THIRD ANNUAL REPORT

OF THE

COLORADO

STATE HORTICULTURAL

SOCIETY.

FOR 1886.

DENVER, COLO.:
THE COLLIER & CLEAVELAND LITH. CO., STATE PRINTERS.
1887.

To HON. MELVIN EDWARDS,

Secretary of State.

SIR:

In compliance with the statute, I have the honor to submit the accompanying report of the COLORADO STATE HORTICULTURAL SOCIETY, for the year 1886.

Respectfully,

NELSON MILLETT,

Secretary Colorado State Horticultural Society.

NOTE.—It is but due to all concerned to state that the following report is prepared from notes taken by the former secretary, and it can hardly be expected to be as complete as if either of us had performed the entire work.

NELSON MILLETT,

Secretary.

OFFICERS FOR 1886.

PRESIDENT,
A. E. GIPSON,
GREELEY.

VICE PRESIDENT AT LARGE,
JOHN TOBIAS,
JEFFERSON COUNTY.

SECRETARY,
NELSON MILLETT,
DENVER.

TREASURER,
WILLIAM DAVIS,
DENVER.

EXECUTIVE COMMITTEE,

C. S. Faurot	Boulder.
Samuel Wade	Paonia.
Avery Gallup	Denver.

COUNTY VICE PRESIDENTS.

E. Millison	Arapahoe.
J. W. Eastwood	Bent.
J. P. Harper	La Plata.
C. A. Maxwell	Boulder.
A. C. Haden	Pueblo.
Alex. G. Watson	Chaffee.
R. C. Nesbit	Rio Grande.
W. B. Evans	Douglas.
J. L. Barrett	Weld.
A. C. Aley	Delta
H. McAllister	El Paso.
J. L. Prentiss	Fremont.
David Brothers	Jefferson.
J. S. McClelland	Larimer.
S. W. DeBusk	Las Animas.
Robt. A. Orr	Mesa.

STANDING COMMITTEES
FOR 1886.

BOTANY AND ENTOMOLOGY.

PROF. JAMES CASSIDY, Fort Collins.

FLORICULTURE.

MRS. AVERY GALLUP, Denver.

ORNAMENTAL GARDENING.

PETER McGRATH, Glen Eyrie.

VEGETABLE CULTURE.

JOHN TOBIAS, Jefferson County.
W. L. PORTER, Greeley.
F. E. BIRD, Denver.

POMOLOGY.

JESSIE FRAZIER, Florence.
SAMUEL WADE, Paonia.
J. J. ACKERMAN, Longmont.

FORESTRY.

GEO. H. PARSONS, Colorado Springs.
D. S. GRIMES, Denver.

GEOLOGY.

J. A. SEWALL, Boulder.

IRRIGATION.

W. E. PABOR, Fruita.
H. G. WOLFF, Denver.
J. MAX CLARK, Greeley.

ORNITHOLOGY.

MRS. LEVI BOOTH, Denver.

ANNUAL MEMBERS

FOR 1886.

Barrett, J. L. ..... Greeley
Brothers, David ..... Jefferson county, P. O., Denver
Barteldes & Patch ..... Denver
Dugal, Louis ..... Denver
Everett, M. N. ..... Jefferson county, P. O., Denver
French, Mrs. S. M. ..... Denver
Gipson, A. E. ..... Greeley
Hilton, Ralph ..... Greeley
Hall, Eli ..... Greeley
Harker, Mrs. O. H. ..... Denver
Johnson, George L. ..... Greeley
McClelland, J. S. ..... Ft. Collins
Millison, E. ..... Denver
Millett, Nelson ..... Jefferson county, P. O., Denver
Marean, W. A. ..... Denver
McNeil ..... Jefferson county, P. O., Denver
Powell, Mrs. S. F. ..... Denver
Richards, Mrs. J. W. ..... Jefferson county, P. O., Denver
Stewart, Harvey ..... Jefferson county, P. O., Denver
Stewart, Mrs. Harvey ..... Jefferson county, P. O., Denver
Tobias, John ..... Jefferson county, P. O., Denver
Vosburg, N. O. ..... Denver
Wheeler, Dr. B. A. ..... Denver
Wheeler, Mrs. B. A. ..... Denver
Wadsworth, B. F. ..... Arvada
Wadsworth, Mrs. B. F. ..... Arvada
Wilmore, C. F. ..... Jefferson county, P. O., Denver
Webster, Mrs. J. W. ..... Denver
Whipple, Maria ..... Denver

LIFE MEMBERS.

NAME.	POSTOFFICE ADDRESS.
Berry, John	Denver
Ball, J. J. T.	Denver
Brown, H. C.	Denver
Bird, F. E.	Denver
Braun, G. J.	Denver
Crawford, R. T.	Colorado Springs
Corning, Geo. C.	Denver
City National Bank	Denver
Craig, Rev. W. B.	Denver
Craig, Mrs. W. B.	Denver
Clark, J. M.	Denver
DeVinney, V.	Jefferson County P. O., Denver
Davis, William	Denver
Ellsworth, L. C.	Denver
Frazier, Jesse	Florence, Fremont County
Grimes, David S.	Denver
Gallup, Avery	Denver
Gallup, C. R.	Denver
Hanna, J. R.	Denver
Hallack, Mrs. Charles	Denver
James, Robert	Denver
Kountz, C. B.	Denver
Lane, John H.	Denver
Lee, Henry	Jefferson County P. O., Denver
Lessig, W. H.	Denver
Londoner, Wolf	Denver
Lower, John P.	Denver
McClure, Mrs. Kate B.	Denver
Moore, Rev. D. H.	Denver

NAME.	POSTOFFICE ADDRESS.
Marquis, Robert	Denver
Moulton, Thomas	Denver
Newcomb, J. H.	Denver
Newcomb, Mrs. J. H.	Denver
Peabody, A. L.	Grand Junction, Mesa County
Peabody, Mrs. A. L.	Grand Junction, Mesa County
Pitkin, ex-Gov. F. W.	Pueblo
Pierce, Gen. John	Denver
Rushmore, H.	Denver
Richardson, George	Argo
Shaw, Dr. Alex.	Denver
Short, Prof. S. H.	Denver
Van Camp, J. M.	Denver
Wolff, H. G.	Denver
Wood, S. N.	Denver
Wolcott, E. O.	Denver
Wade, Samuel	Paonia

HONORARY MEMBER.

Brackett, G. C.	Sec'y Kansas State Horticultural Society

CONSTITUTION

OF

Colorado State Horticultural Society.

SECTION 1. This society shall be called the COLORADO STATE HORTICULTURAL SOCIETY, and shall have for its objects the promotion of horticulture, pomology, arboriculture and floriculture.

SEC. 2. This society shall hold its regular annual session, beginning on the second Thursday in January of each year, at 10 o'clock a. m., at such place as the president may designate, for the purpose of electing its officers, and the transaction of such other business as may be necessary, and it shall also hold such other meetings as the interests of the society may demand, at such time and place as the executive committee may designate, and seven members may constitute a quorum for the transaction of business.

SEC. 3. The officers of the society shall consist of a president, a vice-president-at large, a secretary and treasurer, who shall be elected by ballot, and a majority of the votes cast shall be necessary to an election; also, a vice-president from each of the counties of the State interested in the promotion of the objects of the society, who may be elected by the society at its annual meeting, or by the executive committee.

SEC. 4. The president of any district or county horticultural society of this State shall be ex-officio vice-presi-

dent of this society, and shall have all the rights and privileges of regular members.

SEC. 5. The president, vice-president-at-large, secretary, treasurer and three other members to be elected at the annual meeting, shall constitute an executive committee, charged with the general supervision of all matters of interest to the society during the interim of meetings, with power to act in all cases of emergency, and a majority of the committee shall constitute a quorum for the transaction of business.

SEC. 6. The society shall contract no debts, unless by a two-thirds vote of members present at any regular or called meeting.

SEC. 7. The written acceptance of an officer elected, filed with the secretary, shall be considered as qualifying.

SEC. 8. The treasurer shall give bond in such sum as may be fixed and accepted by the society at any annual meeting.

SEC. 9. The society shall, in every proper way, encourage and assist in the organization of county and district societies.

SEC. 10. The society may at each annual meeting offer premiums for essays on such subjects as may be determined on; such essays to be read at the next regular meeting, and immediately after reading, the premiums to be awarded by a majority of the members present.

SEC. 11. Representives from organizations formed in the interest of horticulture, shall be admitted to all the rights and privileges of members, upon certified credentials, and without payment of membership fees, upon the following basis: Town societies, one representative; county societies, two representatives; district societies, three representatives.

SEC. 12. The society may adopt, at any meeting, such by-laws, rules and regulations as the majority of the members present may determine, not inconsistent with this Constitution.

BY-LAWS.

SECTION 1. The officers of this society shall hold their respective offices until their successors are elected and qualified.

SEC. 2. The first business of each meeting, shall be the reading and approving of the minutes of the previous meeting.

SEC. 3. The payment of one dollar shall constitute an annual membership, which shall cease on the day preceding the first day of the annual meeting, in January. Ten dollars paid at any one time shall constitute a life membership.

SEC. 4. The secretary shall solicit from each vice-president of the several counties such reports as have immediate connection with the condition of horticulture, pomology, arboriculture and floriculture, and such other information as may pertain to the interest of the society, and he shall report the same to the society. The president shall appoint a standing committee on each of the following subjects, who shall make an annual report at the January meeting: Committees—Meteorology in its relations to horticulture, entomology, ornithology, geology, forestry, pomology, vegetable culture, floriculture and ornamental gardening.

SEC. 5. No money shall be drawn from the treasury except upon orders signed by the president and countersigned by the secretary.

SEC. 6. It shall be the duty of the president to preside at all meetings, sign all orders upon the treasurer, act as *ex-officio* chairman of the executive committee, and sign all

approved records; and in his absence the vice president-at-large shall perform his duties.

SEC. 7. It shall be the duty of any one of the county vice presidents present to preside, in the absence of the president and vice president at large, and to furnish such information as may be solicited by the secretary.

SEC. 8. It shall be the duty of the secretary to keep a record of all proceedings of the society, receive all money, and pay the same to the treasurer and take his receipt therefor, countersign all orders upon the treasurer, and to deliver to his successor in office all books and papers in his possession belonging to the society; and he shall receive such compensation as may be allowed by the executive committee.

SEC. 9. It shall be the duty of the treasurer to keep all money belonging to the society, and to pay out the same only upon order of the executive committee, signed by the president and countersigned by the secretary. And he shall make a report of the financial condition of the society at its annual meeting, and at the expiration of his term of office deliver to his successor in office all money in his hands belonging to the society.

SEC. 10. It shall be the duty of the executive committee to audit all bills, and in the interim of the meetings of the society, to take such official action as in their judgment may promote the objects of the society, and report their action to the next succeeding meeting; and they may call a special meeting at any point of the State desired, by giving twenty days' notice.

SEC. 11. The records of this society shall at all times be open to inspection by any member.

SEC. 12. These by-laws may be altered or amended at any regular meeting by a vote of a majority of the members present.

SEC. 13. The annual membership fee for ladies shall be fifty cents.

PROCEEDINGS

OF THE MEETING OF THE

State Horticultural Society,

HELD AT

GREELEY, COLORADO,

DECEMBER 8, 1885.

In accordance with a resolution passed at the last annual meeting, the society convened at Greeley on the above mentioned date.

The meeting was called to order at 7:30 o'clock p. m., by the President, George Richardson.

The minutes of the last meeting having been published, their reading was dispensed with.

The delegates and members were welcomed to Greeley by Mr. A. E. Gipson, in a short and appropriate address, which was responded to by President Richardson.

The first business on the programme was the reports of District Fruit committees.

J. S. McClelland, in behalf of the Northern District, reported list of fruits recommended by the committee; also list for trial.

The secretary then read the following

Report of Southern District Fruit Committee.

By S. W. DeBusk.

The members of the committee have never met together. The undersigned addressed letters to the two other members of the committee, reciting the action of the society a year ago, in the appointment of committees, and requested a brief written report from each member, to the end that a report for the entire Southern district might be formulated. To these letters no reply has been received up to this date, December 7, 1885.

In June, 1883, the *Colorado Farmer* addressed several questions to Mr. Jesse Frazier, and Mr. Frazier replied to these, at length. Mr. Frazier's statement of his experience up to that date filled a column of the *Farmer* of June 21, 1883, and to this excellent statement the society, and all others concerned, are most respectfully referred. It is instructive reading.

In the vice president's report from this county (Las Animas) is a resumé of the more advanced efforts made in this locality. I have no information beyond the facts of that report.

A large number have procured trees to set in the spring of 1886.

Some three thousand trees (as I estimate the number), representing at least fifty varieties of apples, are now growing, under the care of a few competent and pains-taking growers in Las Animas county.

The interest has more than quadrupled during the past two years. After some two or three seasons of further experiment a summing up of results cannot fail to prove instructive.

The vice president's report from Las Animas county was then read as follows:

The Beginnings in Las Animas County.

By S. W. DeBusk.

In the year 1873, Dr. McGrew, of Trinidad, set out some trees of peach, pear and other fruits on his half acre lot. The peach trees lived, and in due time bore two or three dozen fine peaches, but never resulted in anything more than a very meager and partial success. The pear trees lived, and this year, 1885, were reported heavily laden with fine pears. In the fall of 1879, some tree agents canvassed this county and sold numerous small bills of trees at exorbitant prices. William Hoehne bought a large lot and set them on his farm at Hoehne Station. This orchard has had a rude and meager sort of attention. The trees are nearly all Siberian crabs. Rows of cottonwoods were set alternately with the rows of fruit trees. The cottonwoods grew to be a forest, while the fruit trees have suffered correspondingly. Nevertheless, a few fair crops of fruit have been borne.

Last June I looked very carefully through this orchard (some three hundred trees, I should judge) of Siberian crabs. About two-thirds of the trees had no fruit at all. On the remaining third was a fair sprinkling of fruit. Some half a dozen trees were literally loaded.

In the spring of 1875, Joel Dodson set a small orchard on first bottom (adobe soil). The trees had the best of care for three years, when business took away the planter and cultivator, and the orchard was then turned over to the cows and horses; the land ceased to be cultivated, and the trees were not irrigated. Only two survive now, bearing marks of ill usage. One is a Ben Davis tree, which measures full two feet in circumference a foot above ground, and is at least sixteen feet high. Both trees bore a fine crop of apples the past season.

Tiofilo Duran, in the spring of 1875, set a small orchard. He was a Mexican farmer of industry and thorough methods. He surrounded his trees with an adobe wall, after the fashion of Old Mexico, to keep out the rabbits

as well as the horned cattle. For five years he cultivated his orchard well, when the farm passed into other hands. For three years past the trees have been reported as bearing good crops of fine apples. No trace of varieties.

Some time previous to 1875, Judge Hubbard set a large and varied assortment of fruit trees and grape vines on his farm at El Moro. The grasshoppers swooped down on these trees just when they had got to growing with great vigor and promise, and all that was left of the planting is one maple.

Judge Hubbard cultivates successfully the Concord, Champion and Hartford grapes.

The Ives seedling did no good for him, and a year ago he gave the thrifty-growing vines to a friend, if he would dig them up.

The Lombard plum and German prune do well with Mr. Hubbard.

In the year 1876, George R. Swallow (our present State Treasurer) set, on his lot in Trinidad, a select list of trees, vines, roses, etc. On the summit of a hill, quite rocky, Mr. Swallow had the surface dug two feet deep, the stones taken out, and the soil enriched. He also had an adobe wall erected on the southwest side. Purchasing water at fifteen cents per barrel, to irrigate the plat of ground, which was considerable in extent, this collection of trees made prolific growth, and fruited early; Bartlett pears and Early Crawford peaches being among the first trophies. This property was some years since sold to others, but the lot, with its shade and fruits, remains one of the prettiest spots in Trinidad.

In May, 1881, the writer set out one hundred and seventy-five apple trees, besides some pear, plum and cherry.

Three-year Ben Davis trees, set in large, well prepared holes, a pile of bones under each tree, bore apples the past season (1885). One tree ripened sixty-eight apples, which weighed twenty pounds and a half. Others ripened fifty, forty, thirty, per tree, and down to two or three.

Of course, many more were set than ripened. Largest of these trees are thirteen to fourteen inches in circumference.

Duchess of Oldenburg trees have grown less rapidly, and ripened only one apple, a fine one.

Cooper's Early White is a slow grower and a crooked tree, but promises well. One tree, set four years, bore fifteen apples. The fruit is excellent to most palates.

Transcendent crabs were every one killed April 24. Of Hyslop crabs only a few scattering ones remained.

A tree set May, 1885, when a two-year-old switch, ripened fourteen apples the past season, many more having been knocked off by hail and wind. This tree was bought for a fall Pippin, but is beyond any reasonable doubt a Rambo. Red Astrachan not yet fruited.

Of ten Yellow Bell Flower, half have died, and none have yet fruited.

Janeton, thrifty, but not yet fruited.

Ten Wealthy trees, all thrifty, but not yet fruited.

Ten Maidens' Blush, all died the winter after they were set. My pet is the Fall Spitzenburg—noblest yet produced in these parts. I wonder that it has not been talked away up before now.

When other trees are all out in leaf, and bloom buds getting killed by late frosts, this Fall Spitzenburg and the Rawles Janet are not yet showing a leaf. Of my eight Spitzenburg trees, five have fruited and given specimens that were certainly very fine and very good. To get more trees I have to send away to F. K. Phoenix, in Wisconsin.

Here is what Mr. Phoenix says about this apple, in a letter now before me: "Glad to hear so favorably of it there. It has a good reputation north of us, and seems extra hardy, though not fully iron clad. In this State it is called one of the very best on sandy land, one hundred miles north of this."

My trees grow on a hillside, sloping toward the north.

In 1881, P. J. O'Niel, at El Moro, set a few trees on first bottom land (adobe soil) used as a garden. No list of varieties. Considerable fruit on trees the past season. Saw one tree of what seemed to be Hyslop crabs; tree very full. This interested me, as mine, on lower altitude, fifteen miles farther down the same valley, and growing on a hillside, had about all been killed.

Many plantings have been made recently. Itinerent tree venders have worked this county and northern New Mexico for all there is in it, and have sold many thousands of trees. The purchasers have been handsomely bamboozled, by the pictures, jars of magnified fruit, and oily tongues of the agents. But out of the transaction some good may come.

Just across the New Mexico line, a few miles, is a large orchard of a Mr. Dawson, set some twelve years ago. Flattering reports come from this place. It is set, I am told, on bottom land, well out next the hills or upland. The pears grown are pronounced the finest, among them the Bartlett. The Rhode Island Greening and _____ are said to be among the apples fruited.

In Trinidad numerous parties have cherry trees on their premises, which trees bear handsome loads of fruit, varieties not known. Altitude of Trinidad, six thousand feet, and of other points above mentioned, less.

Henry Niles, of Grey Creek, is making numerous experiments of grafting into our native stocks of wild plum, wild cherry, wild thorn, etc.

In the section of the Purgatoire Valley, forty miles west of Trinidad, and known as Stonewall, some little has been done, principally with small fruits.

R. L. Worten, of Trinidad, has half an acre devoted to grapes, berries, apples and pears. He had some nice fruits, including Oldenburg apples, the past season.

The accursed Spanish land grants have clouded land titles and kept some from improving permanent homes. This incubus has partly been removed, and more rapid progress expected in the future.

H. B. Kennedy reported for the Western district.

The committee for the Central district asked for an extension of time until the following day to complete their report, which was granted.

The discussion of the reports was then taken up, and a motion was made and passed that the report of the Northern district be accepted.

The question rose as to whether or not we should be restricted to the varieties recommended. The chairman of the committee said the committee had adopted the rule to recommend no variety for a permanent list unless they had either fruited it or seen it fruited in their district.

The list was taken up in order, as follows:

SUMMER APPLES.

Red Astrachan, Duchess of Oldenburg, Tetofsky, Yellow Transparent.

Mr. Gallup thought the Yellow Transparent should be set down for further trial.

Mr. Brothers thought the list should not be restricted to the few mentioned varieties.

President Richardson said: "It is certainly not the purpose of the society to restrict, but rather to enlarge the field for the cultivation of varieties."

Mr. Ackerman thought we should select three or four of the best varieties to recommend to beginners. Let older fruit-growers experiment all they will, but when beginners look to this society for information as to what varieties it is safe to set, they should find that information reliable.

Mr. Wade said in explanation of his advocacy of the Yellow Transparent, that it had been stated that fruit could be raised at an altitude of seven thousand feet. This variety being hardy and the earliest to mature, would be a good one for such localities.

Mr. Gipson and others advocated retaining it on the permanent list.

On motion, the list as reported was adopted.

FALL APPLES.

Fameuse and Excelsior.

The merits of the Excelsior were discussed, and on motion, it was taken from the permanent list and placed on the list for further trial.

On motion the Wealthy was placed on the permanent list.

The report, as amended, was adopted.

WINTER APPLES.

Ben. Davis, American Golden Russet, Tallman Sweet and Pewaukee.

For trial—Walbridge, Wolf River and Gideon.

The Walbridge was taken from the trial list, and placed on the permanent list.

Mr. Brothers: Has any one fruited the Golden Russet?

Mr. McClelland had fruited it.

Mr Brothers had bought several trees for Golden Russet, but they had never fruited, though healthy and vigorous.

Mr. Newland considered it one of the best.

Mr. Ackerman set Golden Russet five years ago; nice, smooth, thrifty trees, but have not borne yet.

Mr. McClelland set his trees nine years ago. They did not bear until last year.

Mr. Bird thought we should be careful about recommending varieties not yet fully tried, and moved that it be

taken from the permanent list and placed upon the trial list.

Mr. McClelland moved, as an amendment, that we strike it from the list.

Mr. Watrous thought we should hesitate before rejecting a fruit known to be hardy and good.

The amendment and motion were lost.

Why should not the White Winter Pearmain be placed on the list?

Because it is not hardy.

President Richardson—Has any one tried the Mann apple?

Mr. Watrous—I have the tree. It is very hardy, but has not fruited yet.

The lists, as amended, were adopted.

CRABS.

Transcendent, Martha, Hyslop and Brier Sweet.

The list, as read, was adopted.

PEARS.

Flemish Beauty and Clapp's Favorite.

The list was adopted.

PLUMS.

Weaver, Forest Garden and DeSoto.

Moved that the Miner and Lombard be added to the list.

Lost.

The list, as read, was adopted.

CHERRIES.

Early Richmond.

Several members thought it bloomed so early as to endanger the fruit.

Moved that the Late Richmond be substituted for the Early.

Lost.

The Late Richmond was added to the list.

The list, as amended, was adopted.

STRAWBERRIES.

Crescent, Manchester, Jucunda, Wilson and Cumberland.

For trial—Jewell.

RASPBERRIES.

Red—Turner, Cuthbert and Schaffer.

For trial—Marlboro.

Adopted.

Black—Mammoth Cluster, Gregg and Souhegan.

Adopted.

BLACKBERRIES.

Wilson, Snyder and Kittatinny.

Adopted.

CURRANTS.

Red—Dutch, Fay's Prolific and Cherry.

Adopted.

GOOSEBERRIES.

Houghton and Downing.

For trial—Whitesmith and Industry.

Adopted.

GRAPES.

Black—Moore's Early, Worden and Concord.

Red—Delaware, Brighton, Massasoit and Salem.

White—Martha.

For trial—Martha.

Adopted.

A motion was passed that a committee of three be appointed to make out a list of other fruits to be recommended for trial.

Messrs. Watrous, Gallup and Gipson were appointed for that committee.

Adjourned until 9 o'clock a. m. the following day.

MORNING SESSION.

DECEMBER 9, 1885.

The meeting was called to order, by President Richardson, at 9 o'clock.

The minutes of the last session were read, and, after correction, approved.

The first item on the programme was the reports of district and county societies. J. S. McClelland reported from the Northern society, and L. B. Kennedy for the Delta County society. The secretary read a report from the secretary of the Pueblo County society.

The report from the Northern society, though very short, showed the society to be in good working order.

The report from Delta county was as follows:

A few persons who were interested in fruit-growing and agriculture were of the opinion that we ought to organize a Horticultural society, for the advancement of these interests.

The third of last April was the date appointed for holding the first meeting. But few attended. A constitution and by-laws were adopted, which were very similar to those of the State Horticultural Society. Officers, as follows, were elected:

President—Samuel Wade.

Vice President—L. C. Aley.

Secretary—H. B. Kennedy.

Treasurer—R. D. Blair.

At the next meeting, held in July, some very interesting papers were read and discussed, and although the attendance was small, no one felt discouraged.

The next meeting was held October 3, at ---------- on the North Fork. At this meeting all were invited to bring anything of interest to exhibit.

The exhibits were made in a tent adjoining a schoolhouse. The whole county turned out, and there was hardly standing room to be had inside the buildings.

The exhibit of fruit was so large and successful, that all who attended were very much surprised at the display made for such a new country.

Fruit of the finest varieties were exhibited, consisting of apples, crab-apples, early York, and seedling peaches, grapes, including the Concord, Rogers' Hybrid and Ives.

Squashes were to be seen that weighed 125 pounds, melons 50 pounds, potatoes, 4 and 5 pounds, besides many fine varieties of grain, etc.

After a sumptuous dinner, an interesting programme was carried out, and many items discussed.

Thus closed the last meeting of the Delta County Horticultural Society.

The interest aroused among the ranchmen, and the benefit derived from the meeting by all, doubly repaid for all effort put forth, and we predict a successful future for the Delta County Horticultural Society.

[Signed] S. WADE, *President*,

H. B. KENNEDY, *Secretary*.

The report from the Pueblo County Society showed that the society was in a somewhat demoralized condition. An effort will be made to revive the flagging interest in that county, and it is to be hoped that it will be successful.

A. E. Gipson presented his credentials as delegate from the Greeley Horticultural Society, and reported the organization of that society, with the following officers: President, Vice President, Secretary, Treasurer.

A. Wild read a paper on "Irrigation of Fruits," which called forth a lengthy discussion.

Mr. Faurot could not agree with the plan of covering the vines in part and leaving the laterals and tender shoots exposed to the cold of winter. They would surely be killed.

Mr. Tobias thought too much irrigation tended to draw the roots toward the surface.

Mr. Stewart thought more irrigation was given than necessary. The first few years may require more, but after

that, very little. He instanced the hill-side cultivation of grapes, where the soil was well drained.

Mr. Wade concurred with the last speaker, but thought the effect of water on loamy soil might be to throw the roots nearer the surface.

Mr. Brothers agreed that the quantity of water generally used was too much.

The experience of the secretary would seem to confirm the above, as his Concords, growing at the head of the irrigating ditches, where they generally get most water, are all weak and sickly.

The discussion digressed into irrigation in general, and the president called the members back to the question whether the free use of water caused the roots to grow nearer the surface.

Mr. Wild instanced his removing grape vines from land that had become very wet. He found the roots struck very deep.

Mr. Faurot thought the variety had something to do with it. The Concord grew naturally near the surface.

Professor Cassidy—The effect of moisture would not be to bring the roots nearer the surface.

President Richardson—This question applies to other fruits, besides grapes.

Professor Cassidy—Irrigation may, in some degree, control the roots, but cannot control the tops. Mulching does not keep fruit back.

Mr. Ackerman—I use very little water, indeed. Mulched trees two or three feet deep, and turned on large quantities of water in very cold weather, and those trees came out as early as those not mulched.

Mr. Washburn—Is not Mr. Ackerman's land under a large ditch, the seepage from which furnishes moisture to all the land below it?

Yes.

Mr. Millison—I have irrigated for thirty years, and find that where land is naturally dry, you must irrigate. My land is below a large ditch. Before the ditch was built, the land was dry for several feet below the surface. Now it is moist from the surface, and needs no irrigation. Land above the ditch will grow nothing without irrigation. Of twenty different varieties of trees set below the ditch, have lost only one.

A motion was made by Mr. Gallup, that a committee of three, with Professor Cassidy as their chairman, be appointed to write up the subject of irrigation, and report at this meeting.

Passed.

President Richardson—The essayist advocates running a small stream early in the season, and a large stream later in the season. Why?

Mr. Wild—The difference in time.

Mr. Watrous—Keep the ground moist until September 1, then turn off the water.

Mr. Washburn—What is Mr. Wild's soil?

Mr. Brothers—Agrees with the idea that the quantity of water to be used depends very much on the soil. Each locality must be known in order to determine the amount of water needed.

Mr. Ackerman—Five years ago the supply of water was scarce. The allowance was cut down to seventeen and one-half inches for thirty acres. Afterwards it was cut down to six inches. Had the best crop of wheat I ever had.

Question—Did you water the whole thirty acres with the six inches?

Answer—No; the part not irrigated was lighter than the rest, but the general average was very large.

Mr. Millison spoke of a drouth which occurred on land under a ditch taken from Bear creek. The supply was cut down similar to the case mentioned by Mr. Ackerman, and the result was a total failure; would not run water all the time on one side of trees, but change to the other side occasionally.

Mr. Faurot—Have fruit on land above the ditch; watered very lightly with force pump; never had a better crop; kept the ground well stirred up.

Mr. Gallup—We may learn a lesson in irrigation from California. Water is very scarce there, but the deficiency is made up by constant cultivation. Without either dew, fog, or rain, and very little water for irrigation, they raise enormous crops. Constant cultivation is what does it.

The chair announced the committee on irrigation as Prof. Cassidy, A. Gallup and S. Wade.

An invitation was extended by Mr. Gipson to all present to take a ride around the city.

On motion of Mr. Washburn the invitation was accepted.

J. J. Ackerman then read the following report of standing committee on pomology:

Your committee on pomology is somewhat at a loss to know just what they should report, as our discussion of last evening would cover a great deal of the ground. We might perhaps add this one fact, that through the work of the horticultural societies, and the circulating of their reports, the interest in fruit growing has been materially enhanced.

In regard to the fruit interests of southern and central Colorado, we can say but little, as our acquaintance is

entirely limited to the northern part of the State. We do certainly know that there has been more interest manifested in the three counties of Weld, Larimer and Boulder for the year past than ever before, more trees planted, and a better and more thorough cultivation than ever before.

Pomology, like all other questions, needs to be agitated to grow, and we know of no better place to increase the interest than to make them public through the agency of the State and County Horticultural Societies.

We are not prepared to give statistics of the fruit grown. Suffice it to say that the apple crop was almost nothing. Pear, plum and cherry, nothing. Grapes, one-third crop, owing to the late frost and wind. Blackberry and raspberry, full crop. Currant and gooseberry, a failure. Strawberry, unusually good, in quality and quantity.

Although we have had but little fruit, and especially apples and pears, we consider that it has been an absolute benefit, as the increased growth and vitality of the trees, through rest, has more than repaid for the loss of a crop.

You have very much embarrassed your committee by receiving the reports of district and county committees, and would recommend that hereafter the report of standing committees on pomology be the first in order of business after the opening address.

The report of the Central fruit committee was then read, as follows:

SUMMER APPLES.

Duchess of Oldenburg, Red Astrachan, Tetofsky and Yellow Transparent.

AUTUMN APPLES.

Wealthy, Fameuse and Autumn Strawberry.

For trial—Wolfe River and Jonathan.

WINTER APPLES.

Ben Davis, Tallman Sweet, Pewaukee, Walbridge, Lawver and Isham Sweet.

For trial—American Golden Russet, Mann, Missouri Pippin, Gideon, Rhode Island Greening and Alexander.

CRAB APPLES.

Whitney No. 20, Hyslop, Transcendent and Siberian.

PEARS.

Flemish Beauty.

For trial—Keiffer and Clapp's Favorite.

PLUMS.

Weaver, Forest Rose, De Soto and Forest Garden.

CHERRIES.

English Morrello and Early Richmond.

GRAPES.

Black—Concord, Hartford Prolific, Worden, Moore's Early, Champion and Jaynesville.

Red—Massasoit, Delaware, Brighton and Salem.

White—Martha and Chesselas de Fountainbleau.

For Trial—Empire State and Niagara.

BLACKBERRIES.

Wilson's Early.

For trial—Wilson, Jr., Early Harvest, Taylor's Prolific and Ancient Britton.

RASPBERRIES.

Black—Mammoth Cluster and Gregg.

For trial—Souhegan and Davidson's Thornless.

Red—Turner, Cuthbert, Reliance and Clark.

Yellow—Caroline.

STRAWBERRIES.

Crescent, Captain Jack, Wilson, Manchester and Jucunda.

For trial—Jewell, Jersey Queen, May King, Parry, Atlantic, Connecticut Queen and Mrs. Garfield.

A motion passed that we take up the list item by item.

SUMMER APPLES.

Duchess of Oldenburg, Red Astrachan, Tetofsky and Yellow Transparent.

The above list of summer apples was adopted.

FALL APPLES.

Wealthy, Fameuse and Autumn Strawberry.

For trial—Wolf River and Jonathan.

A discussion arose as to whether the Wolf River was a fall or winter apple.

Finally pronounced to be a late fall or early winter apple.

Mr. Gibson—The Wolf River was discussed at the meeting of the American Pomological Society, and was pronounced to be hardiest variety known.

The list of fall apples was adopted.

WINTER APPLES.

Ben Davis, Tallman Sweet, Pewaukee, Walbridge, Lawver and Isham Sweet.

For trial—American Golden Russet, Mann, Missouri Pippin, Gideon, Rhode Island Greening and Alexander.

The question arose as to whether anyone had tried the Rhode Island Greening.

Mr. Brothers had two trees which were full of fruit two years ago.

Mr. Wade—Has any one tried the Stark apple?

Mr. Brothers—Have two trees bought for Stark; a very nice apple, but is a fall apple with me.

Mr. Wild—Have it growing, but have not fruited it yet.

The list was adopted.

PEARS.

Flemish Beauty.

For trial—Keiffer, Clapp's Favorite.

The list was adopted.

PLUMS.

Weaver, and Forest Rose.

On motion, the De Soto and Forest Garden were added to the list, which was then adopted.

CHERRIES.

List adopted.

GRAPES.

Black list adopted.

Red list adopted.

White list adopted.

Has any one tried the Pocklington?

Mr. Faurot—Have it; think well of it, and also of the Lady grape.

BLACKBERRIES.

List adopted.

For trial—Wilson, Early Harvest, Taylor's Prolific and Ancient Britton were added. The Ancient Britton was highly spoken of at the meeting of the American Pomological Society.

Trial list was adopted.

RASPBERRIES.

Black—Mammoth Cluster, Gregg and Davidson's Thornless.

For trial—Souhegan.

The Davidson's Thornless was taken from the permanent list and placed on the trial list.

The list of Red and Yellow Raspberries were adopted.

STRAWBERRIES.

Crescent, Captain Jack, Wilson, Manchester and Jucunda.

For trial—Jewell and Jersey Queen.

A motion was adopted that the May King, Parry, Atlantic, Connecticut Queen and Mrs. Garfield, be added to the list for trial.

The list as amended was adopted.

A motion was adopted that the following apples be added to the list for trial: Very late Red Romanite, Cook's Yellow Crown, Winter Wine, Willow Twig.

AFTERNOON SESSION.

DECEMBER 9, 1885.

Reports of standing committees of floriculture, botany, entomology and vegetable culture called for.

Mr. Gallup reported the condition of floriculture, in a commercial view, as very prosperous.

Prof. Cassiday read a report of the experimental work of the Agricultural College, embracing the subjects of potatoes, insects, weeds, fruits and forestry, which may be found in the report of that institution.

Mr. Gipson—At the meeting of the Pomological Society, spraying with Paris green when in bloom, was recommended as a perfect protection from codling moth and caterpillar. To check too luxurient growth of trees, sow clover.

Mr. Brothers—On Wheat Ridge, orchards sown in clover suffer most from codling moth.

Judge Clark, of Greeley—Have seen it recommended at the East to sow clover and pasture to sheep.

Mr. Gipson then read the following report of the

Proceedings of the American Pomological Society.

As I had the honor of representing, at the above session, both the Colorado State and the Northern Colorado Horticultural societies, my report will be in the nature of a joint one here to-day.

The American Pomological Society was organized in 1848, and now embraces a large membership of distinguished pomologists.

The gathering at Grand Rapids was in all respects worthy the high standing of the society, and was held there on invitation of the Michigan State Horticultural Society. Many were present of national fame as experimenters, fruit growers and instructors in pomological work, and the meeting was, of course, of very great interest.

There was universal regret at the absence of the highly esteemed president, Marshall P. Wilder, of Boston, whose advanced years would hardly permit him to take so long a journey. He sent, however, an admirable address, and a fine collection of one hundred varieties of pears, of his own growing.

In the absence of Colonel Wilder, Patrick Barry, of New York, presided in a very acceptable manner.

Ample provision was made on the part of the good people of Michigan for the meeting, and the delegates were under especial obligations to Messrs. Garfield, Beale, Lyon and Scott, of the Michigan Society, for courtesies shown.

In this report I can only give the merest outline of the proceedings.

The first paper was by Professor Bessey, of Nebraska. Subject: "Injurious Fungi." These he treated as plant life, and divided them into three classes: Those which feed on

living tissues, those which feed only on dead matter, and a third class which attack both living and dead matter.

All these fungi require conditions favorable to their growth, the same as other plant life.

The puff-ball, mildew, blight, rusts, etc., were all fungus growth, and all belonged to this great family of plants.

As a general thing, the only effectual remedy for attacks of fungi is the prompt removal of the part attacked. The black not on the plum and cherry trees, blight on the limbs of fruit trees, mildew on trees and plants, may all be successfully treated by the prompt removal and burning of the parts affected. But sulphur is a remedy against fungi, when only the surface of the foliage or fruit is attacked.

Professor J. C. Arthur, of New York, in an interesting paper, related his experiments with pear blight. It will be seen that he entirely agrees with Professor Bussey in regard to the treatment for blight. I give the following summary of his conclusions:

In addition to the out-of-door observations, a very extended course of experiments in the house have been carried on. It is only necessary to refer to these in the present connection in order to mention the artificial cultivation of the germs of the blight. These have been grown in sterilized infusions of corn meal, hay, barnyard manure, green fruits, starch, etc. The important point is that they will live and thrive outside the tree in dead organic substances. These are the facts; they explain the phenomena of pear blight in this way: the disease is due to living germs; these germs can live and multiply indefinitely in any damp spot where there is decomposing vegetable matter. From such places they are raised into the air when dry, or carried up by moisture. From the air they lodge upon the trees, and when the conditions are favorable, pass into the tissues and cause the blight.

