, growing, pruning, fruiting, protecting from insects and disease, budding, grafting, cultivating, plant food, the flow of sap, and the wonderful secrets stored up in bud and leaf. The reason we had blossoms that attract and please the eye, soils and even the use of the apple, from dried apple pie all along the line of evolution until we reached the perfect specimen eaten out of hand, and much more was taught those eager boys and girls. It is practical lessons like these that are of real worth, and the adaptability of horticultural work to the various members of the home cannot be over-estimated. It gives scope for all our talents, scope for our energies and is one of the most fascinating avocations on earth.

FUTURE PROSPECTS OF MISSOURI HORTICULTURE.

(J. C. Whitten, Horticulturist, University of Missouri, Columbia.)

Horticulture has its problems and its apparent drawbacks. Insect enemies attack, fungus diseases destroy, drought comes to mar our hopes, frosts cause the flowers to wither and die. The active horticulturist has before him a struggle for existence. Sometimes the struggle seems to be almost an unequal one. The ills that beset our plants sometimes all but destroy our hopes. Do we stop to think that out of all this apparent evil, good may sometimes come as a future reward?

When our fruit crop fails for any of the above reasons it is but human to regret it. It causes discouragement even in the heart of the most resolute. Failure means not only sweeping away the legitimate fruits of our labor, but in some cases it even means the loss of our visible means of sustenance. Such drawbacks as this are sure to come from time to time in any business. Temporary inconvenience, embarrassment, hardship or sometimes even want are likely to follow. For a time it is impossible to rejoice when privation occurs. It is equally legitimate, however, for us to realize that sometimes it is out of the greatest difficulties that better things are brought about. Some of the most serious disasters that have befallen the horticulturist have been the means through which future benefits have arisen.

For years Peter Gideon planted apple seeds in the northwest, beyond the range of hardiness of any then known varieties. Thousands of apple trees were started from these seeds, only to die upon the approach of severe winters. He persisted, however, and after having grown trees from more than a bushel of apple seeds, all of which died in the struggle with a severe climate, he finally produced one tree which lived, bore fruit and has been handed down to us as the Wealthy apple. This variety is capable of being grown in very severe climates and may be said to have removed the limits of commercial apple growing several hundred miles farther to the northwest. His persistent planting of trees in a climate where only discouragement at first came to reward him is what made his final triumph great.

The tomato affords perhaps a more concrete example than the apple of the evolution of cultivated plant forms adapted to special purposes and locations. Almost within the memory of men now living it has been brought from a comparatively unimportant wild

plant to the position of one of our most important garden vegetables. The history of its amelioration is well known to us for the reason that it has transpired within our own memory. Not many decades ago the tomato was often known as the love-apple and was grown mostly for ornament, much as the Jerusalem cherry is today. It was regarded as being dangerously poisonous. Even the hogs were said not to eat it. It belongs to the nightshade family, a group of plants most of which are poisonous, and this helped to intensify popular prejudice against it as a food. As we regard our delicious tomatoes today we are constrained to laugh at the old opinion that it was a poisonous plant. There was more ground for that impression than we now think, however. Not only did it belong to a poisonous group of plants, but the unimproved forms were not only less toothsome, but they were an inferior food to the highly improved varieties of tomatoes of the present.

The unimproved tomato had large seed cavities and very thin flesh. The seeds were very numerous and surrounded by an excess of watery and acetic juices. It had mostly deep wrinkles or sutures extending deep between the divisions of the fruits and these did not ripen evenly, so parts of the fruit were green when the outer wrinkles were ripe. With the abundant food supply given to it under culture and by careful selection, large, smooth, fleshy varieties, whose fruit ripens evenly throughout have been evolved. More important yet has been the elimination of the seeds to a large extent and the substituting in their place, thick, fleshy walls to the fruit so that the most edible part has increased, while the objectionable seeds and their surrounding watery parts have correspondingly disappeared. The best varieties of today have thick, fleshy walls and partitions and very few seeds as compared with the wild plant or the early varieties.

The improvement of this fruit has gone on so rapidly that we have round, compact tomatoes which are suited to different purposes. Some are grown for canning, some for dessert fruit. We have early and late varieties, those which are large and those which are small. In fact, it may be said that the tomato has been practically perfected as an edible vegetable or fruit within the lifetime of some of those who are present.

In certain sections of the country the cotton growers have had their cotton fields laid waste by a wild disease which killed their plants. Large areas of cotton plants have at times been an entire loss to the farmer. The farmers, however, have persisted in planting. In recent years it has been observed that in some of the fields where

the disease has been most destructive that a few plants, scattered here and there have escaped the disease, while all of the other plants in the field have died. Instead of going to uninfected districts to secure seed the brilliant idea was suggested that these plants which lived through without taking the disease must be resistant to it. Seeds of these have been selected and in many cases their seedlings have proven to resist the disease like the parent which escaped the scourge. In this way strains of wilt resisting cotton have been produced. It was by selecting from the fittest plant to live under adverse conditions which brought this about and which promises to put cotton growing beyond the dangers of the wilt.

A century ago the greater part of the named varieties of apple grown in this country were of European origin and most of these were at best only imperfectly adapted to our climatic conditions. The best proof of their non-adaptability is the fact that at the present time more than ninety per cent of our varieties of apples are of American origin. Varieties better adapted to our conditions are being originated and are crowding out those which are less adaptable.

A similar condition may be noticed in selection of varieties which are adapted to the west. Formerly we grew the same sorts which were brought from the older states of the east. In recent years, however, western varieties, better adapted to our conditions are coming into prominence and are taking the place of the older sorts. Some of the most prominent commercial varieties of apples grown in Missouri today had their origin in comparatively recent years in this very State. The Gano, Ingram, Missouri Pippin and Huntsman may be mentioned among these and many still newer sorts are continually gaining prominence. It may be said that Missouri and Arkansas seedling apples are destined to form the list of varieties which are to be grown in the Ozark region in the future. A similar evolution of adaptable forms is taking place in the case of the other fruits.

Many of our most serious drawbacks in fruit culture in Missouri today are only paving the way to future success through the development of varieties which will resist our diseases or our peculiarities of climate. Once some serious difficulty appears it is the signal for the orchardist to begin to look for some resistant form or some method by which this difficulty may be overcome.

When I first joined the Missouri State Horticultural Society the question of how to get fruit to market was uppermost in the mind of the grower. No one then dreamed of shipping strawberries or peaches to New England markets. At the present time methods of pick-

ing, packing, refrigeration and rapid transit have solved the difficulty so that now our perishable fruits reach all the important markets between the Rocky mountains and the Atlantic ocean. The difficulties of disposing of the fruit had to present themselves and to be worried over for a time before a solution of the problems could be worked out.

The progress which is being made in commercial fruit growing reminds one of the old time notion that the Louisiana Purchase territory could never become an integral part of the United States for the reason that its distance from the seat of government would prevent representatives from reaching the capital until their term of office had expired. That seemed to be an insurmountable obstacle to our successful acquirement of the territory, but, you all know today what has happened and how such bugbears fade away.

We would take stronger heart in our vocation if we could realize how steadily horticultural problems are being solved. The fact of the matter is that these changes take place so subtly and so naturally that we fail to notice the change and we look upon a present difficulty, like apple scab, bitter rot or failure of fruit to keep as being a difficulty which is bound to stay with us always.

If, however, we contrast the present conditions with the less favorable ones of the past we may get something of a view of what the future no doubt holds out to us. In fact, progress is going on at an accelerated rate and more is now accomplished in a decade than formerly was done in a half century. This view leads us to the conclusion that while some of the trials of the fruit grower of the Ozark section may be hard to bear—temporarily, at least—that this section is destined to be one of the greatest fruit regions of the world, and that the very problems you are now meeting are going to be the main stimulus to the accomplishment of that end.

NUT BEARING TREES.

(J. T. Jackson, Chillicothe.)

The fruit men of the United States, and of Missouri in particular, have neglected and in a manner overlooked the importance of our nut bearing trees. There has been no individual nor organized effort put forth to preserve, protect or propagate these useful trees. They have been cut down without care for future use. Nut bearing trees

have many enemies, of which the farmers of Missouri and fire are the worst. Grazing by sheep comes next. Cattle and horses do their part, but not as much so as sheep. Snow and sleet are less harmful than live stock. Land slides, floods, the depredations of insects as well as fungi are enemies. Many of these trees are killed by lightning and blown down by the wind. Even birds and squirrels, by devouring large quantities of nuts which if let alone would have grown into trees, add to the destruction of the kings of the forest.

It is not the object of this paper to discuss the minor enemies of our nut bearing trees. For all trees of the forest have what we call their natural enemies. It is action and depredations of man upon these trees we want stopped. In the language of the poet, we would say: "Oh, woodman, let them stand, thy ax should harm them not." Nearly all the most serious harm to these trees comes from the carelessness and penuriousness of man. The State should prohibit destructive lumbering, and exempt from taxation all groves of nut bearing trees. The time is not far distant when we must pay the penalty for this wholesale destruction. Nuts are becoming scarce; there are not enough now to supply the demand. The next generation will search and search in vain for a supply of lumber which comes from these trees. The increasing demand is constantly finding a diminishing supply with a constant increase in price, and if the present generation does not turn over a new leaf and go to planting, the price of such lumber will soon be beyond the farmer's ability to pay.

Another feature of the situation is that by a stoppage of the destruction and by planting more of these trees would be the beneficial effect upon climatic conditions. This is sure to become of great importance as the years go by. And I believe that the planter of trees will yet become in the eyes of the people of as much importance as the expert horticulturist, or breeder of fine horses, cattle, sheep and hogs. In our hurry and bustle of today's business we are too apt to give little or no thought for the future welfare of the people of this great State.

To all those who are making calculations on nut growing for pleasure, beauty or profit, there is to be found on every farm places well adapted for the growth of these trees. No matter how valuable may be the land for farming purposes, it will be found that it is true economy to set apart five, ten or twenty acre lots for the exclusive purpose of raising nut-bearing trees. No farm should be without this amount or more. The value of these wood lots will constantly

advance as the years go by. In starting the wood lot I would commence with the pecan; it is one of the best belonging to the hickory family.

The Michigan Station reports that pecan trees obtained from Iowa have grown well at the South Haven sub-station since 1890, and proven entirely hardy. So we may rest assured that this State is well adapted for their culture. After the pecan I would plant the shell bark hickory, the walnut and butter-nut and chestnut, and in this wood lot I would set apart a place for persimmons, pawpaws and wild plums. In a word retain as far as possible the choice fruits and nuts of our forests.

Considering everything, the spring is the best time to plant such trees in North Missouri, doing the work as early as possible. The fall may be the best time in the south part of the State. These groves will add a beauty to the farm and country, as well as a source of as much profit as can be secured from any other part of the farm. A start is easily secured. Bury the nuts before the ground freezes so that the seed nuts may be ready for planting in the spring. The trees may bear a few nuts at an early age, but paying crops cannot be expected under ten years and a full crop under twenty. The average crop runs from one to twenty bushels to each tree.

FINAL RESOLUTIONS.

Whereas, by the invitation of the Neosho Fruit Growers' Association, the forty-seventh annual meeting of the Missouri State Horticultural Society was held in this beautiful city, we desire to express our appreciation of the courtesies we have received at their hands. We thank them for their cordial reception and the preparations they made for our comfort, in the way of providing a well-decorated hall, providing accommodations for our members, etc.

We appreciate the importance of horticulture in this part of the State, and note with satisfaction the evidences of prosperity which are on every hand. The growers of this part of the State are to be congratulated upon what they have accomplished, and we commend the work they are doing in the way of improving the horticulture of Missouri.

To those who have furnished the musical numbers on our program we extend our thanks. To the railroads we are indebted for courtesies, and we especially commend the example of the Kansas

City Southern and 'Frisco systems in furnishing a one-fare rate for the round trip, and again express the hope that the time will come when all the railroads of Missouri will be glad to make this rate for all meetings of fruit growers held along their lines.

We congratulate the State of Missouri upon the awards which have been won by Missouri fruits at St. Louis, and commend to the consideration of the commonwealth at large any body of men which has done so much for the State and her interests.

Respectfully submitted,

JAMES M. IRVINE,

J. H. CHRISTIAN,

H. S. WAYMAN,

Committee.

The report of the committee on final resolutions was unanimously adopted.

C. W. Steiman.—I believe every Horticulturist at this meeting has been benefited, and we can also congratulate ourselves on our display and its results at the Exposition in St. Louis. We are progressing and we want to hustle for the future. Next year there will be an Exposition at Portland, Ore. Now, if there had been no other exhibits than Missouri at our Exposition, would it have been great? No; but we saw others and compared them, and now the talk is of Missouri at the Fair. Shall we stay at home when we have a chance to show California and the West what we can do? Let us select a committee to appear before the Legislature and ask for an appropriation with which to make a show in Horticulture at Portland. We should have a good man to honorably represent our department.

Sec. Goodman.—The Governor has selected Mr. Garver to superintend the sending of exhibits to Portland, and he has already selected and we have packed all that he wants and could use of our exhibit at St. Louis, and has shipped it on. Missouri will be there.

Piano duet by the Misses Patterson and Harvey.

FINAL TALKS.

Vice-Pres. Dutcher.—Before concluding our meeting we want to hear from some of our guests and members. I will first call on Mr. Young.

Mr. Young.—I would be ungrateful to depart from Missouri and the Society without showing my appreciation of the great work which you have accomplished. It is almost impossible for me to adequately express this. It is my opinion that the railroad companies have not

accorded you the treatment they ought to have. They have been generous in granting a half rate, but the least they could do is to give a little better rate for attending these meetings. I believe it is possible to get one cent per mile without regard to the number attending. My suggestion would be to take this up with the Industrial Agent of each system in the State. The Passenger departments are not interested because the Horticultural work and interests do not add to their department. In the Traffic department they look for an increase of tonnage and are hampered in extending what is due the Society. The Industrial Agent will come nearer giving the proper treatment. It will be a pleasure for me as Industrial Agent for the Missouri Pacific to take up this matter with my superior as the initial step and interest the other lines. It will be a pleasure to do anything to help out and build up this great Horticultural Society.

Mr. Dutcher.—Mr. Young we will call on you to help us get rates in the future.

Mr. Messick.—I will be glad to use my influence in a similar position on the Kansas City Southern. Some gentlemen asked for my formula: I will give it briefly at this time. In a trough put brush at the bottom, then manure, then ashes, then manure, then lime and manure and ten pounds of sulphur, and when the trough is full throw on water and let it stand and soak for twenty-four hours; then put on water and leach out the manure like leaching ashes, until it is the proper weakness to use. This can be put on five thousand trees in three days and the results will be apparent in thirty days. Pull dry dirt over, and it will not lose by evaporation. When the mixture is leached in the trough use four ounces of tincture of iron to a barrel.

Mr. Dutcher.—We would now like to hear from Kansas.

Wm. H. Barnes, Sec. Kansas State Horticultural Society.—Horticulturists are the finest people in the world, and are the same in all states. Apples, too, are as good on our side of the line as on yours, and vice versa. In the State Societies and the American Pomological the people are all intelligent and an upward going class of people. There is nothing finer than planting a seed or a tree, and there is nothing better to teach our boys and girls. That fruits and vegetables are coming more and more into our menu is due to the agitation and progression of our Societies. I am always glad to come to the Missouri Society meeting, and hope you will all visit us at our Kansas meeting next week.

Mr. Dutcher.—We will now have a few words from Mr. Graves of Neosho.

Mr. Graves.—It was my pleasure to extend a welcome to this body in a few words of greeting, and I am not sorry I had that favor. We all appreciate the work of the Society and the benefit of the meeting here. What you have said and the way you have said it is encouraging to the fruit growers around Neosho. You knew something of us and our work and our fruits and our markets, and now you have encouraged and helped us by your suggestions and advice, and the outlook shown for the fruit business has also great encouragement for us, so we are glad you came and hope you will come again.

Mr. Dutcher.—Col. Evans has been called the Moses of this Society, and we will now listen to this leader.

J. C. Evans.—I was here years ago when the lead of these hills was dug out and hauled to Boonville to the river boats. At that time there were five Indians to one white man, and there was no Carthage and no Kansas City; but now I am thankful that I have lived to see this country dotted with beautiful cities and homes and mines and farm houses and churches and school houses. We are all glad we came to Neosho for this meeting. I want to thank the ladies especially for the splendid music which they have given us.

Mr. Dutcher.—We cannot close without some words from our Secretary.

Mr. Goodman.—This is one of the very best meetings we have ever had, and the two welcome addresses the best we have ever listened to. I congratulate the people on the fine order maintained at the meetings and the enthusiasm shown for this work.

Mr. Dutcher.—We have all had a good time, and I trust I will be here again. I bid you all a kind good-bye, and with best wishes thank you all and wish you happiness evermore.

On motion, the meeting adjourned until next June.

REPORT OF THE MISSOURI COMMISSION TO THE GOVERNOR.

B. H. BONFOEY, Secretary.

M. T. DAVIS, President.

THE DEPARTMENT OF HORTICULTURE.

This department was organized by the appointment on April 16, 1903, of Mr. L. A. Goodman of Kansas City, Missouri, as Superintendent. Mr. Goodman had been secretary of the State Horticultural Society for more than twenty years and was not only one of the best posted and most enthusiastic, but one of the most successful Horticulturists in the State. He owned large fruit farms in the southwest section of the State and seemed to be the man upon whom all the fruit growers of the State could agree as the proper man for this position. The main difficulty encountered in the beginning of this work was the inability to secure a sufficient number of glass jars in which to place the processed fruit. All such jars to be found in the wholesale houses of St. Louis and Kansas City were purchased, and we are under special obligations to Faxon-Horton & Gallagher of Kansas City, and the Meyer Bros. Drug Co., Henry Heil Chemical Co. and Moffitt-West Drug Co. of St. Louis, for their consideration in selling to us their entire supply of these glass jars.

After the purchase of these jars a printed circular was issued and mailed to the fruit growers throughout the State making an appeal for a large collection of fine fruits for exhibition at the World's Fair, and suggesting rules for a general collection of fruit to be put up in jars and for the careful cultivation and fertilization of fruit plants, vines and trees in order to produce the largest and finest fruits. The arrangements for processing fruits were made to be carried on at St. Louis, Kansas City, Columbia and Springfield. To these points all fruit to be processed and placed in jars was shipped. In this connection we are under obligations to the Guardian Trust Company of Kansas City for having furnished us fine rooms, heat and light free of charge the entire season for the work of processing fruits and storing the same until needed at the World's Fair.