The conditions referred to are, in general: First—Very tender tissues, such as are found within the flowers and at the ends of expanding shoots in spring, and: Second—A moist atmosphere.

No varieties are entirely blight-proof, but the disease spreads so slowly in some, that they receive little injury, especially when not making too rapid growth.

The reason why the blight, when seen in July and later, does not pass directly from one limb to the other, or from one tree to another, is because, in the first place, the germs cannot escape, being confined by the bark, or else escape in a viscid exudation which holds them firmly together, and, in the second place, there are very few places on the tree at this time of the year where the surface tissues are sufficiently tender for them to find an entrance.

Does not all this suggest some thoughts regarding preventives and remedies? Do not force the trees into too rapid growth by heavy fertilizing or otherwise. Place no confidence in sulphur, lime-washes or applications of any sort. Promptly remove every trace of the disease a foot or more below the lowest spot where it shows, and burn the branches.

Professor A. J. Cook, of the Michigan Agricultural College, gave a very practical talk, with illustrations, on "Economic Entomology," in which he discussed injurious insects, and the best means of opposing them or avoiding their ravages. He had great faith in the birds as insect destroyers, and thought it a great mistake to slaughter these friends. A large number of insects were very formidable, because, as a rule, they had no bird foes in this country. Burning the leaves of strawberries, soon after fruiting, was highly commended as a remedy for leaf rollers. He could say that Paris green and London purple were a sure protection against codling moths, as well as canker, and other leaf-eating worms.

Apply with a force pump, use about a half-pound of either to each barrel of water, or one tablespoonful to a pail of water.

For cabbage worm, sprinkle plants with pyrethrum powder, one part to about five parts of flour.

The kerosene emulsion is also sure to kill the cabbage maggot, but it must be used early. For this emulsion, soap is better than milk. Prepare about as follows: To a gallon of water, add a quart of soft soap; heat until it boils, then add oil, as one to eight. Pyrethrum was recommended as an excellent insecticide.

In the discussion that followed, the remarks of Professor Cook, Professor Budd called attention to the value of white arsenic as a destroyer of insects that eat the foliage of trees

and plants. It is used as follows, or in about the following proportion: One pound to two hundred gallons of water. Boil the arsenic in a small quantity of water, then add the desired proportion of cold water. Thus prepared, it is entirely harmless to the foliage.

Tar water will drive away the cabbage worm and other insects.

Gas lime is also good, but it is a poison and should be used with care.

Commissioner Coleman would caution about the use of Paris green. Never inhale it.

Professor Cook said that the codling moth was never attracted by light. If this is true, it isn't worth while for us to hang up lanterns or build bonfires in the orchard.

Professor Lazenby, of Ohio, gave the result of his experiments in determining the influence of pollen on the different varieties of strawberries, or more properly on the fruits resulting therefrom. In 1884 he found the effect of the pollen very marked, but in his experiments this season he could detect little or no variation. Still he had no doubt of the important influence of pollen in many instances.

This view was supported by A. J. Fuller, Professor Budd, Dr. Heximer and others.

Professor Lazenby also reported his experiments in protection against frost. Three points were presented: First—The comparative temperature over mulched and bare grounds. Second—The use of smoke as a preventive of frost. Third—Effect of protecting belts of evergreens.

The paper by Professor Lazenby gave the result of a series of observations made at the Ohio Experiment Station. These results proved that the temperature over mulched ground was invariably lower than that over bare ground—a difference ranging from three to five degrees being frequently noted.

Observations extending over two years, gave precisely the same results.

The explanation was that the straw prevented the absorption of heat by day, and also checked its radiation during the night.

Another interesting observation was that a dense smoke in a green house has been found to be an efficient

means of protecting the plants in case of accident to the heating apparatus. But he has found smoke of little or no value in protecting the orchard and garden against frosts.

Mr. Scott, of Michigan, had met with the same results.

Mr. F. K. Phoenix, of Wisconsin, sent a suggestive communication on the same subject, which I submit:

I mention: *First*—Selection of at least forty sites, as on uplands or by ponds or streams, where fruit bloom is retarted or protected from sudden sunshine.

Second—Choice of varieties most hardy in bloom and set.

Third—Modes of management most favorable, as covering strawberries, grapes and blackberries every winter with earth, manure or mulch, keeping them covered late in spring as proves safe. To protect fruit bloom from late spring frosts should not seem far away; first, by covering low fruit plants with straw spread over strawberry, currant, gooseberry, etc. We have several times saved home gardens in that way, with trifling expense. I believe four or five ordinary loads of half refuse straw will cover a half acre, and aside from the hauling can be spread in an hour with the teamster and two boys. The straw, afterward for mulch, manure or compositing, is worth a large per cent. of the whole cost; second, by raising the surface temperature, and creating currents of air to prevent first settling. This can be done by burning brush, straw or other cheap fuel, by using chemical combustibles or explosives and by garden engine streams or sprays of steam and smoke arranged to distribute over a given area.

How much vibration from noises it would take to scare off the frost devil, I don't know, but noise in America is cheap. My suggestions are doubtless very crude, but if they serve to direct our splendid inventive genius in that direction, my purpose will have been achieved. I most profoundly believe in human mastery and control of earthly elements and conditions.

Give experimental science and society a tithe of the vast amount of money and time now wasted on dissipation, and we shall see the mightiest improvements, not only in horticulture, but in every other useful direction.

Valuable papers on "Fruits for the Northwest," were read by Mr. Gideon, of Minnesota, and Professor Budd, of

Iowa, in which the Russian varieties and those of Siberian origin, or antecedents, were strongly advocated. Both of these gentlemen are doing a great service to the country in the direction of bringing forward hardy fruits—the one in originating ironclads, and the other in the matter of Russian importations.

The same may be said of Mr. Charles Gib, of Quebec, who discussed in an intelligent manner the "Nomenclature of Russian Fruits."

Words of ten syllables are bad enough in our own language, but when we come to those from the vocabulary of the Czar, they are simply unpronouncable, and need reforming badly. Hence, an effort is to be made in this direction by the American Pomological Society.

T. V. Munson, of Texas, and G. W. Campbell, of Ohio, presented very valuable papers on "American Grapes."

The origin, characteristics and classification of different varieties were treated in a careful and exhaustive manner.

Parker Earle, of Illinois, gave a sensible speech on "Packing and Marketing Fruits," in which he very truly remarked that the proper packing of fruits had much to do with their price in market. He uses the quart box for strawberries, and advises that they be made 5x5 inches and 2½ inches deep. He uses pint boxes just half as deep for raspberries. Ships his berries often twelve hundred miles.

"Hard Problems in Pomology" was the subject of a paper by Professor Budd, in which (and the discussion that followed) irresponsible tree agents, and those who send out new fruits, lauded to the skies, without sufficient testing to know their merits, were sharply rapped over the knuckles. Experiment stations were advocated in the various States, where all new varieties should first be sent for trial before being offered to the public. This proposition met with much favor, and it is to be hoped that the plan may be carried out. About twenty of these stations are already established in Iowa. Colorado should follow the example.

Several other excellent papers were read during the session, among them one by Mr. C. A. Green of New York, in which he took the very seasonable ground that we may learn much in regard to the best means of improving and increasing the hardiness of our fruits, as well as treating

their disorders, by observing how those results are attained in the animal kingdom. Mr. Green thinks that our own native seedlings and their crosses will give the best success.

In the report of Mr. Lyon, of Michigan, on "Nomenclature," he took strong ground in favor of brevity in the names of our fruits.

The newer fruits, or those of more recent introduction, were quite fully discussed, and the following given very favorable mention:

Among the apples, the Yellow Transparrent was considered the hardiest and best of the very early apples.

Mr. Gideon, of Minnesota, places the Lou as the best early apple with him.

The Longfield, Excelsior, Wealthy and Gideon were well spoken of as later in the season.

Fay's Prolific headed the list among currants, and Industry among gooseberries.

Moore's Early, Worden, Brighton and Niagara were in most favor among the newer grapes, although Empire State, Ulster Prolific, Hayes, Vergennes and Victoria were highly spoken of.

The Marlboro' raspberry was conceded the most promising, notwithstanding its peculiar color.

The Jewell was the great favorite among the recent strawberry introductions.

Of the older sorts, the Crescent, Wilson, Manchester, Sharpless and Cumberland were preferred about in the order named.

The Whitney and Martha were pronounced the best of the crabs.

Much was said in the various discussions of the convention that would be of interest to fruit-growers everywhere, but which must necessarily be omitted, as this is only intended as a general summary of the proceedings.

It is safe to say that the gathering was one of the best in the history of the society, and there is little question that great good will result to the cause of pomology.

The secretary then read the following communication from Henry McAllister, vice president of El Paso county.

FRUIT IN EL PASO COUNTY.

The following statement shows the quantity of fruit of the several kinds grown in El Paso county during the year 1884:

Apples	328	bushels
Pears	39½	bushels
Currants	8,495	quarts
Gooseberries	4,296	quarts
Raspberries	3,230	quarts
Strawberries	8,410	quarts

The present year (1885) was very unfavorable for fruit-growing in this locality. The spring was unusually long and cold. Frequent frosts in May destroyed most of the early apple and pear blossoms, and largely lessened the crop of all small fruits. The greater acreage of fruit, however, in a measure made up the loss caused by the unfavorable spring weather.

The following is my estimate of the fruit product for the present year in this county:

Apples	300	bushels
Pears	50	bushels
Currants	8,000	quarts
Gooseberries	4,200	quarts
Raspberries	2,800	quarts
Strawberries	9,000	quarts
Blackberries	420	quarts

Our product, had the season been favorable, would have been fully fifty per cent. greater than it was.

Until recently El Paso county could not lay claim to being a fruit region. But within the past four or five years our people have given much attention to this industry, and we are now able to supply at least half of the local demand for small fruits, and within the next five years we will undoubtedly be independent of the outside world. The greater altitude of El Paso county of course precludes the growing of so large a variety of apples and pears as are successfully grown in Weld, Boulder and Jefferson counties, and along the Arkansas river. But there are at least twenty varieties of apples that will do as well here as in any local-

ity in the State, and all the small fruits named do remarkably well here.

As an illustration of this, I will remark that the writer has grown at the rate of 18,000 quarts of strawberries to the acre, and has picked 780 quarts of currants off of seventy-five bushes.

Our people are now taking great interest in fruit growing, and the future reports from this county will reflect the results of their efforts.

The report of the committee on

Vegetable Culture,

By John Tobias,

Was then read as follows:

The business of raising vegetables for market is rapidly changing hands.

Prices are getting so low that old hands at the business are getting out of it, or have made a specialty of some one or more articles, leaving the general market gardening to Italians mostly, who have come among us and seem to be able to work and live cheaper than those who have been in the business here for many years.

Cabbage lice were not as plentiful as in former years, the wet weather in the early part of the season holding them in check. The result is that more cabbage is raised than can be disposed of at a profit.

The potato crop has been almost a failure, some who have made a specialty of it losing heavily.

Blight is assigned as the reason of the failure. It is hoped that some reliable remedy will be found for the disease, as the crop is a very important one in this section.

Celery raising is rapidly on the increase around Denver. A good article always demands a fair price, but small and inferior is sold at a loss to the producer.

The marketing privileges of the gardeners of Denver have been very unsatisfactory. Having no suitable market house, they have been driven from one corner to another to suit the caprice of the city council, and made to pay a heavy tax for the privilege (?) of backing up to the sidewalk, and in danger of being run over by the first engine that comes along.

A movement is now on foot by the gardeners and fruit raisers to remedy the evil, by organizing and preparing to have a market house of their own. Hasten the day when it shall be accomplished.

Query—What was the cause af the tomato blight?

Professor Cassidy—Can give no cause.

Mr. Ackerman—Blight on tomatoes is the same as blight on potatoes.

The evening session was devoted to a meeting of the Northern Horticultural Society.

MORNING SESSION.

DECEMBER 10, 1885.

Mr. E. P. House read a paper entitled "Horticultural Melange."

The society then listened to the reading, by Mr. Gipson, of the report of the standing committee on forestry, by C. H. Parsons, chairman:

FORESTRY.

A report on forestry should embrace three subjects—tree planting, forest preservation and the work done under each of these heads. The subject of tree planting in Colorado will be presented to you by others, who are much better prepared than I am to give you the best and latest experience and information.

In this report I will confine myself to a statement of what has been done for Colorado forests for the past year, and suggestions for future action.

I shall also present letters and reports relative to forests and tree planting, which I have received from various parts of the State.

The State Horticultural Society is doing a great work for forestry, by encouraging the planting of trees throughout the State, and spreading a knowledge of the varieties that will succeed in our peculiar climate, but with this added to the culture of fruit and flowers, it has so large a field of usefulness, that it can scarcely be expected to take up also the subject of forest preservation.

For this reason it was thought best to organize a State Forestry Association, whose object would be more strictly confined to the cultivation of trees, and on the nineteenth of November, 1884, a number of men particularly interested in this subject, met together in the State House at Denver, and organized the Colorado State Forestry Association, with a constitution and by-laws, providing in a general way, as follows:

First—That its object be the preservation and cultivation of trees in this State.

Second—That the annual fee of membership shall be one dollar ($1), and the cost of life membership shall be ten dollars ($10).

Third—That an annual meeting shall be held on the second Tuesday of January in each year, at Denver, unless otherwise ordered.

Fourth—That, besides the regular officers of the association, the president shall appoint vice presidents from each county, whose principal duties shall be to call conventions and form associations in their counties, and report at each annual meeting.

Under this constitution the following officers were duly elected:

E. T. Ensign, of Colorado Springs, President.

W. E. Pabor, of Fruita, Secretary.

A. E. Gipson, of Greeley, Treasurer.

The board of managers, as elected, was composed as follows:

Messrs. Ensign, Pabor, Gipson, W. N. Byers, W. W. Pardee, Wm. Davis and W. D. Arnett.

The vice presidents appointed were:

G. G. Merrick, for Arapahoe county.

G. H. Parsons, for El Paso county.

James Cassidy, for Larimer county.

Ralph Meeker, for Weld county.

The meeting occupied two full days and evenings.

A number of interesting papers were read, but the principal business was the consideration of the forestry bill, drawn up by Mr. Ensign, which, with a few changes, was adopted and referred to the board of managers, to take

such measures as may seem best to secure its passage at the next Legislature.

The proceedings of this meeting, with the papers read, were published in a pamphlet and circulated freely. Any here who have no copies may obtain them by applying to me or to the secretary.

The first annual meeting of the association was held in Denver, January 13, 1885, at which papers of interest were read and a general discussion held upon tree culture and forest preservation in Colorado.

The forestry bill was again brought up for consideration. Some further changes were made, and it was referred to a special committee to watch its course through the Legislature.

A memorial to the Legislature in behalf of forestry was presented by the president and adopted. Considerable work was done for the bill in the Legislature by the committee and other members of the association. It was faithfully watched, and yet it very nearly failed to secure the requisite number of votes, so indifferent and ignorant were many members of the Legislature upon this great subject. But it was finally passed and became a law of the State on the fourth day of April, 1885.

In addition to the forestry bill, two other excellent acts were passed by the last Legislature at the instance of Senator Wells, of Douglas county, entitled: "An act to prevent the spreading of fires in this State, and providing for the punishment of wilful or negligent use thereof," and also "An act directing the erection of notices to extinguish camp fires."

The laws of Colorado relating to forest preservation are now as good, if not better, than those of any other State; but they are largely inoperative from the indifference of those whose duty it is to enforce them, and from the lack of funds to carry out their provisions.

You have, no doubt, all read the forestry bill and are acquainted with its wise provisions for the preservation of the woodlands of Colorado, and I will only refer to the part causing the appointment by the Governor of a Forest Commissioner for the State of Colorado, whose duties were defined as follows:

He shall have the care of all the woodlands, now owned or controlled, or which may hereafter be owned or controlled by the State.

He shall cause all such lands to be located and duly recorded, and shall make and publish reasonable rules and regulations for the prevention of trespass upon said lands; for the prevention and extinguishment of fire thereon, and for the conservation of forest growth.

He shall also, as far as possible, promote the gradual extension of the forest area, encourage the planting of trees, and preserve the sources of water supply; but nothing in this act shall be so construed as to permit any forest officer hereby constituted to interfere with the use of timber for domestic, mining or agricultural uses.

On or before the fifteenth day of December, in each year, he shall report to the Governor his official action during the preceding year, and such information as may be useful in preserving the forests of the State, and maintaining the supply of water.

On April 6, 1885, Edgar T. Ensign was duly appointed by the Governor and confirmed by the Senate, Forest Commissioner for the State of Colorado.

No fitter appointment could have been made, and he has done more than could have been expected, with no money for his expenses or work, for the Legislature, in a sudden fit of economy at the end of the session, refused to appropriate money for his use.

Mr. Ensign thus writes of the official work accomplished by him during the year:

"Appointment of a State Forest Commissioner was made April 6."

As incumbent of that office, my main efforts have been directed to the distribution of the Forestry Laws and by correspondence and otherwise promoting an interest in the preservation of our forests.

In June, last, copies of the enclosed pamphlet and circular were sent to all the county commissioners and road overseers in the State, and the pamphlets were also sent to citizens in different localities.

The law in regard to posting of notices requiring the extinguishing of camp fires, has been pretty generally complied with, and I think the county officials have been quite vigilant in seeking to prevent the outbreak of fires.

Although the past season has been a dry one, the number and extent of forest fires in the State have not been as great as usual.

The pamphlet referred to by Mr. Ensign is a compilation by himself of all the Colorado and United States laws relative to trees and forestry. Every one should have a copy, and those desiring can obtain one from Mr. Ensign.

Besides the pamphlet containing the report of its first meeting, the Forestry Association has sent out a printed circular requesting answers to a large number of questions, designed to cover all knowledge that could be obtained relative to forestry in different parts of the State. I hoped to be able to present to you in some form, the information obtained by this circular, but was unable to get it from the Secretary of the Forestry Association. It will, no doubt, be given in full at the next annual meeting of the Forestry Association, on the twelfth of January, 1886. It will be a great help if any one here, who has not yet answered the questions of this circular, would do so by obtaining a copy from Mr. Pabor.

All this—the organization of a State Forestry Association, the passage of a forestry bill and acts to prevent forest fires, the appointment of a forest commissioner, the publication and distribution of information on the subject of forestry—marks a great advance in the interests of forestry in this State, but it is only the beginning of the work. The best laws and the best organizations are of no avail without the interest of the people to support them.

Other States have had for many years the laws and organizations that we have, but the destruction of the forests goes steadily on. Forestry must be popularized; it must get to the hearts of the people before anything can readily be done.

The papers of the State must devote a part of their columns to forestry, and the schools and colleges must teach them, so that all the people may know the uses of the forest and its necessity to man.

Perhaps one of the best means to accomplish this much to be desired end is to encourage the more general observance of Arbor Day, which has excited so much interest, and caused the planting of so many trees in other States. It should be made more of a holiday, an attractive occasion for social enjoyment and improvement.

Teachers can easily interest their pupils in adorning the school grounds with trees, vines or shrubs.

Each individual may plant his memorial tree about his home, and arrangements may be made for planting public cemeteries and parks. The planting of memorial trees and groves has been very popular in some parts of the United States, various names being given to the groves, as: Citizens' Memorial Grove, Pioneers' Grove, Authors' Grove, Battle Grove, etc.

We can do more for trees through the children than by the best laws in the world. Their open minds and hearts are ever ready to receive new impressions, and can easily be taught a love for trees and a knowledge of their habits. The trees which they plant or which they assist in dedicating, become dearer to them as year after year rolls on, until in their old age, as they sit under the spreading branches, expanding with beauty, they will venerate these green and living memorials of youthful and happy days.

With such a people filling Colorado, the wanton destruction of a tree would be impossible, and the number planted every year would soon turn our desert-like prairies into beautiful parks.

Before ending this report, I desire to call your attention to the great need we have for experiment stations throughout the State. Tree culture in Colorado is still chiefly experimental, and a place in each region where the successful and profitable growing of a tree may be tested, would be of immense benefit. These stations may be maintained by each county at its own expense, but the best method is to have a State organization, the expenses of which are paid out of the State funds.

There should be a central station, with such a number of primary and secondary stations as may be needed.

These stations should be all under the general management of a director, who, besides the duties connected with the various experiment stations, should have under his charge the forests of the State, and give his full attention to the wants of Forestry in his State.

His annual report under these circumstances would be of great interest and benefit to all planters of trees, while the forests would receive more care than they could with any other plan.

If needed, these stations could become schools for the teaching of the Art of Forestry, as they have in Europe.

I am fully persuaded that nothing of a public nature is more important at the present time to Horticulture in Colorado than experiment stations, and I hope they may soon become an established fact.

In closing, I will call your attention to the annual meeting of the State Forestry Association at Denver, on the twelfth day of January next.

Further announcement will be made of the place of meeting.

I will now present the reports and letters received from various parts of the State, relative to Forestry.

It is a cause of much regret that more of these interesting reports have not been obtained. Over a dozen requests were sent to all parts of the State, to which only these few responses were received. I must say, I did not expect to find so much indifference on a subject of so much importance to the public welfare.

Forestry.

By D. S. Grimes.

There is perhaps no interest more essential to the future prosperity of the whole country, especially the Great West,

than that of forestry, and yet no interest of such magnitude and value creates in the minds of the business element of Colorado so little solicitude as that of our future timber supply. I am sorry to admit this seeming indifference on the part of our people, and especially those we look to for wholesome laws to foster and protect all our interests. The time has now fully come when we must, however unpleasant the case may be, look existing facts square in the face.

The heavy pine forests that but a few years ago covered the eastern slope of the Rocky Mountains, and from which we drew our lumber supplies, have almost disappeared, leaving behind no evidence of their former existence, except the deserted camping places of scores of sawmills, to mark the localities where timber once grew.

It is not our object in this brief article to attempt even to index the magnitude of the destruction and waste that have followed the track of the woodman and his ally, the fire brand, in divesting the mountains of their natural growth of timber.

The only remedy left us now, although it may seem a slow one to our fast-going, impatient nature, is to plant and cultivate trees as we do other crops.

Not only is this the case, but like the intelligent farmer, the question of the adaptation of soils, of climate, and profitable market demands for the varieties of trees planted, should receive a wise and careful consideration. Where is the comparison in value between ash and walnut lumber and cottonwood lumber? The cottonwood is the tree generally planted, notwithstanding the ash and walnut will grow just as easy, though not so fast in inches as the cottonwood, but very much faster in dollars.

The soft maple, which is now beginning to be extensively planted in some parts of the State, makes a rapid and healthy growth in our soil, if not large when transplanted.

The large transplanted maples are quite liable to sunscald on the south side of the trunk before the roots become established, and the sap starts in active circulation. Objections to this tree are sometimes made on account of its branches being easily broken during severe winds.

These objections, however, apply more directly to the East, where heavy winds and tornadoes occur during the season of full leaf.

In Colorado, tornadoes are unknown, and our strongest winds prevail at a season of the year in which the trees are leafless, and are not therefore liable to break.

As a rule, transplanted trees in Colorado get too much irrigation, and not enough cultivation.

Good cultivation is as necessary with trees as with corn or potatoes.

Trees also take on more rapid growth after midsummer than they do in early spring, while being irrigated with ice cold water from the melting snow on the mountains.

Evergreens—This class of trees is too much neglected everywhere, especially in this region of the country.

For ornaments, shelter belts, wind breaks and timber culture, they should receive a large share of our attention.

Pine lumber is used in lumber commerce more than any other, but nobody thinks of growing it.

The prevailing idea of its growth is erroneous, as regards many varieties.

For timber culture they should be planted close, and followed with good cultivation until the trees are large enough to shade the ground.

Coniferous trees make good "nurse" trees, when planted among deciduous trees.

Allow me to call your attention to the great value of our native conifer of the Rocky Mountains. Their perfect adaptation to our soil and climate, with rapidity of growth, make them very valuable in timber culture.

Of the twenty-one varieties of evergreens I have found growing on the Rocky Mountains, I will speak of only two or three of the most valuable for field culture and commercial wants.

The Abies Douglasii (Douglas Spruce) is the most valuable spruce for timber culture. It is rapid in growth, beautiful in form and color, and its wood valuable and durable. Its soft foliage and flexible branches enable it to resist safely heavy snows and strong winds.

The late Professor F. B. Hough, Chief of Forestry Division, United States Department of Agriculture, who visited Colorado a few years ago, says in his report:

Abies Douglasii is incomparably the finest of firs, surpassing them all in size, equaling the best in value as a timber tree, and is found to withstand the drouth better than most conifers, while it equals or surpasses most of them in growth.

Abies Mengiesii: Although this tree, better known as blue or silver spruce, makes a fair quality of lumber, and is of reasonably fast growth, its greatest value is in its remarkable beauty. This beauty of the Rockies is fast becoming extinct in the mountains. It is found in limited quantities growing in rich, moist soil, near a stream of water, at an altitude ranging from 7,500 to 9,000 feet. On account of its scarcity and rare beauty it should be extensively propagated from seeds.

Of the pine family we speak only of the two most valuable:

Pinus Pondurosa, heavy wooded pine: This is the most valuable tree for lumber found in the Rocky Mountains. It is a fast grower; wood, heavy and durable; leaves, three in a sheath, six to nine inches long. At an elevation of from 8,000 to 10,000 feet, large forests of it are found. In hardiness it is an iron-clad, and of easy propagation from seed. We find the best specimens growing on the dryest land.

Pinus Contorti—Twisted branch pine: Contrary to what the name seems to imply, this tree grows as straight and slim as an arrow. It is erroneously called white pine or pole pine. The branches are numerous, twisted, thickly covered with leaves two inches long and two in a sheath. The wood is white, light and strong. The first settlers in Colorado built their cabins and fenced their farms with this variety. It is a rapid grower and although growing tall, does not attain a large size. Its chief value is in its rapid growth, its value for fence poles, railroad ties, and telegraph poles.

The society then listened to the reading of the following paper:

Woods for Shelter.

By G. H. Parsons.

The experiences and researches of men have found that the influences of woods are very many, and, no doubt, much remains yet to be learned of the extent to which trees benefit the earth and its inhabitants.

Of all these influences, that of shelter may be considered the least important to the world in general, yet it has a special importance to Horticulture, greater than any other part of Forestry, and its effects being apparent in a few years, we are not called upon to do what many find so difficult—to look into the dim future for results, and spend money and labor for unborn generations.

It is not too much to say that the complete and full success of horticulture is dependent upon the sheltering influence of the forest. Especially is this true of the plains of Colorado, where the winds have a peculiarly devastating effect, on account of the great extent of open country upon which they find no obstruction to their onward sweep, and by certain characteristics of the atmosphere and its currents.

The south and east winds come to us more or less laden with moisture, and though chilly and disagreeable to man, are rather beneficial to vegetable life.

The north and west winds are the most injurious to plants, and that in ways not known to other countries.

The west wind being a part of the great current which flows across the Pacific ocean and tempers the climate of the whole western coast of North America, is always mild and warm. It is the same as the "Chinook wind" of Montana and Dakota, which has such a softening influence upon the climate there.

When it started on its inland voyage, it was burdened with fogs and moisture, which contributed to the extreme rainfall of Northern California and Oregon; but on account of the barren ranges and peaks of the mountains, it was forced to climb as it journeyed eastward, and the dry rarified air upon them wrung from it every drop of its

moisture, and it reaches us greedy for water. Its warmth, comparatively unnoticeable in summer, is most grateful to man in winter, especially when it comes with its soft and soothing effect to break up the fierce humor of the North. I have known the mercury to rise forty or fifty degrees of Fahrenheit in half an hour under its exhilerating power, and that during the evening of a very cold day. But although it brings such warmth and comfort to the human race, its extreme dryness renders it very injurious to vegetable life. Thirsty as a leech, it strikes into the unprotected trunks and branches of the trees and shrubs, and sucks out of them all their vital juices, and woe to that tree or shrub whose roots are not able to reinforce the vigor drawn from it.

In winter, the vegetable functions are not absolutely dormant, although the popular opinion has been otherwise. Some authorities have even gone so far as to declare that wood felled in the depth of winter is the heaviest and fullest of sap. In very cold, stormy weather, the tree may shut itself up in deep sleep, but the first warm rays of the sun will arouse all its activity. A single branch of a tree admitted to a warm room in winter, through an aperture in the window, opened its buds and developed its leaves, while the rest of the tree in the external air remained in its winter sleep.

All the maple sap used is gathered in the depth of winter.

In Colorado, the warm winter days excite the circulation of the sap and fill the plant with juices, whose moisture, following a law of vegetable life, is given forth in a greater or less degree, according to the absorptive power of the atmosphere. If more is drawn out by the dry west wind than the roots of the plant can supply from the soil around it, it is very evident that plant must die. It is this effect which makes the west wind, though soft and mild, most cruel and destructive to all vegetation.

The north wind is the same as those fiercely cold winds that, born in the polar regions, sweep over the unprotected prairies with terrible force, and are known by the various names of blizzards, norther and polar wave. It falls sud-

denly upon the doomed country, after bearing with it a blinding, benumbing, bewildering snow storm.

Its velocity and force is greater than that of any other wind, and as it rushes furiously on, driving before it everything insufficiently secured, it strikes its icy fangs into animal and vegetable life, too often to the very heart and root.

In Colorado, the north wind is not as bad as in many other States, but it is bad enough.

Its effect upon temperature is as great and sudden as that of the west wind, and I have known the mercury to fall, under its influence, from eighty degrees Fahrenheit at noon to zero at sunset.

It generally comes during pleasant weather, when the warm rays of the sun, shining with increased force through our rarified atmosphere, has excited to unwonted activity the vital functions of the plant.

Its icy breath suddenly penetrating to the heart of the trunk and stem, under these circumstances, freezes the juices there, and so checks the stream of life in the plant as to injure it severely or work its complete destruction.

Such winds are capable of doing great damage, and all life should be sheltered from them.

Although other means may be used, the forest is the shelter provided by nature, and must therefore be the best. This is a fact so universally accepted that it may seem scarcely necessary to give it more than passing attention, but nature is so infinite in its construction and working, that we can generally learn something from a close examination of its courses; and there are many interesting facts connected with the subject, which give it a more important nature than would at first be supposed. Besides, Forestry in all its branches is so important in this country that it can not be made too familiar. The influence of woods for shelter is two-fold in its nature—mechanical and organic.

The most important and noticeable is the mechanical influence as that of a fence, wall or hill, which presents a mechanical obstruction to the passage of air currents over the ground. This obstruction is afforded by the trunk, branches and foliage of the tree.

The organic influence is that of the living processes of the tree, by which it lowers or raises the temperature of the air around it, creating upward or downward currents in the atmosphere, and consequently a flow of air toward or from the forest.

Every one entering a forest notices the intense, almost painful stillness that reigns supreme.

The fluttering of a bird, the falling of a leaf, the breaking of a branch or twig at a distance, are distinctly audible, while the fall of a tree a mile or more away comes upon the ear like a crash of thunder.

A furious blast may be raging outside, but in the forest the air is perfectly quiescent, almost at its very margin, so quickly is the wind broken up and dispersed.

Especially is this true of forests of coniferous trees, whose foliage is so close and persistent that a greater obstruction is presented to the winds in both summer and winter.

The quiescent state of the atmosphere in the forest, as in the country, renders a low degree of cold much more endurable than in the slightest wind.

But, besides the apparent raising of the temperature by the stillness of the air in the forest, there is a real effect produced by the heat of the tree itself.

All living trees have a specific temperature of their own, an organic power of generating heat like that with which the warm-blooded animals are gifted. This has been shown by a number of experiments upon individual plants, and may be seen by the melting of ice in contact with the trunk of a tree.

It has been noticed that the evergreen leaves of conifers will be entirely free from hoar-frost, when the dead leaves hanging on deciduous trees, next to them, will be white with it.

The warmth of the forest is often noticed by engineers and firemen, employed on railroads running through forests of any considerable extent. They find that in very cold weather the steam is much more easily kept up, while the engine is passing through the woods, than in the open ground.

As soon as the engine emerges from the shelter of the trees, the steam gauge falls, and a liberal supply of fuel must be thrown on to bring it up again. A strong wind, with very rare exceptions, moves horizontally, and the effect of trees as a mechanical impediment, will evidently extend to a very cousiderable distance beyond their own height, and protect a larger surface than might, at first thought, be supposed.

On this fact G. P. Marsh writes:

The atmosphere, although movable in every part, is nevertheless held together as a continuous whole by the gravitation of its atoms and their consequent pressure upon each other, if not by attraction between them, and therefore an obstruction which mechanically impedes the movement of a given stratum of air will retard the passage of the strata above and below it.

"To this effect may often be added that of an ascending current from the forest itself, which must always exist when the atmosphere within the wood is warmer than the stratum of air above it, and must be of almost constant occurrence in the case of cold winds, from whatever quarter, because the still air in the frost is slow in taking up the temperature of the moving columns and currents around and above it.

In the valley of the Rhone, a simple hedge six and one-half feet high has been found to be sufficient protection for a distance of seventy feet.

Belts of trees planted at a distance of three hundred feet from each other have been found to afford ample protection against any wind. Besides the chilling and drying effect of winds upon vegetation, the local retarding of spring, and the increased frequency of late frosts, in many countries, may be ascribed to the admission of cold blasts to the surface by the felling of woods. There can be no doubt that the late frosts from which we suffer would be largely, if not entirely, prevented, by woods or belts of trees.

Evidences of the destruction and waste that have invariably followed the removal of the shelter provided by nature may be seen in all the countries of older civilization, and are recorded by many writers.

Spain, under the reign of the Moors, resembled a vast garden, yielding grain and fruit in every known variety, in the most perfect quality, and in endless abundance, and thickly populated by a highly cultivated people.

But the luxuriant growth of timber which covered the Sierras and mountain slopes, was destroyed under the rule of the kings, and now one-half of its territory is desert-like and unfit for cultivation, while the once delicious climate has become changeable and rough, with no forests to break the scorching or chilling power of the winds.

Sicily, once the great grain reservoir for the world, has been despoiled of its forests, and gradually lost its fertility and the mildness of its climate, and the ruins of proud and opulent Syracuse now lie in a desert, covered by sand which the hot sirocco carried over the sea from Africa.

Italy, once the home of a great and powerful nation, who covered its surface with gardens, parks and villas, and sent forth vast armies to subdue the world, is now little more than a ruin of its former grandeur.

The same may be said of Greece; and Palestine, the Promised Land of the time of Joshua, flowing with milk and honey, capable of producing the rich and numerous people ruled by Solomon, is now an arid and sterile land, yielding a scanty living to a miserable people.

Where, in Africa or Asia could now be supported the great peoples that formed the vast empire of Assyria, Persia and Egypt?

As early as the time of the emperors of Ancient Rome, the devastation following the destruction of woods was noticed. A writer upon these times says: "Under the reign of Augustus the forests which protected the Civeunes were felled or destroyed by fire, in mass. A vast country, before covered with impenetrable woods—powerful obstacles to the movement and even to the formation of hurricanes—was suddenly denuded, swept bare, stripped; and soon after a scourge, hitherto unknown, struck terror over the land, from Avignon to Marseilles, and then extended its ravages—diminished, indeed, by a long carcer, which had partially exhausted its force—over the whole maritime frontier. The people thought this a curse sent of God. They raised altars to it, and offered sacrifices to appease its rage."

Coming down to late times, we find it stated that in consequence of the felling of the woods on the Appenines, the harvest and vineyards along the right bank of the river Po are much injured, the grain and grapes being swept off by the blasts of the south winds, while in some districts, where formerly straw roofs resisted the force of the winds, tiles are now hardly sufficient, and in others, where tiles answered for roofs, large slabs of stone are now ineffectual.

To supply the extraordinary demand for Italian iron, occasioned by the exclusion of English iron in the time of Napoleon I., the furnaces of the valley of Bergamo were stimulated to great activity, and the demand for charcoal greatly increased. To supply this demand the woods were felled and the copses cut below their time.

At Piazzatore there was such a devastation of woods on this account, and consequently such an increased severity of climate, that corn no longer ripened.

This continued until an association, formed for the purpose, effected the restoration of the forest, and now corn flourishes again.

In many parts of France and Italy the cultivation of the olive and orange was abandoned sixty years ago, where it was advantageously pursued before.

Since the cutting of the woods of the Appenines, the district of Mugello has lost all its mulberries, except the few that are found in the lee of buildings, a protection like that once furnished by the forests.

Fifty years ago the forests surrounding the town of Düben, in the Prussian province of Saxony, had been recklessly cleared, and the sand-banks which lay at the northeast began at once to move. Long tracts of corn land were converted into a sandy waste, and even the gardens under the walls of the town were affected.

Vegetables became scarce, pasture for cattle rare, and the most serious results were feared.

But woods of acacia, pine and birch were planted, and now every year the citizens turn out with music and banners, into the woods, and celebrate with great jubilation the salvation of their town.

The planting of forests in the country around Antwerp has greatly ameliorated the climate, and barren sands have been transformed, under their protection, into fertile fields. The felling of the woods on the Atlantic coast of Jutland has exposed the soil not only to drifting sands, but to sharp sea winds, that have exerted a sensibly deteriorating effect on the climate of that peninsula, which has no mountains to serve as a barrier to the force of the winds. Within a period of thirty years, Bucharia was one of the most fertile regions of Central Asia, well wooded and watered.

But a mania seized upon the inhabitants, and all the great forests were cut away. The consequences were not long in following, and the country is now a kind of arid desert, with the water courses dried up and the irrigating canals empty. The moving sands of the desert, being no longer restrained by barriers of forests, are every day gaining upon the land, and will finish by transforming it into a desert as desolate as the solitude that separates it from Khiva.

Professor Sargent, of Harvard University, thus writes of Massachusetts:

As moderators of the extremes of heat and cold, the benefits derived from extensive forests are undoubted, and that our climate is gradually changing through their destruction is apparent to the most casual observer. Our springs are later, our summers are drier and every year becoming more so; our autumns are carried forward into winter; while our winter climate is subject to far greater changes of temperature than formerly.

The total average of snow-fall is perhaps as great as ever, but it is certainly less regular and covers the ground for a shorter period than formerly.

Twenty years ago peaches were a profitable crop in Massachusetts; now we must depend on New Jersey and Delaware for our supply; and our apples and other orchard fruits now come from beyond the limits of New England.

The failure of these and other crops in the older States is generally ascribed to the exhaustion of the soil; but with greater reason it can be referred to the destruction of the forests, which sheltered us from the cold winds of the

north and west, and which, keeping the soil under their shade cool in summer and warm in winter, acted at once as material barriers and reservoirs of moisture.

The orange tree, which flourishes so well in Florida and around New Orleans, will not grow in Texas at the same altitude, because of the fierce northers that sweep over the plains, without interruption, from the northern borders of the United States.

These are a few of the numerous evidences of the need of woods for shelter. But man is benefited by the leafy screen of trees in a more direct way than these examples show. His comfort and health may be greatly increased by the checking of the fierce cold winds, by the prevention of sudden changes in the temperature, and by the general softening of the climate.

Still, this is not all.

Woods and belts of trees prevent the spread of disease by the mechanical interposition of a screen to check its course and eliminate the germs of disease from the atmosphere through absorption by the leaves.

Becquerel says: "Humid air, charged with miasmata, is deprived of them in passing through the forest."

In some localities in Italy the interposition of a screen of leaves preserved everything beyond it, while the unprotected grounds were subject to fevers.

Rows of trees are planted with good success, as a protection against malarious influences, and especially against the noxious exhalations from marshes and other sources of disease. It is stated that in India the villages of the natives and the encampments of European troops situated in the midst or in the neighborhood of groves and forests, are exempt from cholera.

Similar observations were also made in Germany in 1854, when that terrible disease was raging there.

The most remarkable effect of trees upon health is the change which has followed the planting of the Roman Campagna, whose poisonous breath for many years brought sickness and death to the very heart of Rome itself.

Such are the beneficial effects to be obtained from the sheltering influences of the woods, and being as they are, it is indeed a wonder that the beginning of every farm, orchard or garden is not a belt of trees.

Compared to the small outlay required, the gains are incalculable, and the small number of farmers and horticulturists, who have availed themselves of this truth, may be my excuse for having occupied so much of your time.

Every field prepared for irrigation should have a belt of trees around it; all the irrigating ditches, streams and watercourses should be lined with trees, and every spot unoccupied for other purposes, should have its trees.

If this is faithfully done in this region, the results may be easily prophesied. The rigors of the climate and its sudden extremes will be softened; the devastating winds will lose half their terrible power and all their evil influence; the late frosts will no longer kill the fruit buds, nor blast the early crops; the soil, no more swept by the dry and thirsty winds, will require less irrigation, and will yield richer returns than ever before; the land will be changed from the barren desert-like prairie, stretching in boundless expanse, to fields of waving grain, orchards, gardens and parks, where in sight of the grand old mountains and in a purer, healthier atmosphere, man may enjoy to the utmost the pleasures of existence. With such a picture before our mental vision, well may we exclaim with the poet:

> Welcome, ye shades! Ye bowery thickets, hail!
> Ye lofty pines! Ye venerable oaks!
> Ye ashes wild! Resounding o'er the steep!
> Delicious is your shelter to the soul!

Mr. Gipson—I would recommend white ash for planting. It is of great value for timber, fuel, shade, and other purposes. Its firmness, toughness, and rapidity of growth are all in its favor. They may be set four by four, or two by four, with a view of thinning out. The cottonwood is a good tree, after all that may be said against it, and should not be ignored for planting on our plains.

Attention was called to the manner of cultivating tree claims, and the usual methods condemned.

The Catalpa speciosa, though not succeeding in the northern part of the State, is recommended highly for localities where it will succeed.

White elm, black locust and butternut were recommended.

Russian mulberry was not recommended.

Box elder was declared to be of little value.

Linden promises well.

Soft maple, branches long and easily broken.

Norway maple, from present appearances, is one of the most valuable trees for Colorado.

Further experience may not confirm this impression yet the confidence in it is such that it is recommended to all setting trees.

It is a sugar producing tree.

Wild cherry is recommended.

Black walnut has killed generally here, but in localities where it will grow it is a valuable tree.

Mr. Wade—For my section, Delta county, I would recommend the Russian mulberry and black walnut, also the elm and African tamarack.

Mr. Gipson thought the Russian mulberry might have value in a hedge, but did not think it would ever be valuable as a timber tree.

Mr. Washburn—How shall we propagate and cultivate the butternut?

Mr. Gallup—I would recommend planting it in boxes and setting out in rows in spring, or in beds, and at one or two years transplant.

Mr. Wade—Has the black locust been a success?

Mr. Washburn—I have set them; they killed down every year for five years; since then they have grown to a height of thirty-five or forty feet. No signs of the borer.

Report of the committee on irrigation deferred till the January meeting.

Mr. Gallup, of the committee on list of fruits especially recommended for trial, read the following:

Your committee on list of fruits especially recommended for trial, beg to submit the following:

Apples—Fink, McMahon White, Mann, Salome, McIntosh Red, Plumb's Cider, Isham Sweet, Red Beitigheimer, Breskovka, Scott's Winter, Hibernal, Russian Transparent, Lou, Gideon, Excelsior, Longfield, October Yellow, Red Anis, Fall Stripe, Moscow Pear, Haas, Borsdorf, Switzer, Antonooka, Alexander, Fall Spitzenburg, Charlamoff, Charlottenthale, Pepka Sweet, Sops of Wine and White Astrachan.

Crab Apples—Quaker Beauty, Acubafolia, Shields, General Grant, Florence, Minnesota, Sweet Russet, Telfer Sweet, Lake Winter, White Arctic, January, Cherry Crab, Isham, Brier Sweet, September and Paul's Imperial.

Grapes—Vergennes, Wyoming Red, Lindley, Poughkeepsie Red, Ulster Prolific, Jessica, Niagara, Moore's Early and Empire State.

Pears—Longworth, Indian Queen, Seckel, Sheldon, Osborne's Summer and Clapp's Favorite.

Plums—Mooer's Arctic, Rollingstone, Minnesota varieties, together with our best native varieties.

Cherries—Rocky Mountain Dwarf or Sand, Large Montmorenci and Ostheim (New Minnesota.)

Apricots—Russian.

Olive—Russian.

Raspberries—Marlboro, Rancocas, Hansell, Reliance, Caroline and Souhegan.

Strawberries—Jewell, Parry, May King, Cornelia, Mrs. Garfield, Henderson, Belmont, Lida and Bubachs.

Currants—Fay's Prolific and Victoria.

Gooseberries—Industry (New Red) White Smith and Crown Bob.

Mulberry—Common Black and Downing's Everbearing.

Commenting on the list, Mr. Ackerman said:

I have had Plumb's Cider ten years; hardy A No. 1; about the size of Ben Davis, longer; prolific; bears every other year.

Autumn Stripe—Fall apple; good.

Fall Spitzenberg—Not very hardy.

Sops of Wine—Summer variety; very hardy; fairly prolific.

Crab, Minnesota—Unusually hardy; fruit very large for a crab; something like Transcendent in flavor.

PEARS.

Osborne's Summer—Perfectly hardy.

A motion was adopted that a committee of three be appointed to report at our January meeting concerning the best varieties of trees for timber claims and forests, and the best methods of raising the trees.

A. Gallup, A. E. Gipson and G. H. Parsons were appointed as that committee.

On motion, Messrs. Wade and Kennedy were appointed to prepare a report for the Western Fruit district.

AFTERNOON SESSION.

GREELEY, December 10, 1885.

The meeting was called to order by Vice President Bird. In the absence of the secretary, Mr. Gallup was called to act as secretary *pro tem.*

The unfinished part of the programme was called for, but as the members who were appointed had left, it was omitted.

Mr. Gipson spoke at some length on the subject of the relationship existing between the State and Northern societies, deploring the differences.

Mr. Washburn and Mr. Bird spoke also on this subject, and thought that at the January meeting of the State Society in Denver, all these might be adjusted.

The matter of canning fruits and establishment of canning factories in Colorado was discussed, and it was considered a question of importance that such enterprise should be encouraged, in order to use up the surplus production of the horticulturists.

Mr. Gipson spoke on the subject of school ground ornamentation, also on the importance of giving more attention to Arbor Day, and on legislation regarding the establishment of experimental stations in various parts of the State for the benefit and encouragement of horticulture.

A motion was adopted that Mr. Gipson prepare a paper, on the above subject, to be read before the State Society in Denver, at its January meeting.

The following resolution was then passed:

Resolved, That the thanks of the Colorado State Horticultural Society and the Northern Horticultural Society are hereby tendered to the honorable commissioners of Weld county, for the use of the court house for our joint session, and to Mr. M. A. Lyon, for his services in heating and lighting the building during the session.

Adjourned, *sine die.*

PROCEEDINGS

OF THE

Sixth Annual Meeting.

The society convened for its annual meeting at the Court House in Denver on January 14, 1885.

The President being absent, the meeting was called to order at 10 o'clock a. m., by the Vice President, F. E. Bird.

The first business in order was the report by the secretary of the transactions of the society for 1885, as follows:

The transactions of the society during the past year are mostly recorded in the published report.

The proceedings of the meeting at Greeley in December will be published in our next report, and hence it is unnecessary to review them here.

Suffice it to say, that the Greeley meeting was one of the most profitable ever held by this society.

Fruit lists for the northern and central districts were perfected, which cannot fail to be of vast benefit to those who will set fruit hereafter, if they will avail themselves of them.

The interest in Fruit Culture and Forestry has greatly increased.

Large orchards are being set where formerly a few trees only were tried.

Timber culture is receiving more attention, and many are looking to this society for instruction as to varieties and methods, and we should be prompt to respond to this call. The refusal to pay the appropriation made by the Legislature, has hampered the society very much, yet we have gone on, faithfully performing our part of the contract, and the State is now in a position of one who employs a man to do a certain work, and when that work is done, refuses to pay for it. Not an enviable position, surely, for the great State of Colorado to stand in.

The field for labor is growing wider every year. New demands are made on this society for information, which is our duty to furnish, hampered, as we are in our work. We can in the future, as we have in the past, continue to let our light shine and show the way, to the extent of our means, and await the time when a more enlightened policy will be inaugurated among those whose duty it is foster the best interests of the State.

A new and very promising field is opening in the western counties.

The climate appears to be better adapted to varieties not sufficiently hardy for the eastern slope.

At present the greatest interest centers in the Northern Central and Western districts.

The Southern district from want of organization, is not making as rapid progress as we could wish, yet individual effort is being put forth, and organized effort will follow.

Secretary's Financial Report.

RECEIPTS.

On hand from last report	$ 3 70
Received from memberships	32 00
Rec'd from treasurer on appropriations	14 55
Total	$50 25

DISBURSEMENTS.

Itemized bill, audited Aug. 21, 1885	$30 25
Itemized bill, audited Jan. 14, 1886	16 25
Total	$46 50
Balance in hands of secretary	$ 3 75

J. M. CLARK, *Secretary.*

On motion, the report was accepted.

The report of the treasurer was then read, as follows:

Treasurer's report of the Colorado State Horticural Society from January 8, 1885, to January 14, 1886:

RECEIPTS.

January 8, 1885, balance on hand at last report	$128 85
March 3, 1886, received of secretary	20 00
Total	$148 85

DISBURSEMENTS.

Paid on orders from January 8, 1885, to January 14, 1886.

February 3, 1885	$ 10 00
February 3, 1885	2 00
March 3, 1885	20 00
April 24, 1885	2 50
April 27, 1885	7 50
April 27, 1885	50 00
August 21, 1885	14 55
November 20, 1885	25 00
January 5, 1886	14 50
Total	$145 80
Less receipts	148 85
January 14, 1886, balance on hand	$ 3 05

WILLIAM DAVIS, *Treasurer.*

On motion the report was accepted.

The annual address of President Richardson was, in his absence, read by the secretary as follows:

Fruit Interests in Colorado.

Skepticism is one of the impediments to the success of all good causes. Unbelief, or lack of confidence, blocks the wheels of progress in almost every untried and unproven enterprise, delaying the attainment of ultimate success for many years.

When this Pike's Peak country was first settled, it was pre-empted for gold, and for nothing else. No one conceived of the possibility of even this western edge of the Great American Desert ever being even dotted by ripening fields of grain and vegetables. Land had no value, only as it produced mineral or furnished a place for the squatter's cabin.

For five years land adjacent to the town site of Denver remained without a pre-emptor, and as late as 1866 the writer's friends thought him presumptuous for paying $1.25 an acre for his present home, on the edge of the city limits.

People of every vocation came here, not to follow their vocation, but in response to the fabulous stories of the abundance of gold.

Fortunately for the whole country all did not realize upon their high-wrought fancy of ingathered bags of yellow dust, and must needs go back in chagrin or do something else here, and he who had followed farming naturally returned to his old vocation.

Thus, the development of agriculture was begun, in human necessity spurring the pioneer to try in spite of his unbelief. From thence faith grew with experience, until the agricultural resources of the State are a surprise to all.

Horticulture did not meet with unvarying success.

Those who were versed in the business East, soon found that it had to be learned as a science peculiar to our own altitude and climate.

Erroneous ideas, especially as to varieties and irrigation, brought failure to most of the earlier fruit gardens and

orchards, and put back the fruit interests of the State for a decade.

The first planters of trees, having done it at large expense, and meeting with so signal a failure, became so skeptical that, as a rule, they have never tried again, or until recently at least.

The organization of the State Horticultural Society in 1880, dates a new era in the history of this great industry.

Notwithstanding the general prevalence of unbelief concerning the ultimate success of vine and tree fruit growing in the State, there were a few faithful ones who, believing that the gathering together of isolated facts, and the comparison of individual experiments, would save years of time and thousands of money to the whole State, and for this purpose organized this society.

And though the contributors to the society have not been so large as should have been, it has accomplished an immense amount of valuable work, collating and disseminating a fund of information through its annual reports that is already resulting in great good to the whole State.

The organization of auxiliary societies, representing the counties of Larimer, Boulder and Weld in the north, Delta and Mesa in the west, and Pueblo and El Paso in the south, indicate that the interest is spreading and growing, and as Professor Cassidy, of the State Agricultural College, expressed to your President recently, that he was convinced that Colorado would exceed Iowa as a fruit growing State.

So unbelief is being dissipated, faith is growing stronger and fruit planting in this Siate is having a boom, there being more trees planted in 1885–6 in Colorado than during all the years of its past.

One thing that merits mention in conjunction with the work of this society, was the large and fine display of fruit gathered and exhibited by the energy and under the supervision of our former President, Dr. Alex. Shaw, at our own State Exposition and at New Orleans. These exhibits did great honor to the State, and made an impression of cheeriness and homelikeness concerning possible homes in our genial and healthful climate, that will attract hundreds of families here to stay, that otherwise would have stayed away.

The opening and rapid settlement of the Ute reservation is another feature of promise to the horticultural interests of the State.

Mesa, Delta and Montrose, and perhaps other counties, seem to possess a climate, at least in localities, adapted to the cultivation of much more tender varieties than most of the fruit-growing counties of the State, and being already settled by many enterprising horticulturists, promise if possible, to lead in this great industry.

In closing this address, allow me to make some suggestions and recommendations:

It is a matter of great regret that, at this stage of the society's history, just as we were getting in good shape to do a grander work than before, our annual appropriation should be cut off, so that some of my suggestions must be inoperative, for the present at least; otherwise, I would have recommended:

First—The continuance of the custom inaugurated this year, of holding at least one meeting of the society each year outside of Arapahoe county, and as soon as practicable, to hold one within the bounds of the Ute Reservation country.

Second—I would recommend the reorganization of our society, in such a way as to remove any existing constitutional impediment to an annual appropriation for the aid of our work.

Third—I would recommend the memorializing of our next Legislature to establish at least three experimental stations pertaining to agriculture, horticulture and forestry; one, at least, north and one south of the divide, and one west of the range.

Fourth—I would recommend a more general dissemination of horticultural information, and especially the sending of some of our live, practical, well informed men into such sections as may request their services to organize and hold institutes and give lectures on subjects pertaining to our work.

Thanking the members of the State Horticultural Society for their universal decorum and co-operation with their president during the past year, I retire from the honor of this office.

A motion was made and passed that a committee of one be appointed to wait upon our attorney, Mr. Osborn, and request his attendance at the afternoon session, for the purpose of explaining the present state respecting our appropriation.

Mr. Nelson Millett was appointed as such committee.

Adjourned.

AFTERNOON SESSION.

The meeting was called to order by Vice President A. E. Gipson.

Mr. Osborn, attorney for the Horticultural Society, being present, was called upon to report the decision of the Supreme Court concerning the State appropriation for the society.

He said the decision was rendered on a point which was not argued at the time of the hearing. The decision, so far as the points brought up at the hearing went, was in favor of the society, and declared the law to be constitutional. As the society had had no opportunity of being heard on the point on which the decision was rendered, he should endeavor to obtain a rehearing.

The secretary then read the fruit list for the Central district, adopted at Greeley.

Mr. DeVinney attacked the list, especially the crabs, denouncing the whole family as unsafe to recommend for planting.

Mr. Nelson Millett defended the Whitney No. 20.

Mr. D. S. Grimes also defended it with the Transcendent and Hyslop.

The main fault of the Transcendent is its early bloom, rendering it liable to be caught by late frost. He recommended mulching to keep them back.

Mr. Millison contended that mulching did not hold the bloom back. His own experience shows that mulching had no power to retard the blooming.

The weight of testimony was against mulching as a prevention of early bloom.

Mr. Everett never mulched or blanketed his trees, and he had the first apples ever raised here, and lots of them.

William Davis mulched part of his trees with fine straw while the ground was frozen. They blossomed as early as those not mulched.

Mr. Stranger—Eight years ago I brought from Mr. Everett's place a limb of an apple tree so heavily laden with fruit that it attracted a great deal of attention and wonder, and many declared that such a limb of fruit was never produced in Colorado.

In the absence of any report from the standing committee on irrigation, the following paper on the subject was read:

Irrigation in Horticulture,

By Prof. Cassidy.

The science and practice of irrigation have been appreciated in all ages of the world's history, by people possessing the most varied climates, and of every grade of civilization, the remains of whose work in Oriental countries proves him to have had no small knowledge of hydraulic science and engineering devices.

The profitable application of water to land may be said to be almost a science, requiring sound judgment, with experience and keen observation to insure success, and which practice alone can give, combined with a reasonable knowledge of the needs and nature of the plants grown, as well as at least a physical knowledge of the soils with which we have to deal. For in many soils the presence of a hardpan, whether it occurs there naturally or is induced by the slide of plow and tramp of the horses by continual plowing at the depth, must ever be a serious drawback to successful plant growth wherever it occurs.

There are different kinds of hardpan, and whenever the roots of plants strike and cannot penetrate them, they deflect and proceed in a horizontal direction, and hence suffer because not below the frost line, and within reach of permanent moisture.

If such a deep rooting subject as alfalfa plant should fail on the unirrigated plains, it seems to me it will largely be due to the presence of a hardpan, preventing the roots reaching a permanent moisture.

Much conflict of opinion and experiences seems to exist among horticulturists in regard to the amount and frequency of irrigation needed in the culture of the larger fruits; such differences are due, no doubt, to a lack on the part of some, or of perhaps all, in not taking into consideration all of the attending circumstances, such as the character of the soil and subsoil, the amount of moisture in the latter, which will hinge upon its contiguity to irrigating ditches or springs, to some extent on its elevation and the amount of irrigated land in its neighborhood.

To justly recognize cause and effect, enables us to correctly interpret the teachings of nature, and this requires a most careful consideration of all the attending circumstances in relation to each other.

In open, sandy soils, the water rises rapidly from below, but only to a moderate height; and are improved for horticultural purposes by having a more dense subsoil, that will draw up water from greater depths than if the whole depth of the soil were of the same open, sandy character; with soils composed of very finely comminuted particles, the rise of moisture from below is comparatively slow, taking quite a long time in reaching its highest point, which is

several times higher than those of more open character; these soils are compact, and when poorly tilled, exhibit gaping cracks after irrigation, if not thoroughly cultivated. A well tilled soil maintains both a quicker supply of moisture from below and slower surface evaporation, therefore insuring a more steady supply of moisture throughout the growing season.

Water exerts a beneficial influence upon the soil and upon vegetation, in that it supplies moisture, by which vegetation, and that by conveying and mingling such an amount of oxygen with the soil as could not get there as air, and which is requisite to form the nitrates and carbonic acid, and thus aid in dissolving the food elements of the soil for the growth of plants.

While the water and the air it contains are all potent in the growth of plants, and by its aid we are enabled to obtain a liberal plant growth on the poorest soils, yet for the purpose of intensified horticulture, seen in the growth of leaf plants, it has its limits; fertilizers on upland soils especially, are now indispensable to the horticulturist in dealing with the plants of our times, whose improved character can only be maintained in their greatest perfection by inexorably high culture.

The quantity and frequency of irrigation for the produce of a full crop of any horticultural product, will depend upon a variety of considerations, and chief among them is the affinity of the plant itself for water, combined with a knowledge of the area and depth of soil upon which it feeds.

The cultivator must observe whether the plants he wishes to grow are shallow or deep rooted, whether the roots break up into a mass of fibers near the surface, or partake of the nature of a thickened underground stem, extending several feet in length, with but few fibers, as alfalfa.

The roots of the strawberry have been traced to a depth of three feet, extending nearly vertically under the plant; the horizontal or fibrous roots cover an area scarcely exceeding that of the leaves, and from this we infer that close and deep cultivation cannot injuriously affect the roots.

The roots of the grape have been found at a depth of eleven feet. They will, during the season of greatest activity, go down to the sources of permanent moisture. The rooting habit of the tomato and some other plants is the opposite of this.

It possesses a multiplicity of fibrous roots, which cover and feed upon an area quite five feet in diameter, and within twelve inches of the surface; its tap root, however, we have traced to depths of nearly three feet. Vegetation should be encouraged to root downward for its permanent moisture.

The chemical elements of fertility may exist in the soil in sufficient quantity; yet heat, light and air are the prime essential stimulating forces of plant growth, to which moisture is a contributing factor, and which we, in this climate, are privileged to apply or withhold at will; to apply is the work of irrigation; to conserve is the province of cultivation.

The agriculturist is, however, more the slave of circumstances than is the gardener, for the latter can, by modification of treatment, keep his plants in a growing condition, and thus prevent their flowering at an improper time; indeed, a prime object of culture is to stimulate the vegetative function, and thus keep in check the fruiting organs and delay the period of bloom.

Surface irrigation, whether practiced out of doors or in the plant house, cannot be too strongly condemned, as it unquestionably induces surface rooting, and this is not a desirable result in any climate. That plants of a permanent character may be able to withstand the vicissitudes of our climate, their feeding roots should be well below the surface, and this result can be accomplished only by thorough and deep loosening of the soil, so that when irrigation is had recourse to, it may be thorough; occasional sprinklings not being nearly so beneficial as an occasional saturation.

Surface waterings, besides promoting surface rooting, induces a continuous evaporation and refrigeration of the soil, the latter acting as a wick, drawing water by a capillary attraction, to be absorbed at the surface by the air, which it comes in contact with, and depositing at its surface its salts, which, if in too great quantity, are destructive to all useful vegetation.

The cooling of the soil, by the application of too much water, is strictly to be guarded against, especially in the grape, which requires warmth at the root as an element of success.

No more definite rule can be laid down in regard to the application of water to the roots of plants in the open ground, than is found possible in its application to plants in flower-pots in a plant-house. Plants, however, always resent too much of it at the root by their leaves turning yellow, and hence denoting the defective root action, and which is seen in plants in flower-pots, and perhaps less frequently in the open ground, if cultivation has been thorough.

Land that is nearly level, and is of an open, porous texture, will, it is evident, take water readily, and irrigation in this case will mean something, if followed promptly by good cultivation.

On the other hand, land that rolls very much and is of an adhesive character, is difficult to irrigate properly, and for hoed crops or young trees is certainly undesirable.

For this reason we know that no rule, as to the duty of water, will apply, unless the soil is reasonably level and will readily take such water as we may wish to apply to it.

Each cultivator must determine for himself as to the frequency and quantity of water necessary to constitute an irrigation of such plants as he may cultivate; remembering always that the feeding roots of young trees just planted are close to the stem the first year or two; in after years, as the trees develop, they will generally feed upon an area as wide as the trees are high.

Trees of upright growth, like the white ash and the Whitney crab, and trees of low, spreading habit, like the box elder and the Tallman Sweet apple, have each a rooting habit corresponding to their mode of growth above ground.

The remedy for the settlement of soils, surcharged with the neutral alkaline salts, and whose texture is very compact and adhesive, is thorough tillage, and the leaching out of the alkali by copious irrigations combined with either natural or artificial drainage, the frequent irrigation of the soil assuring the inter-mixture of the surface deposit of alkali with the lower strata of soil, and thus diluting it

and partially neutralizing its injurious presence. Cultivation, too, checks evaporation, and hence currently lessens the deposits of alkali on the surface. A loose, dry top-soil acts as a cushion of earth and air, intercepting the continuity of the upward passage of moisture along the lowest plane of cultivation. Among some sowed crops on adhesive soils, there may be noticed now and then plants, or patches of plants very much stunted and debilitated, which is due to a very considerable extent to the severe constitution of the stems at the ground surface, by the hardening crust that forms there after irrigation, and which cannot be broken up without injury to the growing crop.

This pressure about the stems is a species of pruning, and is equivalent to the application of a ligature to the stem of a plant above ground, and which results in both cases in abridgment of the functions of vegetation.

This hard crust also dries much more rapidly than would the same soil in good tilth; it also absorbs water more quickly and powerfully than does the loose soil just beneath it, which, hence, parts more readily with its contained moisture, and which, by reason of atmospheric influences, is quickly evaporated, hardening the surface and increasing the deposit of alkali there, and which is especially injurious to all surface rooting plants which are chiefly annuals.

In British India, the government, after spending enormous sums to get the water on the land, have been for some time confronted with the problem as to how to economically dispose of the surplus, and thus relieve the soil of the accumulated alkali that has in some cases rendered it unfit for cultivation.

For the intense culture of the horticulturist, irrigation by means of a system of underground pipes would seem to commend itself. It is much practiced in California, and is known as tne "Abestine" system of sub-irrigation. Its merits are that it is economical of water, it holds in check the rise of the alkali, because the surface soil never leaks, (no water coming to the surface), and it has a powerful influence in inducing the roots of plants to go down deep, beyond the vicissitudes of climate.

At this elevation, surface evaporation is rapid, water is quickly dissipated, and partly for this reason, we believe

that sub-irrigation offers positive advantages to the horticulturists, especially in the cultivation of land whose inclination forbids profitable surface watering.

In Italy, the flavor of fruits is said to be inferior when grown by means of irrigation, and the seeds of vegetables are said to deteriorate to such an extent as to render a recourse to foreign sources a necessity, and that this may be true in this State we have some reason to believe, from a recent report of the chemist of the Department of Agriculture, in regard to the wheats of Colorado, which shows them to have lost in weight, in nitrogen, in ash and albuminoids, as compared with former analyses.

The deterioration of the seed in these important elements, may, as Professor Blount suggests, be due to untoward seasons, but it may also be due to soil deterioration, for as a rule we have as yet but skimmed the surface of our soils, leaving untouched a wealth of plant food, to be made available by deep and thorough tillage. To assure the complete development of the plants we grow, we must have in the soil the elements necessary to that end, for certainly the waters of irrigation do not contain them.

Light, heat, a dry soil, with a moderate growth, are all essential to superior flavor in table fruits, and this desirable end it is in our power to attain, by surrounding our plants with conditions favorable to flavor and the maturation of the seed.

Crops that succeed on alkaline soils are of root crops—beets, carrots, parsnips, turnips and cabbage.

The cultivation of table fruits is not materially interfered with by the presence of a moderate amount of alkali; providing that the water table has been lowered by proper under drainage.

It is a noteworthy fact that apple trees on the most alkaloid land on the college farms are those that carried the most fruit for the past two seasons. This circumstance was also noticed by Mr. McClelland, on his own fruit farm. I do not, from this, wish it to be inferred that I recommend such soils as being best for the culture of the larger table fruits.

With the positive assurance of sunshine and water, the horticulturist of this State is placed at an immense advantage over his Eastern co-laborer, and can flatter himself

upon a certainty of success, providing, that in his management of such plants as make a definite annual growth (as the apple), he observes the cardinal principle that such growth should be moderate in amount, and thoroughly ripened; the very air for which our country is proverbial inducing (if we withhold water at the root at the proper time) an inspissated condition of the sap, which induces in all cases the formation of blossom and of fruit.

* * * * * *

Discussion followed, participated in by Messrs. DeVinney, Wolff and others. Mr. Wolff's experience shows that water should not be turned off from trees too early in the fall, as it tends to dry up the trees and cause the leaves to remain on all winter. Would advise going into the winter with the ground well filled with water. Drainage was advised in orchards to remedy the evil of too much water. Surface drainage will not drain, but underdrainage will. Experience proves this in case of every one who has tried.

Mr. Millison—The railroad ditch across my ground, four feet deep, does not drain my land. How shall I drain it?

Answer—By under drainage.

Mr. Stanger suggested tile drain.

The secretary claimed that the tile drains would not do, as the alkali would destroy them in a short time.

Mr. Stanger—This is an important question, and if true, the fact should be widely known, as the question will soon be brought before the public. If tile drain will not do, something else must be devised.

Dr. Shaw read a carefully prepared statement of the exhibit made by him at the New Orleans Exposition, as follows:

In Horticultural Hall, at the New Orleans Exposition, last year, were six lines of tables, about five feet in width,

extended the whole length of the hall, making room for the show of 20,000 plants of fruit.

The show consisted in the main of apples, but most other varieties of fruit were represented that are found in all parts of the world.

The show was under the direct management of the president of the American Horticultural Society, Mr. Parker Earle, aided by the members of this organization. For the purposes of competition there were four grand divisions.

All countries outside of the United States constituted the foreign division. All that portion of North America east of the Rocky Mountains and north of the fortieth parallel of latitude was designated as the north division. All south was called the southern, and all west of the Rocky Mountain range was denominated the Pacific division.

The apple, king of fruits, came in as the chief attraction.

The aggregate number of varieties of apples was about 350, coming from the following named countries and States:

England, 175; France, 150; Mexico, 2; Russia, 10; Canada, 50; Ontario, 50; United States: Missouri, 139 varieties; Arkansas, 135; Kansas, 130; Kentucky, 100; Colorado, 100; Tennessee, 42, Mississippi, 25; New Jersey, 55; Pennsylvania, 140; Iowa, 135; Wisconsin, 230; Michigan, 200; Ohio, 85; Vermont, 42; Massachusetts, 30; Maine, 100; Nebraska, 100; Minnesota, 25; California, 92; Oregon, —; Washington Territory, —; New Hampshire, 7.

Experts in apple culture pronounced the show as the best at any exhibition in the world's history.

As to size, the following States led in the order named: Arkansas, California, Missouri and Kansas. All others were a fair average.

All apples east and south of Colorado were more or less marred by insects and a fungus growth, which seemed to be the nucleus of decay.

As for beauty of color, smoothness of skin and keeping qualities, Colorado stood first and California next; while as to quality and flavor, Colorado apples excelled all others, and were the best keepers and last to decay on the tables.

Colorado's exhibit was collected from an area of country extending from the St. Vrain valley to the Arkansas, and was made up of about one hundred varieties.

I commenced making a collection early in October and finished about the middle of November. The fruit was picked direct from the trees and immediately wrapped in soft paper, and twelve specimens of each variety put into a paper bag and kept at a uniform temperature in a dry cellar until shipment. I acted upon the theory of excluding the atmosphere from coming in contact with the surface of the apple, and the practical result was a success. My barrels for shipment were lined with heavy express paper, and paper sacks were as closely packed as possible, filling all interstices with soft straw. I here make a note of the idea of packing for shipment so as to exclude the air, in contradistinction to the common mode of ærating apple barrels by boring augur holes. Those who followed this practice had to discard from a quarter to a half of their fruit at the New Orleans Exposition.

The area of the State from which I gleaned my exhibits extended about two hundred miles from south to north, commencing at the orchard of Mr. Jessie Frazier, near Florence, in the Arkansas Valley. I found at Mr. Frazier's orchard about seventy varieties, embracing most of the approved varieties grown in the other apple regions of the United States. His orchard has about 2,500 trees, some of which are now about eighteen years old, and others just coming into bearing.

His orchard demonstrates the practicability of success in apple growing in Colorado. The climate is no bar to success in the hands of painstaking men.

I visited seventeen orchards, and found the following as the result:

Mr. J. W. Cook, location near Ralston creek, Jefferson county, has an orchard of about 1,000 trees, most of which are now about twelve years old.

I got fine specimens of Tallman Sweet, Roxbury Russet, Blue Pearmain, Winter Wine, Baldwin, Northern Spy, Newtown Pippin, Little Romanite, Milam, Jersey Sweet, Maiden's Blush, Buckingham, Westfield's Seek-no-Further, Limber Twig and Shaker Pippin.

Mr. Harpin Davis, in the same neighborhood, has a thriving orchard of about 300 trees, ten years old.

I got good specimens of Shaker Pippin, Tallman Sweet, Vandervere Pippin, Baldwin, Seedling not named, three unknown kinds, Winter Wine, Jeanette, Bailey Sweet, Northern Spy, Little Romanite, Limber Twig and Talpahockin.

L. B. Ames, of Littleten, Arapahoe county, has a small thriving orchard, a few trees in bearing. He gave me fine specimens of Jonathan.

Edward Montgomery, a near neighbor of Mr. Ames, has the only tree in bearing in the State of the Wolf River seedling. This tree is now about twelve years old. It is worthy of note here to say that it is a hardy, prolific bearer, large in size, beautiful red in color, late fall and early winter apple. It was a seedling brought into notice by William Sharp, of Fremont, Waupaca county, Wisconsin, and has been on trial in Wisconsin for about thirty years.

William Lee, of Jefferson county, has probably the oldest orchard in the State. He gave me for my collection fine specimens of Fameuse, Harvest Queen, four unnamed varieties, Blue Pearmain, Wine Sap, Pryor's Sweet, White Winter Pearmain, Yellow Orange, Tallman Sweet and Ben Davis.

David Brothers, of Wheat Ridge, Jefferson county, has a promising orchard of 2,300 trees. His oldest trees are about twelve years old. His orchard is the best cared for in the State, that I visited. He gave me fine specimens of the Wealthy, Jonathan, Tallman Sweet, Lawver, Ben Davis, Grimes' Golden and Perry Russet.

James Ackerman, of Longmont, Boulder county, a careful, painstaking man, practically well up in fruit culture, has a thriving orchard of about 300 trees. This gentleman's post office address is Hygiene, Boulder county, and he is eminently posted in fruit culture in Colorado, and very competent as an adviser to all beginners. His oldest trees are about eight years old. He furnished me with fine specimens of Utter's Red, Pewaukee, Walbridge, Ben Davis, Tallman Sweet and Bassett's Crab.

George Webster, of St. Vrain, is the pioneer fruit culturist of this part of the State. His location is upon the

low lands of the St. Vrain river, and as a consequence some of his trees are on the decline.

As far as I have noted, the best fruit lands of the State are on the highest lands, where water is at command.

The practical mistake of Mr. Webster is worthy of note to all beginners. Mr. Webster has in fruiting more of the older varieties than I found elsewhere. He gave me good specimens of White Winter Pearmain, Blue Pearmain, Wine Sap, Huntsman's Favorite, Northern Spy, Ben Davis, George Webster Seedling, Rawles' Jeanette, Vandervere Pippin, Snow, Westfield's Seek-No-Further and Western Beauty.

Mr. J. Runyan, of St. Vrain, gave me specimens of Roxbury Russet, Late Rambo and Limber Twig.

Mrs. James W. Richards, of Wheat Ridge, gave me some of the finest specimens I had in my collection, consisting of Wine Sap, Willow Twig, Bailey Sweet, Jonathan, Missouri Pippin, three unknown varieties, and Wagner.

Henry Lee, of Wheat Ridge, has a large orchard of apples just coming into bearing. He gave me one variety, Isham Sweet, worthy of special notice. It is large, fine color, a good keeper for winter. Tree, a good grower and hardy.

Martin Everett, the pioneer fruit man of Wheat Ridge, has the oldest orchard in his neighborhood. He gave me fine specimens of Jonathan, White Winter Pearmain, Willow Twig, Ben Davis and Fameuse.

Wilson Perrin supplied me with good specimens of Wealthy, Pewaukee, Ben Davis and Plumb's Cider.

A review of the above list of varieties shows the possibility of Colorado becoming an apple growing State. Its climate is no bar to success, and indeed presents advantages not possessed by other States, notably its freedom from the fungous growth that is so prevalent in all the States east of us.

As yet, insect pests are not found to any extent. The codlin moth is only to be found in a few of our oldest orchards. The idea prevalent among many that none but the hardy Russian Crabs are adapted to Colorado culture has no foundation in truth in the hands of careful pains-taking

men. As a rule, I found the apple tree most at home on the higher table lands where it is practical to irrigate. The ditch improvements of the last two years in our State has made it practical to use the highest lands, hence the area of successful apple growing is largely increased.

As demonstrated by the above, Colorado as an apple growing State is on a par with other States, so far as climate is concerned, outside of the peculiar meteorological influence of our cañons and lowlands below an altitude of 6,000 feet above sea level. The planting of orchards within the last three years has been more than quadrupled, and in the light of what has been done, I feel I am justified in making the prediction that the 2,000,000 dollars we pay for fruit annually will be saved to the State by home production in the next decade.

The record, as published by the American Horticultural Society, at its exhibit at the World's Fair, New Orleans, shows Colorado premiums, best twenty-five varieties, cash, $50 and a silver medal; best three fall varieties, cash, $15 and a silver medal; best Newtown pippin, $5. Total, $70. The history of Colorado's apple growing is not marked by any more failures than is common to other States.

The meteorological tables, as kept at the signal station, under the government of the United States, shows less extremes of temperature in Colorado than most of the States east of us.

In the hands of those who have bearing trees, a good crop has been had in the ratio as four is to six years.

The proximity of a large mining population is a certain guarantee of good prices. With water at command to be used at will, Colorado's bright sunshine is a guarantee against the apple diseases incident to a cloudy, humid atmosphere.

A careful review of the facts as above presented, gives promise of profit in apple culture not surpassed by any other State in the Union.

Colorado in area rates one-third in extent, having 15,095 square miles, more than all the New England States, Maryland and Delaware combined.