The Armour Packing Company of Kansas City also conferred a favor upon this department by furnishing a large amount of fruit

fertilizer without compensation therefor. The year "1903" furnished a very small and poor crop of fruit, and for that reason great difficulty was encountered in securing a proper display. The State Horticultural Society having an organization throughout the State of the fruit growers of every section, rendered this department a very valuable service in securing from every section of the State, the best fruit produced this year, representing every section of the State. The result of this work was to secure some 2,400 jars of high grade representative Missouri fruit which made the most extensive and complete exhibit ever shown at any Exposition.

The next important work was to secure during the months of September and October, 1903, some 1,200 barrels of apples for use in the Missouri Exhibit during 1904. Owing to the poor crop, this also was a most difficult undertaking. It was necessary to make this display cover as many parts of the State as possible and to represent all the best apples produced in the State. The gathering, selection and packing of these barrels became a work that was only successfully accomplished through the active support of the members of the State Horticultural Society throughout the State. All of this was accomplished with a great deal of extra labor and unusual expense because of the great care it took to make such a collection when the crop was so short. The result was, however, that we secured 1,200 barrels of the best specimens of apples ever gotten together, wrapped them in double thicknesses of waxed and tissue paper, packed them in barrels and sent them to previously arranged cold storage at the Armour Packing Co. of Kansas City, St. Louis Ice and Refrigerating Co. of St. Louis, Artesian Ice & Cold Storage Co. of St. Joseph and the Springfield Ice & Cold Storage Co. of Springfield, Mo.

And great credit is due to the following 64 men throughout the State, whose service from one to six weeks each was secured in gathering these apples: W. G. Gano of Parkville, C. A. Emery of Carthage, J. H. Marion of Fulton, J. H. Murphy of South St. Joseph, S. H. Van-Trump of Elmira, Wm. Mooney of Montreal, G. A. Atwood of Springfield, J. W. Tippin of Nichols, J. E. May of La Plata, Polster Bros. of Warrenton, H. W. Jenkins of Boonville, F. H. Speakman of Neosho, J. S. Butterfield of Lee's Summit, Chas. Teubner of Lexington, D. Lowmiller of Parkville, C. Thorp of Weston, S. R. Walker of Liberty, N. F. Murray of Oregon, D. A. Robnett of Columbia, H. H. Parks of Springfield, A. T. Nelson of Lebanon, B. Logan of Logan, W. S. Crouch of Carrollton, C. T. Mallinckrodt of St. Charles, J. H. G. Jenkins of Spring Garden, H. S. Wayman of Princeton, C. H. William-

son of Utica, E. L. Mason of Trenton, George Meyer of Orchard Farni, Henry Meyer of Bridgeton, J. C. Whitten of Columbia, H. Goehrig of Boonville, M. Butterfield of Farmington, Wild Bros. of Sarcoxie, C. W. Steiman of Dalton, T. H. Todd of New Franklin, C. C. Bell of Boonville, S. Y. Thornton of Blackwater, A. J. Davis of Jefferson City, G. W. Null of Maryville, W. H. Skinner of Bethany, C. Jewell of Nevada, B. F. Stuart of Rushville, S. P. Bailey of Versailles, C. H. Dutcher of Warrensburg, B. H. Bonfoey of Unionville, Homan & Davis of Easton, G. H. Shepard of Lamonte, R. E. Downing of Bowling Green, A. W. Zimmerman of Amazonia, J. E. Roberts of Marysville, L. H. Tucker of Marshall, L. T. Davis of Miami, J. E. Gladdish of Higginsville, Ozark Orchard Co., Goodman & Lanagan, J. Daniels of Lake City, H. W. Cook of Potosi and L. J. Slaughter of Grain Valley.

When we reached the spring of 1904 the problem then presented was the plan to secure ripened fruit for display upon the tables during the World's Fair. For this purpose a circular was prepared and sent to the fruit growers throughout the State making an appeal for a continued supply of best ripened fruits in the State during the period of the World's Fair, and also giving explicit instructions as to the method of packing this fruit and the shipment of same by express to L. A. Goodman, Horticultural Bldg., World's Fair, St. Louis, Mo. The result of this circular and the personal correspondence of Mr. Goodman was to create great interest among the fruit growers throughout the State in sending their best ripened fruit to the World's Fair. Again, the fruit growers were able to furnish and did furnish a large and very representative class of this fruit which filled the tables of the Missouri Exhibit during the World's Fair. In this general way the fruits secured carried out the ideas and plans of this department, to show the wonderful possibilities of Missouri's commercial fruit growing.

The result of this organization, preparation and constant work was to finally install the finest, most complete, most unique and most artistic fruit exhibit ever made anywhere. Just within the main entrance of the Palace of Horticulture was located the Missouri exhibit and around its 7,700 square feet of floor space was an imposing facade charmingly decorated by fruits, flowers, statuary and other adornments. Encircling it, upon an elevated track ran a miniature fruit train, furnished by the Frisco railroad, loaded with the various Missouri fruits in their season. On tables, in glass jars, cases and on specially designed plates, Missouri's display of fruit occupied this

large space. Every inch of space was filled with the finest of fruit. Nearly 200 varieties of apples were shown and for nearly five months fresh apples were daily upon the tables, while apples from cold storage were shown for the entire seven months of the Exposition period. Five hundred bushels of apples were given away on Apple Day, October 4. Seventy-two varieties of peaches were shown, with fresh peaches on the tables daily from June 15 to December 1. Over sixty bushels of different varieties were exhibited at one time, an unexampled picture. On August 15, Peach Day, five hundred bushels, a full car load were distributed to visitors. One thousand plates of pears, of forty-eight varieties, were shown from August to December 1. Among the other fruits shown, were one thousand plates of grapes with 124 varieties, one thousand plates of strawberries with sixty-four varieties, five hundred plates of cherries with twenty-four varieties, four hundred plates of plums with thirty-two varieties, sixty plates of apricots with six varieties, twenty plates of nectarines with two varieties, one hundred and sixty plates of quinces with six varieties, three hundred plates of gooseberries with eight varieties, one hundred plates of currants with six varieties, two hundred plates of raspberries with twenty-four varieties, three hundred plates of blackberries with eight varieties, one hundred plates of dewberries with two varieties, twenty-four plates of mulberries with four varieties, one hundred and twenty plates of huckleberries with two varieties, and one hundred plates of persimmons, pawpaws, crab apples and thorn apples with eighteen varieties. Ten show cases of Missouri nuts, illustrating forty-eight varieties. There were two thousand four hundred jars of fruit in solution, illustrating four hundred and thirty varieties. Altogether six hundred and ninety-four varieties of fresh fruit were shown, a display unequaled by any State or Country. Out of the one hundred and fourteen counties of Missouri, ninety-six were actually represented by fruit. The Missouri Horticultural Society, the individual fruit grower and Horticultural department of the Missouri Agricultural College contributed materially to the sources of the exhibit. The exhibit was beautifully displayed and was especially popular. On its educational side it taught the adaptability of varieties to particular localities, the value of the soils and subsoils, elevation, cultivation, pruning and spraying, packing and marketing and cold storage, and various points which confront every fruit grower.

This department was under the direction of Commissioner B. H. Bonfoey of Unionville, Mo., and the organization, preparation and installation under Mr. L. A. Goodman of Kansas City, Mo., assisted by Mr. John C. Evans.

THE WORLD'S FAIR MEDALS.

(Prof. L. R. Taft, Chairman of Jury of Awards.)

For several months frequent mention has been made in the papers of the medals that had been awarded to various states for their fruit exhibited at the St. Louis Exposition, but so far as the awards made upon fruit were concerned, anything that appeared previous to December 1 was a matter of mere surmise and had no basis whatever in fact. While the awards in most of the other departments were made in October, from the fact that entries in the Horticultural Department were made up to November 15, it was impossible to make up the awards previous to that time, and not a single award was made, much less announced, upon the fruit exhibit, until after that date.

The reports frequently seen that a certain state took the first prize upon its apples, another upon its peaches, and a third upon its pears or grapes, are also misleading and incorrect, as the awards were not made in that way, and in a strict sense were not competitive each being upon its own merits and without regard to whether there were similar exhibits or not. As was the case in other departments, the awards upon fruits were made after the exhibits had been scored, using a definite scale of points. This varied with the class of fruit, but in a general way it included "Extent of Exhibit," "Size of Fruit," "Color," "Form," "Flavor, and Texture," and "Freedom from Blemishes." In all cases the "Extent of Exhibit" was given 20 points as a maximum, while the others range from 15 to 25, according to their value in the different fruits, with a total of 100 points. It will be noticed that, counting out the score for "Extent of Exhibit," only 80 points could be made by an exhibit. This was arranged to adapt the scores to the rule that an exhibit scoring from 60 to 74 points should receive a bronze medal; if from 75 to 84, a silver medal; from 85 to 94, a gold medal, and when from 95 to 100 points were scored it should receive a grand prize. Without the "Extent of Exhibit" score, it will be seen that it might have been possible for an exhibit of a dozen plates of Jonathan apples to secure a "Grand Prize," while, under the score cards used, a silver medal would be the highest award that it could receive. This virtually made a silver medal a "first prize" so far as the merit of the fruit itself was concerned. That considerable merit would be required to obtain a silver medal can be seen from the fact that if a cut of more than one point was made

upon each of the characteristics considered in the score card, it could only obtain a bronze medal at most.

The rules provided that no exhibitor should receive more than one award in one group, and as Groupe 107 included all kinds of fruits and nuts, tree, bush, citrus and tropical, it will be seen that a fruit grower would be limited to one award. In many cases thirty or forty entries were made by single exhibitors, who showed apples from cold storage and, later on, made frequent shipments of small fruits, followed by the larger fruits as they ripened. In arriving at the award that should be given in such cases account was taken not only of the scores given the several entries that had been made from time to time by each individual, but of the number of plates and of varieties shown. Thus, a man who made a single entry of ten plates of peaches that were given a score of 75 points would receive a silver medal, while several exhibits made by one person aggregating 500 plates and 30 or more varieties, would entitle him to a gold medal, if they scored at least 75 points. The grand prizes were only given to very large collective exhibits, and the awards were confined with two or three exceptions to the larger State exhibits.

From the fact that there were only two awards that could be given higher than a silver medal, for one of which 300 plates might be a minimum requirement, while 2,000 would be required for the other, it was not possible to so grade the awards as to have them accurately represent the value of an exhibit. To illustrate this, one man might obtain a silver medal with an entry of ten plates of apples, while another might have 200 plates of 20 varieties of equally good fruit and yet only get the same award as the man with ten plates of one variety. In the same way a gold medal would be the highest that could be secured upon a collection of 1,000 plates of fine fruit, while another collection of 300 plates of no better fruit would also be given a gold medal.

Several states are bragging upon the number of gold medals secured upon their exhibits, but this may be misleading, especially if the number of other medals is overlooked. In some cases most of the fruit shown from a state came from half dozen persons, each of whom might receive a gold medal. In such cases there would be comparatively few silver and bronze medals. Adjacent to it there might be another exhibit that was more extensive and of better fruit, but it might not carry off more than five gold medals. At first thought it would seem unfair for the smaller and inferior exhibit, to carry off more awards of gold medals than the other, but the apparent unfairness could be explained by the fact that while in the latter case there were only five extensive exhibitors, there were several hundred small exhibits most of which were

awarded either silver or bronze medals. Another reason for the variation in the number and character of the awards was that no entries in the names of individuals were made by some of the states during a portion or all of the season. Thus, while Canada made a very large and creditable exhibit it only received one award, a grand prize, as no entries were made in the names of individuals, and the jury had no means of knowing who grew the fruit. The same was true with several of the states for considerable periods. Some of the states, notably Missouri, California, Arkansas, Michigan, Washington, Oregon, Indiana, West Virginia and Colorado made collective entries for the counties from which the fruit came, and thus were able to add from 50 to 100 per cent. to the number of gold medals they would have otherwise secured.

As to "Installation," the awards given are those based upon the size and extent of the exhibit, combined with the general effect produced by it and the care with which it was maintained. The architectural details were considered in making up this award.

The other awards were based upon the exhibits themselves and in addition to one to the State itself, which was generally either a grand prize or a gold medal, in some cases included county as well as individual exhibits.

Several of the States show a large number of "No Awards." While this in some instances was due to the entry of inferior fruit, in a large proportion of the cases it arose from the rule which limited the awarding of a diploma and medal to exhibits consisting of less than five plates of fruit if of one variety. Many of these exhibits that were not given an award consisted of one or two plates that scored from 75 to 78 points and had there been ten plates or more they would have been given silver medals.

Of the foreign countries Canada made a large and attractive exhibit of both fresh and processed fruit. For the most part it consisted of apples, but a creditable showing was made of pears, plums, cherries, gooseberries and other fruits. No entries whatever were made except upon the collective exhibit which received a grand prize, and the same award was made for the installation, which was quite attractive. Mexico maintained during most of the summer and autumn a very interesting exhibit of tropical and sub-tropical fruit, including bananas, mangoes, mammee, pineapples, cocoanuts, oranges, lemons, limes, citrons and tunas. This was also given a grand prize. With the exception of two large shipments of oranges from Japan, which came in poor condition and were rather inferior in texture and flavor, the only other fresh fruit from

foreign countries came from Honduras. This consisted of bananas, which were especially attractive on account of their size and color.

Of the states making exhibits, Missouri easily takes first rank upon its general exhibit. As might be expected the display of apples from this state far surpass those from any other in the size of the exhibit and for the most part they had been well grown. While there was a very large display of Ben Davis and similar varieties, the proportion of Jonathan, Grimes, Huntsman and other varieties of high quality was very noticeable. There was also from Missouri some 3,000 large jars of processed fruit.

California was easily a close second to Missouri, with an even larger and better display of fruit in jars. The exhibit of citrus and sub-tropical fruits of all kinds was very creditable and this alone received more gold medals than was awarded to any other state except Missouri. Many thousand plates of oranges, mostly Washington navel and Valencia, and lemons were shown upon plates and in pyramids, while 50,000 or more seedlings were used in decorating the facade which surrounded the California space in the Horticultural Building. During September and October large shipments of grapes of *V. vinifera* varieties were received and, although the apples were practically all of the crop of 1903, and the exhibits of pears, peaches, plums and cherries owing to the distance and excessive freight rates were comparatively small, they attracted a good deal of attention owing to their large size and attractive appearance.

New York kept up an extensive exhibit of fruit. During the early summer it was noticeable for the pears and grapes from cold storage, but later on fresh fruits of all kinds were shown. In addition to the apples, the exhibits of pears, cherries, plums, and grapes from cold storage, but Perfection currant and Campbell Early grape were considered worthy of gold medals.

The Colorado exhibit also included a general collection of all kinds of fruit. It was noticeable for its uniformity and freedom from blemishes of all kinds. While not quite as large or as highly colored as the fruit from some of the other western states, it seldom scored less than 75 points in a possible 80.

Illinois had a large exhibit of Ben Davis, Winesap, Jonathan, Willow Twig, Huntsman and other apples, of pears, mostly Kieffer, peaches, grapes and other fruits. While many of the specimens were very large and handsome, too little care was used in making the selection in the orchard and again when they were placed upon the plates, with the

result that the effect was lessened by the considerable proportion of inferior fruit shown, especially during the late summer.

From the point of perfection, so far as the size, form, color, freedom from blemishes, and the general uniformity of its fruit is concerned, no state equaled Oregon. The sweet cherries were especially good, while the pears, plums, prunes and peaches were above criticism. Early in November a carload of apples was received. These were shown in bushel boxes and attracted attention on account of their large size and high color, as well as the uniformity with which they were graded. Arkansas also made a very little creditable exhibit of apples, pears and peaches. The apples were largely Ben Davis, Winesap, Willow Twig, Arkansas Black and Mammoth Black Twig. Most of them were of large size and well colored. A large showing of Elberta peaches and Kieffer pears was also made.

Michigan and West Virginia ran a very even race, both as to the extent of their exhibits and the varieties shown. While the largest number of varieties came from the former state, its slight advantage in the number of medals of the lower grades came from the fact that there were more exhibitors, each of whom could secure a medal if five plates that would score 75 points were shown. The decorated apples from Michigan and a display of several hundred plates of McIntosh from West Virginia attracted a good deal of attention.

While the exhibit from Iowa during the early part of the season was hardly up to the standard of most of the other states, owing to the failure of the apple crop in 1903, it gradually improved as the season advanced until at the close it was one of the most attractive owing to the large size of the Alexander, Wolf River, N. W. Greening and McMahan and other sorts that made up the bulk of the exhibit. The awards were somewhat reduced, however, by the low quality of most of these sorts. The exhibit occupied considerable space and towards the close presented a very handsome appearance owing to the flat installation which was used. The tables were wide and the aisles narrow, so that from a distance it looked like a solid mass of fruit.

Washington was more than a month late in opening its exhibit and, owing to the high express rates, depended almost entirely upon two carload of apples of the crop of 1903 from cold storage and a small shipment made in October. Not only did the largest apple on exhibition come from this state, but, taking the exhibit as a whole, the apples averaged larger than any others in the hall. While fairly handsome in appearance and uniform in shape and size, they were as a rule of

varieties of rather inferior quality, such as Ben Davis, Lawver and Mammoth Black Twig.

Texas showed quite a number of varieties of apples and made a large and creditable display of peaches and grapes. The peaches were mostly Elberta, but quite a number of very promising seedlings were shown. The grapes were mainly from T. V. Munson and consisted largely of his hybrids. They are likely to be valuable at least in Texas. Several shipments of oranges and other sub-tropical fruits from south Texas indicate that these fruits will do well there.

From the list of the awards given above, one can judge something regarding the extent of the exhibits from the other states. Many of them had much merit, but this article is already too long. It should be mentioned, however, that every one was pleased with the development along horticultural lines shown by the exhibits from Oklahoma, Indian Territory, Idaho, Montana, New Mexico and Arizona. From the latter territory the oranges compared well with the best from California and the pomeloes were almost free from the bitterness that is generally found in this fruit.

CARE OF THE APPLE ORCHARD.

(A. T. Nelson, Lebanon.)

"Pruning and Cultivation of the Apple Orchard" is the subject assigned me by our worthy secretary, Mr. L. A. Goodman. As these subjects have been discussed pro and con at every meeting of our Society, I hardly know that I can enlighten any one unless he be a new convert to the worthy cause.