Forty-seven thousand square miles of this area lies east of the Rocky Mountains, and the developing ditch enter-

prises of much of this State renders it possible to extend the fruit area to meet the demands of home consumption, and possibly to supply for shipment.

In the light of recent experiments, it is highly probable that our best fruit lands lie west of the Rocky Mountain range, in such locations as are below an altitude of 6,000 feet, and possibly even in sheltered localities as high as 7,000 feet. The altitude of the San Luis valley is 7,000 feet, yet the peculiar meteorological surroundings of the valley may render it possible to grow apples.

Some of the crab varieties have fruited as well as the Duchess of Oldenburg.

Small fruits are said to be a success.

Some of the western counties have lands about the same altitude as Salt Lake, and there is no good reason why they should not grow the same fruits.

On motion, a vote of thanks was tendered to Dr. Shaw for his report.

Adjourned.

EVENING SESSION.

The meeting was called to order at 7:30, by Vice President Gipson.

QUESTION BOX.

Has the Industry gooseberry been tried in this locality; and if so, with what results?

Mr. Gipson—I have it on my grounds, but have not ruited it. It is promising in appearance.

Mr. Bird—I have one, set last spring. It has made a good growth.

Question—What is the remedy for orchard trees eaten by rabbits?

Mr. DeVinney—Cut the tree off and graft it. If not entirely eaten off, mash it. The best protection for a tree is to smear it with blood.

Question—Is it desirable to raise fruit, especially apples and pears, forty miles south of Denver, at an altitude of six thousand feet or a little over, if well sheltered from winds?

Answer—Any place that will grow squashes or corn will grow apples.

Mr. DeVinney called attention to the insect troubling grape vines, which threatens to be very destructive.

Mr. Faurot—I have had experience with this insect. They prefer some varieties to others, selecting the tenderest.

The secretary had tried ground plaster sprinkled on the vines while wet. It drove them off, but did not kill them.

Dr. Shaw asked about the Kieffer pear.

The general verdict was unfavorable.

Mr. Faurot—Has any one had experience in removing the surface roots of grape vines? What time of the year should it be done?

No one present had had experience.

Mr. Faurot—Can grapes be pruned after they are taken up in the spring?

Mr. DeVinney—It can be done after the leaf is partly or fully developed?

Mr. Gipson confirmed this. Apples can be trimmed in the same way.

Mr. Stanger—The proper time to trim apple trees is when you have a sharp knife.

Mr. Gipson combatted this idea, considering it dangerous. Care should be taken as to time of pruning; the proper time to trim grapes is in the fall; it is dangerous to trim in the spring.

Mr. DeVinney—What is the best time to prune apples?

Mr. Gipson discouraged too severe pruning; if pruning must be done, the safest time is when the leaf is partly formed; the wounds will heal soonest then.

Mr. DeVinney—Would the age of a tree make any difference?

Answer—Yes; a young tree can be trimmed more safely than an old one.

Mr. DeVinney—What are the prospects of success in growing pears? Flemish Beauty promises best with me.

Mr. Gipson—I have not fruited pears yet. Flemish Beauty, Clapp's Favorite and Indian Queen are most promising; mine would have borne, but the blossoms were killed last spring. I see no reason why pears cannot be successfully grown here. I have the Bartlett; have not advised any one to plant the Bartlett in Northern Colorado, as I do not feel that it is sufficiently hardy, though it looks well in the nursery row. The Kieffer pear will deteriorate grafted on quince stock.

Mr. Stanger—Is the supply of nursery stock in the State sufficient to supply the demand of the coming season?

Mr. Gipson—There is no doubt but that the nurserymen can supply the demand for all regular lines of stock.

Mr. Stanger—What is the comparative value of Colorado grown stock, over stock grown elsewhere?

Dr. Gipson—Colorado stock is the best. If we must send East, preference should be given to that grown in more northern latitudes. Colorado grown stock is most valuable, because acclimated, and hence more hardy.

Dr. Shaw—Do you get your stock from seed or from the East?

Mr. Gipson—I practice root-grafting; send East for the grafts.

Mr. Stanger—Do apple trees burst their bark now, as they used to?

Mr. De Vinney—I never saw it on my ground. My soil is a heavy clay. Have seen it on sandy soil. Think it caused by their growing very fast.

Mr. Johnson—I think the bark bursts from two causes. First, extreme cold; second, extreme sun heat.

Adjourned.

MORNING SESSION.

The meeting was called to order by the Vice President.

The minutes of the preceding day were read and after correction approved.

A. E. Gipson and C. S. Faurot presented credentials as delegates from the Northern Colorado Horticultural Society.

The following paper was then read by the Secretary:

Has the Limit of Earliness in Vegetable Culture been Reached?

By J. W. Eastwood, of Bent County.

Gardeners know something of the value of earlin ess in many of their crops. Whether all has been done to produce vegetables early, that can be done, is a question.

I will not try so much to answer this question as to try to say something that may arouse thought on the subject. The term "earliness," used to mean a few days earlier than our neighbors, is not the only meaning that should be attached to it, for usually early crops will be in bearing longer than late ones, and produce more.

How many gardeners have said to themselves while gathering the first few bunches or pounds of their early crops: "If half of the crop were ready to gather while such high prices prevail, I would not need to garden next season."

To illustrate: I have noticed since I have been gardening, that some plants produce fruit before others of the same variety.

For instance: Tomato plants grown from the same seed, sown at the same time, cared for alike, set out into the lot on the same day, the soil being similar, the cultivation, irrigation, and all other care so far as we have observed being equal; yet, when tomatoes begin to ripen and are gathered for the first time, on some vines are found only one ripe one, others two and a few three.

Have we not often asked ourselves, "Why is this?" and never tried to answer the question? I say now, "Why is this?" is it not worth looking after? Let us listen to what figures say: Two or three tomatoes on a vine make half a pound; with three thousand plants to an acre they would give fifteen hundred pounds; at fifteen cents per pound (not a high price for the first) amount to $225; at the next gathering, if the above results were repeated in quantity, and price only twelve cents would amount to $180, if they

should be gathered again in eight or ten days from first gathering, which would be early, and three-fourths of a pound taken from each vine and sold, the price reduced to eight cents per pound, would bring another $180; the total of the three results is $585, as much as most of us get from a full crop.

These results would be reached if all plants would produce early fruit in quantity, as we have seen some plants do. Is it not worth the while for us to do all we can to have the other plants do their part?

Is there anything new or old, aside from the natural growth of the plant, that can be done that will have a tendency to reach these results?

Might I ask if all the plants have been cared for alike?

Is the fault in the seed sown?

Is the fault all chargeable to the destruction of some of the roots of the plant by worms and cultivation?

Or have some of the stocks been bruised, or have insects destroyed part of the foliage?

Do some of the plants stand so they do not get a supply of water at time of irrigation, or have some been flooded so as to make the ground hard?

Do not the figures show us that it is worth while to look after the matter?

The first dozen melons bring the gardener half as many dollars. One acre at this time—twelve hundred hills, one melon from each hill—makes one hundred dozen, worth $600.

Take a crop of beets in June, when the gardener pulls his first eight or ten dozen bunches—say he has half an acre—the rows of which are eighteen inches apart, beets in the row four inches apart, making sixteen dozen bunches in round numbers, at fifty cents per dozen, would bring him $800.

I close by asking what can be done towards producing the bulk of the crop early? Who will say, fertilize the soil well and evenly?

A letter from the president of the Pueblo County Horticultural Society was read, giving encouragement that that society would soon be reorganized.

The following paper was then read:

Horticultural Humbugs.

By Nelson Millett.

Mr. President:

Before this paper is presented, it might be well to refer it to a committee on nomenclature, to ascertain if it be true to name. Not that it ever had a name, for it had none; it didn't need one; it doesn't deserve one, and so far as I am concerned, it never would have had one. I intended it to belong to the "no name" series, that it might be free to spread out and become as thin as its author.

But the mind reader is at large, and yesterday I was surprised to find my subject announced as "Horticultural Humbugs." I had no time to write anything to fit the name, so I had no alternative but to adopt the name furnished me, and let it fit as well as it would. It will, no doubt, answer as well as any other. If it should be a misfit, it is not my fault. With this preface, I will proceed.

If great antiquity be any warrant of nobility, then the profession of horticulture is entitled to a most exalted position, for it is the most ancient, as well as one of the most attractive and honorable of the various pursuits of man.

The first man and woman were horticulturists, and they had a first-rate start in life. Instead of going out upon the plains to open up a new farm, to face drouth and fight grasshoppers, they were given a place already improved. They ought to have made a success of the business, but, like many others, they got struck on new varieties, and failed.

We would naturally expect that Noah, on leaving the ark, would have set up in the stock business, having so fine a start, but he preferred horticulture, and "planted a vineyard." He probably succeeded, as the land was in fine condition for planting, from the thorough irrigation it had just received.

One of the oldest Bible pictures that I can remember represented two of the men who had been sent to spy out the promised land, returning to camp, bearing on their shoulders a pole with a huge cluster of grapes suspended between them. This was a new variety which they had found in the valley of Eschol. They had probably bought up the entire stock, put up the price, and doubtless expected, with this sample, to create a sensation, and gather in the shekels from the *horticultural cranks of the Israelitish camp*. Ever since then the annual spring catalogues have vied with one another in their efforts to show up something bigger than this. And they'll do it, if they keep on, for I notice every year they all have a new thing that is a little bigger and a little better than anything that was ever known before.

If the present rate of progress continues, it can be demonstrated by an arithmetical progression, that before the close of the present century, our strawberries will be about the size of watermelons. They will need to be cut into quarters to accommodate the retail trade; only boarding houses and hotels will be able to indulge in a whole strawberry. I am aware that all progress in horticultural science is the result of careful study, and patient experiment, with new varieties and new methods.

It is fortunate for us that we have in our ranks, here and there, men with big hearts and big bank accounts, and with sufficient enthusiasm to devote time and money to the work of testing the various novelties as they appear, that we may hold fast what they have proven to be good.

But to the beginner, with little money to spare, I would repeat the advice given in a fit of unaccountable candor, by a well-known propagator and dissiminator of new varieties:

"Touch them lightly," says he, "for among a score of new and much lauded varieties, you may find one as good as the old standard sorts."

How he came to have such a severe attack of honesty, I cannot imagine; he probably had dyspepsia and thought he was going to die; but he soon recovered, and in his next

issue comes up smiling with the usual collection of new and wonderful things. It was the old story, perhaps, of

> "When the devil was sick, the devil a saint would be;
> But when the devil got well, the devil a saint was he."

Like the Lord High Executioner, in the late operatic craze, "I have a little list" of things "that never would be missed," and at the head I have placed the traveling tree peddler.

Now, the tree peddler is a missionary in his way, and might do a great deal of good if he would only be honest, but as the only way to make him honest is to kill him, and as we are handier with the shovel than with the shot-gun, our only recourse seems to be to "sit down on him." The feeling I entertain for the road agent who comes out square with "your money or your life," is one of genuine admiration, as compared with my contempt for the tree agent whose motto is, "your money and your life."

You not only give him your money for a worthless thing, but you give years of your life to finding out how utterly worthless it is.

In nothing are we so completely at the mercy of the seller as in the purchase of nursery stock. We have often no means of knowing whether we are getting the thing we bargained for or something worse than worthless. The transaction is almost entirely one of confidence in the integrity of the seller, and corresponding care should be exercised to deal only with men who have proven themselves worthy of that confidence. Is it not strange, then, that every season a small army of itinerant peddlers, of whose antecedents we know nothing, and whom we never expect to see again, can invade the land and, with no other guaranty than their own worthless word, take away from our farming communities, and even from our towns and cities, thousands of dollars, "and, departing, leave behind them" nothing but vexation and disappointment. Long before the fraud is discovered the villian has escaped.

But say what we may, just so long as there are gudgeons in the horticultural seas, eager to swallow hook and all, every new bait that is dangled before their eyes, just so long will there be anglers who bate their hooks with rose trees and blue primroses. Let us take a sample order of

one of these missionaries, and see how it looks in plain black and white. If it is not a literal copy, it is sufficiently accurate to be easily recognized.

While the prices may seem exaggerated, I submit that they are the very prices paid a year or two ago for the articles named:

Messrs. Gullem and Gouger:

Please ship to my address below, the following: Ten standard apple trees, assorted varieties, top-budded, at $1, $10. (If one of these fellows should accidentally get into heaven, he would soon have all the saints in Paradise digging up the Tree of Life, and planting in its place a top-budded tree at a high price, because root-grafted trees are not hardy.)

Ten Russian apple trees, iron clad, at $1.50, = $15. (A man would need an iron-clad jaw to pronounce their names, even. How would you like, for instance, to bite into a nice, juicy-looking apple and get your jaws stuck fast in a Schirokolitchiko or a Pipka-Ostrokonetchnaya, or have a great big Nasliednik-Nikolai-Alexandrovitch fall off a tree and hit you square in the head?)

Six Pocklington grape vines at $2 each, $12. (These proved to be nothing but a very small, sour wild grape of no earthly value.)

One Niagara grape vine, with seal attached, $2. ("The white grape for the million." The seal is a pretty plaything for the baby, if he doesn't swallow it. What the grape is worth, time will tell.)

Two rose trees, each with five different varieties of roses, at $7 each, $14. (They are so perfectly lovely in the book that he must have one each side of the front door.)

Five primroses; white, yellow, pink, red and blue, $4. (The price of these rare and beautiful plants was $1 each, but by taking all the colors we get a discount. They would have cost fifteen cents apiece at the florists, and there would not have been any blue one at that. Neither would the purchaser have been so blue when they came to blossom all of one color.)

And so on until he had spent a hundred dollars or more, and for what? Oh! I forgot:

One Concord grape vine, *gratis*. This was worth ten cents, but it was genuine; it still lives, and he loves it for the lesson it has taught him.

Of the most of the balance, it can only be said: "Though lost to sight, to memory dear." The customer who gave this order ought to to have been put into cold storage at once; he was too soft to keep otherwise.

The only reason a few of the "Bird Cantaloup" seeds, at about five dollars an ounce, were not included in the above list, is because this star of the first magnitude had not yet appeared in the horticultural firmament.

Another very common mistake of the beginner is a disposition to count his chickens before they are hatched; to listen to the whisperings of hope and discount a future of which he knows nothing. He has the very general impression that gardeners and fruit growers have "a very soft thing." His ears have been filled with most marvelous stories of a thousand dollars a year from a pair of city lots planted to strawberries, while, to clear a net profit of six hundred dollars from half an acre of blackberries is just as easy as rolling off a log.

So he pitches in, fully expecting in a few years to be a bigger man than Gould or Vanderbilt.

If he be unusually gullible and has more money than sense, he will employ a professional gardener, who finds both amusement and profit in encouraging the vagaries and feeding the delusive hopes of his over-credulous employer. He has yet to learn that in horticulture, as in other things,

"There's many a slip
'Twixt the cup and the lip."

That between the promise of the spring time and the harvest of autumn, there are many contingencies. He escapes the frosts of a late spring only to have his hopes dashed to earth by hail or washed away by a flood. Later on, drouth consumes his substance, and grasshoppers complete the work of destruction. He learns that eternal vigilance is the price of success, and even with the utmost vigilance he often fails. At the end of a few years he figures up and

finds himself still lacking several millions of being either a Vanderbilt or a Gould. If he be made of the right kind of stuff he gathers up the riches of experience, and with these for a capital, starts in anew with some prospect of ultimate success. If not, he pronounces horticulture a humbug, buys a picture book and starts out as a tree peddler and henceforth does his utmost to make fruit growing as big a fraud as he believes it to be.

But in spite of all its drawbacks and discouragements, the pursuit of horticulture presents to its followers many attractions not found in other callings. It invites the cultivated and thoughtful to a constant communion with nature in her most charming moods, and the invalid to health-giving contact with fresh earth and pure air. It takes us away from the smoke and tumult of cities, the uncertainties of commerce, the strife of factions and the frivolities of fashion, out into the clear sunshine, among the flowers and the trees.

How much sweeter the song of a bird than the din of a crowded street, the scent of apple blossoms than the sickening odor of a sewer! A quiet country home, embowered in trees and surrounded by flowers and fruits, is the one bright spot to which many a care-worn, city toiler looks forward with longing eyes and hopeful spirit.

The literature of our language is full of beautiful tributes to the delights of rural life. Poets have sung its praises, and sages have sought, amid its calm and peaceful scenes, that solitude so favorable to quiet thought and philosophic reflection.

The country has always been the cradle of intelligence, the temple of the historic muse, and the nursery of great men in all ages. It cannot be all accident that not one American President, from Washington down, has had his birthplace in a large city. They have all been born and reared in quiet, wholesome and virtuous country homes.

The influence exerted upon the character by constant communion with nature is great and always a good one. A man cannot be wholly bad who loves a flower, or is capable of a full appreciation of the glory of one of our royal sunsets.

Country life develops self-reliance and independence of character. It gives us room to turn round without jostling our neighbor, to expand and grow big, if we will.

Some one has said: "I would rather sit on a pumkin, and have it all to myself, than on a velvet cushion, and be crowded." And so would I, unless I could choose my company.

And speaking of pumkins, did it ever occur to you how much genuine fun a country boy gets out of a pumkin, from the time he wakes the echoes of the morning with his trombone solos, and makes the night hideous with the frightful jack-o'lantern, till he makes himself sick on pumkin pie at Thanksgiving time.

"O, fruit loved of boyhood, the old days recalling,
When wood grapes were purpling and brown nuts were falling,
When wild, ugly faces we carved in its skin,
Glaring out through the dark with a candle within.
When we laughed 'round the corn heaps, with hearts all in tune,
Our chair a broad pumkin, our lantern the moon;
Telling tales of the fairy, who traveled like steam,
In a pumkin-shell coach, with two rats for a team."

The subject of rendering our homes attractive, of adorning our grounds with trees and flowers and shrubbery is an important one, and deserves more than the passing notice which the limits of this paper will admit.

Viewed from any standpoint, either of comfort or pleasure or profit, no better investment can be made than to plant trees for shelter and shade, and flowers to delight the eye and gladden the heart. And yet one may drive for miles, along many of our country roads and see no evidence of any interest in this important subject of home decoration.

In an interview with Governor Eaton, recently published in one of our morning papers, I notice the following:

After calling attention to the lack of appreciation of all beauty on the part of many of our farming communities and alluding to some ideal country homes that he had known in the East, the Governor is made to say, "I doubt very much if such homes could ever be made in Colorado, the vegetation is so scanty, and there are no trees. You must have something besides rocks for a landscape when you are building a country house."

Coming, as it purports to, from the Governor of the State, himself the largest farmer within its borders, I think this remark is calculated to retard the development of the

rural portions of the State, just in proportion to its circulation.

I have no wish to indulge in any panegyric of Colorado scenery. I will leave that to the railway literary bureaus and the gushing enthusiasm of the "little maids from school." I admit the lack of vegetation and the scarcity of trees, but wherever water can be obtained, trees may be made to grow.

While, at first, the face of the country seems forbidding in its barrenness to the new comer, he soon gets used to it, and begins to look to the possibilities of the future.

All along our foothills and out upon our plains, as far as water can be carried to irrigate the land, from the St. Vrain and the Cache la Poudre, in the north, to the valley of the Arkansas and the sunny San Luis, in the south, as well as in the fertile valleys of our western slope, are numberless sites for elegant country homes, commanding a prospect than which there is no fairer within the majestic bounds of our Columbia.

Surrounding our capital city is a scope of country many miles in extent, on whose sunny slopes thousands of delightful country homes will be built, beautiful for situation, and commanding a view of scenic grandeur unsurpassed by any country in the world. With almost constant sunshine, a salubrious climate, a fertile soil, and roads that are the envy of the world, it seems to me we have all the conditions for desirable country living, save the verdure and the trees. With our country roads converted into broad avenues and bordered with trees, the monotonous brown of our plains changed to emerald fields of waving clover and alfalfa, and our mesas crowned with fruitful orchards; with the winding, tree-lined Platte in the foreground, and for the background the everlasting hills, their rocky outlines softened and subdued in the hazy distance or bathed in the glory of an autumn sunset—the dweller in this favored spot, a quarter of a century hence, may, if he will, possess the ideal rural home of the world.

In some localities the work of improvement has already progressed to an extent unknown to many in this city, who, although they have lived here many years, have never taken the time to visit the suburbs, and are ignorant of the horticultural changes transpiring around them.

I have frequently taken friends from the city out along Wheat Ridge, through orchards weighted down with their wealth of fruit, and shown them a condition of things hitherto entirely unsuspected by them. They freely confessed their astonishment that they had lived so long entirely ignorant of the nature of their surroundings.

There are people in Denver to-day who don't believe an apple will grow in Colorado, and yet we exhibited at New Orleans a hundred varieties.

There are many suggestions that might be made regarding the improvement of our rural districts. I will mention but one:

First, let us banish forever from our vocabulary the word "ranch," as now generally used. I believe this word has done more to repel the home-loving farming people of the East, and to deter them from settling among us, than any other one thing. It is a relic of frontier days, and is suggestive only of the adobe hut and corral. Turn it over to the Mexicans and the cowboys, and adopt once more the good old English word "farm," that we left in "the States," with our old names and our religion.

Having restored the name, with all its childhood memories and sweet associations, we are the better prepared to impress upon people's minds that something more than ranches can be made upon these Colorado plains.

The subject of village and neighborhood improvement societies, whose object shall be the planting and care of trees along the public highways and around our school houses, the better observance of Arbor Day, and the education of the public to a higher and better appreciation of beautiful surroundings, is one that merits our attention and should receive our consideration.

The advancement made in the past few years is considerable, but there is great room for further progress. To this society and its branches, as well as to the individual horticulturalist, of the State, the work of enlightenment and improvement is committed.

Discussion followed as to the best mode of preventing the dishonest tree agent from plying his vocation so successfully. During the discussion the statement was made

that more than $60,000 had been sent out of the State for frult stock during the past year.

The cultivation of new varieties was to be encouraged, but this society should be careful as to what it recommended. All information furnished by the State Society should be reliable, and we should be careful not to hold out inducements to beginners to experiment with new varieties. Many varieties are tender while young, but as they grow older they become more hardy.

Dr. Shaw explained that in his paper read, he did not wish to be understood as recommending all of the varieties there. He simply gave the name of an apple as he found it growing on the tree of the owner.

Mr. Everett did not wish to be understood as discouraging the trial of new varieties, but it should be done with care and caution.

Mr. Gipson would not discourage progressive horticulutre; progress can only be made by experimenting.

At the meeting of the American Pomological Society it was said that we needed a better apple than we now have. Some of the old kinds are good, but if it is possible to produce a better one, we we should strive to find it.

Mr. DeVinney denounced the recommendations of untried varieties as injurious to the Society and injurious to the people.

William Davis—Our best remedy for guarding against impositions of the fraudulent tree peddler is to encourage reliable home nurseries. Such nurseries scattered all over the State, and patronized by those who wish not to be humbugged, will soon drive the dishonest agent from the state.

Mr. Millett—I do not wish to be understood as being opposed to experimenting, but think good sound horse-sense should be used in purchasing.

Mr. Wolff—People will not purchase good varieties of their home nurserymen, but will purchase the same under a new name and high-sounding title, paying a high price therefor.

Adjourned.

AFTERNOON SESSION.

On motion of Dr. Shaw, it was voted that the President be authorized to execute a note to J. M. Clark for $150, at 10 per cent, the same being balance of salary due.

The election of officers followed.

On motion of Mr. De Vinney, an informal ballot was taken in each case.

The following were elected.

President—A. E. Gipson, of Greeley.

Vice President—John Tobias, of Jefferson county.

Secretary—Nelson Millett, of Denver.

Treaurer—William Davis, of Denver.

Executive Committee—C. S. Faurot, of Boulder; Samuel Wade, of Paonia, and Avery Gallup, of Denver.

The election of county vice presidents was left to the executive committee.

President Gipson assumed the chair, and in a few appropriate remarks, accepted the office.

C. S. Faurot, President of the Northern Horticultural Society, extended an invitation to the members of the State

Society to attend the meeting of the Northern Society, at Longmont, February 9.

The following paper was then read.

Experimental Stations.

By A. E. Gipson.

So far as horticulture is concerned, the great need of the time is for systematic and intelligent experimental work. There can be no doubt that this work, where faithfully prosecuted, is one of the best promoters of horticultural progress. Evidence of this is seen in every State where experimental stations have been established. But the greater things to be accomplished are practical results.

The important question is, "What may we plant with reasonable certainty of good returns?"

In these days of irresponsible vendors of horticultural goods, it is no stretching of the truth to say that hundreds of thousands of dollars are annually worse than thrown away on nursury stock. Even if good of its kind, it may be entirely unsuited to the latitude or locality where planted. The dear people may not like to be humbugged, but, alas! they are often easily pursuaded.

The chromo wields a powerful influence in the affairs of men in these modern days, and in no direction has this influence been more potent than in the traffic in our horticultural necessities.

The man with a chromo can brush aside any number of hard problems in pomology, and come about as near making the people believe that the moon is made of green cheese, and very green at that, as any other human being under the stars. It must be confessed, too, that he does it in a genteel manner.

But this is rather a digression. I was about to say that there has been vastly too much ill-advised, indiscriminate planting. Experimental work, thoroughly systematized, should be able to avoid much of this by not only determining the best varieties for any given locality, but likewise

the best treatment (culture), particularly with reference to irrigation.

It has been my view that this society should have supervision of some system of experimentation. At first our State would probably have to be set off into three or four grand divisions, with a view of extending the stations, possibly, to each county within the fruit growing belt. In a general sense, the aim should be two-fold; to test existing varieties, and to introduce new ones from the seed. First of all, a liberal annual appropriation should be made by our Legislature for promoting this work. To secure this ought not to be a difficult matter in a State like our own, and a Legislature that would decline at least to move in this direction, or to recognize its importance, would not be a body of men of which the people could feel amazingly proud.

It is a noticeable fact that in those States where the greatest strides have been made in the advancement of pomological interests, the Legislatures have been generous in appropriations. It is especially worthy of notice too, that these same States, viewed simply from the standpoint of dollars and cents, have been large gainers by reason of these appropriations, and the disposition of the lawmakers to render substantial encouragement in the direction named. The State Horticultural Societies of Wisconsin, Minnesota, Illinois, Iowa, Michigan, Kansas and, I believe, Nebraska and other States, have annually placed at their disposal sums ranging from $1,000 to $3,000 for carrying on experimental and other work. In Minnesota a State experimental farm has been established for a number of years, in addition to various stations throughout the State. There is also a standing prize of $1,000 for a seedling apple that will prove as good and hardy as the Wealthy.

The result of all this is that Minnesota with all its natural disadvantages is coming to the front as a fruit producing state. The same can be said of other states. What then should Colorado do? The answer is obvious, and I trust that a word to the wise law makers of the Centennial State from this Society will be sufficient.

But if these, our representatives, must be taught elementary principles, so be it. It will not be the first time in the world's history.

Details at this time are unnecessary, but wherever experiments are undertaken, a local superintendent should have charge, and be supplied with material for his work.

He should be required to do the work thoroughly, and make, at least once a year, a full and complete report of results, covering the points heretofore indicated. Either this society, or a committee appointed by it, could have general supervision of all experimental stations.

So far as compensation is concerned, it must necessarily be small, from the dollar standpoint. In some of the States, each superintendent is compensated by becoming the absolute owner of the fruits of his labor from the material furnished him, with the privilege of propagating for sale, so long as he does not sell at exorbitant prices.

If one were really ambitious to try his hand at originating, the possibility would exist of reproducing something that would bring fortune as well as fame.

Now, then, it is not too soon for us to move in this matter. As before intimated, I believe that the State Horticultural Society should take the initiative. A committee should be appointed at this session to canvass this matter thoroughly, gather necessary facts from the experience of other States, decide upon the best means or basis for the work contemplated, and have it presented to our Legislature at its next session.

Not having carefully examined the provisions of our State Constitution in regard to appropriations for such purposes, I will not attempt to recommend any specific measures at this time. My view would be, however, that an annual appropriation of $2,000 at least would be needed to carry on effective and satisfactory experimental work. This would, doubtless, be the case, whether we decide upon the plan of either experimental farms or stations.

Estimates in advance could be made with reasonable certainty when the exact plan for action was decided upon.

Tree planting and fruit growing are things identified with the best interests of our State. We believe, further, that there is an intimate connection between the best horticulture and the best civilization. Let us then urge upon the people a progressive horticulture, and undertake to demonstrate how the best results may be reached. Individual effort is good, and should be encouraged, but organ-

ized work under authority is needed. It should be our aim not only to secure wholesome laws, but to see that they are faithfully carried out.

Arbor Days are needed, and our society should join hands with kindred organizations, and those in authority in making them effective. This has already been done, but in this connection a word of caution is needed. Careless and indiscriminate planting should be discouraged, even on Arbor Day. Better not plant at all than to set a tree or shrub where it cannot possibly survive. Let the work be done well and under conditions likely to insure success.

The aim of the Arbor Day custom is that public good may result and the general welfare be promoted. This cannot be accomplished by spread-eagle Fourth of July performances, in which the chief effort is to see how much noise can be made, or how quickly a tree can be stuck in the ground in any given length of time, without regard to consequences.

Arbor Day should be sanctioned and become a national custom. The idea is a pleasing and a wholesome one. Men, women and children should become interested in the occasion and lend a helping hand; but the highest enjoyment should attach to the thought that a tree has been planted that will develop with the years into beauty and usefulness.

One of the best means of giving these views practical effect is to apply them to our school grounds. These should, in a certain sense, all be experiment stations.

Is there any good reason why they should not be made attractive and beautiful and loved? But what to-day are the surroundings of a vast majority of the school houses of our State? Certainly inhospitable and uninviting in appearance. This should not be, and I think it within the province of our society to recommend a change.

Let us urge upon the patrons of the various districts experimental work in the sense of school ground ornamentations, and let us also suggest some feasible means of carrying this out. Arbor Day should especially be observed on the school ground.

In fact, it is a capital place to teach horticulture. The children should early learn the beauty and value of things pertaining to tree and plant life.

As before indicated, I think this body should undertake to suggest an easy and simple method for planting and beautifying school grounds. By this, a positive service would be rendered the State, and the dear children made happier and better.

The suggestions of this paper have been hurriedly expressed, and might certainly be presented in better language. But I believe in the central ideas, and can but think them worthy of considerate action on the part of this representative body of horticultural workers.

Under the head of "How Shall the Horticultural Interests of the State be Best Promoted," Mr. Clark endorsed the suggestions made by President Richardson in his paper, and also those of President Gipson, in his paper on "Experimental Stations." He called attention to the liberal policy California had adopted to encourage her horticultural interests. A similar policy adopted by Colorado would bring her rapidly to the front as a fruit producing State.

Mr. D. Brothers said he went into the horticultural business to benefit David Brothers. After several years' experience and the loss of several hundred trees, his grip was as strong as ever. One year his trees brought him in $18 per tree. The rate of increase was about as follows: In 1878, nearly a bushel; in 179, 3 bushels; in 1880, 15 bushels; in 1881, 23 bushels, in 1883, none; in 1884, 80 bushels; in 1885, none.

Mr. Wolff—Nearly all danger to trees is while they are young. The rapid growth of young trees makes them tender. As they grow older they grow hardier.

Mr. Millett—Is the Wealthy a good keeper?

Mr. Wolff—All apples in this climate have a tendency to wither. They should be kept excluded from the air. The Wealthy will keep till January.

The chair appointed Avery Gallup, George Richardson and Nelson Millett as committee on legislation.

The following report from J. W. Eastwood, vice president for Bent county, was then read:

As regards soil, I can only speak for this immediate section. Near the Arkansas it is a dark adobe. A little back of the river it is somewhat more sandy, and seems, to be quite well adapted to vegetables, though for small vegetables and close cropping it needs to be well fertilized.

Melons and other vines do well for the first crop without fertilizing. Mr. G. W. Swink has demonstrated this on a large scale, having grown as many as forty-five acres of melons the past season. Small patches of sweet potatoes have been tried and have given encouragement to the cultivator to try larger ones.

But little fruit has been tried about here. Perhaps more apple, pear and cherry trees were put out last spring than any time before. This is also true of small fruit. The strawberries I put out made a good growth.

Alfalfa is the main crop, though some oats and corn are raised, which do well. As soon as the large irrigating canal is completed which is now being constructed, say within two years, much more land will be cultivated, and the fruit gardens, which are now only a fancy, will then, I trust, be a reality. The many acres that now only give a little grass for the many cattle, will then produce grain and vegetables in abundance.

EVENING SESSION.

JANUARY 15, 1885.

The appointment of standing committees was postponed for the present.

Under the head of unfinished business, the subject of Arbor Day came up.

On motion of Dr. Shaw, a committee of three were appointed to wait on the Governor, and arrange for a proper observation of Arbor Day.

Dr. Shaw, J. M. Clark and F. E. Bird were appointed as that committee.

On motion, three delegates were elected to attend the meeting of the Northern Society, at Longmont.

Messrs. Gipson, Gallup and Shaw were elected.

On motion, section 13 was added to the By-Laws, to read as follows: All ladies shall be admitted to membership on the payment of 50 cents.

On motion, a committee of three were appointed to draft resolutions on the death of H. B. Kennedy.

Messrs. Gallup, Clark and McClelland were appointed as that committee.

A motion was adopted that a vote of thanks be extended to the County Commissioners for the use of the room for our meeting.

A motion was adopted that the secretary be instructed to issue credentials to all members who wish to attend the Longmont meeting.

Adjourned.

Progressive Horticulture.

By Avery Gallup.

During the several meetings of the State and Northern Horticultural societies, held this winter, considerable dis-

cussion has been indulged in whenever a report was called for from the committees appointed to report on new varieties especially recommended as worthy of trial by these societies.

The ideas advanced by some of our growers are anything but liberal and progressive, and it would be a disgrace for such arguments as have been advanced to go upon record and be published in our State reports on horticulture, without a word in the way of refutation.

I pray of you not to let us go upon record as saying that we want nothing better than what already is, and as saying that there can't be any better apple than the Ben Davis.

I most emphatically assert that in the line of originating new fruits, better in quality and more adapted to the requirements of our climate and elevation, the work has hardly begun. But if we can only get State aid in carrying on experimental work in several of our favored localities, and have as earnest and conscientious work accomplished as that of Mr. Gideon, of Minnesota, we may hope, with the greatest assurance that the results will be wonderful.

Without a doubt our State will yet, within a very few years, be on record as one of the very best for fruit producing in the Union. I claim it the duty of every horticulturist in this State to experiment in a legitimate line, and use his best endeavor to produce something better than we already have. I don't mean for him to make himself poor, or keep himself poor, in this work, for this is not necessary.

Every man has some time for recreation, or should have if he economizes his time and labor, or uses it to the best advantage, and if he is interested in fruit-growing, let him plant a few seeds of the apple, pear, grape, and even the small fruits, in some odd corner of his garden, where they can be easily cared for; select his seed from the best varieties we now have, or those most hardy, and that grow most thrifty and produce the most. In other words, make your selection from the best paying trees in the orchard or garden; take good care of them, even if there are but a half dozen of them. It will not be but a few years before you will begin to get fruit from them, and then, if they do not please you, or are not any better than what is already

grown, you can graft them with good sorts, and your time is not all lost, for these grafts will bear in a year or two, and your tree is not lost, nor much of your time.

After beginning the work, you will soon get interested in it, and it will become a study, and you will feel that you are doing some good in the world, being a producer in every sense of the word. It is in this way that all our new varieties are originated, and from such experimenting must we expect our best fruits of the future.

Now, you will say, let the nursery men do this, for it is their business. Not a bit of it. It is no more their work than yours, and, furthermore, you have this advantage: You may produce a really meritorious variety, and then you can sell it out for a good figure to the nurserymen, who can boom it, and thus make a good thing of it for you, while, if you wait for the nurserymen to originate the new and good varieties, and then you want some of them, you will then have to pay well for them.

If you have not the patience to grow apples from the seed, try other deciduous fruits, or better, the small fruits, which will begin to produce fruit from two to three years from the seed; and we need a hardy grape, or raspberry, or blackberry, or an earlier strawberry, or a later one, as much as we need any fruit.

There is no question but that our best plum is yet to come from the seed of our own native foothill varieties, and the sooner we get about this work the sooner we will gain the prize. So let the young people on the farms undertake this pleasure if the older ones care not for it.

From our native Sand Cherry, already good fruit for canning and preserving, and many even delicious to eat from the tree, is to come a good first quality cherry for this country. It is already good enough as regards size and appearance, but needs perfecting in flavor.

From our June, or Shad or Sarvis berry, we ought to get something better, even delicious, and fully as good as the New England huckleberry. And from our delicious mountain raspberries a variety ought, and will be originated that will have the delicious flavor of the present, and yet be improved so as to get a good shipping berry, and one as hardy as the native.

Now, this work has all to be done, and who will be the first to lead off in it? It is a well known fact that varieties deteriorate after many years of cultivation, and those sorts that were our favorites when young and most profitable, are not as good now as then, and if we live fifty years longer we will find the Ben Davis apple is not our most profitable then as now; there will be others fully as hardy and productive and showy, and far superior in flavor and popularity. I predict that several varieties already originated will, when they become better known to our orchardists, supercede this old stand-by.

When the Wilson strawberry first became generally known, it was thought that there never could be a better one for money, but now where does it stand? It may have a few friends yet, but they are among those who have done but little experimenting with a dozen others of the now standard kinds. It is still a great producer, but inferior in quality and size and market requirements, consequently not the most profitable. Many will argue that it is quantity that we are after, but this is all wrong; we want the best quality, and then if quantity is up to the standard, so much the better, and if not, our fruit will bring so much better price for its quality that the results will be as satisfactory, if not more so, while we have not had as much expense for gathering and marketing. If we can raise one box of fine Jucunda strawberries, and get double the price we can for a box of Wilsons, why is it not best to grow the Jucunda, for we have only one picking and one box to pay for, and get as much for it as for two of the Wilson with two pickings and two boxes to pay for. Similar examples might be shown in the cultivation of other fruits. If Rhode Island Greenings will bring one dollar a barrel more than inferior, but more showy and more abundant producing varieties, why not grow the Greenings as long as they are good producers? One great trouble has been with those of us who were inclined to experiment and make all progress in horticulture, was not knowing how best to expend our energies, and what varieties to choose from, from the multitude of new things advertised so extensively.

That is the principal reason for the horticultural societies having lists of varieties made out which they feel warranted in recommending for trial. This is a move in the right direction, and one pursued by all State societies of which

we have any knowledge. It is the best way to encourage progress, to aid it in the right direction.

I do not wish to be understood as advocating the trial of every new variety advertised, just because it is heralded by well-worded circulars and fine pictures and flowery testimonials; far, far from this; not until a new fruit or flower has been tested for a year or two, and made some record for itself, do I advise fooling away time and money on it; unless, as is the case with Eastern experiments, these new things are sent you gratis, to make a trial of.

But I do say that when a new fruit comes to us very highly recommended, after several years' trial in climates or conditions similar to ours, that it is the duty of some of us to give it a chance to speak for itself.

To direct our attention once more to the apple, I must say a few words in favor of the Russian and Minnesota varieties, although I know that by so doing I am liable to awaken the vehement denunciations of some of my horticultural brethren.

For us to say that the Russian varieties, or those from crab origin, are worthless, is simply absurd. We must not forget that our stand-by, the Duchess, had such inferior ancestry, and so did Red Astrachan, Alexander and Tetofsky, all reliable here in Colorado.

Now, Russia is a large country, extending over hundreds of miles of latitude, and many of her natural characteristics are similar to our own, and why she is not as liable to be the producer of fine varieties of fruit is a question unanswerable. If she has given us the Duchess and others I have mentioned, why can't she give us more as good or even better?

Just because, in the searching for her good things, our Government has had thousands of scions thrust upon it for free distribution, and because after trial most of these have proved worthless, we at once cry out against them; but there is no sense in this; it is unfair and foolish.

Professor Budd, of the Iowa State Agricultural College, has found varieties in Russia as good as anything we have in this country, and while some of them prove worthless when tried here, others are proving a great success and show to any thinking man that we are on the track of a new family of this king of fruits, that for this western and

northwestern part of our nation will supercede all others. Just because some poor things are found, do not denounce them all, and give no more attention to their development.

The Yellow Transparent is, without a doubt, as fine an early apple as we could ask for; far superior to the Early Harvest in quality, and two weeks earlier, while it is perfectly ironclad, rich yellow in color. The Yellow Anis, Longfield, Breskorka, Pepka Sweet, Charlottenhoff, Borsdorf and Switzer are equally well recommended, and we cannot go amiss if we get these growing for us, and soon we will have fruit from them and can judge for ourselves.

We must not fail to mention the great work accomplished by Peter M. Gideon, in Minnesota, the originator of the Wealthy Apple, Martha and Florence Crabs, three of as fine apples as are grown in America. He has other varieties equally as good, and he says far better than the Wealthy, more hardy, better keepers and better flavor, some of which are seedlings from the Wealthy and Duchess, such as the Lou, Gideon and October. Of the Lou he says that if it succeeds as well in other places as it does with him, it will almost drive other apples out of the market.

Then we come to Wisconsin originations, and we know from what little demonstration has been made here, that we want no better varieties than the Pewaukee, Wolf River, McMahon White, and in all probabilities, the Mann, McIntosh Red, Fink, Scott's Winter, Plumb's Cider, Walbridge and Isham Sweet will be equally desirable.

Most of the kinds we have mentioned are early bearers, and it is owing to this fact that we have been able to see any of them yet produced on Colorado soil. For, although a large part of those I mention are growing here, but few are old enough to produce fruit.

This season, if favorable, will see a great many of the choicer new apples produced in Colorado, mostly in the Northern part of the State.

I have some forty of the newest, best tried kinds now growing on my place, but it will be from two to three years before I can expect any fruit from them—will only be able to note their hardiness and character of growth in the meantime.

All that I have said regarding the apple applies nearly as well to the plum, pear and cherry, grapes and small

fruits. Plums and cherries are being originated and improved in Minnesota, and without question they have some good kinds, and they are well worthy of our trying in our experimental grounds. The Russian pears and the Longworth and Indian Queen should have attention at our hands also.

Were we to enter the field of the floral kingdom, we might spend an hour or more reciting what wonders have been accomplished by energetic, painstaking, enthusiastic and progress-loving amateurs and florists.

There are men and women who spend their lives at this work, and when they can produce such marvels of beauty in the rose, as the new William Francis Bennet, American Beauty, Her Majesty and Bride, is it not glory enough for one lifetime?

Had this kind of work not been encouraged and untiringly pursued, would we have had to-day anything better than the wild rose of the hedgerow or the common June roses that so litter our door yards?

Again I say, that in this age of progress, it would be folly for us to adopt an old fogy idea of letting well enough alone, but let us each strive to find something better, be the producer of some better fruit than we now have, and thereby make a record for ourselves among our brother men, and a profit unto ourselves as well.

Best Grapes for Colorado.

By V. DeVinney.

Having made a specialty of grape-growing for more than a decade, and after experiencing many disappointments and failures, and after testing the growing and fruiting qualities of sixty-five early varieties (for late sorts were needless to try), and after marketing several tons and making

considerable wine, I trust it will not be pretentious in me to make a few suggestions on the cultivation of the grape.

Though I have written so much within a few years upon this subject it might seem superfluous to a superficial observer for me to add more to what I have already written, but it would be a wrong to my friends and co-laborers in me to cast aside as worthless pebbles the small but valuable gems of truth and knowledge found in my vineyard year after year, for my experiments are now more interesting than ever, for heretofore there was only in them curiosity, and hope, but now there are grapes, wine and money.

The growth of the grape vine in Colorado is healthful and vigorous, and it is free from many of the diseases of the East, which there render grape-growing hazardous and often unprofitable. The soil here is as well fitted for grape-growing as that of California or Ohio.

There is but one difficulty in the way of grape culture in Colorado. That is the short summers, which for the grape is but four months, as averaged by observations through fourteen years.

A grape, therefore for general and extensive cultivation in vineyards in Northern Colorado should bloom and ripen its fruit early enough, within four months, to permit of its being gathered and marketed or made into wine within that time to escape the early autumn freeze.

My experiments and desire have therefore been to discover a grape possessing all the qualities of a good grape and sufficiently early to meet this great desideratum. But while I have found much to please and give encouragement, satisfaction is not yet obtained in this interesting work.

To define briefly to the inquirer what vines to plant, I will give the following list as the best to select from:

Champion or Talman, Massasoit, Delaware, Chasselas or Sweet Water, Hartford Prolific and Worden.

The first four named are the best. I could name other sorts deserving trial, but as they are later ripening sorts and no better, I pass them as not desirable for Northern Colorado, but may be desirable further south and for that purpose name them: Eumelian, Challenge, Perkins, Salem, Agawam, Concord, Black Hamburg and North Carolina.

Champion, the first named grape, is the earliest grape in the world, and though not the best, is too good to be omitted.

The Massasoit is a treasure to possess, and is better than a California grape.

The soil best suited to the grape is a loose, porous one, not very wet and not underlaid with water. Whether the soil is sandy or clay is not so important as its looseness and nature to quickly lose its excess of moisture after an irrigating or a drenching rain. Grape vines should not be planted closer together than eight feet, and after the first year no crop should be grown between the rows; and should the vineyard be large, roadways should be left to haul into it manure and to haul out of it the grapes.

I give my vines winter protection by laying them down and covering them with earth entirely. This is done in November, and they are uncovered in spring after the twentieth day of April. The pruning is done in the fall previous to covering them.

Irrigating of Fruit Trees and Small Fruits.

By A. E. GIPSON.

Artificial irrigation is essentially a part of the agriculture of the great Rocky Mountain slope. The successful cultivator must know how and when to apply water to his crops. To the grower of fruits, the ability to command this element when needed, is of manifest advantage.

That the yield may be increased by the judicious application of water, there is little doubt. That the fruit may also be increased in size and made more attractive, is equally certain. At the same time, judgment is required for the best results. Indeed, positive harm may be done

with untimely irrigation—harm not only to tree and plant, but to the land as well.

Incessant watering, without regard to the condition of the soil or needs of the plant, will often force a growth of wood at the expense of the fruit product and the fruit flavor. It may likewise cause a growth to be made which the succeeding winter finds immature and unable to withstand its tests. This will almost certainly be the result with any tree or plant that has a tendency to make a strong or succulent growth. I have known great injury to result from this cause alone.

I have also known the quality of small fruits, particularly strawberries, to be seriously impaired by too frequent watering. This, by way of illustrating the point that there is danger in careless irrigation.

The condition of the soil and the needs of whatever is growing on it, should be studied. My own view is that too much water is used by a majority of irrigators in the orchard and garden, and that more harm results from a too free use of it than from too little.

In a word, everything beyond a legitimate use is an abuse, and this will be better understood in a few years than it is now. This much is certain, that the continuous soaking of land or crop is sure to result in injury.

On account of the difference in soils and location, no very definite rule can be given for the application of water. Some lands require more than others; this is also true of small stock.

Again, much depends on cultivation. Often a thorough stirring of the soil is as good as, if not better, than irrigation. Seasons also differ; during some the rainfall is sufficient to carry the trees well into the summer without irrigation.

If summer and winter mulching is practiced less water will be required, because a good mulch arrests evaporation and preserves an even temperature around the tree. In fact, I have known orchards with a good mulch and thorough cultivation to pass through the season with but one watering.

Occasionally, the soil is sufficiently moist to permit of this without a mulch, if the cultivation is good. But these

instances are, of course, the exception and will not do for a guide in any general sense.

PREPARATORY WORK.

Before giving my views about the best time and manner for fruit irrigation, I call attention to the importance of preparing the ground before planting, so that the water can be readily run where desired.

Experienced irrigators will especially appreciate the value of this suggestion. The land need not be graded to a water level, nor so that it can be entirely flooded, but should be prepared so that water will run easily without constant urging with shovel or hoe. Occasionally flooding is desirable, but is seldom practicable except on small lots. In all cases avoid steep grades where the soil washes badly, for the planting, of fruit stock. A gentle slope, all things considered, is best, and long rows are preferable to short ones, when the slope is sufficient to carry the water easily the entire length.

If the irrigation is to be done from one direction, or from one side of the land, let the main lateral be made along this side, and sub-laterals be constructed down through the rows, after planting is done. These are usually made with an ordinary shovel plow, and in small gardens with the irrigating shovel and line.

For limited tracts or grounds, a neat way of conducting water is by means of a box, or flume, in the place of the main lateral, with checks, or gates (and both where needed), at the head of and opposite each sub-lateral, so that water can be readily turned into them and off when desired. This plan avoids the necessity of shoveling out and filling in the dirt every time the rows are to be irrigated, the simple raising and lowering of each gate being all that is required.

When the land slopes in opposite directions it is often practicable to run both ways by means of a ditch running along the highest point.

At times the lay of the ground requires a mixed system, one of sections and cross sections in irrigating. In all such cases the irrigator has to be governed by circumstances—in other words, do the best he can.

HOW AND WHEN TO IRRIGATE.

First of all, care should be exercised to so arrange or lay out the garden and orchard, that those things which require the least water will receive the least and vice versa. In other words, don't mix everything up so in planting that your trees will have to be irrigated every time the small fruits are. I regard this an important precaution.

However commendable impartiality may be, as a general maxim of irrigation, it will be found unsafe when applied to the details of water distribution. Plant the cherry trees, for example, where they will get the least irrigation. Next to them the pears and apples, although the latter will need considerable the first season after planting. Among small fruits the blackberry and most varieties of grapes will get along with comparatively little water, while the strawberry, currant and gooseberry should be watered quite freely.

The raspberry, if properly mulched, only needs an occasional irrigating, except when fruiting; then once a week will be about the right thing. Nearly all cuttings require plenty of moisture.

For obvious reasons no precise rule can be given for the application of water. So much depends upon soil, location and the manner of cultivation, that this would be out of the question. It is safe to say that the well established orchard would not ordinarily require more than three good irrigatings during the year. Some would do with less, but this would be about the average. The small fruits during the fruiting season, I would water once a week as a rule.

As to the manner of running water, I would say that my experience leads me to prefer a head of water just sufficient to send a moderate stream gradually down the rows. This enables the moisture to penetrate the soil more thoroughly than a rapid current would do.

If practicable, water should run on both sides of the row, unless the lateral or ditch is close to one side. This is especially desirable in the case of forest or other trees on land that receives little or no cultivation. On my

ground, water is usually run along several rows at the same time.

Now and then soil is found that will admit of rapid irrigation, or, as it is called, sending it along with a rush, but this is the exception. Of course, where water is scarce, and one is limited to a certain time in its use, the best that can be done is to use it as circumstances will permit.

When the water has run its course, turn it off, don't let it soak, and soak and flood your grounds and those of your neighbor, and the streets and highways and byways. By this practice you are certain to injure your lands and crops, to annoy your neighbors and inconvenience the public generally, and by and by become a positive nuisance.

This advice is rather gratuitous, and entirely friendly, but the one who heeds it will find himself to be the gainer. He is certain of better results on his own grounds, is equally sure to be on better terms with those surrounding him, will avoid the perils of promiscuous irrigation, and finally educate his conscience and become a better citizen.

To recapitulate, first prepare your ground for irrigation. Avoid steep grades for fruit stock. Give preference to a gentle slope. Irrigate gradually with a moderate stream. Plant those things that require the least water where they will get the least. Be careful not to force your trees into a growth of wood that will not ripen before the succeeding winter. Give the small fruits plenty of water while maturing, water the young orchard, particularly the apple trees, quite freely the first season and also the second.

As a rule, withdraw the water in August from the orchard to let the season's growth mature.

Don't spoil your land and crops by continuous soaking. Turn off the water (not into the street) back into the ditch when you are through with it.

Water thoroughly the last thing before the ground freezes, so that your stock will go into winter quarters in good shape, prepared to resist the drying out process so fatal to trees in this climate.

Horticulture in Colorado.

By Nelson Millett.

[A paper read before the Wheat Ridge Farmers' Institute.]

Outside of the few immediately engaged in the pursuit of horticulture, there seems to be no proper appreciation of the importance of this branch of industry in Colorado. This is not at all surprising when we consider the character of the country, and the object for which many of us are here.

The pioneer wanted gold, and he wanted it at once; he couldn't wait. He expected to gather up his everlasting fortune, and return home with the first bull train that left for the States.

His confidence in his ability to realize his expectations reminds one of the man who went to Washington about the same time to collect a little claim against the Government, expecting to accomplish his errand and leave for home the same day. He is still in Washington, and the pioneer is still here, and as a rule, the one is about as near attaining his purpose as the other.

The accumulation of wealth by the slow processes to which he had been accustomed in the East, was no part of his programme. It never entered his head that anything could be raised on these brown and barren plains, except scalps, and the "old nick" generally. Mining was the sole industry of the country, varied, of course, by the usual divertisements of faro, poker and California Jack.

By accident it was discovered that the apparently dead and juiceless grasses of the plains furnished the most nutritious pasturage throughout the year, and a few quit raising the devil and went to raising steers.

Thus the second great industry of the West arose to dispute for supremacy with the first. They have grown up side by side, like twin giants, until "the man with a mine" is no more an institution of the country than the "Texas steer and the man that owns him."

The fabulous prices of all kinds of food in the early days tempted a few to to test the capabilities of the soil, and they sowed wheat and planted potatoes, where before they had sowed wild oats and prospected for gold.

Every sheaf of wheat proved a veritable sheaf of silver, and every hill of potatoes a miniature mine filled with nuggets of gold.

The success of the few attracted and encouraged others; the rural ranks were gradually filled, and agriculture was added to the list of important industries of the State. Homes were built, and men gave up the idea of returning to the States, and sent for their wives and sweethearts instead.

Though, under the influence of competition, prices have steadily declined, the agricultural population has steadily increased, capital has found a profitable field for investment in the building of additional canals, and the area of arable lands has been constantly enlarged.

It is stated that five hundred thousand acres of land is now under ditch and unoccupied in the State of Colorado, two hundred thousand acres of which is Government land, subject to entry under the pre-emption, homestead or timber culture laws.

And still, while stock raising and farming had been making rapid strides, no one thought of raising fruit, or had any faith that it ever would be done in Colorado, probably, in the first place, because they were too busy raising the necessaries of life to give the subject any attention, and if they did, the obstacles to be overcome were altogether too numerous. The seasons were too short; the winters were too cold; the climate was too dry; the springs were too late; the falls were too early; the days were too hot; the nights were too cold; hailstorms were too frequent and grasshoppers were too hungry. Everybody said it was no use talking, you couldn't raise fruit in Colorado.

No, not everybody: A few hopeful cranks who always will persist in trying to accomplish the most absurd impossibilities, insisted that you could, and proceeded to show their faith by their works, by planting orchards and vineyards and small fruits, while their neighbors looked on in pity of their foolishness and contempt of their lack of sense.

But the pioneers of horticulture had "sand" if they hadn't sense, and they persevered against every obstacle, and as usual sand proved victorious. The immense quantities of berries of the finest quality that now crowd our markets every year, have convinced the most skeptical of the adaptability of our soil and climate to the culture of small fruits.

"But apples, oh, no; you'll never raise apples here. That's out of the question."

It was only recently that a friend of mine asked me, in a sort of triumphant tone—for he thought he had me: "Did you ever see apples growing in Colorado? I mean *apples*, not trees." My friends, truth compelled me to admit that I had seen several, and when the ten or fifteen thousand thrifty apple trees now growing within a radius of a mile from this house come into bearing, I expect to see several more.

Horticulture has received a wonderful impetus during the past two years. I have heard it stated that no less than fifty thousand apple trees were planted in Colorado, north of the Divide, in the spring of 1885.

Just now, the subject of inducing immigration to our State is occupying the attention of the Denver Chamber of Commerce. A few evenings since a member of that body hit the nail upon the head by asserting that one well cultivated farm was worth more to Colorado, as an inducement to immigration, than a cattle ranch with fifty thousand head of cattle. If this be true, and I think he was right, then the importance of horticulture as a permanent factor of our growth and prosperity can hardly be too highly considered.

What the people want is homes, and what are homes without trees and flowers and fruits? The pursuit of horticulture embraces within its benefits all classes of the community. It deserves the encouragement of all and the antagonism of none.

The increased supply of all the luxuries of life at a diminished cost is a matter of equal interest to all, the miner, the stock grower, the merchant, the mechanic, the laborer. A few years ago strawberries, shipped in from abroad and of inferior quality, were considered cheap at one dollar a box; now the finest of berries of home pro-

duction can be bought at from fifteen to twenty-five cents a box.

Many of our mines are owned by eastern companies and the proceeds of the sale of ore find their way into the pockets of eastern stockholders. The same is true largely of our cattle; they fatten upon our plains, are shipped East and much of the money remains there.

The horticulturist on the other hand is always one of us. What he produces finds a market at home; the money he receives is expended in the purchase of necessary supplies and the profits, if there be any, are employed in permanent improvements.

The beneficial effect of a bountiful supply of fresh fruits upon the public health, is a matter of no small moment, and is a fact long ago recognized by medical men.

It has been common among some farmers, as well as others, to look upon fruit raising as a rather small, puttering business, not worthy of their attention. They are after larger game. They are like the Irishman, who, on first landing in America, saw a silver dollar lying in the street, and passed on with the remark, "I'll not be afther picking up a little thing like that, begorra! I'm going for the hapes."

They lose sight of the fact that "many a mickle makes a muckle," and that the income from the small things, the odds and ends, is often greater than from the staple crops.

Central Illinois is pre-eminently a corn-growing country. A few years ago, a failure of the corn crop led the farmer to utilize to its fullest extent the fruit crop, by canning, drying, preserving, making into cider, etc. The result was a larger revenue to that section of the State that year, than they had before derived from their large crops of corn.

But one of the chief advantages of horticulture, and one we must not overlook, is its instrumentality in the peaceful accomplishment of an end for which mankind have struggled for thousands of years—the breaking up of a landed aristocracy and the distribution of the land among the people. The old Romans have fought for this for centuries. England has never accomplished it, and the Irish people have contended for it for generations and are still engaged in the struggle.

It is for horticulture to solve the problem of the maximum of life to the minimum of land, by taking the area hitherto required under our system of grazing to feed a steer, and making it support a family.

Admitting, then, the importance of horticulture as a necessary adjunct to the health and happiness of the people, and an indispensible element of our future growth and prosperity, it follows that any measure calculated to foster the horticultural interests of the State is deserving of the support of all good citizens.

This leads me to speak of an institution having for its object the promotion of horticulture, pomology, arboriculture and floriculture, namely, the Colorado State Horticultural Society.

I will endeavor briefly to give an outline of its history, condition, and the work it aims to accomplish.

In September, 1880, a few persons, eighteen in all, met in Denver and proceeded to organize a State Horticultural Society. Several of these gentlemen are present here to-day.

The society thus started into life has had a steady, although perhaps not a very vigorous growth. Annual meetings have been held, at which interesting discussions have taken place and valuable papers on horticultural topics have been presented, which are embodied in the two printed reports already issued.

Several very creditable exhibitions have been held, under the auspices of the society, the one in connection with the National Mining and Industrial Exposition, in 1884, being a great surprise to the visitors to the State, as well as to our own people, who had no idea that such fruit could be raised in Colorado.

In 1883 the State Legislature, recognizing the importance of fostering the fruit and tree-growing interests of the State, passed an act constituting the Horticultural Society a State Bureau of Horticulture, providing for the printing of its reports, and appropriating a thousand dollars annually to enable it to properly carry on its work. This law, owing to certain constitutional restrictions not necessary to enumerate, has been practically a dead letter, and only for one year has the society been able to reap the

benefit of its provisions. It is now thrown back, for the time being, upon its own resources, with an important field of work open before it.

In the main, the object of the society is the dissemination of horticultural information, the education of the people, the spread of knowledge. And here the field is a wide one, for certainly nowhere do the people need such information more than in Colorado, for we meet here conditions peculiar to the country. While in many things we may profit by the experience of Eastern growers, in others only our own experience can be of any value to us, and by our own, I mean the experience of those pursuing our calling under like conditions with ourselves. Of the best methods of irrigation, for instance, we still know but little, while in many other things, we have yet much to learn.

There are, I think, something over two thousand varieties of apples in cultivation, and from this large number we must make our selection of the few adapted to the peculiar conditions of our soil and climate. In this we need the experience and advice of all the other fruit growers of the State. We shall make mistakes enough, in any event, and should avail ourselves of every possible source of information.

If there is a pear less liable to blight than others, we want it. We want the grape that, while it shall be of good quality, shall be the earliest to ripen. If there be a cherry not subjected to the black knot, or a plum that is proof against the curculio, that is the one we want.

The subject of insects will soon demand our serious attention and we shall all then need to be practical entomologists. We cannot hope long to escape the ravages of that vast army that in the East makes the life of the horticulturist a burden.

As our orchards increase and come into bearing, the enemies of the orchard will make their appearance to dispute with us for the fruits of our labors. Nothing but intelligent, vigorous and united warfare will determine the contest in our favor. I say united, and I wish to emphasize the word. It will be of little avail for you to contend single-handed against your myriads of foes, unless your neighbor uses equal precautions with yourself.

And here I come to a question of right. No man has a right to plant an orchard alongside of yours or mine, to become the breeding place for the codling moth, the canker worm, the curculio and the apple tree borer.

Ignorance is no excuse. Every vocation has its responsibilities, and as soon as we enter upon a calling we assume those responsibilities and are under an obligation to consecrate ourselves to an intelligent understanding of our work and a vigorous application of our knowledge.

I know it is common among some to scout at book farming. I know, too, there are all kinds of books, many of which are worse than worthless. I don't care where men obtain their knowledge, so long as they get it, and apply it when they have it, but as books are generally but the embodied results of others' experience, there would seem to be a natural and intimate connection between book knowledge and practical success.

That man is a scientist who applies the principles of science to his work. He may care nothing for botany, and may even insist that it has nothing whatever to do with success in fruit-growing. He may never have heard the words "staminate" and "pistillate;" but when he plants a pistillate variety of strawberry, like the Crescent, and plants now and then among them a row of some staminate variety, like the Wilson, the Jucunda or the Captain Jack, to fertilize them, he applies the principles of botany, and is to that extent a practical botanist. He may laugh at the science, but he must not disregard its principles; if he does, he will find his mistake when fruiting time comes.

In New England, a quarter of a century ago, the farmers were not especially proficient in the science of entomology. They had hardly heard the name of codling moth; but I remember, when a boy, often hearing the remark that the apples were "awful wormy" that year. And yet no one ever thought of using any precautions to protect the orchards against their ravages.

People know more about such things now, and do differently, at least some do. But I will not enlarge upon this subject.

I think all will admit that we have much to learn in the field of horticulture. In fact, I find those who have been longest in the business and have been most observing and

progressive, are the most ready to confess their ignorance in many things.

It might be the correct thing, right here, to refer to Sir Isaac Newton, comparing himself to a child playing upon the seashore and picking up here and there a brighter pebble than his fellows, while the whole ocean of truth lay all unexplored before him. But I will spare you the affliction. Most any of us could fill a book with what we don't know about raising fruit.

By bringing together those engaged in horticultural pursuits in different parts of the State, the State Horticultural Society becomes a horticultural exchange—a sort of board of trade, where we meet to exchange the fruits of our experience and observations.

In different localities are different men, engaged in different branches of horticulture, at different altitudes and on different kinds of soil. In the State Society these men meet to compare notes. The man raising strawberries on a sandy soil exchanges his experience for that of the man whose soil is a heavy clay, and by a comparison of the two, we are able to make an intelligent selection of varieties adapted to our own particular soil.

Another man finds, by long and costly experience, that a certain kind of fruit which succeeds well at a certain altitude, is a complete failure at a certain other altitude, and through the medium of the society, the knowledge which he has been years in obtaining becomes the property of all.

Our store of knowledge is not diminished by imparting a portion to others. Our candle burns none the less brilliantly, that other candles have been lighted therefrom. If two men know a truth to-day, where but one knew it yesterday, nobody is the poorer, while the sum of human knowledge is doubled.

For each one of us to experiment with all the new varieties that are every year pressed upon our attention, would be impossible, but by some testing one kind under different conditions, while others are experimenting with something else, we are enabled to prove all things, and hold fast that which is good.

In many States experimental stations are established for this purpose, among others, and are proving of great

value. But every fruit farm, in every part of the State, should be an experimental station, each reporting to the central office, where the aggregate results should be compiled and distributed for the benefit of the whole.

The plans for the new State Capitol provide for a room for the State Horticultural Society, and by the time the building is completed, a valuable horticultural library should be collected.

The amount of valuable and interesting matter contained in the published reports of the various State Horticultural Societies of the United States is surprising, and complete sets of these reports so far as possible should be secured.

The publishers of many of the agricultural and horticultural papers of the country would no doubt be glad to send a copy regularly to our society, which could be kept on file for the use of members. In these and other ways a large collection of agricultural and horticultural literature can be obtained and made accessible to the people.

This society should embrace in its membership every horticulturist in the State of Colorado. It should include every gardener, every florist, amateur or professional, every farmer who desires to surround his home with flowers and fruits and trees, as well as every one interested in fostering the fruit and tree-growing interests of the State.

The annual membership fee is but one dollar for gentlemen and fifty cents for ladies, while ten dollars constitutes one a life member.

Each member is entitled to the reports of the society, and for the present each new member will receive copies of the two reports already issued.

In conclusion, I desire to earnestly request every one at all interested in its objects to give the society the support of your names, the encouragement of your presence and the benefit of your counsel.

REPORT

OF THE

Northern Colorado Horticultural Society

FOR THE YEAR 1886.

Upon invitation extended by A. E. Gipson, of Greeley, the executive committee decided to hold their annual meeting at Greeley.

In accordance with this action, the meeting convened at the court house in Greeley, Wednesday evening, December 9, 1885. The meeting was called to order by President J. S. McClelland.

The minutes of the last meeting were read and approved. Secretary J. E. Washburn read his annual report.

Secretary's Report.

Mr. President and Fellow Members:

In presenting this, the first annual report of the Secretary, I shall offer no apology for its brevity or lack of interest, as you are, of course, aware of the fact that the first year's existence of a permanent organization of this character must be devoted more to the work of organization than to active advance in the field.

The progress made toward perfecting the arrangements and making plans for future work is such as to assure us that, with zeal and good judgment, we shall be able to realize in the near future some of the results for which this society has been formed.

In pursuance of an arrangement made with the State Horticultural Society, at its last annual meeting, to publish the full proceedings of this society in their annual reports, I prepared and forwarded to the Secretary of the State Society, in June last, a record of the doings of this society from the date of its organization to that time, and as a large part of the work for the past year has been given you in the annual report of the State Horticultural Bureau for 1885, it will be unnecessary to repeat it.

The special meeting held at Loveland in February last, was largely attended by the people of that locality, and an interest was created in horticultural matters that has manifested itself in such an increase in fruit planting as to suggest the advisability of holding more frequent sessions in various parts of our jurisdiction.

I received from the Secretary of the State Society, 300 copies of the annual report for 1885, something over 100 of which have been distributed throughout the district, but the distribution has not been as complete as is desirable, owing to the difficulty in procuring the address of persons, and the cost of sending documents of that size through the mails. Under the postal laws it requires six cents postage on each copy mailed and the financial condition of the society the past year did not warrant one in the expenditure. I would, therefore, recommend that some plan be devised to place such matter as we may have for distribution in as many households as possible with less expense than is required to send it through the mails.

An invitation was received from the American Pomological Society, to be represented at their twentieth biennial session, at Grand Rapids, Mich., in September of this year, and fortunately we were able to secure a delegate to that important gathering of veteran horticulturists in the person of A. E. Gipson, who will report the doings of that body before the close of this session.

In reporting the condition of horticulture in this district, I will briefly summarize the information received

from the vice presidents and others in the different counties, as, also, those facts that have come under my own observation: Fruit trees and vines came through the winter of 1884–5 in good condition as a rule. The small fruit crop of the past season, with the exception of strawberries, was seriously damaged by severe frosts in April. Early blooming varieties of apples were mostly killed, while later ones bore fairly well. Tree and fruit planting, as well as ornamental gardening, has surpassed that of any previous year to a notable extent, as is evidenced by the largely increased sales of our nurserymen and the tree peddlers. Fruit trees and vines are apparently going into winter in well ripened condition, owing to the favorable weather of the fall months.

The object of this society, as set forth in its constitution, is to promote horticulture in Northern Colorado. For that purpose it is desirable that we should secure the co-operation of as many of the citizens of the district as possible. We need the help of the women and young people, and to enlist them in the work, they should be induced to become members of the organization and urged to take part in the exercises and discussions at our meetings. While there are scores of women in this State able to instruct and entertain in many branches of our work, yet on the printed programme of this joint meeting of two Horticultural Societies, the name of a solitary woman does not appear.

A prominent horticulturist of Michigan says that, if we would have our Horticultural Societies succeed, we must have the help of our wives and children. If, when a man plants a tree, his wife holds the tree erect while he shovels in the earth, and the children stand by with watering pot moistening the roots, then will horticulture be a success.

The mission of this society is not alone to benefit nurserymen and commercial gardeners, fruit growers and florists, but to extend its influence till an abundant supply of home grown fruits, flowers and vegetables among the people of every section of this district shall be the rule and not the exception.

The financial report from date of organization is as follows:

RECEIPTS.

Membership fees, 24@$1.00 ---------- $24.00

DISBURSEMENTS.

Paid L. H. Dickson, treasurer	$10.00
Paid for blank book	.50
Paid for 100 letter heads	1.50
Paid for postage	.50
Paid express charges on reports	1.00
Paid postage on reports	6.15
Paid postage stamps	1.50
Paid printing slips	1.00
Balance on hand	1.85
	$24.00

J. E. WASHBURN, *Secretary.*

The report of the treasurer was then read, as follows:

To the Officers and Members of the Northern Colorado Horticultural Society:

The undersigned begs leave to report as follows:

Cash received from the secretary	$10 00
Amount paid out	None.
Cash in treasury	$10 00

All of which is respectfully submitted.

L. H. DICKSON, *Treasurer.*

The committee appointed by the society at their meeting in Loveland, in February last, to select an agent for the sale of the fruits of members, reported, through their chairman, A. E. Gipson, that they had selected J. M. Clark, of Denver, as such agent, and that he was present and would make a report in person of his transactions.

Mr. Clark, being called upon, stated that he was disappointed in the quantity and quality of the fruits shipped to him by the members of the Northern Colorado Horticultural Society; criticised the manner of picking and packing, and offered suggestions as to the best manner of shipping, attributing much of the damaged condition of the

fruit, on its arrival in this market, to rough and careless handling by express companies; gave the total amount of receipts of fruits from members of the society as amounting to $760.

Mr. Faurot expressed the opinion that it was the duty of the agent to oversee the transportation of the fruit from the cars to his place of business.

The society then proceeded to the election of officers for the ensuing year.

On motion of James Ackerman, the president appointed a committee of three, consisting of Messrs. Ackerman, Cassidy and Wild, to make nominations.

During the absence of the committee, President Richardson, of the State Society, addressed the meeting.

The committee on nominations reported as follows:

For President, C. S. Faurot.

For Secretary, J. E. Washburn.

For Treasurer, L. H. Dickson.

Vice Presidents: For Weld county, W. L. Porter; for Larimer county, W. F. Watrous; for Boulder county, Wm. Newland.

Members Executive Committee: J. S. McClelland and A. E. Gipson.

Delegates to the State Horticultural Society: Professor James Cassidy, C. S. Faurot and A. E. Gipson.

On motion of A. E. Gipson the report was adopted and the persons whose names were presented were declared elected officers for the ensuing year.

C. S. Faurot offered the following resolution:

WHEREAS, It has come to the knowledge of this society that the Pacific Express Company has been, and is now, making unjust discriminations against the fruit growers of

northern Colorado, and in favor of the fruit growers of Kansas and other States, and

WHEREAS, It has become impossible for us to compete with said fruit growers favored by the express company, therefore be it

Resolved, That we earnestly protest against the system of discrimination as destructive of our interests, compelling us eventually to abandon our industry, therefore be it

Resolved, That a committee be appointed by this society to properly present this matter to the Pacific Express Company, and in case they meet with a denial of relief, to present the case to Commissioner W. B. Felker, and to prosecute the same by all legitimate means.

A. E. Gipson offered the following amendment to the resolution, which was adopted:

And that said committee be instructed to see the proper authorities and insist that the fruits shipped by the members of the association to different points on the various lines of railroad are properly handled by employés of said railroad express companies.

The resolution, as amended, was adopted.

James Ackerman offered the following preamble and resolution, which were also adopted:

WHEREAS, The Northern Colorado Horticultural Society has been, and is still laboring to advance the fruit-growing interests of the State, and the tree peddler still pursues his calling, to the detriment of the best interests of all who desire to grow fruit; therefore be it

Resolved, That this society would warn all persons against purchasing nursery stock from any agent who is not furnished by his employer with a certificate, stating that the principal will be responsible for the acts of said agent.

Pursuant to an invitation from James Ackerman, of Boulder county, the society resolved to hold a special meeting at Longmont, in February next.

An invitation was extended to the State Horticultural Society to send representatives to the meeting at Longmont.

A paper was then read on:

The Moral Influence of Fruit Growing.

By James Ackerman.

As pomology has heretofore been considered from a purely financial standpoint, perhaps it would be well for us at this time to view it on a social and moral basis.

I noticed in our last February meeting, at Loveland, that there was a general good feeling, which you very rarely see in a public assembly, and it strikes me that perhaps it was because so large a majority present at that meeting had been feasting on fruits of their own raising. If my view is correct, there are at least three propositions. First—Influence over family. Second—Social intercourse of the community. Third—Pointing to prohibition.

The standing of a nation is usually gauged by its morality. The questions arise, who is the nation? of what is it composed? There is but one answer—single individuals; and as it has been generally conceded that the mother makes the man, and the principles inculcated in childhood and youth are the basis of mankind, the home circle would seem to be the proper place to sow the seeds of a nation's greatness and prosperity. And now for the first step. The mother makes the man. Has the father anything to do? In all the mechanical and agricultural departments, to facilitate labor, machinery has been instituted to advantage.

Now the question arises, can the father furnish the mother the necessary machinery to make a great and powerful nation? I answer, yes. In the first place, cheerful and patient labor. Second, adornment of home. Third, though not the least, the feasting on of a large variety of fruits. Apple, pear, plum, cherry, currant, goosberry, strawberry, raspberry, blackberry, grapes, and last, the mountain service berry. Plant, and plant plentifully, that the mother may say to her children, go, eat and be satisfied. And where is there a child who does not like good, ripe

fruit; and who has ever heard of ripe fruit making a child poor and sickly.

God has placed within our reach the means of making strong healthy children, and with a vigorous physical body we get an active mind. Another thought; with an abundance of fruit at home, there will be no inducement for them to pilfer from their neighbors; and still another thought; while having a plentiful supply of fruit and a pleasant home, the saloons have no attractions for them. But some might say, that is a very good summer prescription, how about the winter? Well, a bucket of good apples brought in after supper, with plenty of good reading, a general social time, with father, mother, brothers and sisters taking part, is a good winter prescription. But you say about the social time. When we are well supplied with the good things of this world (and what is better than good fruit), how can we help but feel social? Our one great duty above all others, is to so live that we shall leave this world better than we found it. And how shall we do it?

Why, raise fruit—and a succession of fruit—that we may have fruit from January 1 to December 31. Fruit makes a good-natured father, a happy mother and a jolly lot of children. If you do not believe it, all I have to say, is to try it, and be convinced.

One says: "I have not the time; it keeps me busy to get bread, meat and clothing."

But, hold on. Not so fast. Let me put in a word. For the time occupied, would there not be as much nutriment in fruit as in bread and meat. And, which would your family relish, all bread and meat, or have it mixed with a plentiful supply of fruit? I would not say all fruit; but give them a variety, if you would make them happy and contented, and make them feel by all means that home is the best place in the wide world. Plant fruit!

Another says: "I have not the room. I have only one small lot in town, and I need that to raise vegetables for my family."

Well, perhaps you do, but one thing I have noticed in passing through the towns and villages, about one-half of the lot is a beautiful lawn, the other half is beautifully set to weeds. Now, a lawn is very nice, and I would say by all means have one, but make it a little smaller; as for the

weeds, my family do not like the fruit that grows on them. I would discard them entirely and plant fruit trees and set a few strawberries and raspberries in their place, and make your wife happy. We cannot all have pretty wives, because there would not be enough to go around, but we can all have pleasant, happy wives if we plant fruit and take care of it.