In taking up the subject of pruning, we, by rights, should start with the one or two-year-old tree as it comes from the nursery. I believe it is as necessary to prune the roots as it is the tops. The mutilated roots should all be trimmed back to the healthy parts, as well as the long roots to 4 or 5 inches in length. In pruning the tops, I always leave the central branch the longest and prune the other branches so as to form the tree in a conical shape. Where the branches are too thick, cut one out here and there. A branch that is forked, cut off the poorest part. In starting an orchard the great success is at the planting of the trees. In the following one, two, three or four years we do very little pruning, and then only where a limb crosses another or a limb gets broken. In after years when the limbs grow too thick, it is proper to take out a limb here and there to admit a little sunshine and air. In

pruning young trees I would always want to leave the lower limbs 18 to 20 inches from the ground. I have been in a great many orchards that have never seen a pruning shear and they seem to do well; possibly they would do 50 per cent better had they been pruned. It is certain that soil conditions have a great deal to do with pruning, as trees grown on deep, rich soil would require greater pruning than trees planted on our uplands of southwest Missouri.

There are many ideas of cultivation, but the best cultivation is that which will give us strong, thrifty trees. I consider good and thorough culture of the most importance in growing fruits successfully: first, by getting the ground ready, that is, in the best possible condition while the trees are growing. Now, this is not only necessary during the growing season before your trees come into bearing, but especially is it true that during their fruiting the ground should be cultivated and kept in a pulverized condition, in order to have the best results when gathering the fruits. By thus keeping your ground in a loose, pliable condition, you counteract in a measure the effect of droughts and enable your fruit to keep on growing and to some extent prevent it from falling.

There is no doubt in my mind that, for the first few years, cultivation that will keep the soil loose and mellow, until the time when corn is laid by, is the best treatment. When trees are first planted we generally plant five rows of corn between the apple tree rows. As the trees grow larger we drop off a row until trees are six or seven years old; then we only plant three rows. This gives us ample room for cultivating between corn and trees and gives us partial return for our labor. In planting corn, it gives shade to the trees in the summer, and when the stalks are left standing in winter, it serves as a windbreak to a certain extent. Take it all in all, I believe that corn is the best crop that can be grown in our young orchards, as in the spring you can break down the stalks, plow them under, thereby adding more humus to the soil. In my mind our fruit growers do too little cultivating.

PROFITS IN HORTICULTURE AS COMPARED WITH AGRICULTURE OR STOCK RAISING.

(By Asa Chandler, Randolph, Mo., read before the Missouri Valley Horticultural Society.)

My subject has scope enough, a quarto volume could be written upon it. The profits in any business will largely depend upon the personal equation of the man. We must recognize the fact that one party will succeed in business, while another will fail in the same

undertaking. My earlier years were spent on the farm. I early learned to compute profit and loss in stock growing.

Well, I remember, one of my neighbors having lost twelve hundred dollars worth of hogs in a few days from that dread malady—cholera. I have not quite recovered from my scare in this incident, though years have elapsed. The destructive capacity of this animal, the hog, need not be recited, although I will say that he will upturn your alfalfa and your blue grass faster than you can replace them. Then if permitted he will go visiting, spreading consternation among your neighbors. The great law-giver, Moses, must have known all about hogs when he wrote the law, "Thou shalt not eat any abominable thing." They were "common" in his day, and that they are "unclean" needs no proof. In this later day we forget the law in many particulars and consider the dollar the only thing worth while.

At my home in Clay county, Mo., blue grass grows luxuriantly. Some calves looked very tempting to me, but an experienced stock man said I could not handle them at a profit. The grass will still grow here, but the wide prairie is the stock man's remunerative home. Then there is the Texas fever; have we immunity from that? It is by no means certain, though better sanitary conditions and regulations have greatly reduced the risk.

Now, a few words as to the sheep industry. Just after the Civil war, I sold wool at 65 cents per pound, and spring lambs at \$7.00 per head. Since that day the business has had reverses and severe competitors in the wool market. My father's flock was yearly beset by dogs. If I could make a law, I would put a tax of \$10.00 per head per annum upon all canines in the land. Not long ago one flock-master in Colorado lost six hundred sheep by a deep snow. An early winter storm was too sudden and severe, yet this same storm made glad hearts in the valley below by the increase in water for irrigation of the farm, the orchard and the vineyard. I learned recently that the officials of Montana have put up the bars and say no more sheep for us from sister states. Perhaps they have scab and foot-rot enough of their own.

In spite of all these ills our attention is drawn to the packing-house industry. How they multiply and expand each year, but their growth and prosperity must not be put beside the profit and loss account of the producer. His margin is frequently small, while the thrift of the packing house industry is much in evidence at Kansas City, these latter days. Commissioner Garfield's report on the industry does not coincide with the facts here, however plausible it may be. We have no tabulated statement of the profits of one in-

dustry as compared with another, nor can we show the decline of any industry. Prosperity in most lines of farm production is at high water mark.

Now as to Horticulture; this has been our work for the last seventeen years. We are familiar with the changing conditions incident thereto. We have seen frost, drouth, hail, blight and insects with all their accompanying and destructive effects. We have stood in the rain and sold berries at 40 cents per crate; we have also enjoyed the bright sunshine and sold them at \$4.00 per crate. Our balance sheet always showed favorable returns, large or small as the case might be. On a small acreage near a large city, Horticulture has the decided advantage. Large incomes may be cited in support of this proposition. A good asparagus bed will yield from \$400.00 to \$700.00 per acre. I have done well with the whole catalogue of Horticultural products, with but little distinction as to profit, though the peach would be a leader if we could have it every year.

More, that is to be prized above the profits of the business, is to be found in its pleasure and fascination.

O pleasant orchards, emerald leaves
And shining fruit the summer weaves
Into a jewel of design
Finer than man will e'er refine.

I will say to the young man of the city with broken health and doubtful salary, try the open fields. To the city girl, I say, that a fruit farm will beat your hard earned cash in point of reward and as nerve tonic it is vastly superior to a department store. I know that I subject myself to criticism by inviting competitors, but this favored land is wide and only partly developed, to all critics I say there is room at the top; climb up higher.

DIFFERENCE IN HANDLING FRUIT NOW AND THIRTY-FOUR YEARS AGO.

(By W. G. Gano, Parkville, Mo., read at the Missouri Valley Horticultural Society.)

On coming to Missouri in 1870, my desire was to engage in fruit growing. In March, 1871, I became connected with the Park orchard and nursery at Parkville, Mo. This orchard had produced a very bountiful crop of fruit the year 1870, and as the surrounding country in the vicinity of Kansas City had at this date a considerable number of orchards coming into bearing, the prices of fruit in the fall of 1870 were somewhat lower compared with former years.

The principal demand and only mode of transportation for our fruits was by wagon to the western plains. Our local city demand was very limited, being chiefly for immediate use, scarcely ever could we sell a bushel to any store, the citizens occasionally bought a few bushel of Geniton apples and buried them in their gardens for home use. The general opinion and expression was that in a few years apples would not be worth picking up off the ground; that there would be so many grown they could not be used. We had neither commercial orchard, commercial varieties nor commercial value.

At the time of taking charge of the Park orchard in March, 1871, there were in the orchard 500 bushel of Geniton apples, these had become slightly frozen on the trees in October, 1870. They were afterwards shaken off, picked up, and placed in piles, then buried. On April 14th they were sold at public sale, and I bought them for less than 10 cents per bushel. On the 15th day of April, 1871, I was on the Kansas City market with two wagon loads of these apples, which was my first experience in handling fruit on this market. Consequently, this is my 34th anniversary of that occasion.

At this date we had not one single fruit distributing house in Kansas City, and I have no knowledge of there being one single bushel of apples shipped to or from this point. Cold storage was unthought of, refrigerator cars were unknown, and the masses of the people uneducated as fruit consumers, not knowing the valuable and necessary elements in fruit for toning and invigorating the human system in its every day usage; they used fruit merely as a novelty.

A few years later a change began to come, fruit growers began planting other varieties of fruits, and small fruits, berries, cherries, grapes, etc. Our cherries were picked without the stems and very frequently without the seeds. Then we began picking our cherries with stems remaining. And such a howl! and for a while it was almost impossible to sell cherries on the Kansas City market that were picked with the stems on. People thought it highway robbery to measure cherries in that way, but finally this mode of picking was adopted.

Our small fruits were all handled in shallow boxes or trays, in shipping or hauling to market; those trays were placed on top of each other, two or more, and nailed together with cleats. At the market the berries or cherries were dipped out with paddles measured in quart, half-gallon or gallon measures to the customers. Grapes were also handled in the same way, and weighed out. Peaches and pears and soft fruits were handled in our local markets in various sized boxes, bee-gums, washing tubs, etc., and some of our more

progressive fruit growers bought wooden water pails in which they handled their peaches, pears and soft fruits. This was a marked improvement, and many were the complimentary comments. Then the Michigan peach basket, and the one-third bushel box came, the Michigan square quart berry box and the Leslie box; first the dry measure, then the standard berry box. And as the demand for fruit increased the commission men began handling fruit in a small way, and under very crude conditions with most unsatisfactory results.

In 1872 I shipped several cars of apples to Council Bluffs, Iowa, loaded in bulk in tight box cars. In 1873 we commenced handling our apples in barrels, and I recollect how astonished I was when I first saw the apple barrel press used, expecting to see the cider run out from the lower end of the barrel. At this date we thought it very necessary to pick our apples and put them in piles in our orchards, in order to go through a sweat, as we thought to enable the apples to keep longer and better, not knowing that every day our apples lay in this condition that they were damaging and deteriorating in value. We can now see how soon our apples become ripe and mellow lying on the damp ground in the orchard in those piles.

When cold storage first began to be used for keeping fruit the results were far from being satisfactory, and the results can be attributed principally, to the condition the fruit was in when received at the cold storage. Cold storage will never make from small, knotty, wormy apples large smooth perfect fruit. Nor will it transform ripe mellow fruit into hard, keeping stock, and any mistake made in handling fruit can never be remedied by placing it in cold storage. It has been but a few years since one of our most enterprising fruit growers picked and barreled his apples very early putting them into an unventilated cellar, and after letting them remain there for six weeks hauled them twelve miles without repacking, every barrel loose and slack in packing, and placed them in cold storage. Can any one wonder at the results? But at that time we heard the cold storage companies censured for the condition this fruit was in when taken out, which was a very short time after being received. While cold storage is not perfect yet, at this date, and very many things are still to be learned in handling fruit, I feel sure that the fruit that was handled for the World's Fair at St. Louis came out of cold storage in better condition, held up longer on the table on exhibition than the same varieties did at Chicago, Omaha, Paris or Buffalo or Charleston.

Allow me to cite one instance of some Jonathan apples that were handled at St. Joseph, Mo., in 1903. These apples were handled

by the St. Joseph Cold Storage Co. They were grown at DeKalb, Mo., were carefully picked after they had become well colored, placed carefully in barrels and not headed. They were hauled on low wagons with springs, twenty miles to St. Joseph every day as soon as picked and loaded, and were placed in cold storage without heading up. In March, 1904, these same apples were just as hard, the stems were yet as green, as when picked. In repacking not two per cent were lost. Two hundred barrels were bought from this lot by the Missouri State Commission; they were not picked for exhibition nor selected, but just counted as they stood on end in cold storage. In March, 1904, these apples were double wrapped, first in tissue, then in parchment paper and headed in barrels, the work all being done in the same room in the storage house in which they were kept. They were shipped to St. Louis in iced cars and placed in cold storage and they kept perfectly. And as late as October and November, 1904, they were taken out in fine condition, still firm, juicy, and crisp, and the flavor was pronounced by experts better than the same variety grown that year. This is certainly a revelation beyond what we thought could be done with the Jonathan in keeping, even five years ago.

It is only since cold storage has come to us that we have rated the Jonathan apple as a winter variety. Not only is this the case with the apple, but with all kinds of fruits. It is but a few years since, if a car of oranges was shipped to this or any other market, the shipper aimed to have his car sold to the dealer as soon as it arrived, and if the dealer held them for only a short time they had to be repacked. Now the dealers buy the same oranges at the same place, and stack them up in their store for months with scarcely any loss. The same is true in regard to our apples. When we first began using cold storage for our apples, the great objection was that they went down so very quickly after being taken out. Now, if apples are properly handled before being taken into cold storage, and then properly handled in cold storage, the keeping qualities of the fruit after they are taken out are very much better than when our apples went into cold storage in a mellow and ripe condition.

We now have in Kansas City fifty wholesale and jobbing fruit distributing houses. This increase is true not only of Kansas City, but of all American cities, and in many a much greater increase. We have now great cold storage plants, refrigeration in transit, and railroad facilities. And American fruits of all varieties are not only handled in every American city, but in almost every European city on the continent. We now have millions of fruit consumers, using it

not as a novelty but as a necessity of health. We now have commercial orchards, commercial varieties, and commercial value. And the more there is grown, the more there is consumed. And in quantity, quality and variety, and the difference in handling fruit now, compared with 30 years ago is very great.

EDUCATIONAL PHASES OF FRUIT GROWING.

(Prof. S. A. Hoover, Warrensburg, Mo.)

Primitive man worked from necessity. He had no thoughts beyond his brutal wants, and these were few and simple. The seashore with its abundant life furnished him much of his food. The woods gave their share in the way of game and wild fruits. The hollow tree and the natural cave gave him protection from cold and the savage beasts which roamed the forests.

As men multiplied and food and shelter became scarce, then man's inventive genius was developed. He built rude huts, made fish-hooks of bone, invented traps for catching animals and fashioned some rough tools out of stone. He did only what necessity compelled him to do. He had not yet developed into a being who works because his work gives him pleasure. Later his shelter became a *home*. He made some crude efforts toward decorations. At first his hand was to him knife, fork and table. His necessities compelled him to shape from the hard rock a knife. A smooth rock was used for a table and a piece of bark made a fairly good plate. He slaked his thirst by lying down and drinking from the brook or spring. When he could not reach the water in the usual way he dipped it up with his hand. After centuries of development he made his home, his table and his dishes beautiful because it gave him pleasure to do so. This was a work of love and not of necessity.

Fruit growing combines both necessity and pleasure. To civilized man, fruit has become as much of a necessity as bread. No man can fully enjoy either life or health without fruit. Not simply an apple for himself or his family, but an abundance the year through, fresh, canned and dried.

But this is not all, fruit growing gives pleasure to man. No intelligent being enjoys life in its fullest without work. It is popularly supposed that Adam had nothing to do except to sit under the trees and enjoy the ripened fruit as it fell from the bough. But God had said to him "dress the garden and keep it in order." Adam was therefore the first fruit grower of whom we have any record.

In all its stages from the placing of the plant or tree in the ground till the ripened fruit is gathered does it give pleasure. A man of the right sort, and by the right sort I mean one who from earliest childhood has worked with fruit in a small or a large way, much prefers to grow his own fruit rather than to have some one grow it for him. To cultivate even a small strawberry bed will make one forget all about business worries, and by the pleasure it gives may save one from a nervous breakdown or from the insane asylum.

Fruit growing therefore gives both pleasure and profit. From these two considerations alone the tax-payer might ask that his child should have at least some elementary instructions in Horticulture.

The objection urged by teachers is that our public school course is already overburdened. There is some truth in this, yet it is possible that we are teaching many things which are not of the slightest use to the child. We compel him to study Greek myths, fairy tales and so-called language lessons and literature. Yet we fail utterly to give him a knowledge of the English sentence. We worry him over Julius Caesar, while he is unable to spell very common words. He is asked to figure out Coleridge's philosophy of life from reading the "Ancient Mariner," when it is doubtful whether the poet himself could have answered that question.

Teachers force the child to study the star-fish, sea-urchin and other marine forms and shut him off from everything pertaining to his surroundings. Thoughtless pedagogues seem to think they are doing the right thing when they set immature students to dissecting animals, sectioning plants and using the compound microscope. Such work, according to some of the best teachers in the United States, should not be attempted even in the high school. We are trying to make specialists of pupils before they become generalists. L. H. Bailey says, "The microscope is not an introduction to the study of nature." The same writer says, "Teach first the things nearest to hand. When the pupil has seen the common he may be introduced to the rare and the distant. We live in the midst of common things." If we drop out the useless things we shall have plenty of time to study the useful. Pupils will certainly get much more pleasure and profit in studying an apple tree or a strawberry plant than in the dissection of a sea-urchin or of a cat. Prof. C. A. Whitman, Director of the Marine Biological Station at Wood's Holl, Massachusetts, says in substance, that we have reached the limit of the laboratory. What we need now is the biology of the farm.

Another objection urged against Agriculture and fruit growing is that it carries with it no culture. Only languages and literature, ac-

ording to this theory, are culture studies. There is a reason for this idea. Our present schools have come down to us from the monastery of the middle ages. In this institution Latin only was studied. He who was a good Latin scholar was cultured. He who had not studied Latin was uncultured. Later Greek was added to this and still later Mathematics. Within the memory of many people now living these were regarded as the only necessary subjects to be studied. The man who had taken a course in Latin, Greek, and Mathematics was a *cultured* man. In the first half of the nineteenth century a little Science was added. Chemistry, then Physics or in some instances Physics came first. Biology, as a distinctive subject came still later. None of these additions were made without a battle. At the present time some of the universities, notably, Cornell, have so many courses that it is estimated it would take a man working six thousand years to complete all of them. The term *culture* is still used with reference to the languages and literature, and the sciences are not generally recognized as culture studies. We believe that this is a mistake, and that whatever subject or truth is presented in a pedagogical way it carries with it culture. Just now Agriculture and Horticulture are claiming a place in school studies, and we believe that properly taught they are equal to any other subject as a means of culture. We believe also that we should not look backward to the Periclean age as the golden age in the world's history. The 20th. century is unquestionably better than any preceding century. If literature and language alone give culture, then such men as Newton, Huxley, Faraday, Tyndall and Agassiz were uncultured men.

Missouri is a great fruit growing State. It has more apple trees per capita than any other State in the Union. It sends to market more strawberries than any other State. Its strawberries are the finest in the world. In simple justice therefore the children of this magnificent State should get in the public schools at least an elementary knowledge of fruit growing. Instead of cat or crayfish dissecting let them study the strawberry. Instead of racking their brains and making physical wrecks of themselves over the obscure poems of Browning, take them out into the apple or cherry orchard. Visit the best fruit growers in the neighborhood. See how they cultivate their trees and plants; learn how they conserve the moisture in the soil; how they prune; how they spray and how they market their fruit.