I sometimes think that husbands are too exacting, they look upon the wife as a machine to do their cooking, washing and mending, and pay but little attention to her personal comfort, Let us in the future be true to our marriage vows, and plant fruit to make our wives happy and then we that have what the world calls plain wives may have something that is more desirable, a love that grows stronger and stronger as we grow older.

If you wish to live a happy life, and make your family happy, plant fruit.

If you desire to live in a pleasant social community, plant fruit, and encourage it in your neighbors.

If you desire to have Colorado stand at the head of the list for purity and morality, plant fruit. Talk fruit.

If you desire that this nation shall become great and good, plant fruit.

First, last and all the time, plant fruit, and do all in your power to encourage it in others. To do good to others as well as to ourselves should be our great aim in life.

W. L. Porter, of Greeley, read a paper on "Bees and their Influence on Horticulture," agreeably demonstrated by frames of beautiful honey on plates, with knives, passed among the members for sampling. Much interest was shown, and a profitable discussion followed; the author of the paper showing by his ready replies to the questions asked, his proficiency as a beekeeper.

The Relation of Bees to Horticuluture.

By W. L. Porter.

In conversation with a prominent fruit grower of Colorado, some time ago, he made what I considered a very broad assertion, and one to which I could not but take exceptions. It was about as follows:

"All bee-keepers are interested in fruit growing, but the reverse is not true. While some fruit growers are interested in bees, many are not."

The thought came to me at once that if so prominent and intelligent a man could be so mistaken, a paper on the relation of bees to fruit and seed might draw out some enlightening facts on the subject.

One of the most interesting things in the study of botany is the fertilization of flowers, and its importance is paramount, to the horticulturist, the farmer and the gardener. Without fertilization we can have neither fruit nor seed, and it seems to me that nowhere has mother nature been so deficient as she has in preparing means to carry out this end. In many cases we find the stamens and pistils on different trees, as in the mulberry. In other cases, in diffierent flowers on the same plant, as the squash and cucumber. In other cases we find the essential organs in the same flower, but so situated that the pollen can not reach the pistil without some assisting agent.

When we consider the vital importance of having this perfect fertilzation, then we can realize the importance of the agent that brings it about. How many of us have seen a lonely cornstalk standing in the garden or field with its fine-looking ear, but to our surprise we find the frame of a large ear with a few grains scattered over. When I was a boy I asked why this was so and was told because the cornstalk stands alone. It would have been much more satisfactory to my inquiring mind if I had been told that a fine dust grew on the tassel called pollen, and that a grain of the same must fall on each of the silk-like threads coming out of the ear, and when the stalk stood alone, the wind blew the dust away and it did not reach the silk.

If nature has been so deficient in arranging the contact of pistil and pollen, she has wisely prepared other means. In many cases the wind carries the pollen and scatters it broadcast, that not a single pistil can miss its influence. Examples of this can be found in our pine forests and in our cornfields.

But a more common way is that nature has wisely secreted a sweet substance about the different organs of the flower. This, bees and wasps are fond of, and busily fly from flower to flower, with fuzzy-like bodies, carrying the pollen from the staminate to the pistillate flower. The bee may be called almost a universal agent, and there are but few flowers, especially of the fruit-growing plants, in the fertilization of which she does not perform an important part.

The importance of the bee in this relation has of late years attracted a good deal of attention. The first settlers of Greeley found that clover did not spread, but of late years, since bees have been introduced, it is rapidly spreading over streets and vacant lots. In Australia it was found that clover would not bear seed to any extent, until bees were introduced. It was considered of so much importance that the Royal Exchange took hold of the matter and introduced bees.

In reading the late proceedings of this exchange, we see that the Hon. R. D. Rose said that when he advocated the introduction of the honey bee, he had not only the honey and wax in view, but also the fact that bees were essential to the fertilization of their orchards. They not only carry on fertilization, but aid in a cross fertilization, thereby giving us many new varieties of fruit.

It is not the only object of this paper to show how the bee will increase the fruit of the horticulturist's table, but also to add the most delicious and wholesome of sweets—honey. Since I have been in the bee business, many questions have been asked me in regard to the effect of bees on fruit, as, "Do bees injure fruit by gathering the honey from the flower?" "Do bees injure fruit at maturity?" "Are bees dangerous, or apt to sting when on the flowers?" "Is it advisable for the horticulturist to keep bees?"

In answer to question No. 1, would say that taking the honey from the flower has no effect whatever on the fruit.

Nature is lavish and secretes this nectar, in order to draw insects, for the purpose above stated. In many plants the nectar is secreted in the night, and, when the hot sun comes out, it is evaporated. This is true of all the mints or square stemmed plants, the buckwheat and many others. On this class of plants bees work only in the morning, but in *no* case does the taking of this honey have any effect on the fruit, only that it is improved by the more thorough fertilization.

In answer to question No. 2, I will say that it has never come under my observation, either in Colorado or States East, that bees have injured fruit at maturity.

Third: Bees, when away from home, are timid, and perfectly harmless, and cannot be made to sting unless caught and cramped, and then it is a matter of defense.

Fourth: Should horticulturists keep bees? The bee-keeping of to-day, where it is carried on as a business and a means of support, is almost universally in the hands of specialists, and well it may be, for it is a deep and long studied science, and when a man has devoted an entire life to the business he still finds much to learn. But any farmer or horticulturist of ordinary intelligence can by consulting some simple and plain treatise on the subject become familiar enough to handle a few colonies, enough to secure for his family all of the pure and wholesome honey they can use. If bees are not handled scientifically they will still gather honey. The honey is in the flowers. If it is not gathered it goes to waste, and the fruit grower might as well have the means of securing the sweet as the fruit. To me the managing of the gatherers of honey is not so perplexing as managing the gatherers of small fruits and they do not charge so much per quart for their work.

Prof. Cassidy followed with an interesting paper on "Ornamentation of School Grounds."

During the sessions of the State Society held in Greeley at the same time and place, the following reports from standing committees of the Northern Colorado Horticultural Society were read:

Report on Forestry.

By Mrs. Albina L. Washburn, of Loveland.

I used to think that a person who was assigned to a public duty was supposed to be very wise concerning the subject he was expected to present or expound. It may be that younger people still carry that impression. I can but pity their ignorance, and assure them that those who have "been there" find that it is but a hint from their fellow workers to inform themselves forthwith on some matter of which they are known to be profoundly ignorant, and to give to the dear indulgent public the sum of their crude investigations; that by their failures we may at least learn how *not* to do it. So, dear friends, please jot down the omissions and errors and shortcomings of this paper, and hand them to the next year's committee on forestry, and no doubt a lengthy, able and instructive report will be given.

In accordance with a clause in our State Constitution enjoining the preservation of our forests, the last General Assembly passed "an act relating to woodlands and forestry in Colorado, and to create a forest commission." Under this act a forest commissioner, without salary, was appointed by the Governor, to hold his office for two years. He is to be provided, at the expense of the State, with an office at the Capitol, where his official records shall be kept. He is to cause all State forest lands to be located and recorded, and it is his duty to protect such forests from trespass or destruction by fire or otherwise. He shall also use all possible means to extend their area and to encourage the planter of trees and the preservation of the water supply, since the denudation of timber lands is found to have a direct tendency to dry up the sources of such supply.

County commissioners and road overseers are also by this act made conservators of woodlands in their respective localities, empowered to enforce the laws and to encourage tree-planting, but they may not incur expense except by direction of the Forest Commissioner. However, the forest officers are required to use the utmost care in the "prevention and extinguishment of fires likely to endanger or destroy forest growth," and to prosecute persons "guilty of

causing such fires," or trespassing, or unlawfully cutting or destroying timber, for which services, while actually engaged, the compensation of county commissioners shall, be the same, in addition, as they now recieve per diem and for road overseers three dollars per day, to be paid by their respective counties. The law requires the county commissioners to erect within 30 days after the passage of the act (approved April 4, 1885), in a conspicuous place at the side of each and every traveled highway, and at suitable places on the main traveled highways of their respective counties, a notice in large letters, substantially as follows: "Camp fires must be totally extinguished before breaking camp, under penalty of not to exceed one month imprisonment or one hundred dollars fine, or both, as provided by law," signed by the county commissioners. For defacing or destroying such notice, the fine is one hundred dollars or imprisonment for three months.

Various penalties are imposed upon both individuals and railroad corporations for transgressions of these acts, for which you are referred to the published laws sent out by the State Forest Commissioner, Edgar T. Ensign, of Colorado Springs.

The autumn and winter of 1885, up to this date, have been remarkably dry and pleasant. The mountains west of us have been alive with teamsters hauling out wood, posts, poles, lumber and game, while the residents "on the heights" have been taking up winter supplies, and herds of cattle, who browse on mountain ranges in summer, have been driven down to the valley for winter feeding. All this traffic involves numerous camp fires, by whose light and warmth the small army of toilers pass the starlit nights; yet not one mountain fire has darkened the autumn skies, and the remarkable exemption we have had up to December 1, from our usual annual timber fires, so destructive and expensive, has been noted by old settlers and attributed to the salutary regulations for the preservation of forests.

During the summer the county commissioners of Larimer county posted the lawful warning in fifty places, mostly in the foothills and in Estes' Park. As it happened, I have never seen one of these notices, but one of our county commissioners informs me they were printed on muslin and tacked on boards to guard against their destruction.

He added that he was also pleased to observe that residents of the park offered campers facilities for cooking in the house, rather than have them build camp fires.

Reverting to the travel, aside from and since the tourist season, I am told that mountain roads are becoming much worn and gullied, as loads of timber, descending Bald mountain alone, eight miles west of Loveland—and this is but one of many roads—have ranged from ten to thirty teams a day for many weeks. Some of this is green lumber, and if the sawmills are violating the forest act by unlawfully using or wasting growing trees, no doubt action will be brought against them; but the bulk of material taken out is dead timber.

Under the appropriations made by Congress ten years ago, for securing proper representations of our timber supplies at the Centennial Exposition at Philadelphia in 1876, the Department of Agriculture was enabled to present, through its botanist, a list of over four hundred forest trees of the United States, with "botanical specimens of the leaves, flowers, fruit and sections of the trunk, showing bark and wood." These specimens were systematically collected through traveling and local agents. [See 99 Rep., 1875.]

Mr. John Wolf, of Canton, Illinois, was employed as collector for the Western States. In making the collection in Colorado, Mr. Wolf was assisted by Mr. C. W. Derry, of Granite, Lake county. As a rule, no tree was mentioned which does not attain the height of sixteen feet.

Of oaks and pines, the two largest genera, about thirty species each were reported. Of the former, but one is accredited to Colorado—*Quercus Undulata*, or "Rocky Mountain Oak."

Of the pines, seven are found in the Rocky Mountains, only five of which are mentioned as found in Colorado, though probably horticulturists of this State could extend the list. Of seventeen kinds of spruce, three are indigenous to our State. The conifera of the United States number altogether sixty species. We have here at least one red cedar. Of the thirty species of the rose family, several are native with us, such as plums, cherries, etc.

There being no longer any doubt of our firm intention to make Colorado deserts, hills and valleys "blossom as the

rose," and with the rose, too; practical and amateur horticulturists are busy hoping, planning and experimenting.

There are several varieties of wild plums found along the streams in the foothills of Colorado, which are found to improve much in size and quality when protected or enclosed and cultivated. The choke cherry also, in favorable seasons furnishes abundantly a delicious fruit (much less astringent than its Eastern relative) excellent for eating fresh from the bushes, or for converting into jams and jellies. It jellies very easily.

I have heard, too, of a red cherry which grows near Boulder. The native thorn apple has been transplanted to our door yards also, where its round head and light serrated leaves look well beside the dark glossy leaves of the cherry. Its dry, red, sweetish fruit seems to be highly prized by the children. These small trees form no inconsiderable part of the undergrowth of a stately forest, and add much to its beauty and variety. The Service or June berry we have is also a useful shrub, bearing delicious berries. Though here it is seldom more than four feet high, further northwest it is said to attain sometimes a height of thirty or forty feet, and a diameter of ten or twelve inches.

The mountain streams of Colorado are in some places fringed by a very pretty, compact tree of slow growth, hence, probably long-lived, called the Western Birch. It will grow in the valley by the waterside. The Birch bears clusters of tiny cones.

The aspens of the small mountain parks or openings are very beautiful, with their slender, straight, white stems and delicate green leaves turning and vibrating with every breath of air, and oft-times apparently from inherent restlessness. Their cousins, the cottonwoods, three or four varieties, of broad and narrow leaves, are essentially the pioneer's tree. They must have come here about the time the Indians and the mountains "were," and they have helped us immensely in shading the hot, dry prairies, in fencing our claims and in frying our bacon; but, as we leave the alphabet when we pass into history, the old settlers who ate the bacon are turning their backs on their humble friends, the cottonwoods, and now desire trees which are smooth, elegant, useful for shade, and at the same time fruitful in food or timber, for the door yard and the

orchard. Still, the cattle in the meadow enjoy the grateful shadow of a group of cottonwoods, who do not resent a little browsing and rubbing.

We must not forget, however, while cherishing our native trees, that the watchword of the present age and of earnest people of all ages is "forward."

Let us try new trees and new friends and let us try the old trees of new friends of other countries. No doubt there are in this meeting horticulturists who have tried the Russian mulberry and are prepared to give information as to its adaptability to our needs. It is claimed to grow very rapidly, very large, to durable timber, ornamental growth-quantities, of good fruit and tons of leaves as good for silk worms. The only objection then, being that in order to obtain its full value, we must raise the worms and deal in cocoons. And, just here I will mention the value and need of women in tree planting, for my old friends will at once recognize the fact that any paper presented by myself which did not plead somewhere or somehow the woman's cause, would be like the oft-cited play of Hamlet, with Hamlet omitted.

The yearly reports of the Department of Agriculture are considered by devotees of daily papers reading dry as dust and mouldy, too, yet within the covers of such a volume fifteen years old I find a lengthy plea for the "Industrial Education of Women," in the course of which numerous instances are given to prove that women who enter upon farming, fruit growing, bee culture, poultry raising, or the silk industry, invariably succeed better and make more money than men. One correspondent says, "My neighbor, a widow, raises better corn, wheat, oats, etc., than any of her adjacent neighbors." Why should she not succeed then when she goes west and takes up a timber claim and raises a forest of her own from which posterity may draw for houses, schoolroom furniture, cabinets and tables? Why shall not women who have proved up on homesteads, plant trees by the wayside and along ditches and secure the small premium and exemption from taxation which is offered by the State?

Why shall not women raise nurseries of fruit trees as well as human scions?

You are right! They can and do, and they intend to keep doing it until they are healthy and happy and financially independent!

There thrives the olive! You will call to mind the fact that women have been a long time in the business of raising "olive branches." But seriously, the olive has claims on our consideration, from the very antiquity of its credentials. The olive has long been esteemed as an article of commerce and food in the old world. The tree grows to a height of about twenty feet, is a branching evergreen of slow growth, hardy and of great longevity, the olive trees now found in the vale of Gethsemaned being supposed to be the identical trees of Christ's time. Anciently its branches were used as emblems of peace to adorn the brows of conquerors, and, though in our own day the style of peace existing between conquerer and conquered is not the most highly esteemed, it is no sign we should not cultivate, anywhere south of latitude 44, the poor man's tree, so warmly recommended by Thomas Jefferson (an advanced agriculturist of his own time) nearly one hundred years ago. The tree begins to bear at twelve years old, its small egg-shaped plums, and will go on bearing, more and more, for our great grandchildren, into the remotest generation, until pickled olives and sweet oil are superceded by the heavenly fruits which grow by the river of life, or an improved substitute is offered by the inventive genius of some electrical Yankee.

We read that "the wood is hardy and lasting, and of such fine grain that from it the Greeks sculptured their divinities before marble and iron came into use." The modern historian might add that since flesh and blood divinities came in, the wood is devoted to other purposes.

A lime soil suits the olive, and a dry situation delights it; therefore, I do not hesitate to urge its introduction to the slopes of Green Ridge, in Larimer county, and the arid banks of the Eaton ditch in Weld. As the oil of the olive is cream and butter to the Italians, no doubt some enterprising dairyman of the dim, far future will locate on the aforesaid slopes legions of oleomargarine factories, that he may wax rich, while the people wax fat. By that time, the "patent applied for" on this suggestion will have run out.

The sugar maple should be grown, where possible, in forests of sweetness. Singly or in groups, it is highly ornamental, and the wood is exceedingly valuable. Its near relative, the box elder, is a native of Colorado and the West, and is worthy to stay; and though some people utilize the sap for syrup, thus antagonizing the corner grocery-man, no doubt they will still prefer home-grown to glucose, saying nothing of the romantic attractions for the young folks of a sugar camp in a spring snow.

I have seen some pictures of tea-growing in China and Japan. The steep, sharp mountain slopes look as if the plants would slide off, which suggests the thought that a billiard table set up against the wall would do as well, or our dry mountain sides furnish as good a place for a plantation. The fact that the young plants require shade shows that they would do well as undergrowth for a cultivated grove. The tea plant grows five or six feet high, and has been grown in some of the Southern States nearly 30 years, and from its hardy nature it is believed that its limit might be extended much further north. The superiority of home grown tea might still further lacerate the feelings of the grocery man, but so long as women and children can reach the low bushes, and take in the high prices of the product, its clean and fragrant leaves will be sought as a means of exchange for other necessaries of life. "The cup that cheers but not inebriates," has claims also on the growing anti-liquor sentiment of recent times, and though the cry of the vanguard as its floats back to us from the frontier of moral advance, says, "nothing but water," the cry is not heard by the toiling millions, and the cup of tea will hold its own long after the license has substituted old Bohea for whiskey in his clinking glasses.

Now, dear friends, if you find anything like a "report" in this paper, you are welcome to it. If you find much that is not like a report, remember it is not set down in malice, but rather in the spirit of innovation and a desire to induce thought and stimulate invention, to encourage the interchange of thought, of experiences, of customs and of products.

In behalf of the State Forestry Association, I wish to remind you, fellow members and friends, of its annual meeting, which will convene in Denver, January 12. The

interest in Forestry is growing, as its importance becomes better understood, and as the advance of a cause is measured by its followers, the State Commissioner and all interested desire a large attendance.

Since but 4 per cent. of Colorado farming lands are in timber, against 66 per cent. in Florida, and since but 2 per cent. in Larimer county (and none in Weld), as against 66 per cent. in Clear Creek county, it behooves us of the valley farms to wake up and press forward, and plant Fourth of July groves all over the State. Let not our hand be withheld from sowing and planting, for fear we may not live to reap. "To give is to live," and we may not reap without, whether the harvest and the fruit be on this shore or that it concerns us not to know.

ALBINA L. WASHBURN.

Report on Pomology.

By P. D. Goss, of Loveland.

To the President and Members of the Northern Horticultural Society of Colorado, Greeting:

As the standing committee on pomology for this society, it becomes my duty to report to you the general condition of our cause. In making the effort, however, I do it feeling quite unequal to the task, and shall be brief, knowing that the committee for the State Horticultural Society is here with a full report, and of course will embody in it a statement of the facts as regards our common cause, over the territory that we are supposed to hold jurisdiction.

It would appear to me, however, from personal observation and a very general inquiry of the more prominent fruit growers, as well as many others, that are turning their

attention to growing a few varieties of the more useful fruits for home use, that there is a very general good feeling and a firm belief in the final success of the truly worthy object of this society.

It is a fact, I am pleased to record, that the past winter and season has not been disastrous to the fruit trees and shrubbery to any great extent, and that the varieties that are being quite generally planted now are becoming so thoroughly acclimated as to seem entirely hardy and well calculated to stand our dry and elevated climate, with its sudden and varied changes of temperature.

I also discover that there is a growing desire for knowledge on this subject, and this society may well feel pleased that it has before it such a worthy end to attain.

It is true also that the past season has been one of very general disaster to many of the more prominent fruits, and I am compelled to note the entire failure of the apple, pear, peach, cherry and plum crop, with a few exceptional lots of crabs. The cause being attributed to the very unusual severe snow storm and consequent cold weather of the twenty-third of April last.

Blackberries, the various cap and red raspberries, currants and goosberries were a light crop. Strawberries were more fortunate, being under the snow, and came out all right with a full average yield.

Grapes, somewhat like the strawberries, were protected by the snow, and were less injured than some fruits, though I learn of some tender varieties that were killed outright by the excessive cold of this storm. The crop, I believe, has been quite satisfactory, and some vineyards were heavily laden with this most luscious fruit.

After viewing the situation of our fruit interests as they now appear, your committee can see in it all no reason to be discouraged—and occasional failures are liable to occur in any country—and the prospects are as bright for Colorado to grow her own and much needed fruit, as has been the outlook of many of her sister States in years that have gone by.

Respectfully,

P. G. GOSS.

J. S. McClelland, of Fort Collins, for the committee on "List of Fruits for the Northern District of Colorado," made the following report:

Mr. President and Members of the Colorado State Horticultural Society:

Your committee, appointed to compile a list of fruits best adapted to the Northern District of Colorado, beg leave to report as follows:

FRUITS FOR NORTHERN COLORADO.

Summer Apples—Red Astrachan, Oldenburg, Tetofsky, Yellow Transparent.

Fall Apples—Fameuse Wealthy.

For trial—Excelsior.

Winter Apples—Ben Davis, American Golden Russet, Talman Sweet, Pewaukie, Walbridge.

For trial—Wolfe River, Gideon.

Crabs—Whitney, Transcendant, Martha Hyslop, Briar Sweet.

Pears—Flemish Beauty, Clapp's Favorite.

For trial—Indian Queen.

Plums—Weaver, Forest Garden, De Soto.

Cherries—Early Richmond and Late Richmond.

For trial—Ostheim.

Strawberries—Crescent, Manchester, Jucunda, Wilson and Cumberland.

For trial—Jewell.

Raspberries—Red—Turner, Cuthbert and Shaffer.

For trial—Marlboro.

Black—Mammoth, Cluster, Gregg and Sonhegan.

For trial—Duncan.

Blackberries—Wilson, Snyder and Kittatning.

Currants—Red Dutch, Fay's Prolific, White Grape and Cherry.

Gooseberries—Houghton and Downing.

For trial—White, Smith and Industry.

Grapes—Black—Moore's Early, Worden and Concord.

Red—Delaware, Massasoit and Salem.

White—Martha.

For trial—Niagara.

J. E. Washburn, of Loveland, displayed a fine lot of apples raised by himself, and another beautiful and unnamed variety from the orchard of Jerry Quigley, of Loveland, which were passed among the members, and pronounced delicious. The varieties represented were: Ben Davis, Talman's Sweet and Walbridge.

A vote of thanks was passed to J. E. Washburn for fruit exhibit, to W. L. Porter for honey exhibit, and to A. E. Gipson, of Greeley, for hospitable attention.

The meeting closed, to convene again at Longmont at the call of the executive committee.

By the invitation and co-operation of the Farmers' Alliance, of Longmont, and the citizens of that enterprising little city and vicinity, the executive committee, which met at Longmont, December 30, 1885, was enabled to arrange a full and satisfactory programme for the next meeting of the Northern Horticultural Society, to commence on February 9, 1886.

The citizens of Longmont and the Farmers' Alliance also made all necessary local arrangements for the meeting, by securing the Opera House for its sessions and good music from local glee clubs and the Longmont cornet band.

The meeting opened at 10 o'clock a. m., on February 9, with a vocal chorus by the Longmont choir.

C. A. Pound, chairman of the Farmers' Alliance, introduced Hon. Rienzi Streeter, who made a very able address of welcome to the society, to which President Faurot responded in a most felicitous and cordial manner.

After a stirring song by the choir, "The Hunter's Call," a paper was read on:

Horticulture in Its Relation to Agriculture.

By James Ackerman.

In treating upon this subject, I feel that I must do so only in a general way, that I may not interfere with papers on the different subjects which are to follow. And as I have passed through two experiences in life, which seem to be very much alike, perhaps it would be profitable to go back a few years and review.

In 1841, when a boy of 14 years, my father with his family, started from New York, by steamer, up the Hudson to Albany, by Erie canal to Buffalo, and steamer around the lakes to Milwaukee, then by team 60 miles to the interior of the country. Arriving there, all new, nothing but wild land and Indians. The first thing—build a cabin, fence, break up the sod, and what next? Why, sow wheat. And what the next year? Why, sow wheat of course. And the next year, wheat, and wheat, wheat, wheat, until wheat went down to 30 cents per bushel, and we began to think that farming did not mean all wheat. Then we tried pork, until pork dropped to $2.25 per hundred. Then we tried sheep, until sheep were butchered for their pelts and tallow, but we slowly learned the lesson, that to make farming pay, it must be wheat, oats, corn, hay, pork, horses, cattle, sheep, chickens, vegetables and fruits, and all of those in such quantities only, as could be well taken care of. A small farm, well tilled, was the lesson we learned in Wisconsin.

In 1871, I came to Colorado, and what did I find here? Why, plenty of wild land. And the first thing, build a cabin, fence, break up the land, then sow wheat. The same lesson to learn that we had in 1841. You ask me why learn the lesson twice? The answer: Men with money do not push out on the frontier, it is the man with energy and push, and a desire to make a home for his family. (Money follows after, if possible to pick up the hard labor that the poor man has done). The first thing for the poor man to do is to get

money to buy tools and make his improvements, and there is nothing that he can raise that earns so much money as wheat, and he gets in the habit of raising wheat, until he falls in that error of all wheat, wheat.

I have made a few trips over the country within the past few months, and I find the farmers are taking new lessons in agriculture. I see now bins of wheat and oats, cribs of corn, a few hogs, some land seeded to clover and some fruit started. But I must be brief. In the first place, agriculture from a financial stand point, perhaps would not be the choice of the man who only has the love of the almighty dollar at heart. And why? Because the process is too slow to satisfy his avaricious disposition.

Then you ask, why so many are engaged in it? Anyone with energy and but little money can use his labor as capital, and again, he is not alone in the business, his good wife acting with him as a partner, can milk the cows, his children can feed the calves, pigs and chickens, pull weeds in the garden and a variety of other light work. Thus he utilizes all the labor in the family, which he could not do in any other business, and at the same time he is rearing a family that are constitutionally strong.

Then, again, the pure air, pure water, fresh vegetables, and an unbroken social family circle, tend to make the farmer's home a school for moral education, which is the foundation of every great nation.

But is agriculture, without its sister industry, horticulture, complete? I would answer, no. If we expect to maintain the moral and social quality of the home, community, State and Nation, we must not keep the children on bread and pork only. The little boy and girl, while laboring for the maintenance of the family in general, are entitled to better things. It is the one great duty of the farmer to plant a few apple, pear and cherry trees, as well as to set a few strawberry and raspberry plants, that his wife and children may have an abundance of the luxuries of life. It will be a stimulant to diligent labor, a love for home, and a foundation for a moral and upright life in the man and woman, and as they go out upon the world, they will be honored and respected.

A word for the lilac, rose, snowball and the annual flowers. Beautify home, encourage it in others, and you

will be surprised what an influence it will exert on the community in which you live. Duty demands it. Farmers make a mistake in working too many hours in the field, and giving too little heed to the comforts of life.

There should be at least a little enjoyment in this world. Not all wheat, wheat! oats, oats! There should be some time devoted to the vegetable and fruit garden, for the convenience of the wife. When we look upon the monotony of woman's work—cook, sweep and scrub, three times a day, and three hundred and sixty-five days in the year; then wash and iron, and run here and there after the children—it does seem that the man should bear part of the burden, by raising an abundance of fruit and vegetables, to cheer her on in her labor of love. Only a few short years ago we loved the girl that became the wife; she has assisted us, by her counsel and cheerfulness, all through the conflicts of life; should we, in our declining years, love her less to-day? Should not the attachment grow stronger and stronger, even down to the end of life's journey?

Raise fruit, grow vegetables, adorn the home with flowers, cultivate the social qualities that are within us, and we will see less of strife and more of happiness in the farmer's home.

While looking at the fruit question from a moral and social standpoint, I would by no means overlook it financially. I know that Colorado, in the near future, is destined to raise and ship a large surplus of apples and pears. You ask me how I know it? I learned the same lesson years ago in Wisconsin, when very many said "you can't raise fruit here; it is too cold," but they do raise fruit there, nevertheless, while even to-day small fruits are distributed all over our State by the car-load by a few enterprising men, who have an eye to business.

As for myself, I am not good authority on small fruits, having made a specialty of the apple and pear, but you will be favored with papers on the grape and other small fruits, and I hope to be benefited by the reading and discussions on those papers, and believe that in our coming together we will all learn something that will be of value to us in future life, as well as getting acquainted with each other, and improving our social relations.

As for the apple, I look upon it as the most important of all fruits, perhaps because I have made it my hobby for the past few years—but then, when I see the variety of ways in which it can be used, and think of the pies, puddings, dumplings and sauce, I feel happy; and then, when supper is over, and a neighbor or friend drops in to spend the evening, how cheerful a bucket filled with apples—some sweet, some sour, to suit all tastes! And do the children enjoy it? Try them, and see. Again, there is no fruit that will keep nice and fresh through the year like the apple.

I had them in abundance from the twentieth of July, 1884, to the third of June 1885, nearly a year, and had I used the proper care, could have had apples until apples came again. One more argument in their favor. An apple tree once started requires less care than any of the small fruits, (except, perhaps, the service berry, which has been very hardy with me), but you say the trouble is to get them started. You come here to-morrow morning at ten o'clock and our Mr. Watrous (who has had Colorado experience), will tell you just how to do it. I gave you my methods at our Loveland meeting last February, not from a scientific standpoint, for I am not a scientific man, but from a practical standpoint. There were some at that meeting who disagreed with me, but I think I have had reasonable success, at any rate I am pretty well satisfied with the results.

A young fruit tree, like a young child, requires watchfulness, carefulness, and a degree of common sense; while negligence, carelessness and thoughtlessness mean failure every time. In going through the country, you ride by farm after farm. You make remarks: "The man that lives there is careful and systematic; that is a nice place." Then again, I declare, "Things look a little rough; I think that man must be careless."

If I were in the nursery business and wanted to build up a reputation, I would for a year or two select the careful, systematic man to sell to. Right here, I would urge upon one and all, never invest one dollar in fruit of any kind, until you have determined to give it time and attention. Give a deaf ear to the tree peddler.

As for the pear, I have had good success with the tree, but have had but little fruit, as they require age before coming into bearing. I have the Bartlett, Flemish Beauty, Lawrence, Keiffer, Orleans Summer and Clapp's Favorite, all doing well. They require less water than the apple, but otherwise the same treatment.

Have had good success with the Early Richmond cherry, all other kinds a failure with me.

As for the plum, I am not a success, would refer you to Mr. McClelland. Ask me but few questions about irrigating. Although there is nothing on the programme, I hope we may have time to exchange views on that question.

Judge Terry asked Mr. Ackerman's views on irrigation.

Mr. Ackerman replied that he used only about one-third the amount used by some of his neighbors, and with better results.

A discussion followed, during which President Faurot stated his belief that grapes require no more water than corn. He has a piece of land above ditch planted to grapes on which he had tested, using the small amount of water he could put on with a pump.

Mr. McClelland thought that if Mr. Ackerman had used more water he would have had more plums, as he thought plums needed more than some others.

Captain Tyler asked what soil the president had, and was informed that it was adobe clay. Mr. Ackerman has two acres, irrigated twice a year, and two with no water; thought if he had used more water he would have had more tree and less plums. Soil, loam underlaid with clay, loam about sixteen or seventeen inches deep; thought we used too much water on all crops.

George Webster thought Mr. Ackerman got considerable seepage from ditches above; he had to use more water on bottom land than his neighbor did on upland. The roots on bottom land go only about two and a half feet deep.

Mr. Mead thought trees on upland went down six to eight feet.

Judge Terry had nearly lost trees by not irrigating for one year; thought we could grow trees on any Colorado soil if we understood we need water.

Mr. McClelland thought the only rule for that was to irrigate just before it gets dry.

After a song by the choir, "Spring," the meeting adjourned.

AFTERNOON SESSION.

The afternoon session was called to order at a quarter past 2 o'clock.

Dr. Alex. Shaw read a paper on:

Floral Culture in the Ornamentation of Home.

The home of the first pair of the human race that ever mated, it is said, commenced their career of life in the Garden of Eden, a Paradise, filled with all of Nature's beauties, in the horticultural line. Owing to the persuasive influence of the female branch of the family, and the weakness of the male, they jointly disobeyed orders, and were bounced and turned loose upon the general ranch of the world, and as a penelty for their disobedience they were made to rustle. No Paradise since that date has been found made to hand.

For forty-eight years I have had a home, and having a natural weakness for floral ornaments, I have met with varied success. Been victimized by the itinerant chromo chap, who deals in blue tuber roses, black primroses, tree strawberries and iron-clad apples—recent importations from the Arctic regions, etc.; but these fellows that chatter like a magpie I now give a wide berth.

To make a success in Floriculture, four requisites are necessary—the right kind of soil, good light, water and air. Good judgment in securing these four elements, com-

bined with a willing mind to use the business end of any tool best adapted, will result in success, pre eminently in Colorado.

The almost perpetual sunshine of Colorado paints flowers of a brighter hue than any portion of the United States. For brilliancy of flowers will discount the Sunny South, in the proper season. For variety, quality and supply we are happily better off than any one point I know of, especially in all varieties that damp off or take on a mildew or fungus growth incident to a humid atmosphere. In Colorado, these varieties are at home, notably the large verbena family. In my judgment the stock of Colorado grown of these kinds are much more healthy than those imported elsewhere.

Success in flower culture is not owing to chance, but the price of flowers is the exercise of industry, coupled with conditions adapted to their growth. When I was much younger than I am now, I was impressed by an old lady's remark as to the growth of flowers. She said:

> "Put a pig in a pen without any corn,
> And you will make no pork, sure as you are born."

As a rule, flowers delight most in a rich, generous soil. They are good feeders. Flowers are not the rustlers of the vegetable kingdom, but must have their food prepared to hand, hence fermented manures are interdicted. Fresh unfermented manure has no useful place in flower culture except in generating heat in hot bed culture. A study of the colors, size and growth are essential to their effective location in the landscape, as much so as a knowledge of the blending of colors in a picture. Some of our best bloomers of annuals require a longer season than we usually have in the open air, hence the necessity of gaining two or three months by starting the seeds in hot beds about the last of February, and protecting the plants under cover until our occasional May frost is over. Usually it is best not to remove flower plants until about May 15, from hot beds.

Seeds of many annuals may be planted in the flower beds, but as a rule, it is best to grow all annual seeds under cover except those which have a top root, as they do not transplant easily in Colorado. Flower seeds mature and ripen of a superior quality, and in the hands of careful, pains-taking people, no money need to be spent for foreign

seeds. In the hands of an expert seed grower, there are many locations in Colorado that would make seed growing permanently a success. The meteorological record of Colorado for the last thirteen years makes the yearly average of sunny days, 340. This bright sunshine and the power to apply water at will is a combination rarely found elsewhere.

The highest type of civilization is betokened by the culture of flowers. They give cheer to the festivities of a wedding, and are alike cheering to the gloom of a funeral. The floral kingdom is world-wide in its range, but that which concerns us most is what is practical to cultivate with the hope of success, grown in open air. We rate some in their order of their succession in bloom.

ANNUALS—GROWN FROM SEEDS.

Phlox Drummondi, mixed varieties.
Japanese Pinks, mixed varieties.
Chinese Pinks, mixed varieties.
Verbenas, mixed varieties.
Asters, mixed varieties.
Pansies, mixed varieties.
Candytuft.
Mignonette.
Snap Dragon, mixed varieties.
Balsams, mixed varieties.
Lobelia.
Calliopsis.
Poppies, (top root).
Flowering Pea, in variety, (climber).
Nasturtium, (climber).
English violets.
Mist of the Mountain, (rare and very fine), flowers biennially.
Petunias.
Portulaca.

ANNUALS—GROWN FROM ROOT CUTTINGS.

Dicentra Spectabilis.
Peonies, in variety.
Phlox, in variety.
Iris, in variety (early bloomer).
Clematis, Coniferi (rare and fine), climber.
Clematis, English (rare and fine), climber.
Love and Tangle (border plant).
Pinks, in variety.

GROWN FROM BULBS.

Lillies, in variety.
Tulips (require protection from late frosts).
Crocus.
Snow Drop.
Hyacinths.
Gladiolus, in variety.
Oxalis (hanging baskets).
Dahlias.

FLOWERING AND ORNAMENTAL SHRUBS.

Lilacs, purple.
Lilacs, white.
Lilacs, Persian.
Snowballs, in variety.
Japonica.
Flowering Almond.
Wistaria, American (climber).
Wistaria, Chinese (climber).
Virginia Creeper (climber).
Native Clematis (climber).
Woodbine (climber).

Honeysuckles, in variety.
Wygelia Rose.
Japan Quince.

Roses for Out-Door Culture.

STANDARD ANNUALS.

Yellow Harrison (two varieties).
Cabbage.
Noisette.
Queen of Prairie (climber).
Prairie Queen (climber).
Baltimore Belle (climber).
Seven Sisters (climber).
Anne Maria (climber).
Dundee Rambler (climber).
Hardy Moss.
Madame Planter.
Sweet Brier, in variety.

EVER BLOOMING—HALF HARDY.

Gen. Washington, very fine.
Gen. Jacquimenot.
Paul Neron, large.
Pearl de Blanch (pure white fragrant).

Roses are liberal feeders, and delight most in a clay soil, enriched by well rottened manure. Fresh unfermented manures are particularly obnoxious to roses. They delight in bright sunshine, and, as a rule, are better for about the same amount of winter protection as is ordinarily given to the series of blackberries and raspberries. Never plant a rose bush in the immediate vicinity of a cottonwood tree. The cottonwood is the boss rustler of the tree

kind, and claims all the vegetable food coming from the sources of earth, light, air and water in its neighborhood.

Bedding-out plants do well in the open air, when judiciously selected. This stock is mainly grown by greenhouse men. They can grow cuttings of this class of plants more cheaply and better than amateurs. Among the most effective bedding plants are callies and geraniums. The geranium family are very numerous, and are admired as much for their foliage, as bloom geraniums are the plants for the millions and pay best of any plant cultivated.

Amateur Window Gardening.—This subject is treated in a very plain and practical way by Mr. John Berry, on page 108, volume 1, Colorado Horticultural Report. I refer those interested to its careful reading. This essay is eminently practical.