In the happy time coming every school will have its own garden, where each child may grow some useful plant. Many schools in Germany and all schools in France have these now. Shall Imperial Missouri remain behind the rest of the world? In the name of progress, and in the

interest of the coming generation, I plead for the rights of the Missouri boy and girl. Children thus taught will live purer and happier lives. They will not wish to leave the country with all its beauty and pleasures for the over-crowded places in the city.

SUMMARY.

Fruit growing should be taught in the public schools, because:

1. Fruit is a necessity to civilized man.
2. It ministers to the aesthetic taste.
3. It brings mental culture.
4. It conduces to purity of life.
5. It keeps the boy and the girl from the unnatural and unwholesome life of the city.

Springfield Mo., January 14, 1905.

L. A. Goodman:

Dear Sir—At the last meeting of the Greene County Horticultural Society, it was voted unanimously to send you the congratulations and good wishes of the Society upon your re-election to the office of Secretary, of the State Society, and inform you that we will stand by you in all your work in the interest of the State Society, and Horticulture at large.

For myself I am more than pleased. I think the results of the Neosho meeting but prove the old saying that, "Right will in the end prevail," and it certainly gives me great pleasure in sending you this message from our local Society. We are having some severe winter weather, but do not think fruit is damaged yet.

Yours truly,

EARL B. HOPKINS,

Secretary.

R. D. 3.

MISCELLANEOUS.



MISSOURI FRUIT EXHIBIT, WORLD'S FAIR, 1904.
SHOWING BEAUTIFUL "FACADE."

HON. NORMAN J. COLMAN HONORED.

(Letter from Col. J. C. Evans.)

My Dear Friend Colman—At the recent meeting of the Missouri State Horticultural Society, at Neosho, Mo., an interesting history of the Society was presented by Prof. Dutcher of Warrensburg, which brought up many pleasant recollections of the past, in which you and I were both actors. The names of all the original members of the Society were mentioned, and the fact was developed that you are the only living person that was present at the organization of the Society forty-five years ago, and I am the next oldest member. You were the first President of the Society, and it was through your earnest efforts that it was organized, and it has proved a great blessing to Missouri.

There has been a place of honor provided by the Society for all old-time workers, that of third Vice-president, and such noble workers for the Society as Judge Samuel Miller and Mr. C. W. Murtfeldt, who had both been connected with the Rural World in former years, in the editorial capacity, had been honored by being elected to that position. Both have passed away, leaving that office vacant.

By unanimous vote of the Society, that office was abolished, and the office of "Honorary Vice-President" was created and you, as the Father of the Society, were unanimously elected to fill the position for life. I wish you could have been present at the meeting. I know the kind feeling manifested towards you, and the good words spoken, would have been fully appreciated by you. It was only the oldest members, those who have been in touch with you, who have worked with you, that could enjoy it most. Most of our oldest workers have passed away, but you and I, and a few of the old school still remain to do what we can to help along the cause that our Society was organized to promote and which is so dear to our hearts.

It seems that our tastes run together in another direction. We are both fond of camp life; delight to get out in the forests, and participate in the chase and listen to the music of the hounds. I suppose you had a fine time, as usual, this fall in pursuit of deer. This grand sport cannot last long in our State. The march of civilization is fast putting an end to it. It is only we older ones, who have spent many of our happiest hours

in this sport, who know how to appreciate it, and what we will miss when the deer are all driven out of the State. I hope we may yet be able to get together in the same camp and have one good hunt before bidding one another adieu forever. I left home on the 9th of November and went to my old hunting grounds in Oregon county, and we had one of the best hunts we ever had. I killed the largest deer I ever saw, and got the finest head of horns ever brought out of that county. Yours truly,

J. C. EVANS.

Remarks—We do not suppose that the writer intended this letter for publication, and we hope he will pardon us for the liberty we have taken in publishing it. If there is any one man deserving the highest honors the State Society can bestow, it is J. C. Evans. He has been with it in good times and bad times. He has been its helping hand on all occasions. For twenty years, yes, we believe for thirty years, he was its efficient, hard-working President. He and Mr. L. A. Goodman, the Society's accomplished Secretary, have given it the highest standing throughout the entire country. They have made prominent the wonderful advantages Missouri possesses as a fruit growing State. They and Hussman, Miller, Nelson, Murtfeldt and a host of other good men have in their time done work of inestimable value to Missouri.

—*Colman's Rural World.*

HONOR TO NORMAN J. COLMAN.

The following official letter has been received from the Secretary of the Missouri State Horticultural Society:

Hon. Norman J. Colman, St. Louis, Mo.:

My Dear Mr. Colman—It is with the greatest pleasure that I notify you officially, as Secretary of the Missouri State Horticultural Society, of some of the good things said and done at our last State meeting at Neosho, Mo., December 20-22, 1904, relative to yourself.

A resolution was passed unanimously, creating the office of Honorary Vice-president for life, and electing you to this position. This was done as a slight recognition of your valuable services in promoting the cause of Horticulture in this State, and in the United States in general.

First, as one of the organizers of the Missouri State Horticultural Society in 1859, when fruit growing was in its infancy.

Second, as President for many years of the State Horticultural Society, you have been one of the most prominent promoters and developers of the fruit interests of Missouri.

Third, as editor and publisher of Colman's Rural World, for more

than fifty years past, you have been the leader in this development of Missouri fruits and other Horticultural interests.

Fourth, as United States Commissioner of Agriculture at Washington by your broad, comprehensive and progressive work for the department, you first secured recognition of Agriculture as worthy a place in the President's cabinet, and became first Secretary of Agriculture for the United States.

Fifth, as Secretary, we therefore much more honor you because of what you did while in charge of the department at Washington.

First, you established the Department of Pomology, which had never been recognized as worthy of such notice, and by the appointment of a worthy man as the head of that division—Prof. H. E. Van Deman—you raised the standard of pomology, which has been expanding until it now covers the whole land and is known all over the world.

Second, you established the Division of Vegetable Pathology, which has done so much for our Agricultural and Horticultural interests. Millions upon millions of dollars had been lost annually by the ravages of blights, molds, rusts, smuts, and other vegetable diseases, and no commissioner before your time had appreciated this great loss or had taken steps to devote a special division to the study of the causes of these diseases, or the remedies therefor. Under your appointment of Prof. B. T. Galloway, a native Missourian, as head of this division, which he so ably and creditably filled, and which he still occupies, it has become one of the most valuable divisions of the Department of Agriculture.

Third, you established the Division of Ornithology and Mammalogy, one of great importance to both the fruit grower and general farmer. The object of this division, as I understand it, was to ascertain which of our birds are friends to the farmer and fruit grower, and which are destructive to his crops. To this end the division was to investigate the food habits of our birds in relation to Agriculture, Horticulture, and Forestry. The same may be said in regard to mammalogy—only it applies to animals that are destructive to the farmer, such as the different varieties of gophers, field mice, striped squirrels, moles, minks, skunks, rabbits, etc. The able man whom you appointed as chief of that division—Prof. G. C. Merriam—still retains his position, and his annual reports are read with great interest and profit.

Fourth, but the grandest of all the achievements for the farmer, under your administration, was the establishment of the Experiment Stations in connection with all the Agricultural Colleges throughout the United States. It was the action you took, and the foresight you displayed that secured to us these indispensable appendages to our Agri-

cultural Colleges. Our Society has not forgotten that not long after you had taken your seat as Commissioner of Agriculture you called a convention of representatives or delegates from all the Agricultural Colleges in the United States to assemble at the Department of Agriculture building at Washington, and that all the colleges honored your call, and responded by sending delegates to that convention, making it one of the most important Agricultural Conventions ever held; that the convention honored you and itself by unanimously electing you President, that in your address you strongly urged the establishment of Experiment Stations in connection with our Agricultural Colleges, so that scientific and practical Agriculture might walk hand in hand; that that part of your address relating to this subject was referred to a special committee, and you were added to that committee, and that committee evolved and reported the Experiment Station bill, which afterwards became, and now is the law, establishing Experiment Stations throughout the United States, which stations have conferred untold benefits and blessings upon Agriculture, and which will be of inestimable value to future generations, and especially to the young men who will be educated at these noble institutions.

Fifth, in order to complete and unify the great work of these institutions, scattered throughout the length and breadth of the United States, you established in the United States Department of Agriculture, the Division of Experiment Stations, placing at the head of it that able and accomplished scientist, Prof. Atwater, which division is of incalculable advantage to the Agricultural interests of the country by collecting, securing and collating information from these various Experiment Stations, and publishing and disseminating what is thought to be the most valuable to the different sections of the country.

For these and many other reasons, my dear Mr. Colman, do you wonder that the fruit growers of our State, in annual convention assembled, should show you honor by creating the office of Honorary Vice-president for life, and unanimously electing you to that position? It is small recompense for your valuable labors, but it is the greatest honor we have in our power to confer, and while we give it, we assure you most heartily that your good works live and always will live in the hearts and minds of the fruit growers and farmers of this great State, which you have so highly honored.

Believe me, yours most truly,

L. A. GOODMAN,

Secretary Missouri State Horticultural Society.

LETTER FROM PROF. WHITTEN.

Dear Gov. Colman—Now that you have no doubt had time to hear officially from the Secretary of your election to the position of Honorary Vice-President of the Missouri Horticultural Society for life, congratulations are in order from your Horticultural friends. I wish to extend mine, not mainly upon this technical act of the Society (for certainly nothing which they could do in the way of an official act alone, perhaps, could in any way emphasize your merited honors), but upon the manifest feeling of the members at the time when this position was created, as the most honorable one in the gift of the Society, for the special purpose of expressing appreciation of the labors of one who is denominated "The Father of the Society." I assure you that this expression of the Society carried with it the unanimous and heartfelt desire of the Society members to voice a very tender sentiment of appreciation. With best wishes, very sincerely yours,

Columbia, Mo.

J. C. WHITTEN.

President Mo. State Horticultural Society.

LETTER FROM PROF. J. W. SANBORN.

Editor Rural World: I very sincerely desire to enroll myself in the list of those who are paying a very deserved tribute to Hon. Norman J. Colman. During my official connection with the State Agricultural College of Missouri, and with the State Board of Agriculture many years ago I was brought into frequent social and business relations with Mr. Colman, as an officer of both organizations. I found him not only a gentleman of great worth and a delightful companion, but an officer above reproach. He was an ardent friend of the then struggling official and unofficial agricultural interests of Missouri, at a period when something more than a passive interest was demanded. The present advanced condition of Missouri agriculture is very greatly due to his energetic and faithful services, and it is a great gratification to me to see a recognition of this fact, in his day, by so eminent and influential an organization as the Missouri State Horticultural Society, in conferring upon him its highest honors for life, and to see the cordial support and endorsement of such well known and worthy men as Secretary L. A. Goodman, President J. C. Evans and others, who have justly gained more than a State reputation.

Not the least of Mr. Colman's services to Missouri agriculture, and to agriculture in the nation as well, was the founding of Colman's Rural World, more than half a century ago—a paper that has always fearlessly advocated the highest agricultural interests of the State. It ranks among the ablest agricultural papers of this country.

Very truly yours,

J. W. SANBORN,

Wilson Farm, Gilmanton, N. H.

MID-SEASON PEACHES.

(By Edwin H. Riehl.)

It is settled fact in my mind that we have too many varieties ripening in mid-season, which is about now. The markets always have been full at this time of the year, but now it is more so, since the favorite, Elberta, has become so popular. If peaches are planted to ripen at this season, let them be Elbertas, since no other variety will sell as well, or give the profit that these do. It is without doubt the most valuable variety ripening in its season, and other varieties ripening with it should not be planted, excepting, perhaps, in case of the family orchard. It would be well to have a good white peach, like Mixon, Stump or Washington; the last preferred; or a good cling, like Hyslop, for variety, or in case Elberta should fail, which it sometimes does in severe winters. Yes, and for home use I would add another, the Captain Ede. Like Elberta, it is of a rich, yellow color, and, though smaller and for this reason not so desirable for market, it is more productive and ever so much better in quality. Now, some of you may say that nothing could be better than a well ripened Elberta, but you are mistaken there; just try them together and you will find as much difference between Elberta and Captain Ede, in favor of the latter, as between Ben Davis and Grimes' Golden apples.

I did not bring up this subject because there are too many peaches on the market now, for such is not the case; peaches are in demand and anything of fair size sells for a fair price. This, however, is not a big peach year. If it were, nothing but Elbertas would be in it. It is no trouble to get \$1.50 per bushel for Elbertas now, whereas no other variety sells for more than \$1.25, and they must be extra fancy to bring that.

Those who think of setting peach trees should select varieties ripening before and after Elberta, especially if for market. For early I would

recommend Sneed, Greenboro and Alton. For late, Heath, Salway, Picquet's Late and Smock. It should also be borne in mind that late clings, if good, are always profitable.—Colman's Rural World.

THE BREAKING PLOW.

The following poem from the pen of Nixen Waterman appeared in the January number of Success. It is worth reproducing:

I am the plow that turns the sod
 That has lain for a thousand years;
 Where the prairie's wind-tossed flowers nod
 And the wolf her wild cub rears,
 I come, and in my wake, like rain,
 Is scattered the golden seed,
 I change the leagues of lonely plain
 To fruitful gardens and fields of grain
 For men and their hungry breed.

I greet the earth in its rosy morn,
 I am first to stir the soil,
 I bring the glory of wheat and corn,
 For the crowning of those who toil;
 I am civilization's zeal and sign,
 Yea, I am the mighty pen
 That writes the sod with a pledge divine,
 And promise to pay with bread and wine
 For the sweat of honest men.

I am the end of things that were,
 And the birth of things to be,
 My coming makes the earth to stir
 With a new and strange decree;
 After its slumbers, deep and long,
 I waken the drowsy sod,
 And sow my furrows with lilts of song
 To glad the heart of the mighty throng
 Slow feeling the way to God.

A thousand summers the prairie rose
 Has gladdened the hermit bee,
 A thousand winters the drifting snows
 Have whitened the grassy sea;
 Before me curls the wavering smoke
 Of the Indian's smoldering fire,
 Behind me rise—was it God who spoke?—
 At the toll-enchanted hammer's stroke,
 The town and the glittering spire.

I give the soil to the one who does,
 For the joy of him and his,
 I rouse the slumbering world that was
 To the diligent world that is;
 Oh! seer with vision that looks away
 A thousand long years from now,
 The marvelous nation your eyes survey
 Was born for the purpose that here, today,
 Is guiding the breaking plow!

THE SHADE.

This tree, which stands with arms outspread,
 With leaves like fingers tremulous
 To seize all coolness overhead
 And softly waft it down to us,
 This tree—it means a hundred years
 Of rain and sun, of drought and dew,
 Before this shade which rests and cheers
 Into today's perfection grew.

Some kindly one—forgotten now—
 May thoughtfully have placed the seed,
 Foreseeing that each reaching bough
 Would satisfy a worn one's need,
 Whoe'er he was, that unknown one,
 Who set the seed, or sproutlet slim,
 He knew not that he had begun
 What stands a monument to him.

The trees—the kindly trees—that blaze
 With spring's green flame or autumn's blush,
 The sentry fires that line the ways
 Into the woodland's peaceful hush—
 Through all the years they slowly grow
 Until they shield the flowered sod;
 The trees—the kindly trees—they show
 The patient thoroughness of God.

This tree, which stands with arms outspread,
 Seems to pronounce while standing thus,
 A blessing, and to gently shed
 A benédiction over us.
 The sunlight shuttles through the leaves
 With threads of gold that flash and play,
 Across the warp of shade it weaves
 The mingled fabric of the day.

—W. D. Nesbit, in *American Truck Farmer*.

FROM HOME ACRES.

A sense of pureness of the air,
 Of wholesome life in growing thing,
 Trembling of blossom, blade and wing,
 Perfume and beauty everywhere,—
 Skies, trees, the grass, the very loam,
 I love them all: this is our home.

Million on million years have sped,
 To frame green fields and bowering hills;
 The mortal for a moment tills
 His span of earth, then he is dead;
 This knows he well, yet doth he hold
 His paradise like miser's gold.

I would be nobler than to clutch
 My little world with gloating grasp;
 Now, while I live, my hands unclasp,
 Or let me hold it not so much
 For my own joy as for the good
 Of all the gentle brotherhood.

And as the seasons move in mirth
 Of bloom and bird, of snow and leaf,
 May my calm spirit rise from grief
 In solace of the lovely earth;
 And though the land lie dark or lit,
 Let me but gather songs from it.

—R. W. Gilder, Atlantic.

DUST SPRAYING.

The golden medium we think is expressed by Prof. H. A. Surface, M. S., Economic Zoologist, Pennsylvania State Department of Agriculture, in his monthly bulletin for June, 1904, he says: "For effectiveness, it has not yet been proven entirely equal to the liquid spray, for all insects and diseases of plants which have been treated by spraying, but with the same time, expense and effort, it can be made as effective as the old style methods of spraying with liquids, and this means that three times as many applications can be made, with less heavy work, less pumping for men, and pulling for horses, and without necessity of obtaining water for the work."

During the past season two of the schools have produced and published the formula for a dry Bordeaux, having all the chemical properties of the liquid Bordeaux, but whether the growers wish to exactly copy after the chemical combinations in the liquid Bordeaux is still an open question. Mr. W. D. Maxwell who has had thirty-five years' experience in growing fruit, and who has used both the liquid and the dust, and the dust exclusively the last three seasons, stated before the Missouri State Horticultural Society at its late meeting at Neosho, Mo.: "I will stay with the dust, until the advocates of the liquid spray can offer me something better than they have ever done."

At the late meeting of the Kansas State Horticultural Society, held in Topeka, Kansas, Mr. Hale on whose Georgia farm the government expert conducted the test last season to determine the relative value of both systems of spraying on peach rot, asked Mr. Goodman, Secretary of the Missouri State Horticultural Society, the following pointed question: "Mr. Goodman, if you had an orchard where water is available, and where the lay of the land is such that a wagon can be driven over it, would you use the dust process?" Mr. Goodman replied: "Yes, I

would use both. I would not discard the liquid process for the dust, but would add the dust sprayer to my equipment and use both, for there are times when one cannot use the liquid practicably, when the dust process would be beneficial." Secretary Goodman, than whom no man knows better what he is talking about on fruit matters, has used the dry conveyor for four years. Mr. Hale, with his usual Yankee sagacity, goes to the best unbiased authority in his class of growers, and shoots the above question right at him in "open meeting." Mr. Goodman's answer is just as specific and direct as Mr. Hale's question and leaves no room for discussion or wabbling.

SACKING GRAPES SUCCESSFULLY.

(W. H. Ragan, Department of Agriculture.)

Grapes have a number of enemies; some are of fungous origin, others are insects, and still others are birds. They may be effectually protected and shielded from many enemies by the proper use of sacks. The sacks recommended for use are made of tough paper, and may be purchased cheaply by the thousand, if necessary, from dealers in supplies of this character. They are such as grocers use for putting up small packages for their customers. Those holding about one quart, known as two-pound sacks, are a good size for most varieties of the grape. A few varieties having very large clusters may require larger sacks.

A single sack is to be placed over each cluster and made fast by the use of a pin, small wire or tie of some kind, and allowed to remain there until the fruit is ripe and ready for use. To be thoroughly effectual as a safeguard against the attacks of disease and insects, the sack must be placed over the cluster soon after the blooming season is past; if possible, before the young grapes are larger than bird shot. A little delay will often give the germs of disease and depredating insects an opportunity to plant themselves on or in the newly formed fruit, when the sacks will fail to perform the good service expected of them.

The sacks are easily and quite rapidly applied, especially where the vines are properly trained, as the fruit clusters will then be in easy reach of the operator and will be much fewer in numbers and of better size than if the vines were neglected. The expense of sacks and labor is trifling, and the good results are beyond question. They may be summarized as follows: Sacks protect grapes from rot and mildew; from various insects, including bees, wasps, hornets and flies of all kinds, and

from the sting of the grape moth and curculio that produces the larva or worm that is so often found within the berry itself, and they protect them from the attacks of several kinds of birds that break the skin of grapes and invite further injury by bees and insects and from chickens. Grapes that have been sacked are always clean and free from dust and smoke, and being sound may be allowed to remain for use much longer on the vine than those not sacked. Indeed, they may remain on the vine until they are in danger of being frozen, and if then cut when dry and laid away in a cool, well-ventilated room, with the sacks on, they may be kept for use for a long time, after grapes that were not sacked are gone.

The operator—perhaps the farmer's wife or daughter—equipped with sacks and pins or wires, slips the open mouth of a sack over the newly formed cluster of grapes and folding it down about the stem, pins it in place or makes it fast by passing a very small piece of pliable wire around the neck of the sack, and the work is done. The pins can be of the cheapest make, or if wire is used, it should be cut before-hand into lengths of about 4 inches. The mouth of the sack must be carefully folded about the stem of the bunch, or otherwise it may admit insects or disease germs or even rain water that will sometimes fail to find its way out through the sack, and it would thus spoil the fruit. A little practice will soon render the operator expert in affixing the sacks.—Orange Judd Farmer.

PARASITE FOR CODLING MOTH IS AT WORK.

The long heralded and much advertised parasite for the codling moth is at last at work in the orchards of California. The first distributions were made during the past week, eight colonies being sent out to orchards in different parts of the State, most of them going to localities in the Paparo valley. Other colonies will be sent out soon, distribution of the insect to be made to all of the principal apple producing sections of the state.

Mr. George Compere, the discoverer and collector of this parasite, returned to San Francisco this week, after his long absence in Europe, and the colonization of the parasite is being made under his personal supervision, he and Mr. Ehrhorn having visited the various localities for the purpose of liberating colonies of the insects.

Mr. Compere, who was seen at the office of Mr. Ehrorn this week, by a representative of California Fruit Grower, is enthusiastic over the possibilities of this little insect. But he does not count on mere pos-

sibilities. In his mind there is not the slightest doubt that this parasite will prove to be effective in the destruction of the codling moth. And from the work being done by the insect in the office at the Ferry building, it would appear that Mr. Compere has good grounds for his belief. In this office are a large number of jars in which the parasite is at work on its enemy, and the industry displayed by the little creature promises much for the apple orchards of California, and eventually of the whole country. In every jar are a number of pieces of apple branches in which slits have been made. In these slits are the larva of the codling moth, and flying about in the jars or walking about from place to place on the sticks are the parasites busily employed in stinging the codling moth to death and laying on their bodies the eggs which are later to hatch out into other parasites.

This parasite, which bears the formidable name of *Ephialtes carbonarius*, is a slender little insect, the female being about a half an inch long, exclusive of the ovipositor and its sheath, which are a little longer than the body of the *Ephialtes*. This ovipositor is very slender and it is with this that the parasite kills the codling moth and lays its eggs. The process is a very interesting one to watch. When the insect finds where one of the moths lies hidden under the wood it raises the posterior part of its body into the air, withdraws the ovipositor from its sheath and inserts it through the wood into the body of the moth, often jabbing it in several times. Then, as it withdraws the ovipositor it lays on the body of the moth an egg and immediately goes in search of another codling moth, where it repeats the process. How many eggs one parasite is capable of laying is not known, but it is probable that it lays about as many as does the codling moth. One of the curious facts concerning the latter is that notwithstanding the great amount of study that has been put upon it and the large sums expended in research concerning the insect, nobody has yet determined the number of eggs that it lays. This is merely a matter of detail, one that could easily be determined by observation. That it has not yet been determined does not speak well for the carefulness of the work of some of the investigators.

After being stung it takes the moth some little time to die—about twenty minutes. The natural heat of its body is sufficient for the hatching out of the egg, which takes place within 24 hours after it is deposited. The larva of the parasite, which is a little, corkscrew-shaped animal, immediately begins to suck the juices of the body of its host, this constituting its nourishment. It goes through the various stages of metamorphosis, developing finally into a winged insect like its parent.

Mr. Compere states that in Spain, where he obtained the parasite,

climatic conditions are similar to those in this State. He says that he has even found the insect at work in parts of the country where there was snow. Consequently he is confident that it will have no trouble in adapting itself to conditions in this country. It will, however, be probably about a year before any decided results can be looked for, as it will take about that long for the parasite to become established in sufficient numbers to produce any marked effect. The success of this experiment means the saving to the country of many millions of dollars, as the destruction of the codling moth, it is estimated, would at least double the possible production of apples.—California Fruit Grower.

NATURE STUDY.

Nature Study, says Prof. S. H. Bailey, in the New York Evening Post, is not merely adding of more "work" or another "exercise" or period to the school. To lead the child to see and to know the things with which he comes daily into contact is Nature Study. It will be seen at once, therefore, that nature study is an attitude and a point of view, not a method or system. The methods will be as various as the teachers. Here and there it will be over exploited and over methodized; now and then the name will be dropped, and person will say that the subject is dead or is passing away; but the essence of it can never pass away, because it is fundamental to the best living.—Practical Fruit Grower.

SPRAYING THE APPLE.

Our Horticultural Visitor:

The business end of this proposition is, does it pay? I am very sure it does not, as practiced by at least one-half of those who are trying to spray. There is no other orchard operation so important or that will bring one-quarter the returns as spraying properly done.

In the commercial apple growing section of Illinois we have found that winter or spraying when orchard is in dormant state with Bordeaux mixture or weak solution of blue vitriol does not pay. We get the best results by making the first application when bloom buds begin to burst; second application when the bloom is shedding or petals are falling; third application ten days later.

It pays well to make later applications in seasons that are favorable for the development of apple scab.

It should be understood that the greater part of the benefits of spraying come the following year.

A. V. SHERMERHORN,
Kimmundy, Illinois.

SPRAYING.

(Read at the Arkansas State Horticultural Meeting, C. H. Dutcher Warrensburg.)

The importance of spraying can not be overestimated. A few fully realize this, and have agitated the subject much in the last ten years; yet many fruit growers are not properly aroused to its importance. Why? Ever since the days of Patrick Henry—how much longer I know not—it has been natural for man to indulge in the illusions of hope. Indeed, after so many years of agitation on this subject, the printing of so many papers in our reports, the publishing of so many articles in our journals, we are impressed with the fact that many of us are apt to shut our eyes against a painful truth, and listen to the song of some siren that tells us not this year—the bugs may all be gone next—not this time—you have seen as good apples and as good orchards that were never sprayed as those produced by your neighbors who have sprayed, and sprayed again, almost from the time the trees were set out.

Is this the part of wise men? Do you not know that that very spraying, that expenditure of some money and much muscle, if they used the liquid spray pump, fully accounts for your good orchard, and apples? Such men are simply parasites upon those engaged in a great and arduous struggle that every family in the land may have a reasonable supply of good and wholesome fruit upon their tables. You are disposed to be of the number of those who having eyes see not, and having ears hear not the things which so nearly concern our debilitated digestive organs, and a deranged and gorged condition of the liver—much of which can be and should be prevented by a sufficient supply of well matured and properly cared for fruit.

Do you hope each year that this will be the last of the bugs? This is surely “indulging in illusions of hope.” The enemy is upon us. In great numbers they are swarming round about us. We have fungi here and fungi there—and then more fungi. On this limb and upon that—a few here and more there; and this will continue as long as heat and moisture prevail upon the earth. Today the tree is smooth and bright and healthy, and the buds are swelling—but tomorrow, behold! The

apple bud louse is sucking the very life out of the buds. And this he will continue to do unless you give him a liberal supply of kerosene emulsion, or dust him with ground lime and concentrated lye. Then there are other insects of the same nature. They come into the world a-sucking—never get strong enough or dignified enough to eat or bite, but continue to suck their miserable lives away, as well as the life of the bud, leaf and limb upon which they feed.

But this is only the beginning. Bud-moth, canker worm, codling moth and gouger are lurking in every secret place waiting their appointed time. It will soon be here, and if we do not fight, "the next gale that sweeps from the north," and from the south, east and west as well, will bring to our ears at least an imaginary chirrup, hum and whirl of millions of these pestiferous enemies, besides many that come in the night as quietly and stealthily as a Japanese army or Togo's gunboat flotilla.

"We must spray! I repeat it, sir, we must spray! We have no election. If we were base enough to desire it, it is now too late to retire from the contest. The war is actually begun, and it is vain to extenuate the matter. We may cry ease, ease; but there is no ease; and if we stand here idle, our fruit will be ruined, and we shall be swept from the woods, for such and such only will our orchards soon become."

Gentlemen, if a bird law is a good thing, why not a spray law that would compel every raiser of fruit to spray his trees? Many would object, of course, but laws should be made to secure the greatest good to the greatest number. The objectors know they do fight insects on their hogs and chickens, calves, colts and kids, and if their neighbors do not help at least in this last case they get mad, and take their children out of school.

But upon this enough for the present. We naturally ask how, with what, and when shall we spray? The method and material used are so dependent they may be discussed together. There are two methods. The old or liquid spray, the new or dust spray. In method these are quite different; in material, much alike.

The old uses water as a conveyor, which has no value other than to make a heavy load, and on a warm, dry day facilitate fungous growth. The new uses lime for a conveyor, which is light, a well known fertilizer, very useful on all sandy land, and to no mean degree both a fungicide and an insecticide.

For a fungicide the old uses copper sulphate, either in solution or as liquid Bordeaux. Only in a simple solution in water can they get copper sulphate on their trees, for the moment they add lime to neutralize

the free acid of the sulphate they form several inert compounds, and only one that has any fungicidal or insecticidal property. This is also true of the new method, if they dry slack their lime with the sulphate solution, or if they use the dry dust Bordeaux prepared by Dr. Bird. I do not know how this is with Leggett's Bordeaux, for I do not know how it is made. When last December I said: "Only when we can grind dry lime and bluestone together can we get a good Bordeaux, that is apply bluestone, sulphate or copper, to our trees," I was wrong on two counts. I have stated above that in a simple aqueous solution, the liquid spray men do put sulphate of copper on their trees, and in the second place, later experiments show that in the grinding of lime and copper sulphate together, the water of crystallization is set free and the same inert compounds are made. The latest method is to grind the lime and sulphate separately and mix them by sifting through a very fine sieve. When this mixture is blown upon the trees, powdered copper sulphate is placed directly upon the fungus, there to slowly but surely do its work. If this proves to be as effective as is hoped, it will be better than the water solution, for it is not at all limited in its application, while copper sulphate solution can be used only before the buds open.

As an insecticide for all eating insects both schools use Paris Green or some other arsenical poison. The one adds it to their liquid Bordeaux, the other to their powdered lime and sulphate. Each can add concentrated lye if deemed advantageous, while only the new school can add sulphate. Both agree in spraying for fungi throughout the season, and this is undoubtedly right.

As an insecticide for sucking insects the old school uses kerosene emulsion; the new, lime and a double strength of concentrated lye. Both have a caustic—the one soap—the other lime and lye. But the kerosene in the emulsion, a most valuable ingredient for the destruction of sucking insects, can be used only by the old school. The greater ease, however, with which the lime and lye can be applied, and the cheapness of the dust, may fully compensate for the loss of the kerosene.

As a fungicide that will not stain the fruit, the old school uses ammoniacal copper carbonate solution, instead of Bordeaux; the new, is not afraid of staining anything. Their formulae are simple, and the mixtures easily made. For fungous diseases they use ground lime, ground copper sulphate mixed with lime, called "Sal Bordeaux" or "Dry Bordeaux Mixture," sulphur and concentrated lye, if deemed necessary. The lye is hardly needed if the lime is the best, fresh and well burnt. And the sulphur is hardly worth the cost and trouble as a fungicide.

For insects that eat or bite the leaf, they simply add Paris Green to the fungicide. For plant lice and scale insects, they add a double portion of concentrated lye. In these formulae anybody's Bordeaux can be substituted and any duster on the market may be used.

As to the when to spray, I need say but little. Remember that the battle is not to the strong alone; it is to the vigilant, the active. Watch your trees. Examine them early and often. As soon as an injurious insect appears apply the proper remedy thoroughly and well. Use fungicides all the time. If you use liquid, make a fine, yes, a very fine spray, and quit before the tree drips. If you use the dry spray, enough material to make sufficient dust to be readily seen should be used. More is useless and a waste. The younger the larvae the easier it is to kill them. Spray for canker worm as soon as the eggs are hatched. Give another dose the next day and another the third. Spray for codling moth just before the bloom opens, and again as soon as the petals have fallen, but not while in bloom. Repeat in ten days, and then every two weeks through July and August to catch the second crop that injures our winter varieties. In conclusion I commend you to Prof. Bailey's wise words: "The trinity of successful orcharding is cultivation, fertilization and spraying."

KEIFFER PEARS SELF-FERTILIZING.

(Prof. J. C. Whitten.)

Question.—I have a fine orchard of Keiffer pears, set two years ago. I would like to know if it is advisable to plant some Garbers near them in order to secure fertilization of the flowers, or, does the Keiffer fertilize its own flowers? Is the Garber as good a pear as the Keiffer?

Answer.—Our experience with the Keiffer shows that it is capable of self-fertilization, and that it often produces good crops of fruit where its flowers do not receive pollen from any other variety. Some years, however, it fails to properly fertilize its own flowers, and I am inclined to the belief that it is wise to plant at least a small block of Garbers near it to secure better fertilization of its flowers. The Garber ripens ahead of the Keiffer and is out of the way before the latter comes on the market. It is no better pear than the Keiffer, in fact, hardly so good, but some Garbers may be marketed before the Keiffers are ready.

BEST PLUMS FOR MISSOURI.

Question—I would like to ask what are the best varieties of plums for central Missouri. Will the Japanese varieties succeed along the Missouri river hills?

Answer—Among the best varieties of plums for central Missouri are Shropshire Damson, which is about the most profitable European plum here; Wild Goose, Wayland and Miner among the Americans, and Abundance, Chabot and Burbank among the Japanese. The Wayland ripens late, when the weather is cool for local preserving. The Japanese varieties are about as hardy as the peach and thrive wherever hardy peaches may be grown. The three sorts named do especially well in central Missouri and are large and fine appearing.

BEST VARIETIES OF CHERRIES.

Question—What are the best varieties of cherries for southeast Missouri? I want to plant out a small orchard. I am told that the sweet cherries will not do well in the west.

Answer—The Early Richmond and English Morello are the best commercial cherries for Missouri. Sometimes the Montmorency and some other sorts do well enough to justify plating of them, but the two first named are generally the most profitable. The sweet cherries do not thrive well in the West.—American Truck Farmer.

MANAGEMENT OF HILLSIDE ORCHARDS.

(Edwin H. Riehl, North Alton, Ill.)

Hillsides planted to fruit trees will, under proper management, often yield better profits than they could be made to do in any other way. I have found, as a rule, that the best results from hillside orchards are obtained when only an occasional cultivating is given, and that, quite shallow. Holes should be dug large, and in planting, the trees should be placed near the lower side of the hole, so as to be certain about getting trees in to the proper depth. Most of and the longest roots should be turned toward the upper side of the hole. And, in many cases, but little

of the earth, thrown out in digging the holes, should be used in planting the trees; good, mellow surface soil should be used instead. When trees are thus firmly set, invert the sod below the tree, and place thereon the earth thrown out in digging the holes. Now take out a sloping section of sod all around the margin where the hole was dug and invert about the tree, so as to form a sort of basin above each tree. This may be then filled with good stable manure, but it should not touch the tree. In this way a hillside orchard may be grown very successfully without any cultivation whatever, providing, of course, that soil and location are favorable. For an established hillside orchard that needs feeding, nothing is better than a good dressing of stable manure, hauled direct from the stable. The prevention of washing is another point in favor of manure for hillside orchards.

Bud Selection—The subject of whether or not it pays to propagate from favorite trees, plants, etc., is still going the rounds of the press, and while most writers are in favor of the idea, we occasionally hear from a successful grower who thinks there is little or nothing in it. As for myself, I feel well repaid for the trouble I have gone to in such selecting in the past, and shall keep it up. Just think of the wonderful results obtained through the careful selection of corn for seed. And none the less marked have been our results in selecting the best hills of sweet potatoes each year for seed. If it pays so well with grain and vegetables, why should it not with fruits? If not already done, now is a good time to cut scions and cuttings, which should be packed away in moist sphagnum moss or damp sawdust, and stored in a cool cellar.