Location.—A southeastern exposure affords an all-day sunshine, and where it can be obtained should be chosen, either for out-door culture or window gardening. As a rule, where choice is at command, the perpendicular rays of light are best adapted to Floriculture, and as far as practicable should be had. Side light grows unsymmetrical plants. Some plants delight more in bright sunshine than others, hence the necessity of locating them to suit their habits. For house culture, a temperature of about sixty degrees is about right.

Plants to be healthy cannot stand sudden changes of temperature. The proper range of tem perature is between fifty and sixty degress. The success of floriculture depends upon active brains as well as active muscle, hence the necessity to think as well as work. The successful culturist of flowers must of necessity be a reader and acquaint himself with all that is practical in horticultural literature. Woman is not only an aid, but man's most reliable ally in the great horticulural field. Some one has said that,

> "Man's work is from sun to sun,
> But woman's work is never done."

The custodian of flowers is best fitted for the cultured woman, being pre-eminently possessed of taste, judgment and skill. Neatly kept grounds, like a clean house, are things of beauty. If Heaven is the garden of the Lord, we have need to work nicely and well here or we shall find ourselves out of place there.

Mr. Avery Gallup, of Denver, was asked which he considered the best twelve plants for window culture. Mr. Gallup said he would prepare a list for to-morrow.

The following was presented on

The Adornment of Country Homes.

By Mrs. Etta S. D. Kelso.

From our houses and country homes have been evolved the forces which transformed a wilderness of possibilities into a garden of beautiful and useful realities. To our houses and country homes should revert the wealth of adornment and utility thus wrought out.

The first essential of a beautiful home is ownership. Let the home, however humble, be owned by the occupant. The transient tenant has little interest in his transient home. Ownership stimulates improvement and warrants adornment. Before discussing the subject assigned me, however, I would offer an apology to such home-appreciating and beauty loving wealth producers as are now obliged to bend all their thought, all their energy to meeting the necessities of the hour, necessities forced upon them by that formidable enemy, debt. When the burden, thus imposed, shall be lifted from the oppressed farmer, when want and all fear of want is removed, then, and not till then, can the subject of adornment interest him.

To these persons, I would urge, not ornamentation, but such thought and action as will impel them to use the balance of power, ere it is wrested from them, in freeing themselves from the burdens of tax and tariff, from the great monopolies, which, octopus-like, are sapping the life-blood of 26,000,000 of the Nation's wealth producers.

When the political contest, now impending between labor and capital, is settled, and when the relations which these elements sustain to the commonwealth are properly adjusted, then, and not till then, can the farmer hope to rise to the dignity of his profession. No longer a mere laborer, a patient, unrequited drudge, but a student and a philosopher, whose vocation, instead of barring, opens a

wide field for the investigation of genius, the researches of science, and the cultivation of art.

He now finds that to the tiller of the soil is given, not only to solve the problem of bread for himself and family, but the most important, intricate and sublime problems of science. He is the cultivated, the independent, the happy man of the age. His children, released from the necessity of unremitting toil, eagerly avail themselves of the advantages so amply furnished by our State institutions—advantages which, if improved, enable the recipient to bring into the house that refinement of knowledge, that discipline of education, which not only adds a thousand charms to domestic life, but commands the forces which perfect vegetation, create thought, mould character, and work the levers which move the world. Thus, between mind and matter, a lasting, a healthy action and reaction has been established.

While labor has wrought out intelligence, intelligence has given added dignity and value to labor. Science, industry, love, literature and art—the elements which enter into the formula by which is solved the most important of all problems, that of a perfect life, become, of necessity, the real adornments of country no less than of city homes.

A word respecting one of the most important of these elements, love, and we hasten to consider some of the home embellishments which appeal directly to the senses. We would not limit the term love, to the affection manifested by the inmates of the home, one for another, but extend it to the home itself. For into every true home has been wrought enough of muscle and sinew, of heart and brains, to endow it with, at least; a fancied personality, to make it an object of love. With this love comes contentment, accompanied with rare ability to make home attractive.

In the adornment of home, we would suggest that Nature be taken as our guide. Nature's teachings, supplemented by individual taste, skill, needs and means for gratifying these needs, would give, in place of painful monotony, refreshing variety. Let each home be as unique, as pretty, as comfortable as possible, regardless of the dictates of *fashion*, but with all deference to *fitness*. In other words, let home, in its appointments, be but the material expression of the needs, the faculties and the sentiments of the indi-

viduals which compose the family. The effect must be satisfactory, to the possessors, at least; consequently beautiful, for true beauty is but the result of that repose which comes to the mind when the eye, the intellect and the affections are satisfied, when there is no feeling of defect, of want. Let every article which finds a place in the home, fill some want, answer some purpose, prove by its utility its claim to the place it occupies.

In selecting or making these essentials, the more taste manifested the better, for though decoration should never be purposely constructed, construction may always be decorated. When utility and beauty enter into the make-up of all our furnishings, there will be no need, no longing for false ornaments—luxuries, as they are sometimes termed. Then, indeed, will the "beautiful be true, the true beautiful."

Our Colorado climate makes the greatest of all luxuries free to all. I refer to the wealth of her sunshine. Let it come freely into the house (except when accompanied with excessive heat), revealing all beauty of color and form, promoting health and strength, inspiring pure and lofty thought. To the living room especially should all the advantages of sunlight be given. Let this room be the largest, most accessible, as well as the sunniest of all; its furnishings the best that can be afforded; every article chosen with reference to comfort; nothing too good to be used, for, if well made, only violence can break or mar, and when worn, can be re-stuffed and re-covered, and every time as good as new. The market never before offered such a variety of pretty material for making these repairs. The serges, the stamped plushes of English manufacture, the combinations of silk and cotton, in gay but well harmonized colors, constitute beautiful and desirable material for upholstering. These cushions, if home-made, may be equally good on both sides, no "best side" to be put uppermost or outermost; may be made movable, so that they can be beaten and freed from dust, and occasionally turned, so as to present a new face, and added period of usefulness.

In these times, no really useful article of furniture need be dispensed with. If ebonized walnut, mahogany, and rosewood, stamped velvets and plushes are beyond our

reach, let us have home manufactured articles of pine, handsomely stained and varnished, upholstered with chintz. Economy and simplicity coupled with taste, may make our homes far more comfortable and beautiful than extravagant expenditure of money regardless of the fitness of things. If possible, let the living room be warmed by an open fire. The greatest objection to this method of heating we believe to be the amount of fuel consumed. But though it be true that nine-tenths of the heat generated be carried up the chimney, if it goes accompanied with nine-tenths of the vitiated air of the room, is not the compensation ample, in the perfect ventilation attained, health promoted, and happiness augmented?

The gloomiest winter day is redeemed by the long, cherry evenings, if we may gather about the glaring hearth, whose generous light and warmth rivals that of the sun, in making the plain, beautiful; the beautiful, charming.

Perhaps the greater anxiety of the housewife is the keeping of this much used room tidy. Here her inveterate enemy, "dirt," must be daily encountered. Utterly unable to conquer, she looks about for means of circumventing the foe. The carpet, designed to be a luxury and ornament, becomes but an expedient for holding and hiding the accumulations of dirt incident to childrens' sports and husband's muddy boots.

In despair, she asks, what is there which will obviate this difficulty? A bare floor, if of the right material, hard wood and well oiled, is, we think, preferable to changing husbands or exiling the children. For the present, I can suggest nothing better than patient endurance of the daily ordeal of sweeping, dusting and undusting, and the semi-annual discomfort of general housecleaning.

While thus employed, we will anticipate the time when our privileged law-makers shall see fit to inaugurate a system of free trade, which will enable us to bring into our homes many coveted articles of foreign manufacture. Articles whose superior beauty, durability and inexpensiveness, when freed from import duty, make our protected home commodities appear, as they are, shoddy, shabby and dear indeed.

Chief among these desideratums, are the luxuriant Turkey or Smyrna rugs, the texture of which is not im-

paired by a lifetime of wear, and whose coloring, like that of an oil painting, is only toned by time. In these rugs we have the only carpet which will hold itself in place, and can, with little expenditure of time and strength, be often lifted, and in the open air, freed from the dust which its impervious texture never admits of being deposited beneath it.

For the kitchen floor, nothing else seems to be quite so satisfactory as narrow boards of hard wood, well oiled. If soft wood must be used, let the floor be made as even as possible, all seams and flaws filled with putty, then covered with two or three coats of real paint of any desired tint. If perfectly new, a soft floor may be made very pretty, by applying a stain of brown, toned with red, and when perfectly dry, varnished with shellac. If properly done, this will last a long time, look well, and be easily cleaned.

A tidily kept kitchen, if sufficiently large, makes a very acceptable winter dining room, as it has the advantage of being always warm. If an especial room be devoted to this purpose, let it have, if possible, a southern or eastern exposure, its walls light and cheerful in tone. The Brahmins taught that digestion was facilitated by darkness and silence. Possibly, we are indebted to these heathen philosophers for the modern fashion of making the stylish dining room so glaring with dark paper and paint, that dying instead of dining is suggested.

But as eating should be an intellectual as well as a gastronomic act, good cheer is essential. We Americans give too little time to the meals, talk too little at table. No disagreeable subject, however, should ever be introduced here. Respecting the furniture and decoration of this room, aside from its chief attraction, a well-set table, little need be said. A table, side-board and chairs being the only necessary furniture. By way of ornament a collection of thrifty plants, a few bright autumn leaves, two or three well-executed paintings of fruit and flowers, appropriately framed, are sufficient. The prettier the table, and the better prepared the food, the finer the quality of the thought elicited, and the more perfect the organisms built up. Let the pretty silver and glass, flowers and fruit, in their season, embellish the table at every meal.

Within the past few years a tidy, servicable, and comparatively cheap, dining room carpet has been introduced, composed mainly of cork, having the apparent finish of oil cloth, the coloring and design of the best ingrain, together with the thickness, warmth, and durability of body Brussels. Its greatest advantage, is the fact, that whatever is dropped or spilled upon it, never penetrates beyond the surface, but is easily washed off, as from a painted floor.

The walls and ceilings of all rooms should be made to harmonize, by a good arrangement of color. The ceiling, invariably lighter than the walls, which should be so toned as to present a suitable background for furniture, pictures and persons.

Respecting the adornment of our walls, if one caution more than another is needed, it is, do not *overcrowd*. Choice paintings we know to be expensive; we should not, however, make quantity a substitute for quality. If the native talent of our people were recognized and cultivated, the *cheap* chromos and oil paintings, of fair design but bad execution, would soon be supplanted by a far better class of home made pictures.

The love of representation is universal, is early developed in children, but is too often crushed by lack of encouragement and appreciation on the part of parents. Drawing is no more difficult than writing; painting is drawing in colors, and though regarded as an accomplishment, is a universal language, by means of which every object in the material world can be described, every emotion of the mind expressed.

As, from the study of the material universe sprang the arts and sciences which supply every physical need, so, to this same source are we indebted for the development, cultivation and perfecting the aesthetic nature in man. By studying the mathematical arrangement of leaf and stem, the laws obeyed in crystal formation, etc., we discover the geometrical principle upon which are based the *form* and *proportions* of true ornamentation. We find those proportions most beautiful, which are most difficult for the eye to detect, thus three to eight more beautiful than three to six. By proper balancing and contrasting of straight, inclined and curved lines, we obtain perfect harmony of form.

We now introduce color, and by its proper distribution, brighten the beauty of form already obtained. Here, as in the department of form, we find that nature has established laws, which, obeyed, yield the most satisfactory results; disobeyed, make the very colors themselves to prey upon and destroy one another.

Nature teaches that no composition of color is perfect, in which any one of the primaries is wanting, either in a natural state or in combination; that their blending should be such as to give, when viewed at a distance, a neutralized bloom; that the primary colors are best suited to the upper portions of objects; secondary and tertiary, to the lower. She also teaches that blue, a retiring, cold color, should be used on concave surfaces; yellow, a warm, advancing color, on the convex; that black grounds suffer when opposed to colors which give a luminous complementary; hence steel engravings and crayons in black and white require dark framing, with an intervening margin of white; that oil paintings, water colors and colored crayons demand gilt frames; that delicate porcelains are heightened in beauty by a matting of rich, dark velvet, surrounded by gilt moulding.

Nature being the true teacher, and good taste the only arbiter in matters of art, anyone may, by patient practice, aided by a few dollars' worth of material, make fair representations of the beautiful objects by which surrounded. All have their ideals of beauty, of harmony and of happiness. The one thing needed seems to be such distribution of labor as shall give time for developing the creative powers, æsthetic tastes of the wives and daughters who preside over our homes. A small part of the time now given to manual labor, expended in expressing their best thoughts and highest ideals, would fill our country homes with useful and beautiful adornments, chief among which would be the hopeful, helpful, happy inmates. For gorgeous chairs, soft carpets, heavy drapings, grand pictures, and all lighted up by the most brilliant chandeliers, are but the *body* of the *home*, which, like the individual, must be endowed with a spirit, a soul, a *something* evolved from the blended life, love and labor, tenderness, trust and truth of individuals bound together by the sacred ties of home.

The discussion which followed this paper attested the interest aroused and the appreciation of its value felt by those who have so few opportunities for public social discussions on home topics.

The President then introduced Mr. A. E. Gipson, who addressed the meeting on

Forestry in Colorado.

The real value of forests to the moral and physical welfare of the people, is no longer a debatable matter. It is likewise beyond question, that a certain proportion of trees to the landed area, is essential in the best results in general agriculture. So far as Colorado is concerned, there are many reasons why the planting of trees should be encouraged; but the general statement is sufficient that our great plains and valleys, which must be the abode of the masses of our people, are treeless and unprotected. The forests of our mountain slopes—already rapidly disappearing—can scarcely be considered beyond their values as mechanical or economic factors. These are important as influencing local or physical conditions; but the question of the right distribution of the woodlands, is by far the most momentous to the people of the west.

Says Mr. Marsh in his work, "Man and Nature," it is probable that from twenty to twenty-five per cent. of well wooded surface is indispensible for the maintenance of normal physical conditions, and for the supply of materials so essential to every branch of human industry, and every form of human life. "I greatly doubt," says the author, "whether any one of the American States, except, perhaps, Oregon, has at this moment more woodland than it ought permanently preserve, though, no doubt, a different distribution of forests in all of them might be highly advantageous." If this statement may be justly made of States comprising the timbered belts of our country, what is to be said of the vast, treeless plains of the West?

In any event, the matter of tree distribution is essentially an important one to all this region. It is not necessary at this time to consider how much may ultimately be

accomplished in the way of overcoming our natural disadvantages, or to what extent our domain is likely to be planted. It is sufficient for us to know that we may modify in a measure local conditions, and make our surroundings more wholesome and attractive.

From a pecuniary or economic standpoint, tree-planting will pay. As an investment, there is money in the tree. In this section of the country, a grove, even of thrifty cottonwoods, is a valuable addition to any farm. It may well be doubted, too, if the owner of suitable land can do anything that will more permanently enhance its value than the planting of a certain proportion of it to forest trees. That man to-day may be counted well-fixed who has from ten to twenty acres of choice young timber—such as ash, elm, walnut, black cherry, or a dozen other varieties that might be named. To be more specific, it can with safety be said that had the farmers of Colorado, from the first, dedicated a fair proportion of their farms to forestry purposes, and cultivated the same as assiduously as they have some other crops, they certainly would not, at least to the same extent, be compelled to face and grapple with the vexed question of over-production. The failure to appreciate this has been no light misfortune to our people. The fact is, in too many instances, this matter of planting has been treated as something of very slight consequence. The tendency has apparently been to do just as little in this direction as possible, and to hurry through the job whenever undertaken, for the purpose of attending to something thought to be vastly more necessary or important. That this assertion is not exaggerated, is attested by the appearance of the average farm where attempts have been made at tree-culture. It is not necessary, in order to emphasize this point, to refer to the scandalous manner in which the provisions of the timber-culture act have been observed, or rather, avoided. This is too open and notorious to require comment. Certain it is, that where a crop is slighted, or anything like care grudgingly bestowed, good results can scarcely be expected to follow.

To return to the matter of dollars and cents, I am in a position to know that thousands, if not tens of thousands of desirable forest trees, could find a market to-day in Colorado and contiguous territory, at remunerative prices.

A tree of any good variety, at five years of age, is worth anywhere from twenty-five cents to one dollar and at ten years of age, from fifty cents to two dollars and a half on an average. Several thousand neat, well-grown trees, from two to three inches in diameter, like the elm, ash and some of the maples, could be easily sold this winter for one dollar each. Growing for market, however, in a commercial way, is but one feature of the real benefit of this business. The mechanical and merchantable value will, not many years hence, be taken into account here in Colorado. "Of all the raw material," says a high authority, "which nature supplies for elaboration by human art, wood is undoubtedly the most useful; and at the same time the most indispensable to social progress." But aside from direct and tangible results, the indirect and unknown in nature's economy, are beyond computation. These may be summed up in the general assertion that, "where a due proportion of the soil is devoted to the growth of judiciously distributed forests, natural destructive tendencies of all sorts are arrested or compensated, and man, bird, beast, fish, and vegetable alike, find a constant, uniformity of condition most favorable to the regular and harmonious co-existence of them all.

But enough has been urged to show the pecuniary advantage of forest tree culture, as well as its desirableness in the way of permanently improving our landed interests, and bettering our conditions generally.

Now, as to the best varieties. Judgment, of course, should be used in their selection and treatment. The question of adaptability should first be considered, after which the matter of æsthetic, mechanical and merchantable worth may be determined. It is perhaps yet too early to attempt to accurately classify forest trees, with reference to their special fitness for any given locality in this region. Experience will doubtless demonstrate that certain kinds, now on the debatable list, may be grown to advantage. It is found that soil and culture, as well as latitude, cut an important figure in results. The black walnut, for example, will thrive in one locality, and become stunted and starved in another. The ash and elm will likewise flourish (particularly the latter) with plenty of moisture and good cultivation, when, without these, their progress will be slow and unsatisfactory. On the contrary, the cottonwood and

catalpa (*speciosa*), wherever the latter succeeds, will usually do well even under indifferent treatment. Success or failure, then, often depends on a knowledge or lack of knowledge of the nature and habits of different trees. This is particulary true of fruit culture. This fact, too, explains, not infrequently, why one person reports good results with certain varieties, another gives adverse experience.

For general cultivation the white pine, box elder, cottonwood, white elm, black cherry, black locust, and various willows, are recommended, and for special localities and purposes, the black walnut, butternut, catalpa, linden, Russian mulberry, and our native pines, cedars and spruces. The Norway maple promises to be a tree of great merit for shade and ornamental purposes. The last might be enlarged and extended somewhat, but it is hardly worth while to recommend many varieties for ordinary planting.

For best results, the ground should be put in good condition, and cultivated with the same care as the average farm crop. In fact, it does not pay to try to grow trees for profit without good care. This should be remembered. As a rule, it is cheaper and safer to plant seedlings or small trees in preference to growing from the seed, as many kinds of seeds require special treatment. For field culture, close planting (not inconsistent with easy cultivation) is best. The proper distance for planting will depend on the size of the trees and the object sought. Usually the rows should be four feet apart, and the trees when small, from one to two feet in the row. This has reference to growing in nursery row, with a view of thinning out or marketing, as occasion requires. But care should be taken to trim and prune, so that the growth will be erect and symmetrical.

Whenever stockiness is desired, it can be secured by cutting or pinching back a portion of each season's growth. Where permanent planting is the only object, the right distance for setting will, of course, depend entirely on the location and the kind of trees used. It should be understood that there is little danger of overdoing this business of tree planting. Not one of us will live to see anything like a proper proportion of forests to the broad acreage of our State. It will certainly be safe to advocate liberal settings on every farm for years to come. I would have in

Colorado, ten trees planted to offset everyone that is cut down, and I would make the next quarter of century a perpetual Arbor Day. In this work the State should participate, and incourage in a liberal manner all efforts to increase the area of our woodlands. The State laws in relation to forestry should be strengthened, and the State Forester be sustained at all times in the discharge of his duties. In this way substantial progress can be made, and the best interests of the entire Commonwealth be promoted.

A gentleman in the audience asked what variety he would recommend for roadside planting.

Mr. Gipson replied, cottonwood, ash, elm and, where the conditions were favorable, he thought the Norway maple would prove good.

Mr. Mead had planted elm, but most of them had been killed.

Mr. Gipson said there were several kinds of cottonwood. The male trees should be used, if we would avoid the flying cotton in spring. Of six to twelve varieties of elm, the white elm was the best.

Hon. Rienzi Streeter remarked that some professor at a Chicago meeting, said that if trees were planted along the ditches, it would bring about a favorable climatic change. He had planted a sugar orchard of box elder.

Dr. Shaw asked if he would plant cottonwood upon all occasions?

Mr. Gipson said he would, if placed upon a prairie, by all means.

Asked to describe the Norway maple, he said it originated in Norway, was not a sugar tree, but resembled the rock maple, but more rapid grower.

Col. Kelso inquired where he could obtain forest trees, other than at the nursery.

He was informed that the cañons in the foot-hills furnished them in abundance.

Mr. Webster thought the plan of planting cottonwoods on ditch banks objectionable, on account of the roots filling the ditch.

During the discussion that followed, in regard to the ability to distinguish the male from the female cottonwood in early spring, Mr. Webster asserted that he had obtained both from the slips off one tree.

Judge Terry asked when to prune forest trees.

Mr. Gipson replied soon after the leaves started. Evergreens could be transplanted by sacking the roots as soon as taken up, or puddling the roots immediately, then water freely. The best time to transplant evergreens is in June.

Mr. Webster recommended a stiff clay mortar packed among the roots.

J. W. Goss said that he had grown the black walnut on clay soil.

The president said he had seen them growing on upland.

Mr. Gallup spoke highly of wild black cherry; said it would protect other fruit from birds, as they preferred that.

Mr. Gallup said also that Norway maple would make sugar.

Adjourned until 7 o'clock p. m.

EVENING SESSIGN.

Called to order at 7:30 p. m.

Song by the choir.

Dr. Shaw read a paper on the fruit exhibit of Colorado at the World's Fair at New Orleans, and described some of their superior qualities and peculiarities, from which much valuable information was elicited.

J. E. Washburn championed the crab apple, and Mr. Gipson said he would be pleased to show Dr. Shaw crabs that would suit his taste, stating that in the winter of '74 crabs stood when the hardy Russian apple went to the ground.

After a song by the choir, Mrs. G. I. Savery, of Boulder, furnished a paper on

Canning and Preserving Fruits.

Mr. President, Ladies and Gentlemen:

From the *Farm and Fireside* we get the singular fact that America is indebted to Pompeii for the great industry of canning fruit. Years ago when the excavations were just beginning, a party found in what had been the pantry of a house, many jars of preserved figs. One was opened and they were found to be fresh and good. Investigation showed that the fruit had been put up in a heated state, an aperature left for the steam to escape, and then sealed with wax. The hint was taken and the next year the canning of fruit was introduced into the United States, and has become one of our great industries, the process being identical with that in vogue in Pompeii many centuries ago. Many improvements have been made in this industry, as in all others. In place of the stone jar to be sealed with wax, we have the self-sealing can which seems to be almost perfection.

But, as I presume Mrs. Goss will tell us in her paper on "Household Economy," we must not let our jars go to waste; so for these we can still use wax, which we can buy already prepared; or, if you are several miles from town, your fruit hot on the stove, and your wax gives out, you can do as I did this fall with some pickle bottles—filled them with fruit, cut some writing paper the size of the top of the bottle, wet it in the white of an egg, wiped the top clean and dry, and pasted it on carefully, then cut one a little larger so it would come down well over the outside; over the whole tied a cloth, and my fruit kept perfectly.

Small fruit, such as strawberries, raspberries and currants, should be put up as soon as possible after picking. Only cook enough for one or two cans at a time. Put into a porcelain or granite iron kettle two pounds of sugar and one-half pint of water; when it has boiled until perfectly clear, add the fruit, let boil ten minutes; wring a towel out of warm water, place in a pan, set the can on the towel and wrap well around the sides; pour in the fruit when the can is filled to overflowing, wipe off the top and put on the cover at once. Be sure the rubbers are close-fitting.

As the fruit cools the covers should be tightened again, and again wrap each can in newspaper and put in a box in the cellar, or cupboard in a cool place, as the light injures all fruit. If any syrup is left after canning put it in bottles and seal up, as it is splendid for flavoring sauces for puddings, or for cooling drinks in the summer.

Larger fruit such as peaches, pears, etc., should be pared, the cores and pits taken out, and placed in a steamer with a cloth in the bottom and steamed until they can be pierced with a silver fork. Have ready in a porcelain kettle a syrup prepared according to your taste, drop the fruit in it for a few moments, then place in the cans, filling them with syrup, and seal up.

Gooseberries are very easily kept by placing the fruit in cans, filling the cans with water, either hot or cold, and sealing up. When wanted, pour off the water and cook like fresh berries.

The old rule for making preserves, was a pound of sugar for a pound of fruit, but since we have commenced using air-tight cans that has been done away with, and three-fourths or even less is sometimes used. Currants,

cherrie and pears are hardened by putting directly into syrup, so they should be cooked until tender in water, then the syrup added. Apples, peaches, plums, strawberries and other fruit which are likely to become too soft by cooking, should have the hot syrup poured over them and let stand for an hour or two. By this method the juice is extracted and the fruit hardened.

Tomatoes make very nice preserves, by cooking it in the syrup a short time, then taking it out on platters and sitting it in the oven or in the hot sun for a few hours, then pouring the syrup over it.

As we are storing our pantry with canned fruit and preserves, let us not forget a few jars of sweet pickles, and no fruit is nicer for this than crab apple, peach and grapes. Make a syrup, with three pounds of C sugar to a pint of good vinegar, spice to suit the taste; tie the spices in a sack, to keep the syrup clean; steam the fruit until tender, then cook in the syrup for ten or fifteen minutes; take out carefully into the jars and pour the syrup over it. Every morning, for nine mornings, pour off the syrup, let it boil up, and pour over the fruit, then cover up carefully, and set away in a cool place.

With our pantries well stored with fruit, preserved in its various ways, much of our worry of "what shall we get to eat?" will be taken away. And when we have company, as we in the country love to have, and *do* come to spend the day or take tea with us, we will not feel as our minister told us a majority of people felt on Thanksgiving day. He said the uncles, aunts and cousins gathered together for miles around to a Thanksgiving dinner, and, when night came, the only one that felt truly thankful was the poor, tired hostess, and she was thankful the day was over, and only came once a year.

Mrs. Washburn asked if any of the housekeepers present had tried the plan of preserving without heating, stating that on a previous visit to an old resident of Longmont, she had been informed that cold self-sealing was successfully practiced for small fruits. The method was, to mash the fruit, and mix with it at night pound for pound of white sugar, when in the morning the jars were filled very full, the covers pressed on, screwed down, and set away in a cool place for the season. It was claimed that the natural

flavor of the fruit was better preserved, and much labor saved, by this process. She recommended women to give it a trial, and report at future meetings, for the benefit of over-worked housekeepers and fruit-raisers.

A gentleman in the audience asked why the Tetofsky was not mentioned among the crabs.

Dr. Shaw answered, that it was not classed among the crabs now but as a summer apple—a Russian apple.

J. E. Washburn, Secretary of our society, read a paper on :

The Mission of Our Society.

In conversation with a friend, a few days ago, I asked him if he would attend the meeting of the Horticultural Society which was soon to commence in Greeley. His reply was, that it would hardly pay him, as he had no trees to sell or new variety of fruit to introduce. After some further talk it transpired that his conception of the work of a Horticultural Society was to boom the planting of trees, vines and shrubs, to advertise and increase the sales of nursery stock, solely in the interest of a few men who had embarked in the fruit-tree business. The implication was that the person who raised trees or plants to sell, did not desire that the buyer of them should succeed in growing fruits, flowers or vegetables, except to a limited extent, just sufficient to keep up the demand for his stock.

THE REAL PURPOSE.

Whether or not such an impression of the objects of horticultural organizations prevails among the people, I am unable to say, but with the intimate relations had with most of the members since its organization in 1884, I am prepared to assert that the object of this society is exactly what is set forth in its constitution, the promotion of Horticulture in its various branches. Having no trees or plants of any kind to sell, with no motive for becoming a member but to acquire such knowledge as would enable me

to provide my home with the comfort and luxury which a full supply of fruits can only bring, and to assist others in doing the same, I feel that no one can accuse me of mercenary designs in presenting my views on the mission of this society.

EARLY EFFORTS.

There are several persons present besides myself who came to this country in the days of the sixties, who looked upon these dry, brown prairies as offering very little encouragement to the pioneer of ever becoming a fruit section. In common with all new settlers, our first work was to secure a shelter for ourselves and families. Years were consumed in opening farms, building expensive ditches, fences and roads, to provide a means of support. Then came a desire to increase our facilities for accumulating property, and we bought improved machinery and invested in live stock, built barns, etc. Admitting the prime necessity of providing ourselves with, first the necessaries, and secondly the comforts of life, ought we not now to take a third step, and prepare to enjoy some of its luxuries? A large majority of the people of this locality have already passed the first and second stages, and our society offers its aid in securing nature's choicest gift to man, an abundant supply of fruits, flowers and vegetables.

EARLY EXPERIMENTS.

The early settlers of Northern Colorado can well remember that a majority of us had no faith that we could ever successfully cultivate fruits here, or that we would during our brief stay even surround our homes with anything more beautifying than a few cottonwood trees. Fortunately for the future development of the country, a few brave men who had faith in themselves and the natural adaptability of our soil and climate to the production of nearly every variety of fruit or vegetable belonging to the temperate zone, and, having the courage of their convictions, began years ago a system of experiments, and, by persistently prosecuting their work with alternating successes and failures, have at length demonstrated the fact that, with a

reasonable amount of intelligence and a desire on the part of the people to acquire a knowledge of the horticultural conditions of this region, every family in the agricultural districts of the State may provide themselves with home-grown fruits and vegetables, and every home may be surrounded by a variety of trees and flowers.

THE FAITHFUL FEW.

Who are the persons that composed this society, and by what means do they expect to bring about this desirable result? Many of them are the men who have been preparing the way for it by their persistent efforts in the face of every discouragement. Having proven the particular resources of the country, they have found others ready to join them in its development. Believing in the efficiency of organized efforts, a society has been formed, and it now asks the co-operation of all who desire the advancement of its interests. It will endeavor to create an interest in the work by holding meetings, where every one will be given an opportunity to impart his or her knowledge of the subject, thereby enabling us to learn one from another through an interchange of ideas and experience. The members of this society have no patent process for fruit raising, for which they demand a royalty; on the contrary, they meet you and freely give of that which has cost many of them much time, trouble and money. There is none among us who knows so much but he can learn something from his brother horticulturists, and none who knows so little but he can impart some knowledge, if he will but communicate it.

THE WORK IN VIEW.

The Northern Colorado Horticultural Society embraces in its jurisdiction the counties of Boulder, Larimer and Weld, and desires to extend its influence to, and secure the support of, the citizens in every neighborhood and locality within its borders; and to that end, it is its purpose to hold two or more meetings each year, at such points as will best serve to accomplish that result. Being an auxiliary of the Colorado State Horticultural Society, it is entitled to

representation in the State Bureau of Horticulture, and the president of the State Society for the current year is an active member of our society. The transactions of this society are published in the Annual State Horticultural Report, and is distributed among the members. It is a volume well worth double the cost of an annual membership to any person who takes takes the least interest in the horticultural development of the State.

RESULTS COLLATED.

The experience of those who have been engaged in the work is presented in papers upon the various specialties in horticulture, such as apples, pears, plums, grapes, and what varieties of each are best adapted to our soils and climate, how and when to plant, what system of cultivation or pruning to adopt, the amount of irrigation necessary and the manner of applying it; the best fruits and vegetables for market purposes or for home consumption, how to market, and the best style of packing, how to can, preserve or otherwise prepare it for home use or for sale; what flowers to plant and the arrangement of ornamental grounds, what trees are best suited to purposes for ornament or for timber, and, above all, how to avoid being swindled by unscrupulous and irresponsible tree peddlers.

IN THE LIGHT OF PRACTICE.

All these matters, and many more of equal importance, are presented and discussed, not in a theoretical manner, but in the light of actual trial and observation by practical men and women. Right here allow me to urge upon the women present, and every woman who feels an interest in the future welfare of her children, to become a member of our society. I am not alone in the belief that it is a moral impossibility to successfully conduct a horticultural society without the aid of women. We need their natural tact and taste, their willing hand and unselfish hearts to lift men from their sordid ways and place them upon a higher plane of thought and action, and I believe there is

no better or easier way to shield men from the temptations which beset them on every side than to awaken an interest in them for the cultivation of fruits and flowers. The children, whose intense delight in delicious fruits and fragrant flowers, gathered by their own hands at their own homes, is equalled by no other pleasure of life, should early be taught how to plant and grow them.

CO-OPERATIONS DESIRABLE.

Having briefly and imperfectly set forth some of the aims and objects of this organization, together with a few of the benefits which must accrue from the acquisition of a practical knowledge of horticulture, we ask you to join us in the effort to make this rich and growing district such a one as it is capable of being—one that will not only attract the admiration of the newcomer, but make the old pioneer, his children and grandchildren glad that their lives have been cast in such pleasant places. Let us press this subject upon the attention of our citizens, till they shall surround their homes with trees and shrubs to protect them from the scorching rays of the summer sun, and the chilling blasts of the winter winds—till they shall plant and cultivate a kitchen garden that shall be an unfailing supply of choice vegetables, from which the housewife can prepare an inviting and healthful meal—till their lawns shall be decorated with a profusion of flowers that will gladden the heart and excite the admiration of every passer, and till their tables are loaded, and their pantries and cellars stored with such an abundance of fruits that dried apples will no longer be a luxury.

Mr. Gipson, on behalf of the society, thanked the secretary for his effort in placing the society in such a favorable light, and with a few pertinent remarks, earnestly urged not only horticulturists, but farmers and citizens generally to take an interest in public meetings for the public benefit.

Mr. McMillan endorsed the sentiments of Mr. Gipson; he said that we were paying five cents a pound for apples that the people can raise for seventy-five cents a bushel.

Dr. Shaw gave information in regard to an appropriation for a Horticultural bureau.

Recess was ordered, and several persons came forward and placed their names on the membership roll of the society.

After recess, the subject of irrigation was started, but, for want of time, was postponed on motion of Mr. Dickson.

After a sweet song by the choir, the following resolution of thanks was offered and passed by a rising vote:

WHEREAS, This society has learned, with regret, that the Longmont choir will not be able to be with us at our future session, we therefore take this opportunity to present the following:

Resolved, That the thanks of this society, and the audience, be tendered to the ladies and gentlemen of the Longmont choir who have enlivened the sessions of to-day with most excellent music.

MORNING SESSION.

WEDNESDAY, February 10, 1886.

The meeting was opened by prayer by Rev. James McMillan.

The first subject presented was:

The Plum.

BY J. S. MCCLELLAND, OF FORT COLLINS.

The richest fruit we grow, and one of the most delicious, is the plum. There is no other wild fruit so plentiful or so

valuable in this State—that is, no fruit really worthy of the name. Then you naturally ask, why do we not grow it? Simply because we are not educated up to it. Our fathers did not succeed with it. They did succeed with the apple, and the pear, and the cherry, and we therefore grow the latter, or try to, and not the plum, which we can grow with a great deal more certainty. We even try to grow peaches, which, if we succeed, will cost us not much less than a couple of dollars apiece; yet, take a look amongst your neighbors' fruit trees (if not your own), just after being received from an eastern nursery, and in nine cases out of ten you will find more peach trees than plum; and, indeed, in most cases, you will not find a plum at all. I have been told, time and again, that we cannot raise plums here, that they are not hardy; but when the season comes for the maturing of this excellent fruit, these same parties will hie them off to the mountains and return with a load of plums. If they are hardy as they grow wild, why won't they be if cultivated? And right here lies one of the secrets of plum growing. I confess this matter bothered me for a number of years, and still is somewhat of a mystery. With most other fruit trees, especially the cherry and the apple, it is not necessary to cultivate them to keep them growing late in the fall, if they have plenty of water. The plum however, seems to be an exception. You will see that the finest wild plums are found in a rich spot at the mouth of a gulch or cañon where the soil is kept constantly moist and is well shaded. Reasoning from this, I give my trees a good rich soil, plenty of water, plant close together—twelve by twelve feet, or six by twelve is better—until the ground is shaded by the trees themselves, and keep the land in grass or clover. Some seasons I have known many wild trees killed by a very severe freezing early in the fall; now, believing this was owing to the soil being always damp, promoting growth too late in the fall, I remedy this by withholding water after September. I have never had a plum tree winter killed yet, except some of the tender Eastern varieties, such as the Newman, German Prune, etc., which I hardly expected to save.

As to pruning, it may be well to cut back the new growth of those varieties like the Weaver, which send out very long branches, but I practice but very little lopping.

Removing large limbs, or allowing the bark to be knocked off by careless cultivating, is very injurious, and kills many trees; yet common sense must be used. In setting out a dozen trees of the Mine, three years ago, there was one that had but little root, and was the only one of the lot that I pruned; even then it did not put out vigorously, and fearing it had not enough vitality left to properly push leaves on the few remaining limbs, I pursued the heroic treatment and cut off nearly all that were left. To-day that is the handsomest tree of the lot, and is nearly as large as the largest.

But in the growing season, plum trees must have plenty of water to do their best, and should not be stinted in the amount of food within reach of their roots.

The best situation for a plum orchard is in a hen yard, and next to this is where hogs run. The hens will pick up most of the curculios, or the hogs devour the fruits which fall off early, and which contains the larve of the little Turk. There seems to be something even in the smell of hogs which is distasteful to the fastidious curculio, and he will generally keep his distance. But with the good-sized hen yard filled with thrifty plum trees, and a flock of neat trim fowls, and with a strip of clover between the rows of trees, and a neat little ditch to run water along each row, and we have a model plum orchard. The trees will furnish shade and some insects for the chickens, the clover will furnish green food for them, and the chickens will furnish food for the trees and pick up many injurious insects; and both will furnish excellent food for the family. The chickens cannot hurt the trees, but will do them a great deal of good; and the trees will be only an aid and advantage to the chickens.