Seeding the Orchard—If your stand of grass or clover in the orchard is not good, and you wish it so, give the orchard a good harrowing just as early as soil is dry enough to crumble nicely. Sow seed as wanted, and harrow again the other way. The harrowing will not injure the grass already established, but, on the other hand, will do it good. If peaches pull through, I will want my orchard in clover. I shall cut the first crop for hay and allow the second growth to remain on the ground. I don't like to cultivate during a season when trees are bearing, for the reason that fruit is more liable to rot, and all fruit that falls to the ground is soiled, and unfit for market. I would prefer clover because it is more beneficial to the soil than timothy and other grasses; it matures early and the stubbles are not so apt to puncture the fruit that falls, much of which can often be disposed of in the local markets when not soiled or badly punctured. I have seen cases where enough was made from the fallen fruit in a peach orchard to pay the expenses of growing and handling the crop, which made the returns for picked fruit all profit. It is to be

hoped that some of us will be able to put these suggestions into practice the coming season.

About Dust Spray—In summing up the many reports on dust spraying, it seems that it is not a complete success for general orchard work. It is to be hoped, however, that further experiments will reveal some methods of preparing and applying, that will give results equal to those of liquid spraying, as the former can be applied with greater ease and less annoyance than the liquid. There is no question in my mind but that the dust spray is the best to use on grape vines, currant bushes, potatoes, melons and other vegetable and small fruit plants. I have used it on such for a number of years and with best results.—Colman's Rural World.

OLD SOLOMON'S TREE.

(An Arbor Day Poem.)

Old Solomon Gallup he planted a tree
 By the little log cabin he made,
 "There is nothin' like green stuff a-wavin'," said he,
 "And though I shan't live its full beauty to see,
 There's other folks comin' along after me,
 And I reckon I'll give 'em some shade."
 So he planted a twig where the sunshine and rain
 Made sport of his little lone hut on the plain.

The shower's of April fell gently and still,
 And the breezes of summer time blew,
 And the winter winds howled over meadow and hill,
 And the sun lent its warmth, and the frost sent its chill,
 And the snow cloaked the fields, and the ice choked the rill,
 But the little twig blossomed and grew;
 And the robin that swayed on its first little limb
 Was sure that that tree had been planted for him.

Old Solomon slept, and they laid him away,
 And the little log cabin came down,
 And where it had nestled, storm beaten and gray,
 A bigger house rose, mid the hammer's rough play,
 And over its new painted gables so gay
 The tree spread its boughs like a crown:
 And the young bride and groom, 'neath its green garments hem,
 Were sure that that tree had been planted for them.

The years came and went, and a village was there,
 A city whose race had begun;
 The prairie was checkered with street and with square
 And church spire and chimney shot high into air,
 But, grander than these, as a giant his hair,
 The tree shook its leaves in the sun;
 And the children who danced where the cool shadows played
 Knew well 'twas for them that these shadows were made.

Old Solomon Gallup, forgotten is he,
 And the cabin, few know where it stood;
 But the robins still sing in the top of that tree,
 The lovers still whisper beneath it, and free
 The laugh of the children still rings—and to me
 It seems that his labor was good.
 And bird song and laughter and lover's low tone
 Are epitaphs better than those on a stone.

—Joe Lincoln.

—*National Fruit Grower.*

STERILITY IN THE JAPANESE PLUMS.

(Prof. M. B. Waite, U. S. Department of Agriculture)

Since my discovery of self-sterility in apples and pears, other investigators have extended this principle to other fruits. Notably, Prof. Beach of the New York Experiment Station at Geneva has shown that many varieties of cultivated grapes are incapable of setting fruit from their own pollen and require cross-pollination with another variety. Goff in Wisconsin, Waugh in Vermont and Massachusetts, and Fletcher in New York state have extended this principle to plums. While in case of the Domestic plums self-sterility does not seem to be so definitely proved as with the Japanese and with the natives, it probably is only a question of experimenting to find that at least a certain amount of self-sterility exists.

As to the self-sterility of Japanese plums, it being asserted by some that they are capable of fruiting with their own pollen, I am very well satisfied, both as to the result of the work of the investigators before mentioned and from experiments carried on recently in my own plum orchard, that the Japanese plums are practically self-sterile and require cross-pollination to insure fruitfulness. Not only the ordinary, common Japanese varieties, such as Abundance, Burbank, Red June, Chabot, Agen, etc., are decidedly self-sterile to their own pollen, but the related variety, the Wickson, a hybrid between the Japanese and *Prunus Simonii*.

Furthermore, I have three trees of Wickson planted in a pear orchard nearly half a mile from my plum orchard, and while they have bloomed profusely, they have never set a single fruit, although trees of the same age standing alongside other varieties in the plum orchard on the same farm have fruited heavily.

The Japanese plums are not only extremely fertile and fruit very heavily when cross-pollinated with the other varieties of their own group (as for instance Abundance pollen on Burbank, or vice versa), but they are also fertile when pollinated by the natives and probably most other

plums. With these plums as with other fruits, self-sterility obtains only in a relative degree. Under extremely favorable circumstances, with all conditions just right, doubtless they might be able to set a considerable number of fruits.

The Kieffer pear, for instance, is commonly self-sterile, and responds beautifully to cross-pollination. However, under favorable conditions in certain seasons when the trees are well nourished and extremely favorable weather occurs during bloom they will set fairly large crops of fruit under the influence of their own pollen. Under these favorable conditions, however, where cross-pollination is possible, the trees literally break themselves to pieces from overloading.

The only safe way in planting out these plums, and in fact most of the fruit trees, except peaches and perhaps quinces, is to assume self-sterility and plant not more than from three to five rows of one variety in a solid block, placing the varieties, which bloom at approximately the same time alongside, so that insects can carry the pollen from one to another. No one can afford to take chances on self-sterility by planting a single variety, no matter how promising it may be.—Orange Judd Farmer.

THE ARRANGEMENT OF FLOWERS.

(Annice Bodey Calland)

Some persons have a natural gift for arranging flowers artistically, just as some have a genius for painting, music or poetry. The Japanese are certainly so blessed; they do not follow our customs of arranging flowers, but place just one perfect blossom in a choice receptacle, yet they have a thousand fancies for arranging flowers, selecting them for certain occasions with regard to their color and sentiment.

Those who have not the natural gift for arranging plants and flowers may do much toward improving their "sense of the fitness of things" by studying nature. She has her own rules for the use of color, whether she is painting a landscape or a carnation, and never makes a mistake in the arrangement.

If you would know how much more pure are the colors of flowers than the paint of the artist, just give a dab of cadmium yellow or chrome yellow on a petal of the California poppy or a dab of pink madder on a pink rose petal, or a cobalt blue on a purple aster. One is surprised at the dull, dead appearance of the paint. The artist soon learns the great

influence colors exert on their surroundings and on each other, that yellow makes purple seem more purple, that blue-green makes scarlet the more intense, that orange makes blue bluer, and pale olive green makes pink pinker.

There is no color arrangement when yellow marigolds, purple pansies, pink phlox and crimson zinnias are all hobnobbing in the same bouquet. It is best to make up a bouquet of single varieties of flowers, or of varieties that are harmonious. By the intervention of space or other color, they will not appear to be a constant warring of colors. One would surely not prefer a cluster of pink and yellow roses when he can as easily have the color all pink or all yellow, or pink and white, or yellow and white.

Nature's grandest effects invariably have a key—red, yellow, green or blue, and all other color is strictly subordinate or is merely a suggestion. Flower colors are too intense to allow of the huge conglomerate packs that are indiscriminately arranged by a careless hand. It does the flowers a gross injustice. Three or four blossoms with suitable "green" artistically arranged have a much better effect than the heterogeneous masses one not infrequently sees. Much or little green in a bouquet is merely a matter of taste: it should, when possible, be of the same plant as the blossom. When this is not advisable, as in the nicotiana or petunia, on account of the appearance of the foliage, or in the pansy or sweet pea, when cutting the foliage destroys the plant, one can, by using taste, find some suitable foliage. The old-fashioned Southern wood is fine to use with some flowers; so is the Boston fern. *Asparagus sprengeria* is lovely. *Smilax* and ivies will be found to be very useful.

White flowers always combine well with others of the same varieties. If care is taken in shading, all colors of the same flower may be made to look well together, though, as a rule, the simpler the better, as white and yellow chrysanthemums, white and purple lilacs, white and purple asters. Never place more than two varieties of flowers in one cluster, and let one of them be a modest unobtrusive blossom.

Arrange flowers according to their habits of growth. This requires a study of nature and her arrangements. Let the decorations be timely as *Harrissii* and *candium* lilies with ferns for Easter; chrysanthemums, asters, witch-hazel, etc., for Thanksgiving; red berries, holly and red carnations for Christmas, or such should at least be the keynote in the arrangement.

Even after the vases and baskets are all filled, all is not done, for a wrong placing of them will spoil the whole effect. Nature has all out-doors, with a back ground of the living green, the brown earth and

the blue sky, while we have a red, yellow, blue or green papered room to contend with.

The dainty and more delicate ones are best on a table or stand; the large and showy appear well on the floor, such as peonies, goldenrod, gladiolus, etc., while the bright glowing, yet not large, are best on a mantel or at a distance. For a formal dinner a good arrangement is to have the flowers raised high and allowed to spray loosely, fountain fashion from the central epergne and from slender vases near the ends of the table. The favors at each plate should, of course, be of the same variety as used in the vases.

The best flowers for the breakfast table are the dainty, airy or spicy ones, as nasturtiums, with their own foliage, sweet peas or pansies. In the autumn cosmos and asters are fine. For the winter breakfast table the wide-awake, cheery Chinese primrose is unsurpassed. Place the pot in a dainty jardiniere and put plant and all on the table.

Other beautiful though simple and inexpensive arrangements will suggest themselves to all who take an interest in floral decoration. The receptacle should invariably be unobtrusive and suitable in size and shape; clear glass is best. It is not itself noticeable, yet it is clear and sparkling, suggestive of water, and the stems and leaves show to advantage. The flower holder should never divert attention from the flowers. The ornamental vase is not suitable. If one has something of good shape, yet gaudy in appearance, it may be painted a sage green or dull brown, and will be found suitable for many flowers.—National Fruit Grower.

“BACK TO THE FARM.”

(President of State University Says Agriculture Pays Better Than the Law.)

Columbia, Mo., May 9.—President Jesse of Missouri University thinks that young men ought to study Agriculture in preference to law or medicine. In a recent publication he says:

“Unless a boy has a deep-seated preference for some other profession it does not seem to me wise for him to ignore the great opportunities that Agriculture offers, whether he was born in the country or in the city.

“In my opinion no other occupation offers so rich rewards, all things considered, as Agriculture offers to those who are willing to train themselves for it as earnestly and intelligently as they would train themselves for law or medicine.

“If a boy will put the same amount of time and study into his train-

ing for Agriculture that he would put into his training for law or medicine he will in the great majority of cases make more money, enjoy greater freedom, better health and develop stronger character."—The Intelligencer, Mexico, Mo.

Prof. F. B. Munford, acting dean of the Agricultural Department, Missouri State University, thinks an Agricultural education is worth more than a gold mine. He says: "I have had calls for at least fifty men during the past year at salaries varying from \$600 to \$2,500 a year. Agricultural papers want editors, owners of orchards, managers; colleges, teachers, and the Department of Agriculture, research men. Most any kind of graduate of the department can start as experiment station assistant at \$600 a year, while the good men have no trouble in getting much better salaries. The best field open to ambitious young men today is Agriculture. It is the education that pays biggest dividends." Thus whether considered as a political or financial asset a college education is becoming exceedingly valuable.—Colman's Rural World.

FURNACE FOR DRYHOUSE.

(M. P. Wilson, Washington.)

A furnace I have used for seven years in my prune evaporator in Washington, is a brick arch 15 feet long and about three feet high and 20 inches wide, inside. The main point of difference is in the cast iron flues running through the arch on an incline. When I put them in my furnace it cut my fuel bill to one-third, and a more uniform and steady heat is obtained. These flues are 4-inch soil pipe, and the plastered in; the lower end opens in the cold air box, which extends along each side of the brick arch, and the upper end into air chamber. My hot-air chamber is lined with sheet iron, although brick would be better, and is seven feet high; the smoke pipe runs from the chimney directly over the arch, and an elbow carries it up to the upper floor, then to the ventilator flue, through which it passes, thus helping the exhaust or draft.

My present holding capacity is 2,200 pounds of green fruit, although double this amount could be put in, and to good advantage. With less than one-third cord of four-foot pine wood per 24 hours, I can run through 800 pounds per day, and have averaged that amount for a week with unpitted Italian prunes. There is no trouble to get 150 degrees on lower trays, and we are compelled to run on lower temperature to prevent bleaching of green fruit on upper trays. One man at a time

handles it. I am a tinsmith, and got my ideas of heating from furnace work. One has only to recall the old shell boilers of 50 years ago and the present flue boilers to see the advantage of the flues through which passes a current of air. The more flues the more hot air; 15 feet, however, is pretty long for an arch, and unless one can fire from both ends eight feet would be better, although I experience little trouble. I use no grate bars and have but little ash. I run with damper in pipe turned half closed; the pipe in tray room is seldom too hot to take hold of, showing but little waste heat. The total of perpendicular pipe is 22 feet, and of horizontal 16 to 18 feet.—Rural New Yorker.

RELATION OF APPLE EXHIBIT TO EXPOSITION.

(Extract from an address by Prof. J. C. Stinson, before the I. A. S. A.)

"I am interested in both the apple grower and the apple shipper. I have watched with interest and gratification the growth of the Apple Shippers' Association for several years past. In addressing the association today I have not prepared a paper for the reason I might try to say too much, and I would rather listen to other able speakers than consume your time with the few thoughts I have to bring out.

"There are some good lessons to be learned by the fruit grower from the up-to-date shipper, along the line of caring for fruit from harvest to consumer. In the Palace of Horticulture there is a complete exhibit of fruit, kept up by cold storage stock since the opening of the Fair. It is only recently that fresh fruit in any material quantities has been received. Should this year's crop prove an entire failure, each state has enough cold storage stock to keep its exhibit up in good condition until nearly the close of the Exposition. And each state will keep part of its space covered continually with cold storage stock, and use it to fill out where fresh fruit is lacking.

"I believe the reason for the possibility of this is that the men in charge have been exceedingly careful in the methods employed in handling the apple from the time it left the tree until it was safe in the cold storage house. In all cases the apple was put in the car as soon as possible after being picked—and in ice cars at that. The fruit was then transferred from the various states to the cold storage plant here in St. Louis in these refrigerator cars, so it was kept cool constantly. If the apple is kept at one temperature continuously it will not spoil in cold storage half as soon as if subjected to a varying temperature.

"I believe the apple shipper cannot do better than to stand for better packing among the growers and a more extensive and proper use of the cold storage. I can speak only from a limited experience of the methods followed in Missouri, Arkansas, Kansas and some few other states in the Mississippi Valley. Here is an opportunity for the apple shipper to stand for better methods, which will induce the grower to do much better along this line, and get his fruit into cold storage in better shape. Fruit is taken from cold storage all over the country in as good shape as here in St. Louis. Experiments by the United States Department of Agriculture and the various state Experiment Stations have settled definitely the best temperature for cold storage, and if the fruit can be kept at this temperature, one house is as good as another.

"It pays and pays well to wrap all good fruit. We see examples of this almost every day in unpacking fruit for exhibition. Barrels of wrapped fruit when opened will scarcely contain half a dozen apples unfit for exhibit, and many barrels have been used entire on the exhibit tables, not one having to be discarded. On the other hand, we occasionally receive a barrel of apples that have not been wrapped. Seldom more than half of these are fit specimens for exhibit, and it is not uncommon to find only a dozen or so we can use at all. I believe we will soon see the day when all first grade stock will be shipped in wrappers. The apple shipper should emphasize this point in all his dealings for a short time, and get the grower started to better care for his fruit. The time is fast coming when fruit will be shipped in small packages for the fancy market. This seems to be best for all concerned. Hence it will pay to wrap fruit and cater to the fancy trade. It is a business proposition and there is money in it."

WHEN AND HOW TO CUT SCIONS.

When and how should scions be cut for grafting apple trees, and how keep them after cutting till they are used? I have 10 large trees of that absolutely worthless apple (except for hog feed) known as Ben Davis, and I want to graft them to something good to eat, as there is no market here for apples at a price that will pay for picking and drawing. In my own and my neighbors' orchards are plenty of good kinds, and I have seen grafting done, so I think I can do it.

Stanton, Mich.

E. H.

Apple scions are best cut in autumn or early winter, before hard freezing, but may be cut any time after the leaves fall, and before the

buds swell in spring. The best scions are made from one or two-year-old wood of thrifty bearing trees of the varieties desired. The selected wood should be smooth, bright and average about the thickness of an ordinary lead pencil. Do not use water sprouts if they can be avoided, as they are usually long in bearing, but well-ripened shoots from the upper portions of the trees. They may be cut in lengths of eight to ten inches, properly labeled and buried in the soil on the north or shaded side of a building until wanted, covering the soil with a board to keep out excessive wet. They may also be packed in damp, not wet, moss or sawdust and kept in a cool building or icehouse to retard the buds; in short they must be kept cool and prevented from drying out until the stocks are ready to graft. Probably the best time to graft the apple, is when the leaf buds are beginning to open, provided the scions are quite dormant.—The Rural New-Yorker.

BENTON COUNTY, ARKANSAS, HORTICULTURAL SOCIETY.

From the President's report.

All these past years, it has struggled along doing what it could to help its own members; and not being selfish, it has, through the generosity of the press of our city, published its proceedings and sent them broadcast throughout Northwest Arkansas, and also to some extent in Missouri and elsewhere. The State of Missouri has one of the best and largest State Horticultural Societies in the United States, and its printed reports are second to none. We are proud of the fact that for several years past our Society has been honored by quotations from our proceedings being printed in their annual reports, showing that we are "not without honor" at least in Missouri. We are grateful to the Missouri Society for this recognition, and especially are we thankful for a large number of its annual reports sent us gratis for several years past, as they are full of the best instruction and knowledge on all Horticultural subjects.

I. HENTHORN.

From the Secretary's report.

The Society made the necessary appointments to set the Fruit Fair in motion and on the 19th, 20th and 21st of October, 1904, a Fair was held that was successful in every respect. This Fruit Fair seems to be well established in Benton county and too much praise cannot be given to the business men and farmers who pay the bills, and the men and

women who have made the exhibits. Over two years ago the Horticultural Society appointed committees to work for rural free mail delivery, and these committees, the postmaster at Bentonville and with the aid of others, have succeeded in having three routes established, and many farmers now have their mail brought almost to their doors.

The Society is again under great obligation to the Missouri State Horticultural Society for their annual report. No State Horticultural Report is more valuable and its proximity to our part the state makes them especially useful to us.

I. B. LAWTON.

HORTICULTURE THEN AND NOW.

A paper read by E. L. Mason at the meeting of the Grundy County Horticultural Society in Trenton last Saturday. Published at request of the Society, expressed in an unanimous vote:

Sixty years ago there were but few nurseries in the United States. Besides the limited means for transporting freight long distances and the high price of trees induced people who had a knowledge of grafting to grow their own trees. I recollect a small nursery in my father's garden, where trees were grown from seed and grafted when they reached the proper size, to such varieties as Northern Spy, Golden Pippin, Seek-no-Further, Newtown Pippin, Rambo, Spitzenburg and others—a class of apples, in point of quality, seldom excelled by varieties of the present day.

In the pioneer days of Ohio, apple orchards were largely seedling trees, but as the fruit was mostly of an inferior quality they were afterwards grafted to better varieties. This opened the way for a class of professional grafters, who, in some instances were not over scrupulous about grafting an unnecessary number of scions, thereby making enormous bills against the orchard owner. Besides they practiced deception in grafting scions that were not true to name. As the country developed, the demand for trees became so great that new methods were necessary, and so root-grafting came into use. Instead of out-door grafting, apple seedlings were dug and the scions cut and put in the cellar before cold weather. Grafting was done from early winter into March, thus giving ample time for vast quantities of grafts to be made. When the warm weather of spring came the grafts were planted in the nurseries, and, in the course of two or three years, the trees were large enough to be trans-

planted into orchards. Through this method millions of trees have been grown and planted over a vast scope of country, and millions in this day are being planted into the large commercial orchards of Missouri and other state. There are some advantages in propagating apple trees by budding, especially when scions are scarce of some new and valuable variety; but the fact that root-grafting can be done when little else can be done in the nursery, makes it extremely doubtful that nurserymen will find it to their advantage to propagate apple trees by budding, and still more there is no evidence that budded trees are superior to well grown root-grafted trees.

Unscrupulous nurserymen, and the tree agents, are constantly trying to invent schemes to deceive people and thereby get a larger price for trees. Several years ago a bud scheme was worked by taking advantage of unusually cold weather, which damaged the heart of the bodies and limbs of trees. The claim was made by agents that the dead heart of bodies and limbs came through propagating by root grafting. They said where the splice was made the union was imperfect and decay set in which eventually caused the entire tree to become diseased and worthless. The agents further claimed that budded trees were entirely exempt from black heart, but as it costs a great deal more to propagate apple trees by budding, the price necessarily would be much more. So the people bought the so-called budded trees at forty and fifty cents a tree, which, in ninety-nine cases out of a hundred, were only root-grafted trees cut back to the crown when one year old.

Following the budded tree scheme came the whole-root theory. It was claimed that a scion grafted to a whole root caused the tree to have a deeper root system; that the union was more perfect when the scion was grafted above the yellow root in the crown; that the tree would make a more vigorous growth, bear better and live longer. Furthermore it was claimed that a scion grafted to the yellow part of the seedling did not make a perfect union; that the roots of the tree grown from such a graft were mainly surface roots and were more easily affected by cold, heat and dry weather, consequently were not so productive and were short lived.

I am aware that this whole-root story is believed by a few people, and is used extensively by tree agents, at the same time I will venture the assertion that there is not a single nursery in the United States that grafts scions to first-class seedlings and plants the entire root. Some of the nurseries may graft scions in the crown and make the root four or five inches long, but grafting a scion to an apple root twelve or fifteen inches long and planting that length of root in the nursery is all bosh.

Really, what good is there in getting a tree to root deeply and then run a tree digger through the nursery row that only cuts eight or ten inches deep? What good will the tap root do the tree if it is cut off and left where the tree grew in the nursery? The story that Downing said the crown of the seedling is the seat of life in the tree is simply a garbled statement, and has no foundation. It is an old and well established saying that "the scion ever over-ruleth the stock." Each variety has a root system peculiar to itself. Whitney crab, No. 2, has a strong, deep, well braced root system, while the root system of the Winesap is scant and irregular, and so on through the entire list of apples, which evidently must be caused by the influence exerted by the scion on the stock or roots.

I once bought six thousand whole-root grafts of a whole root nursery. The roots averaged about half the size of a lead pencil and were from four to six inches in length. I paid an extra price for the grafts, but I believe the roots were culls. The trees grown from this lot of grafts were in no way superior either in strong, deep roots or well formed bodies. In fact, they made an unusual per cent of unsalable trees. My next plant was both crown and piece-root grafts. The crown-grafts were tied in bundles by themselves and planted by themselves. The roots were first-class and cut to five inches. I gave the crown and piece root grafts the same cultivation and the same general care. When dug at three and four years of age there was no perceptible difference in depth of roots, of crown-grafted trees and piece-root grafted trees, nor in the general growth of the trees, unless it was that the crown-grafts were not quite as smooth, especially at the crown where they were inclined to sprout.

From this experience I decided that the so-called whole root trees failed to meet the claims made in their favor in point of a deeper root system and extra vigorous growth of trees, and that the claims made against the so-called piece-root trees in point of having only surface roots and showing less vigor in growth of tree was also untrue. Furthermore, I decided that, as whole-root and piece-root trees were alike in growth, there was no good reason for asking more for one than the other. Consequently, I put them both at the same price. Judge Wellhouse, the Kansas apple king, gave his experience before the Kansas State Horticultural Society, as follows:

"In 1876 we planted out about 20,000 grafts and some 4,000 to 5,000 of whole roots. We had heard a great deal about these whole roots, so we planted about 5,000. We ran a dead furrow and put the lister in and made the furrow just as deep as we could get it, and when we planted the whole root we had to take a spade and dig still further down. We took them up at two years old and planted about 30,000 which were

from piece roots of the usual length, two inches. In the orchard there were two rows of Missouri Pippins and two rows of Ben Davis, on whole roots, planted in the spring of 1898, and growing there now. If any man can tell the difference, he can do more than I can. The only difference I saw in them at that time was that the whole roots sent up more seedling sprouts and caused us lots of work, but so far as longevity of the trees was concerned, I could see no difference. But they were terrible things to sprout. About nine-tenths of our two-inch roots, when we took them up from the nursery, had sent out roots from the scion, and the more we experimented in that line, the more we desired them in that way, and from that time on we have used only short roots, to get the roots from the scion, and have always been satisfied with them. Whenever you pay one mill more for whole root than piece root, you are out just that much money."

The Kansas Experiment Station, after a long, careful test, decided that whole-root trees are in no way superior to piece-root trees; but as apple seedlings vary in growth and hardiness, it was thought that a better plan would be to use a short root and a long scion, which in time would cause the tree to grow on its own roots, and thereby make the orchard more uniform in growth and hardiness.

Prof. W. L. Howard, of the Missouri State Agricultural College, says, on the subject of whole-root and piece-root: "Experiments conducted by the government fruit station, after experience with four years' growth, concluded there is no difference in the growth and vitality of a tree, whether grown from whole or piece root grafts, and that whether nursery stock is called whole-root or piece-root."

In conclusion, I will say there is no known way of propagating apple trees so that they will be exempt from attacks of borers and other harmful insects, and the same is true of fungus diseases. Nor is there any system of propagation that will cause trees to thrive on poorly drained wet ground. In short, there is no such thing as apple trees that will stand all kinds of neglect and make a long-lived paying orchard. Good trees, good location, good soil, good cultivation and proper attention to everything necessary to make the orchard a success, will make trees live longer and pay better than all the whole-root nonsense in the world.

Republican-Tribune.

MARKETING THE STRAWBERRY CROP.

How to market our strawberry crops to obtain the best results is one of the problems which confronts the Horticulturist of the southwest at the present time. This same question has been presented to them at the approach of previous seasons, and not only to them, but to the Agriculturists and Horticulturists throughout this country, of which these two industries contributed their share towards putting it on its present high plane.

Various ways of marketing have been suggested and much has been said against shipping on consignment to commission merchants. Associations have been organized at various shipping points, and we believe with good results to shippers. We think that the organization of these associations is beneficial to all concerned, and we believe it is a step towards the successful marketing of products, if properly conducted, but by the individual shippers themselves.

Where there are a number of small growers at a shipping point and all have a common market to which they ship, it pays them to organize themselves into an association, through which business with railroads, express companies and commission merchants may be transacted. It can frequently obtain better shipping facilities and cheaper rates than a single shipper could obtain. The interests of the growers at one shipping point are identical. They are in competition with growers of other sections of the country and they want to place their goods on the market at the least possible expense. A representative of such an association can often secure some concessions by an interview with proper officials of transportation companies. A statement of the local situation in the name of the association and a frank personal request on the part of the representative, often secures to a body of shippers some advantages that are worth much, and it next becomes the part of the shipper to perform his duty.

He must, during his spare time, study what is best for himself, and especially, what is required in the markets of the country. He should then acquaint himself with the most modern methods of caring for the soil, and give the most diligent attention to his plants, trees, etc., or the branch of Agriculture or Horticulture he may be engaged in. Following this, he should study the best plan for picking his fruit, so that each piece is fully grown and matured. A neat and attractive package counts 25 per cent, and with this inducement it seems that all shippers should

give this particular item special attention; five cents worth of labor in packing means 25 cents more at sale. It then becomes the duty of the officials of the association to make such disposition of the shipments of the respective growers as will bring to them profitable results for their productions. While the mode of disposing of shipments differs with some associations, yet it is customary for the majority of them to ship on consignment (when f. o. b. sales cannot be made) to one or more commission merchants in the various markets appointed by them prior to the opening of the season.

Here great precaution should be exercised. The individual shipper, prior to becoming identified with the association, may have fallen into the hands of bogus or irresponsible commission merchants, who quoted high markets, and he received no returns for his products. Hence, we say, the association should use the utmost precaution in its selection, as the individual shipper expects them to remedy the above evil and looks to them for protection.

The commission merchant which the association selects should be honest, should have the facilities for handling the shipments, and be established in the commission business for a number of years, as he is then capable of exercising the best of judgment (which is essential); also be good salesmen, and when such qualities, combined with capital to handle the business, are in the possession of individuals seeking trade, the sooner the association gives them consignments and sticks to them the sooner will the grower be rewarded for his labor, and confidence be maintained between commission merchant and shipper.

The commission merchants must treat with the growers and shippers of this country as their commercial agents, employed by them to look after their interest on the markets and to protect them in every way that an agent does his employe. The future of the commission merchant depends upon his honesty and the legitimate manner in which he may conduct his business. The future of the grower and shipper depends upon the quality of his products and his honesty in packing. Commission merchants alone cannot obtain all that is required to aid the producer in profitably marketing his crop. They need the assistance and the support of all who are handling perishable products, from the one who tills the soil to the one who disposes of what is raised. All must join hands for the purpose of obtaining the necessary results, and when all this has been accomplished many evils have been overcome and the Agricultural, Horticultural and Commission business will have been placed on a proper basis and greatly improved. The foundation on which any improvement must rest is a good understanding. Thoroughly good relations must first be

established and then maintained. Much objection has been raised by the berry shippers of the southwest against shipping to eastern markets; but berries are consumed by the people, hence, we believe that the best markets are in the most densely populated sections of the country, which is in the east. The western markets, being nearer, lead some to think that the berries can be placed there in much better condition, but with the excellent railroad facilities now at the disposal of the shipper, distant markets can be reached with as little risk as near-by markets, and we believe prices in the east will always compare favorably with those of the west.

Gluts and inferior stock are two great evils in the fruit and produce business that should be remedied. While the former is often due to improper distribution, the shipper is directly responsible for the latter. With the yearly increased acreage of strawberries, some may attribute, to a degree, the cause of gluts to an over-production. It is doubtful whether there ever will be an over-production. While the supply of berries and fruits has greatly increased, the demand has kept pace, until today the traffic in this trade is one of the great industries.

There will always be a demand for berries and fruits, if of good quality and nicely put up. It is very surprising that any shipper should persist in the practice of putting unsalable stock upon the market, when it is taken into consideration that the cost of packing and transportation is the same on poor products as upon better stock; and not only this but the general demoralizing effect it has on the market is very great. If all could only realize this fact it would cause the grower to look more carefully to varieties planted, mode of cultivation and picking, the shipper would realize the necessity of honest grading, and the commission merchant would have less trouble and more time to properly dispose of receipts, get better prices and have less complaints from both shippers and consumers.—*Practical Fruit Grower, Springfield, Mo.*

THE WESTERN NEW YORK SOCIETY.

A DISCUSSION OF APPLES.

Prof. Craig, continued with a report on "Volunteer Experiment Orchards." Land owners planted 25 trees each of such varieties as they chose, the trees being given gratis by nurserymen. Each planter was to make certain definite experiments and report annually, but was not under any financial obligation to keep up the experiment. It was merely a mat-

ter of taking an interest in the experiment, also a matter of honor, as the trees were given. He gave quite a list of nurserymen, with the trees they would each furnish, varieties being designated; also of men undertaking the experiments.

Mr. Hammond told how he handled, stored and sold apples in 40 lb. boxes. These boxes were taken to the orchard and filled as picked. They were taken to the storehouse before night, and when sold, sorted and packed in the same boxes. The boxes were not exposed to the weather more than a few hours, and left the storage house bright and in good shape.

Mr. Powell had at the present time 1,000 boxes of apples, Jonathans and Greenings, in storage, part being in bushel packages and some of 40 lbs. He was hunting a market for them, but had no doubt of finding a profitable one. New York commission men were opposed to bushel packages or anything smaller than a barrel. Retail grocers sold almost entirely by the quart in two or four-quart packages, the contracted quarters of people in the city compelling them to buy in small quantities. Probably less than three per cent of consumers would at present buy as much as 40 lbs. at once. For this reason the retailers prefer to buy by the barrel; they do not have so many packages standing around, and they measure out better, especially if the bushel is scant. The empty barrel also had some commercial value, and the box has not. The price of apples in boxes varied with the quality and care in sorting and packing. He knew of two carloads of bushels selling at 70 cents per box. These were sold on commission. He has sold fancy apples at private sale (bushel packages) at the rate of \$7 per barrel, and the customers wanted more.

Mr. Van Deman said all Pacific coast apples were boxed, and they were all sold without difficulty. However, they did not box such grades of fruit as were often found in the middle of barrels packed in the east. Such apples were fed to the hogs or made into cider. There was little chance to work in culls into a box which contained but three or four layers of fruit, and the fruit grower who packed in boxes would find that he was, from force of conditions alone, marketing a better and more even grade of fruit than he had done in barrels, and this superiority will naturally command a better price than the former. This point should be given due credit. Another important point was that it took skilled labor and a barrel factory to produce barrels, and the empty ones have often to pay quite a freight tariff to the station where filled. They are bulky to get from the station to the orchard, and about the only advantage a barrel has any way is that one can roll it instead of lifting and it can be packed

quicker. Anybody can make a box. The lumber can be obtained in winter in shooks, and the boxes made in stormy weather, without any expense piled up on account of barrel trusts or skilled workmanship.

Prof. Craig said he saw Spitzenburg apples sold from a box in a New York store "two for a quarter," and the bushel boxes were retailed at \$5 each. A whole carload was as near alike as peas in a pod, and a box taken at random could be guaranteed to be as good as any other. It is such uniformity and conscientiousness in packing which gives a brand a reputation and a selling price far above what it costs to produce and pack. He would not pack seconds in boxes, or mixed or inferior fruit, expecting to get fancy prices. The size of the box used in Canada was 11 by 11 by 20 inches, holding a bushel. He spoke of western competition and the rapidity with which some states were coming to the front in apple production; 667,000 boxes of apples were grown in Colorado last year; yet there are growers in New York who imagine that Colorado is and always will be wholly a consumer of fruit grown in other states. New Yorkers have a very short haul to the seaboard, and if they will adopt uniform packages and the carefulness of the far west in packing, they can hold the export business and make money just on the difference in freight.

Mr. Powell has spent a good deal of time investigating the big eastern markets and interviewing dealers. One dealer thought that perhaps a family trade might be built up in bushel boxes of fancy apples carefully wrapped in fancy wrappers, but there had not been enough of that sort of goods handled yet to demonstrate its practicability.

Mr. Smith was somewhat pessimistic in his views of the new ways. The barrel was good enough for him. It could be rolled and could be quickly packed at a time when help was scarce and the season was crowding. It would cost all the extra price to wrap each apple, put a man way behind with his orchard work, and in many cases be simply impracticable.

Mr. Hamman reiterated his previous statements, urging Mr. Smith's attention to the fact that the boxing method distributed labor through stormy weather and did not delay outdoor work. The boxes were filled with the fruit from the picking baskets and taken at once, or before night, to cellar or barn or storage room and piled up, to stand until stormy weather or the end of the picking gave time to sort and pack. There was less handling, less waste and less anxiety from weather changes than when apples were put in heaps on the barn floor or in the orchard.

As regards boxes, Mr. Van Deman said that the Oregon growers made one size of box, but of two forms, one being wider and narrower

than the other, so as to accomodate an extra and a first size, or grades. They are all packed in regular tiers and fit the boxes as nicely as oranges. The western apples do not grow to a uniform size. They grow more large apples in proportion to the waste than eastern growers, but they still have under-sized and imperfect fruit, which is left in the orchard, where much of the same grade in New York should be left. The barrel is an ideal package for concealing trash and stuff that never should be shipped.

Country Gentleman.

L. B. P.

SPRAYING OF GRAPES.

(Paper read at late meeting of Quincy, Illinois, Fruit Growers' Association,
by E. J. Baxter, Nauvoo, Ill.)

In the spraying of grapes, as well as in the spraying of all kinds of fruits whether for the prevention of fungus diseases or the destruction of insect pests, there are at least three cardinal points to be observed, if success is to crown our efforts. These are:

1st. To use good, pure ingredients and to make the mixture properly, for if it is not made as it should be, you might as well pour it out on the ground for all the good that will result from using it.

2nd. To apply this mixture at the right time. This is also very important from the fact that we spray to prevent disease, not to cure it, and there is a time, if you delay beyond which all other sprayings can not remedy the damage done.

3rd. To apply the mixture properly. This is equally as important as the two foregoing conditions, for although your mixture may be made with good pure ingredients and properly made and applied at the right time, and yet, if not properly applied you will still fail to obtain the best results, the saving of your crop.

HOW TO MAKE THE MIXTURE.

Procure the purest sulphate of copper (blue stone) that you can, the purer the better the success. Some sulphates of copper contain sulphate of iron or sulphate of zinc or both, in greater or less quantities. If it contain more than two to three per cent of these materials, it should be rejected as impure.

For every fifty gallons of mixture you want to make at one time take six pounds of blue stone, put it in a common flour sack and suspend

it in a wooden vessel containing more or less clean water, according to the quantity of vitriol you want to dissolve or the amount of mixture you wish to make. Six pounds of vitriol should never be dissolved in more than twenty-five gallons of water—half the amount of mixture to be made and you can easily dissolve as many pounds in as many gallons of water in several hours if you wish to do so. The temperature of the water makes but little difference if any. The secret of dissolving the vitriol rapidly is to keep it as near the surface of the water as possible and to agitate it occasionally by plunging it up and down in the water. We find it more convenient to put enough vitriol to dissolve, to make a batch or two of mixture, the evening before we intend to begin to spray.

Another ingredient necessary is good stone lime. This should be as free from grit and residue, after being slaked, as possible. There is a great difference in this respect, in different limes. Some limes will slake almost entirely, leaving no perceptible grit or residue. This grit or residue sometimes depends also upon the manner in which the lime is slaked. Great care should be taken in performing this operation. Be very careful that the lime does not burn in slaking, for if it does it is useless for your purpose—it will not blend with the vitriol water, and it will not make a perfect mixture. Such imperfect mixtures besides being no protection against rot, are liable to scorch the foliage and injure the fruit of the vines to which it is applied. We prefer in early spring to slake all the lime needed for sometime—say at least a barrel at a time. We keep this slaked lime in a pit or in lime or sugar barrels sunk in the earth covering the lime with a little water to keep from drying. These ingredients—vitriol water and lime putty as we call it, you can prepare as suits your convenience, but they should never be misused—that is the Bordeaux mixture should never be made until you are ready to use it, and then use it the same day as made. Also be very careful never to use the fresh slaked lime while hot, in making the mixture.

When ready to make your mixture ascertain the capacity in gallons of the vat, barrel, or vessel in which you are to make your mixture, and for every fifty gallons of capacity, take ten pounds of this slaked or putty lime and put it in your mixing vat or barrel. Then add a little water and work thoroughly with a hoe to dissolve the lime and as it dissolves keep adding water until your vat or barrel contains nearly one-half the quantity of mixture you want to make. If your lime be gritty and there is much deposit after dissolving, this water should be strained through a fine sieve before adding the vitriol water. With the lime we use, we very seldom find it necessary to strain the lime water.

Have in another vat or barrels standing along-side of your mixing

vat the proper amount of blue vitriol dissolved and diluted to nearly one-half of the amount of mixture you want to make, and when your lime water is all ready pour this vitriol water into your mixing vat, containing the lime water as quickly as possible, stirring the mixture thoroughly the while with a hoe. Made in this way your mixture will be perfect, and you can apply it without any doubt of success, if applied at the right time.

WHEN TO SPRAY.

If the vineyard has never been sprayed before, and especially if the grapes have been rotting badly in previous years, I would recommend that the vineyard, as soon as pruned in the spring, the brush and leaves dragged out and burned and the canes tied up, be thoroughly sprayed with a solution of sulphate of copper—four pounds of copper to fifty gallons of water and no lime. Spray thoroughly the canes and the trunks of the vines, the posts of the trellis and even the ground under the vines, and especially if there be rotted berries lying there. In this spraying and in this one only, you should make the vines and the posts of the trellis dripping wet. If the vineyard has been successfully sprayed in the past, or if the grapes have not rotted to any serious extent this spraying may be dispensed with, and the first spraying made with the Bordeaux mixture a few days before the vines begin to bloom. Never use the pure vitriol water solution on any plants after the buds begin to open.

Another spraying should be made with the Bordeaux mixture right after blooming time, when the berries are well set. This spraying, and the one just before blossoming are the most important of all the season, especially this one right after blossoming. If it should be omitted, all others will be of no avail. Other sprayings can be made from ten days to two weeks apart according to the condition of the weather, the more often and the heavier the rains the oftener should the spraying be done, up to about the first of July, in this latitude. If you spray after that date here you will very likely spot your grapes to such an extent as to injure them for market. If thought necessary later spraying can be made with the carbonate of copper and ammonia solution without any danger of spotting the fruit or injuring the vines, and it is almost effective against rot as the Bordeaux mixture. And yet we have had mildew and grape rot here as extensively and in as malignant a form as in any other place in the United States, previous to the time we began spraying. In fact to get a good crop of grapes in those days was the exception. Since we began spraying in 1890 we have never lost a crop, and we have never sprayed except as in an experimental way, after the 4th of July.

HOW TO SPRAY.

Procure a good pump with plenty of force and the very best nozzles that are to be found in the market. A good nozzle that will throw out plenty of fine mist, the finer the better—is of absolute importance. Poor pumps with scant force and poor nozzles that throw out a coarse spray are absolutely worthless for this purpose, and are excessively costly even as a gift. In applying the Bordeaux mixture, or any other spray, use plenty of force, and be sure to cover every part of the vine, fruit and wood as well as the foliage with as fine a mist as possible, and be careful not to continue to the point of saturation, so that the spray will run and drop.

This course of treatment faithfully followed will save a crop of grapes in the worst infected vineyard that I have ever known. After from two to four years of this kind of treatment two sprayings in one season will be enough to save your crop in ordinary seasons. We have saved our crop for the past several years with two sprayings.—The Fruitman, Mt. Vernon, Iowa.

 TO AUTUMN.

Season of mists and mellow fruitfulness!
 Close bosom-friend of the maturing sun;
 Conspiring with him how to load and bless
 With fruit the vines that round the thatch-eaves run;
 To bend with apples the moss'd cottage trees,
 And fill all fruit with ripeness to the core;
 To swell the gourd, and plump the hazel shells
 With a sweet kernel; to set budding more,
 And still more, later flowers for the bees,
 Until they think warm days will never cease,
 For summer has o'er-brimm'd their clammy cells.

—John Keats, in the *Century Magazine*.

 TEN REASONS WHY PARENTS SHOULD ENCOURAGE
 HOME GARDENING.

1. Wherever it has been tried, the children have been more willing to stay at home and have taken more interest in the home because they love pretty things.

2. They have learned to be neat and regular in their work and to take a personal pride in it, that goes a long way toward keeping them good and happy.

3. It gives light and pleasant exercise in the open air and offers something than can be seen and enjoyed in return for the work.

4. It gives safe companionship.

5. It teaches many things about outdoor life that are worth much more than those learned in the streets.

6. It makes the child feel that he does something for the home, and this is a great safeguard.

7. It gives occupation and relieves much of the restlessness that is so trying to the mother.

8. It gives a feeling of ownership and control that strengthens character.

9. It will give flowers for the house all summer and fall.

10. A flower garden is contagious. It appeals not only to its owner, but to a wide circle of people. In looking at it, neighbors begin to realize that their houses, their lawns, their walks, their doorways, their back yards are all great gossips that tell tales to every passerby, and, unlike most gossips, they tell the truth.

TREATING FRUIT TREES GIRDLED BY MICE.

(Prof. A. T. Erwin, Iowa Experiment Station.)

During the recent cold period, when the ground was covered with snow, many fruit trees were badly girdled by field mice. Such trees, if left unattended, are very likely to die. The majority of them, however, may be saved by covering the injured portion with earth. The growing layer which lies just beneath the bark will form a new layer of bark if it is kept moist by banking up with earth for 2 or 3 inches above the girdled portion. The earth should be firmly tamped about the stem and pains taken to see that it is not separated by the tree swaying in the wind.

Another effective method of treatment which is more trouble, but surer, perhaps, is to wrap the wound with broad strips of cloth coated with grafting wax. The wax is made by boiling together: Four parts rosin, two parts beeswax, one part tallow.

To make this work effective, the wound should not be allowed to become dried out, and no time should be lost in covering the girdled portion. In cases where the injury has not been too severe, this treatment may also prove effective in saving trees injured by rabbits.

In this connection attention is called to the fact that trees may be

protected from injury by mice by mounding up with earth for a distance of 4 or 5 inches on the stem, each fall. A large number of young fruit trees are destroyed annually by mice which might be protected from injury in this way.

METHODS OF DESTROYING SAN JOSE SCALE.

The closing days of winter have been found to be the best time to fight the San Jose scale, as the mixtures employed for spraying are so strong that they should be applied only when the tree is in a dormant condition. Last fall, many growers in the neighborhood of Washington, D. C., found that their fruit trees had been attacked by the San Jose scale, and the Department of Agriculture was called upon for help. The official Entomologist declares that when the trees are heavily infested the best thing to do is to dig them out root and branch. By proper repressive and remedial treatment, however, an orchard can be protected from the insect pest.

The means most strongly advised consists of the use of a lime, salt and sulphur wash. This is not effective unless followed by ten days or two weeks of comparatively dry weather; but given such favorable conditions, it has shown most satisfactory results. Experiments have proved that in most cases this wash is nearly as efficient as the treatments with oil and soap, and has at the same time the advantage of far less cost than these methods. It is a winter application and may be used at any time between January and the period of leafing. The formula is: Unslacked lime, 30 pounds; sulphur, 20 pounds; salt, 15 pounds. Mix in a barrel with 30 or 40 gallons of water, and boil for several hours. It should then be diluted to make 60 gallons of wash, and may be preferably applied at a high temperature. Smaller quantities can be prepared by employing the same proportions of ingredients.

It should be applied every year, or as often as the scale develops in considerable numbers. It leaves a limy coating on the trees which acts as a deterrent to the young scale lice, and unless washed away by rain, retains its value as an insecticide coating for some time.

Another good treatment consists in dissolving fish-oil soap, made with potash lye, in water, boiling it at the rate of 20 pounds of soap to a gallon of water. If applied hot and on a relatively mild day in winter, it can easily be put on the trees with an ordinary spray pump. Pears and apples may be sprayed at any time during the winter; peach and plum trees are best sprayed in spring, shortly before the buds swell, as

if sprayed earlier, the solution seems to prevent the development of the fruit buds. While fruit trees are most liable to attack, berry bushes are also subject to injury, with the entire range of ornamental plants.

ORCHARDS.

(J. H. Darche, Parkville, Mo.)

KIND OF SOIL NECESSARY.

First—What kind of soil is necessary for a successful orchard? Most any good, deep soil that will raise good corn will grow an orchard. I have successfully raised apples and peaches on upland hard pan in Eastern Kansas, where the humus and surface soil was only three to four inches deep and underlaid with a cold, stiff, hard soil. Yet trees will grow faster and more thrivingly on deeper soil. One thing essential is good drainage.

I have my farm in the valley of the Arkansas River, where the whole valley is sub-irrigated or the water is on one level with the water in the river. The soil is a sandy loam all the way down, and the water percolates through the soil. We think we have the ideal soil for an orchard. At least we know what it will do, by what it has done, and count on having pretty good crops most every year, especially in apples.

KIND OF TREES TO PLANT.

Second—In planting, what kind of trees shall we plant—whole-root, piece-root, or budded tree

The whole-root, as usually sold and delivered by agents, is a humbug, and as often grown by some of the brag large nurseries is just as much a humbug. The Kansas Experiment Station, after planting and cultivating for some years an orchard set with all three methods of propagation, decided that good trees are made by all three methods, and in measurements and thriftiness, upright growth and permanent hold on the soil, the good piece-root two-year apple is just as good a tree to plant as any other. Now, for a couple of illustrations. About 1886 and 1889 I bought so-called whole-root apple grafts from eastern Kansas and eastern Missouri, respectively, for the very purpose of testing the whole-root theory as boasted of by these firms. In each case they were long piece-root graft about one and one-half to two inches longer than the usual piece of roots, and were probably all crown-grafts, but were cut off to piece-roots all the same. In the nursery row the whole-root grafts

were planted on the west end of the rows and the piece-roots on the east end of same rows, without any line of demarkation, and in growing and digging I could never tell where the whole-roots ended or the piece-roots began. I defy any other man to do it, either. Again, three years ago this spring, on bottom land in Sumner county, Kansas, I planted out a large plot of whole-root grafts—genuine whole-root, branched-root grafts, about six inches long of root. Some were longer, but we cut any long top roots down to six inches and planted them by making an opening in the ground with a spade instead of the dibble. I thought I would see a larger and thriftier tree, with a better root system than ever before, but I must declare to you my disappointment that, while all kinds started out equally well, yet the boasted whole-roots did not keep up with the piece roots either at one or two years old.

The truth of the matter is this: The largest, longest, straightest and thriftiest roots are made into piece-root grafts, the second size, the shorter and the branching roots are made into whole-root grafts, and the culls of all the smallest of all, those too small to graft at all, are lined out to bud on, for the wonderful whole-rooted—only nurseries—budded trees, at much higher prices, and as the only trees that will bear and never blow over.

WHAT SHALL WE SAY ABOUT VARIETIES?

Well, about varieties we differ, and we change our minds also as we try some and they go back on us. In 1882, in Illinois, I was told the Willowtwig was the apple, a bearer, a seller, a keeper, but the Willowtwig is a back number now. In 1884, in Missouri, the Janet or Janeton was all the rage.

Well, in eastern Kansas in 1885 and in 1886 I was recommending Willowtwig and Janeton and Missouri Pippin and Winesap as standard varieties, with Ben Davis also in the lead (never as a side line), when I soon found Willowtwig was eaten full of holes by bugs and bees, worms and wasps, and you could get but a small per cent of sound apples; also that when bruised at all it rotted quickly. It had to go. The Janeton on upland was small and scabby; also it would, after fall rains, crack and burst open. You could not bank on Janeton only on heavy bottom or good timber land. Rawle's Janet was played out. The Missouri Pippin, while the youngest tree to bear of any, the heaviest bearer also, though of beautiful form and color, and a fair keeper, was only a common apple to eat and cook, but being an upright grower, with a heavy weight of apples, the limbs would break, and it took lots of trimming to fix it up again, and many trees would die. So, while we find that

Brother F. Wellhouse has planted so largely of the Missouri Pippin, and as it bears so young and so full and grows so straight, it makes a good "filler" in alternate rows in close planting, yet I believe its days are numbered. The Winesap stands No. 1 in color, in keeping, in bearing, in flavor, but it is small potatoes, especially on upland, while down in the Arkansas river bottoms they average away up. I measured one of 9 5-8 inches in circumference, and some planters, like the Missouri farmer on Janets, the jayhawkers want Winesap straight, but friend Lowmiller tells me on Missouri bluffs the Winesap has a tendency to scab. Now, about Uncle Ben Davis. So much has been said pro and con, and everybody is so well acquainted with him, why should I need to introduce him, only to say he gets there, the great, big, red-checked fellow. I have measured him twelve inches round the waist.

What of the Jonathan? Mr. Wellhouse says it is the biggest bearer and the greatest money-maker of them all, but pick him and sell him; he will not keep, nor will he hang on the trees, though everybody likes him. The Grimes' Golden, a fair bearer, a golden Pippin, an excellent eater, but they say a short-lived tree and uncertain cropper. Mr. John Alter, of Kansas, said he would rather raise Ben Davis at 40 cents than Grimes' Golden at \$1 per bushel. He said he could make more money. Among the latter day apples we are getting acquainted with more and more, are the Gano, York, Imperial, M. B. Twig and the Ingram. They are making more friends every day, and while they need a few more years' trial to be sure how well they will wear, they are winning golden opinions right along.

Where, oh, where, are the apples of my childhood? The Russett, the Greening, the Baldwin, the Belleflower, the Spy, the Canada Red, the Fameuse, the Dominic, the Newtown Pippin, the Spitzenberg—winter apples in the Eastern states—they are all fall apples here and drop off and rot, and do not suit our Western climate, with its long, hot days, continuing so far into the fall.

Our best list for commercial orchards, according to the best authorities, are Ben Davis, Winesap, Jonathan, Gano, York Imperial, M. B. Twig, Ingram, Grimes' Golden for winter apples, with Maiden Blush, Lowell, Rambo, Bailey Sweet and Wealthy for fall, and Harvest, Astrachan, Benoni, Cooper's Early, Yellow Transparent for summer. This is our best list in my opinion.

CULTIVATION.

What of it? Begin early, say April, and keep it humming till August. For a few years plant some cultured crop among the trees—

never grain or grass, and when the apple begins to bear, seed to clover, but give the peach clean culture always, and sow cow peas or other cover crop in fall.

SPRAYING.

We must spray if we would get away with the canker worm, codling moth and other insects; also for scab and fungous diseases. My experience is light, as I am a beginner in spraying for the latter, but the authorities are sure and the experiments facts, and facts are stubborn things, and we can't get around them. We may run up against them and we may get hurt by them, but we had better accept them and act accordingly.

HARVESTING.

Gather the fruit carefully. Don't say the apples are hard and the grass is soft and time is precious. Time is never too precious to do things right, to do them well. It took thousands of years to plant a coal mine. I haven't time. We have all the time there is. One moment succeeds another so quickly we cannot grasp them ere they are gone. What was, a moment since, the future, is now the present, and already it is numbered with the past, so quickly flies the time away. A friend said to me a few days ago when I remarked I had so much work crowding me I hadn't time: "See here, Brother Darche, a good while ago I made up my mind that I couldn't do all the work there was to be done, and I would have to let the other fellow help me do some of it, and since that I like it so well that I let him do more and more, and I take a rest once in awhile. I commend it to you." Now, friends, let the other fellow do some of it, if we can't do it all, but do it well, do it thoroughly, if it takes a leg.

MARKETS AND MARKETING.

Have a good local market. Don't ship to Chicago if you can get a fair market in Kansas City. But if Kansas City plays out, rush it to where people will appreciate a good thing—Chicago, St. Paul, Denver, Galveston, New York, England. I have shipped apples from Michigan to Chicago, from Missouri to San Antonio, and from Kansas to Pueblo, and made money each time.—American Truck Farmer.

ERRATA.

On Page 275 Black Ben Davis synonym of Ragan should be Reagan.

REAGAN, synonym Black Ben Davis. "Ragan" [Ragan?] The word "Ragan" should be omitted.

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