The almost constant irrigation along some of the rows of trees will furnish also an abundance of drink for the poultry. Then why should not every farmer at least have a combined poultry yard and plum orchard? The expense is small, the profits large; and should he think he cannot afford to buy the plum trees, he can go to the foot-hills, and without money and without price, dig sufficient trees in half a day to fill quite a large sized hen yard. Now, you see there is no excuse for not taking better care of

your poultry, and growing a sufficiency of plums for your family at the same time.

The farmer who says he can buy fruit cheaper than he can raise it, is the very man who never buys it. There is a class of farmers who say they can raise wheat and make more money than they can to diversify their farming by growing fruit and other necessaries of life. Can they? Then why all this talk of building mills by men who know nothing about and have no money to put them in order, as they say, "to make a little profit." Some of these men who have made colossal fortunes in growing wheat—you ask me who are they?—and so do I—may talk thus, but you and I, who belong to the common herd, will still have to rack our brains—the little we have—to grow something we can make a profit on, and suppose we try a combined hen and plum yard—then, if we do not make anything off the plums, probably we will off the chickens—we will, at least, raise something to eat, and save either fruit and meat bills, remembering that "one penny saved, is two pence earned." And then we will have as much land as we need for wheat.

If we have plum trees where we cannot turn our chickens or hogs among them, then we will have to adopt the popular remedy of our eastern friends. Procure a piece of muslin with a slit half way through, large enough to cover the entire ground under the tree, and then by jarring—not shaking—the tree, the insects will fall on the cloth and can be picked up and killed. This should be done in the morning for several days, just as the fruit becomes visible, and is a sure remedy and not much labor. By driving a nail well into the tree to pound on, the jarring can be done without injury to the tree. In an hour a man can go over a great many trees.

Now, as to varieties, I doubt if we can grow successfully here any but our native varieties. The Lombard seems quite hardy, but I do not place much confidence in it. The Weaver is perhaps, all things considered, our best plum; large, prolific and a delicious sort either for eating out of hand or cooking—with me, a perfectly hardy tree, and an early bearer. Last winter, for some unknown reason, the fruit buds were killed and all fell off in the spring, the first time I have ever known this to occur. This was

so universal that I did not have one Weaver plum, and but two Miners, while some trees of our native Colorado wild plums were full of fruit.

The Miner has never winter-killed in the least with me, although others declare they cannot raise them at all. It is a medium-sized fruit, the best for cooking of any of our plums, not turning sour like others, and not bearing heavily while young, but is a good cropper and annual bearer when older.

The DeSoto and Forest Garden are perfectly hardy, early and abundant bearers, and are delicious fruits, but only of medium size. Yearling trees will often bear the second year after planting.

The Lombard, which is an European plum, may be tried experimentally, but needs the best and most intelligent care to grow successfully.

The German prune can also be grown most years successfully, but not one person in a hundred will succeed with them.

The most profitable plums will yet undoubtedly come from the wild varieties from our foothills. Careful selection from these beautiful, large, yellow varieties would undoubtedly give us some excellent iron-clad fruit. Nowhere can better wild varieties be found than in our own State. Seedlings from these might be grown to give us an ideal fruit, or when a superior variety is found in the mountains, it can be propagated by cutting off the roots and permitting them to sprout and then removing them, or by the means of grafts.

There is a large number of new plums being constantly brought out with high-flown descriptions, and of course recommended as far superior to anything ever before either seen or imagined. Of this class is the Mariana, which may be an excellent fruit for a more genial clime, but my experience does not teach me to go south for new varieties of any kinds of fruit. It may be well for some of our enterprising, self-sacrificing nurserymen to experiment with this native of the southern clime, but the inexperienced grower will not lose anything by touching it lightly.

I have sent to Minnesota for the new Rollingstone and Peach plums, which are highly recommended by experi-

enced growers, and the cold north I believe to be a much more favorable field from which to procure trees for the experimental orchard.

Nevertheless, I cannot help believing that our ideal plum, thoroughly iron-clad, will yet come from the foothills of our own State. Here is a profitable field for the intelligent experimenter, and I trust some of the most intelligent among our younger members will take up this line of experimental work, and I have no doubt they will reap a rich reward.

The plum, as the boys would say, is "plumb full" of the richest juice of any fruit we can mention, and no kind of fruit gives more satisfaction, if intelligently and successfully grown, and none will yield richer returns, and if this short and hastily written paper will induce the planting of an additional plum tree, or more assiduous care to one already planted, it will not have been written in vain.

Mr. Goss asked if any one had tried to graft the native with the cultivated plum.

Mr. Ackerman had tried, and thought it would succeed.

Mr. Webster had driven nails in a diseased tree and restored it; had tried various plums, but had none left but the Weaver. The Weaver and Miner are both natives of America.

Mr. Ackerman thought the roots of mountain plum would be good for grafting on, because they were acclimated.

Mr. Webster had found a native plum of excellent quality.

Captain Tyler said that if Mr. Webster would distribute it, we would name it the "Webster."

Mr. Gipson recommended the selection of natives from the mountains.

Was asked how to market plums.

Captain Tyler thought they could be marketed easily, as he bought them at four dollars a bushel.

Asked how late to water plums.

Mr. McClelland replied: "Not after September, until the ground is frozen."

Mr. Ackerman inquired if the apricot will grow here.

Webster had brought some from California several years ago, but had lost all but one variety, which he could not recommend.

A paper was offered, on

Tree Planting and Beautifying Homes.

BY MR. BRAUN, OF DENVER.

I wish to state briefly a few words in regard to horticulture. What we need at present is a great deal of action in our State, and those that possess some knowledge should demonstrate to their fellow men what can be done in order to stimulate and promote horticulture as well as arboriculture.

Why have not some of our rural districts appeared more like a home? Two years ago I came down from Monument to Denver by wagon. I have frequently noticed well-to-do farmers, settled there for the past fifteen or twenty years, not having even a tree, shrub nor flowers about their house.

Now, by making the proper efforts, with very little cost of labor, they could soon beautify the surrounding spot of their residence. Let the energetic members of this society, enterprising farmers, show their neighbor how to divert the barren prairie into a spot of shade, flowers and fruits.

In a treeless country, the first thing needed around the house is shade trees. The hardiest and best adapted are the elm and American white ash, undoubtedly, or plant a cottonwood where no other tree can be obtained. Besides,

there is quite a number of other hardy trees; tree planters can find out by any reliable home nursery what they are, and which are best adapted for certain localities.

Have inquired on my way to Denver, here and there, what was the reason they had not a single shade tree around their home.

The reply was by some individuals that they had planted trees, but did not grow, while others passed the remark they could not be grown.

Now, these good folks have an erroneous opinion of tree-planting on the high lands of Colorado. The cause of failure is mainly in improper planting; next, trees are frequently kept too dry, and in many instances too wet.

Should there be a house located on a gravelly hill, in such case dig a hole about eighteen to twenty-four inches deep, and about three feet in diameter; fill up the hole with good ordinary soil, say a wagon load to every four or five holes.

In case the trees have to be hauled many miles, be careful, by all means, not to keep the roots exposed to the air or hot sun any length of time, or the result will be the fine fibrous roots will be destroyed. If once the fibrous roots are dried up, it is rather doubtful about the tree growing.

Do not plant the tree deeper than it was growing previously, in its natural state. Have your holes well prepared, as stated before; dig them according to the length of the roots. Set the trees in, and if there are many bunches of fibrous roots, spread them out with your hands carefully in all directions. Fill the hole three-fourths full with fine pulverized soil, then pour in three or four pails of water, or run the ditch in, where such is near at hand. Move the tree to and fro, in order that the water may wash the soil in thoroughly between all the crevices, or interstices, so that the soil is around each little root and perfectly firm, as this is of vital importance in planting trees successfully.

Keep on planting, come back in an hour or two, and fill the hole up entirely with rather dry soil, which prevents the surface of the soil from baking. After the work of planting is completed, and the water has drained somewhat off, give each tree a gentle tramping with the foot, which prevents the young tree from being shaken so much by storms.

There is also another way of planting trees, especially where trees are planted in large numbers and where water is not always convenient at the time of planting, and where parties think that the first proposed method of planting is too laborious.

Planting by this method, dig the holes in the same manner as stated in the first. Place the tree in the hole, fill it up half-full with by all means well pulverized fine soil, take a stick or the end of a long handled shovel, ram the soil in between the prongy roots, until all the crevices are filled in, add more soil and keep pushing the dirt in the hole, until the work is completed, and the tree stands firm, which will also prevent it from being blown to and fro.

One of the greatest secrets in tree planting, is to have the soil firm around each and all roots; should there be any cavities and fibrous roots, do not touch the soil; it is just as good as if the roots where not on the tree.

I wish to state further, that the first described method of planting trees, is undoubtedly the most successful one.

Now, during the dry hot summer months, trees should be watered at least once or twice a week, depending somewhat to the locality and nature of the soil. But what means watering, is to give them each time a thorough soaking, in order that the ground may be saturated clear down to the last roots. Where ditch water is not accessible, each tree should have at least six pails of water for one soaking. Where parties are obliged to use well water, it is best to have the water exposed to the sun for a day or two in a tub, barrel or pond, as the trees will not thrive well where cold water is continually used.

It is also very beneficial to the tree, where each one can be tied to a stake, or a box put around them. Young transplanted trees, starting in new growth and forming new working roots, and are blown to and fro at such time, it will certainly injure the tree, and delay their growth. Besides, it is favorable for the growth of young trees to keep the hot sun off the trunk of the tree, where this can be carried out. Young trees growing in nursery rows, one will protect the other, which they do not do when transplanted a good distance apart for the first few years. It is always a good plan to assist nature.

One can notice, furthermore, where trees are indigenous and growing in their natural state, they generally grow in groups or clusters, when one protects the other.

G. W. Webster followed with a talk on grape culture.

A paper on the subject, by V. DeVinney, of Denver, was read by the secretary, as follows:

Grape Culture.

Having made a specialty of grape growing for more than a decade, and after experiencing many disappointments and failures, and after testing the growing and fruiting qualities of sixty-five early varieties, for the sorts were needless to try, and after marketing several tons and making considerable wine, I trust it will not be considered pretentious in me to make a few suggestions on the cultivation of the grape.

The growth of the grapevine in Colorado is healthful and vigorous, and it is free from many of the diseases of the East, which there render grape growing hazardous and often unprofitable. The soil is as well fitted here for grape growing as that of California or Ohio. There is but one difficulty in the way of extensive grape culture in Colorado; that is the short summers, which for the grape averages but four months, as averaged by observations through fourteen years. A grape, therefore, for general cultivation in the vineyards of Northern Colorado, should bloom and ripen its fruit nearly enough within four months to permit of its being gathered and marketed, or made into wine within that time, and to escape the early autumn freeze.

My desire has, therefore, been to discover a grape possessing all the qualities of a good grape, and sufficiently early to meet this great desideratum. But while I have found much to please and give encouragement, satisfaction is not yet attained in this interesting work. The following list includes the varieties best from which to select for planting here: Champion, or Tallman, Massasoit, Delaware, Chesselar, or Sweet Water, Hartford, Prolific and Worden. These are the best for Northern Colorado. For

the South there are the Eumalan, Challenge, Perkins Salem, Alawam, Concord, Black Hamburg and North Carolina. Grape vines should not be planted closer together than eight feet between the rows, and after the first year no crop should be grown between the rows.

Mr. Faurot gave a list as follows:

Concord, Delaware, Inman, Lindley, Isabella, Salem, Moore's Early, Brighton, Early Victory, and Worden.

A discussion arose as to the color of certain grapes, which brought out some caustic remarks in regard to tree peddlers.

Mr. Braun had grown grapes to seven pound bunches by clipping about two-thirds of the fruit.

Mr. McClelland said that nine-tenths of the people prefer American grapes.

All agreed that Moore's Early was a good one to plant.

Recess until 2 p. m.

AFTERNOON SESSION.

President Faurot introduced C. A. Maxwell, of Boulder, who desired to make a few remarks on drain tiling. Had put in drains of the California tile, which had been a success. Mr. G. W. Rust had used the California tile, and believed it answered every purpose. Board tile would fill with the roots of alfalfa and other plants; thought that ordinary tile would be decomposed in our alkali soils. Mr. Maxwell did not claim that his tiling would stand great pressure at the joints.

Mr. Alfred Wild, of Loveland, presented a paper on

Hop Culture.

The hop plant grows wild in Europe, Asia and North America, and though cultivation has produced several varieties, there is but one specie, Humulus Lupulus. The plant has a perennial root and a twining stem which dies down to the ground every year, but remains alive below the surface, where there are numerous strong buds to supply vines another year. The vine, which twines from right to left, is somewhat angled and rough. The leaves are opposite, but sometimes alternate on the upper branches. The larger leaves are from three to five lobed while the smaller are more or less heart-shaped, and all are rough. The flowers are very numerous; the staminate or male flowers are produced on different plants from the pistilate or female one. The staminate flowers are produced in loose clusters, which never form into hops. The pistilate flowers are borne at the base of scales which are arranged in clusters on a short stem; these clusters, when ripe, form the product known as hops.

When in blossom, the young hop will be found to be a collection of very simple flowers, each consisting of a single pistil, surrounded by a sort of membranous covering and one of these is placed at the base of a small scale, which as the hop ripens increases in size, and becomes the most conspicuous part of the cluster of fruit. The fruit, botanically speaking, is the ripened pistil, which is a small nut which incloses a single seed. Upon the inner side of the scales are found yellow grains which are peculiar glands, though they are often incorrectly called pollen. These grains are called lupulin, and flour of the hop. When fresh the lupulin, or flour, is very resinous, adhesive and aromatic, and it is upon this that the peculiar odor, taste and other properties of the hop in a great measure depends. This being the case, the greater or less abundance of lupulin in a sample of hops is one guide in judging of their quality and it will be seen that in all the processes of preparing them for market care should be taken that this be not lost. The lupulin varies from one-tenth to one-sixth of the weight of the hops. The bitter aromatic taste of hops is well

known and like other vegetable bitters they have a tonic effect upon the system, and are used in medicine. A narcotic property has long been ascribed to the odor of hops, and it is stated that the air of buildings in which large quantities of them are stored, has the power of inducing sleep. Though this property of hops is denied by some medical men, others consider that a pillow of hops is efficacious in overcoming wakefulness. Lupulin is kept in drug stores, and is used in the form of tincture or is made into pills by rubbing it up in a warm mortar.

The great use of hops, however, is as an addition to ale and other forms of malt liquors, to which they are added for the purpose of flavoring them, as well as to preserve them from acetous fermentation. Hops have long been used in brewed drinks on the continent of Europe, and hop grounds are mentioned in the ninth century in Germany. They are believed to have been introduced into England from Flanders in the reign of Henry VIII. Before this time a bitter plant called ale-hop was used in brewing. So great was the prejudice against the use of hops, when they were first introduced, that the city of London petitioned Henry VIII. to prohibit their use, alleging they would spoil the taste of drink and endanger the people, and the king issued an injunction, "not to put any hops or brimstone into the ale." The enormous consumption of hops at the present time in England would show that the people of that country have outlived at least one prejudice. The young shoots of hop vines, especially in the beer countries of Europe, are esteemed as an article of food. The tender shoots are taken when they just appear above ground, and are cooked or eaten like asparagus or greens.

Now I come more properly to the subject of my paper.

SELECTION OF AND PREPARATION OF SOIL.

The best land for hops is a deep, sandy loam; such land as will produce good corn is almost certain to produce good hops. After selection of ground, it should be deeply plowed in the spring. Then, after harrowing, it is ready for the roots. Roots or sets for planting. English cluster probably is the best variety, as they ripen early, seed well, flower heavily, and are of richer quality than other varieties. Use only good sets, as vacancies in yards are very annoying, as I have

found. Sets for planting are only found in the hills of two-year-old yards. The rows should never be less than eight feet apart each way. Care must be taken to keep the sets from male plants separate from the others. The hop is a diaecious plant; that is, having the staminate or male, and the pistilate or female flowers on separate plants.

There should be about one male hill every eight hills each way, or one in sixty-four, making from eight to twelve to the acre. The sets should be cut to two pair of eyes each, and three of these should be put in a hill. If planted too deep they will not come up well. Corn or any head crop can be raised on the same ground the first year.

Cultivation for the first year consists in keeping the weeds down and the ground mellow, being very careful not to break off the young shoots, which are very tender.

SECOND YEAR.

In spring, the yard, as soon as dry enough to work, must be grubbed. Hoe the dirt from the hill without injuring the crown of the root. With a knife, cut off all the old vines smooth, and any runners that are seen. Leave the hill nearly bare, and as soon as the vines are up so they can be seen plainly, I cultivate and set my poles. In setting poles, be careful to have them all on one side of the hill, so you can tell how to guide the horses that they do not step on the crown. Cultivate often, as it will save a good deal of hoeing. The vines will need tying up as often as any leave the pole, but it must not be done on a cold day nor early in the morning, as they will break, and whenever one has its head broken off, it must not be tied to the pole. When the smallest vines have got a good start, say three feet or so, bury the refuse vines at the foot of the poles, and never pull or cut them off, as is usually done. In a few days the leaves will rot, making manure, and the vines will make cheaper food for grubs than those running up the poles. These vines throw out small roots and help to make the crop for the year; besides they are the best kind of sets for a new yard the next year. There should be longer poles at the male hills, so the pollen will be better distributed.

PICKING.

The hop is ripe when on opening it the seed is hard and of purple color. After that they turn brown and seed drops out, and there is great loss, both in weight and quality. Of course all cannot be picked at just the right time. If the yard is a large one, the hops will ripen in some parts earlier than in others, and should be picked first. At first do not hurry up picking too fast, as while the hops are green the kiln must not be filled too deep, as it takes longer to dry them than those that are ripe. My best picker gathered 100 pounds a day. I paid this year one cent a pound, green. In the East they pay by the box, but I think the fairest way will be by the pound; then each picker will get paid just what they earn. There can be a great difference made in the weight of the same size box by the hops being kept laying loosely.

DRYING THE HOPS.

No matter how fine a hop you raise, if the drying is not properly done, it will be an inferior article. A kiln for drying the hops that can be raised on three or four acres will cost about $3,000. The pile should never be nearer than six feet from the cloth on the dry floor. This will enable the heat to pass through all parts of the hops on the dry floor, even on windy days. Let the floor cloth be of open texture and free from fuzz. The cloth should be put on laths 1x2, one inch apart, nailed firmly to joists. During the process of drying a kiln of hops, the heat required will be from 130 to 170. I usually burn brimstone twice to each kiln of hops. After hops are dried they should be kept away from light as much as possible or they will fade and look bad.

BALING.

This should be done from five to thirty days after drying. Make a press box, about five feet in length, twenty inches in width, and four feet in height. I used heavy poles for levers, which is not as convenient as the regular

hop press. For a bale, it requires five yards of strong cloth, which should be forty-two inches in width. Such a bale will hold from one hundred and fifty to two hundred pounds, according to the amount of pressure.

When baled, they should be placed on end a short distance apart, so a cat can keep the mice away. The bales should be kept away from the wind.

Now, I have described how the hop is grown and handled.

The question undoubtedly arises in a good many minds, will it pay in Colorado. I would say yes, with the experience I have had in the last two years it will, and there seems to me to be a bright future for hop culture in Colorado, with our dry climate and mode of irrigation, with the amount of mineral matter in our soils, such as potash, soda, magnesia, lime and others, which enter largely into the chemistry of the hop. We can produce an article superior in every respect to any other State in the union. I have successfully grown and marketed two years crop of hops, notwithstanding the remarkably low prices that have ruled for the last two years.

P. H. Zang & Company, of Denver, bought both years' crop, and for this last season's crop allowed me three cents per pound above the best New York hops, which speaks pretty well for a Colorado hop so far. I exhibited some of my first season's crop of hops at the Mining and Industrial Exposition held at Denver two years ago, and experienced men from hop districts of England and elsewhere examined them and found them to be an extra fine hop.

We have an unlimited supply of poles for poling. And the only drawback I see is the labor question, if it may be considered as such.

With our natural soil for hops, and the immense yield per acre, and the cheapness of poles for poling, and the better prices we will in all probability be able to get, will far outweigh the little extra we may have to pay pickers. After three years of careful study, I for one am convinced that I can grow hops in Colorado with as much profit per acre as they can in York State.

Being interrogated, Mr. Wild said he could raise about two thousand pounds per acre; used poles twelve to six-

teen feet high. Begin picking about August 15 and finish about September 15. Needs about ten pickers per acre; found them plentiful; could not say how many pounds would be required by the Colorado market; did not think our soil required much enriching.

Mrs. A. L. Washburn enquired if farmers thought it would pay to raise hops to make beer to ruin our men and boys.

Prof. Cassidy, of the Agricultural college, followed with a paper on

Mulching in Horticulture.

The baneful effects of drouth have been recognized by the people in every age, and the means taken to counteract it may be taken as an index of the skill and knowledge of the condition of plant growth of the time.

Moisture at the root is a prerequisite of successful plant growth, and in all discussions now-a-days that relates to agricultural subjects, this question of rainfall or drouth occupies a prominent place.

To conserve moisture, men have ever turned instinctively to cover the soil with some cheap material, that would break the force of the sun's rays.

Check evaporation, and consequent loss of heat, and this is called mulching. In nature this is common enough, and hence it is but natural that we should imitate the mossy or leafy carpeting of the forest, and provide a similar protection for the objects of our care.

In nature men argue that the checks and balances about counterbalance one another, so that all things work harmoniously, and hence it is safe to follow natural processes.

Every conceivable material has been employed from time to time as a suitable covering for the soil, and with varying results.

The literature of horticulture, for the past thirty years, abounds with the experiences of horticulturists in this direction, and no doubt the materials employed were successful in checking evaporation, but I confess to doubting the value of mulching to counteract the effects of drought,

excepting in the case of newly transplanted trees, or to hasten the germination of newly sown seeds. The immediate result is all that could be desired in the case of plants like the gooseberry and the potato, that luxuriate in a cool soil. A good crop of corn could never be grown under any kind of mulch, nor has surface irrigation or mulching ever been permanently successful with the grape, for the reason that surface roots are encouraged, which are in danger of injury from atmospheric changes.

With some crops, warmth at the root is as necessary as moisture, and a mulch in such cases would prevent absorption of heat by the soil, as well as prevent radiation of that already acquired.

Our present knowledge of plant growth would show that even with all the elements of fertility present in the soil, that light, heat, air and moisture are the stimulating forces of plant growth. Heat, as a general condition of success, is as necessary as moisture, and whatever covering we apply to the earth screens it from the action of sun and air, and thus deprives it of agencies most potent in elaborating food for plants. The earth is a chemical laboratory, in which the occult processes of nature are worked out, which the chemist cannot reproduce, or explain that which is unknown.

The objections to the mulching of the larger table fruits are, that by the use of fermenting materials fungous growths are induced, which are prejudicial to healthy vegetation; it also affords a secure resting place for their insect enemies.

Another objection is that the roots are induced to push up to the surface of the soil, and very decidedly so, if the mulch contains nitrogenous matter or other elements necessary to plant growth. If you begin mulching, you must keep it up; you cannot make the change at will, by removing it suddenly, without imposing a serious check to the growth of the tree. Mulching is equivalent to so much deeper planting, and its removal is equivalent to the destruction of many of the working roots; and, hence, the sudden exposure of the trees to extremes of temperature and moisture.

It is somewhat remarkable that those who have noticed the production of surface roots as the result of a mulch, have not often thought of it as not being a useful result.

To enable plants to resist the baneful effects of alternations of temperature and moisture in our climate, it is necessary that their feeding roots should be below the surface. This will not be so necessary in the case of annual plants, but with such as are of a permanent character, and whose tops make a definite annual growth, it is indispensable. The mode of growth of the tops of plants that make a woody stem, corresponds to the mode of root development. Some roots will always descend to permanent moisture during the season of greatest activity, if there is no hard-pan to prevent them.

The very different forms of roots may be looked upon as adaptations to varying conditions of soil and moisture, and wherever the air penetrates the soil, a root will certainly follow.

The temporary advantages of covering the soil in the case of newly planted trees, or plants of any kind, may be said to be indispensable, but this must be considered a protection merely and not a mulch.

The roots of the strawberry will live through the severest winter, but the preservation of the green leaves until spring is always an assurance of abundant fruit; if much browned, the crop will be light. Hence a light covering of clean straw is a decided advantage where the season is cold enough.

It is the sun that does the damage; the protection equalizes the temperature around the plants, and prevents their being drawn out of the soil. The large winter buds of trees and shrubs are furnished with varnished scales and a wooly covering within, not so much a protection against cold but against the alternations of temperature and moisture, which are the accompaniments of northern latitudes.

Whatever protection is applied it should be free from weeds; fresh fermenting manure is not good; there is salt in it that is injurious to the foliage.

Mulching has its exceptional advantages, but no scheme ever devised by man will ever subvert the divine command given to Adam "to dress the soil and to keep it." Deep and thorough disintegration of the soil will accomplish the first step in the retention of the soil moisture for the sustenance of flagging vegetation. The tendency of soils to raise water according to their texture and quality, is not

generally appreciated; this is readily seen in so dry and porous a material as coal ashes when deposited on a slightly moist surface.

Now, mulching merely retards evaporation, by preventing the direct contact of the air with the soil, and this explains why there is so much moisture under a mulch; the capillarity of the soil is always, in such a case, in excess of the ability of the air to dissipate it. Now, any material that is a good non-conductor of heat will, on application to the soil, accomplish this, and no better material can be had than dry top soil, when pulverized and permeated with air, for it acts as a cushion of earth and air, retarding the movement of the latter, and thus preventing evaporation; and thus, by means of cultivation by rake or hoe we accomplish all the beneficial effects of mulching, and obviate the chief objection to a mulch—the encouragement of surface roots.

In England, during the year's observation, only 43.4 per cent. of the rainfall percolated the soil, and passed through the drains; while 56.6 per cent. was accounted for as evaporated from the surface of uncultivated soil. With cropped land, the evaporation was still more considerable, according to the crop.

In a well tilled field, not more than from one-tenth to one-eighth of the rain that falls upon the soil finally passed off by percolation— the remainder was drawn to the surface, and evaporated or contributed to the support of vegetation.

Cultivation, too, not only suppresses the useless plants, which occupy such valuable space, but it secures to such as are left light to the foliage and air to the roots. A prime object in cultivation, is to keep the plant growing, and hence to prevent its flowering.

High tilth of the soil supplements irrigation. This, with good underdrainage, and the successful application of water to plants in the free soil, and a judicious selection of varieties, may be said to be the foundation of successful fruit culture in this State.

Mr. Cole thought mulching was to retard the early growth in spring.

Mr. McClelland said it did not retard; a limb could be made to leaf out while the roots were frozen.

Mr. Ackerman had mulched a crab to retard; the tree had leafed out two weeks earlier than usual.

Mr. J. W. Bacon said if the ground was frozen when mulched, it would retard.

Mr. Webster had mulched when frozen, and found the ground thawed under mulch when frozen in other places.

A stranger had mulched strawberries, and kept the ground frozen when thawed in other parts.

Mrs. F. B. Chapman, of Loveland, presented a paper on the

Value of Fruits, Flowers and Vegetables in Country Homes.

Mr. President:

The remark was made in my hearing not long ago, "That the age was progressive, and that it became every person to carve a place for themselves, then fill it." But, astonishment possessed my understanding, when your worthy secretary informed me of a place the horticulturalists wished me to fill at this ingathering.

Doubtless the very great change from cooking, scrubbing, family patching, and general household duties, to rambling thoughts amongst the fruit, flower and vegetable patches, did not occur to the programme committee that they were presenting to the society a tenderfoot in this department. Should we apparently wander, please consider the scope of range your worthy committeeman suggested in this multitudinous subject, "The value of fruits, flowers and vegetables in country homes" Not all have talents or capabilities alike, nor is it required, that one should have such a diversity of mental gifts as to make every specific duty an easy task. Be we a tenderfoot, fifty-niner, horticultural fanatic, or old fossil, each

individual should feel it a duty, not expecting it only of others, but ourselves to accept these tasks with willingness in doing whatever we can for the benefit of us all, aside the example to our sons and daughters; not forgetting Paul's instruction to Timothy, when he said, "wherefore I put thee in remembrance that thou stir up the gift of God which is in thee."

The value of the things mentioned in this subject to the farmer's home, fill me with bewilderment. Is the passion of fruits, flowers and vegetables to be counted by the cents and dollars gain in the pocket-book? True, they are the source of helpful valuation, but let us delight to consider them in various ways. We will take it for granted that most of farmers have been converted to hope in possessing a small fruit garden, or if he chooses, a large garden of small fruits. Every farmer should certainly grow an abundance of small fruits for his family uses; since few raise enough fruit for the year's need, it becomes the prudent wives and daughters to prepare with skill the fruits at hand in their season.

It is a longing of the human heart to desire long life while luxuriating on the good things of this world; hence, for sustaining forces, consider fresh fruits of most importance, partaking freely at each meal—even between meals, if you must lunch. Bear in mind the necessity of presenting fruits in their appetizing freshness. If condiments are used, let it be by adding sugar and cream.

In mentioning briefly items gained in putting up fruit, as the process is termed, as a matter of economy with gooseberries, currants or the sour varieties, after making jell, instead of throwing away the skins, pulp or seeds, we will add some water, two-thirds to equal quantities of sugar, cooking slowly, will give a jam superior in flavor to that containing all the natural juices, usually too strong in acidity for most tastes.

I find the most praises for tomato preserves when flavored with ginger root, previously soaked and steeped in water. Tomato butter, or marmalade, makes an extra nice sauce, seasoned with ground spices, with cloves in preference.

Wishing to mention a very nice way of pickling tomatoes—(The fact occurs to me, I may be getting a vegetable

in this fruit corner; for the life of me, the more I think on it, the more I am not so sure it is a vegetable, either.) But for pickling ripe tomatoes, pare and weigh them, put into a jar or wooden cask, covering with vinegar; after standing three or four days, pour off the vinegar, straining it; to seven pounds of fruit, add five pounds of granulated or coffee sugar; tie whole cloves and cinnamon bark in thin cloth, with ginger root, loose, cooking all in the same vinegar for hours, or till fruit looks well done, taking care not to break the tomatoes. The delicate niceties in taste we will be obliged to leave for the epicureans present to imagine.

The value of flowers in a farmer's home, reminds me of a little item I lately heard read from the "Grindstone," conveying the idea of one absurdity. Now coal is $4.00 per ton; a woman will burn one and one-half tons, equal to $6.00 to keep a dollar's worth of house plants through the winter. If the statement is truthful, omitting the $100 worth of pleasure to this household, by the occasional blossom amidst this diminutive garden of green—permitting digression to bring in a canary bird or two, with these plants—gives us possessions that money cannot buy. Flowers we must have, but the most valuable to the country homes are not high-priced, nor are they found amongst the annuals, which require so much attention at germination or transplanting, just in the hurry of house cleaning, too, are so apt to get neglected at the critical time, for lack of water or too much wind, prove only failures for our efforts. Obtaining roots and bulbs varied in their season of blooming, will give us flowers for indoor and outside joys. Nooks and corners given to weeds, with little extra care may be transformed to beauty and bloom by clumps of sun flowers, hollyhocks or plum thicket. For value in good cheer when wailing winds, naked yards and meadows brown, with frost bite desolate the outside, we turn with heartfelt gladness, to our patch of green within. Right here let us realize the importance of double or bay windows in all country dwellings hereafter built. Such conveniences can be added or arranged at the time of building with very little extra expense, in return we get ornamentation with suitableness for plant developments.

Alfalfa has a wonderful reputation as a forage plant, but for dooryards it is an abomination to women and children,

seriously so after a mowing, as the tough stalks have no semblance to velvety softness to little bare feet, which pick their way hither and thither with the same sense of comfort becoming one in a prickly pear patch. I think what an improvement it would be to some of our big wheat-growing farmers to seed an acre or two out of that grain field running up to the door, to lawn grass and flowers, so the children may be at least as happy-hearted and active as the pigs in the alfalfa, for whom the farmer most frequently expresses greatest pride. Fried pork, boiled potatoes and biscuit are set on some Colorado farmers' tables weeks at a time, with little or no change. Would you believe we had a farmer possessing hundreds of acres, keeping three to five hired men, and all the vegetables raised there the past season were gotten by the good wife at the neighbors? Previous years this helpmeet, with the children, planted and tended all grown, with the house duties incident to a sizable family of ten and more.

Hot-bed plants may be bought by the farmers on a large scale as most saving of time and labor, yet not hinder his general work in cultivating garden vegetables. Salt pork, beans, bread and such will keep beings alive, enabling them to labor after a fashion; but we farmers' families want to do something else from simply eating to live. Truly, to wife and daughters, there is enjoyment preparing wholesome breakfasts, dinners and suppers when vegetables are at hand for the many dishes it is in the gift of cooking to prepare. A change of work is good for a tired body—pleasantly so, if it be a change from roughest and heaviest field work to the light and fascinating labors among fruit, flower and vegetables.

The average farmer is possessed to own or run all farm machinery in this implemental craze, but in such selections, let choice govern the needful and most helpful, thus leaving the wherewithal to lay out in the purchase of these things with some pains-taking care; that will stimulate our thoughts, without the revolution of cyclonic or dynamic force to comprehend the common sense enjoyments as above price in these benefits. Let us do more thinking—anything to break loose from old habits, contracted habits—habits keeping us behind so many others in the march of these times; that will so brighten, and beautify,

and delight every such country home in a few years hence, that the coming generations may excell in goodness and greatness, asscribing the developments of these qualifications above price, obtained from the knowledge of general horticulture, floriculture and vegetable culture in country homes.

A paper by Rev. James McMillan, of Loveland, came next on the programme, as follows:

Vegetable Culture.

People in general are so well acquainted with this branch of industry, that any comment on the manner of cultivation would be out of place. But we find it true in this branch, as in many other things, people do not always do as well as they know. This fact, in my judgment, is owing to a lack of knowledge or understanding of its importance. Many do not consider how much of our living comes from vegetables, and many more are not aware of the extent to which the use of vegetables may enter into rural economy.

It is a well-known fact that the most perfect physical developments in both man and beast come of vegetable food. I have taken some pains to learn the comparative value of vegetables, as food for stock, with that of grain. I learn from reliable parties, who have tried it, that the results are largely in favor of vegetables.

Who knows how many pounds of squashes can be raised to the acre? I have asked several that question, but the nearest I have come to an answer is my own experience. I raised three wagon loads on one-twelfth of an acre. I visited David Miller last fall, and saw as fine a lot of hogs as you would find any place (except at Mr. Goss'), that were raised on squashes, with a little finishing up on corn.

Not being quite prepared to accept Hon. Jud Brush's statement of the amount of beets grown to the acre, I went to figuring on that question.

What is called the sugar beet I think the most profitable for stock. Parties who have tried it consider three bushels of beets equal to one of corn. As far as my own experi-

ence has gone, I think the estimate is about right. The only means I have of arriving at the quantity that may be grown on an acre is drawn from an observation in my own garden last season. Some of the beats weighed twenty pounds, but ten pounds being the average. I take that as a base to reckon from.

Seven rows to the rod, 12 beets in a row, gives, at 60 pounds to the bushel, the snug amount of 2,240 bushels per acre, equal to 746 bushels of corn—not quite equal to Mr. Brush; yet you may reduce this computation one-half, which brings it within the range of possibility for an entire crop.

I go over to neighbor Goss, where all the premium hogs come from, and I find him raising and feeding more beets than any other man in the country, and we find the same to be true of many other things in proportion to their productiveness and quality.

Peas and beans are more valuable food for stock than many are aware of. I don't know how many peas can be grown to the acre. I raised, last season, thirty pounds of beans to the rod, which would be eighty bushels to the acre. Turnips, potatoes, carrots and parsnips may, with propriety, be classed as profitable feed for stock. Of the latter I wish to speak more particularly.

It is thought by most people that parsnips are only fit for table use. I have tried them as food for cows and hogs, and find them to be good. Cows eat them with a relish, and the milk is finely flavored and the butter delicious. Beef made from them is of the best quality. All animals, horses, hogs and sheep, as well as cattle, eat them as readily as carrots—some say more readily. They are used to fatten pork as well as beef. Their superiority over all other vegetables is in their keeping qualities.

Squashes cannot ordinarily be kept through the winter; cabbages decay very soon after the approach of spring. Turnips and beets both lose much of their properties through the winter. Not so with the parsnip; frost improves its quality, and they come in just at the right time in the spring to meet the demand of milch cows, sheep and hogs. From 1,000 to 1,200 bushels per acre may be raised. They want rich mellow ground. Soak the seed before sowing; sow early in drills eight inches apart; keep

them clear and well worked—I have them two and one-half feet long.

Much is being said about creameries just now. Now, Mr. Farmer or Dairyman, if you want to make the milk business pay, provide yourself with plenly of vegetables for your cows during the winter. It is my opinion it will pay much better than raising so much wheat. Most vegetables are good subsoilers, which makes them valuable in a rotation of crops. To obtain the best results in the cultivation of vegetables, the ground should be well prepared, plowed deep and thoroughly pulverized. Get the plant up as soon as possible, cultivate well, giving proper attention to water, and you have but little to fear in the way of pay.

Now, Mr. President, and all of your friends, I want you to remember that the vegetable kingdom fills a very important place in the universe, and we can find its footprints in almost everything around us.

Did not know the variety of parsnips he grew two and one-half feet long.

Mr. Rust thought the value of vegetables over-rated, the great disadvantage being the expense of storing and feeding.

Adjourned until 7 p. m.

EVENING SESSION.

Floral Hints.

By Avery Gallup.

On assembling, Mr. Gallup commenced by introducing his subject of "A Few Flowers Worthy of General Cultivation:" For several years the rage in floriculture has been for masses of plants. Carpet beds as they are called,

of those plants that give the most gorgeous effects in color of foliage, and the working out of most unnatural designs in plants, such as portraits, animals, ships, scrolls and numerous other absurdities.

This has given the boom to bedding and foliage plants, and in the midst of this craze we have overlooked all our hardy herbaceous friends, that have stood by us for so many years, and which grow so luxuriantly for us in turf or when well tilled, that come up each season spontaneously, and do their best, whether neglected or not. Now, these last need no mulching, and very little care, to give us untold pleasure, and, for the farmer and his wife, it is *the* flower, for his home garden. They are in the first place the flowers of their childhood, and for them they have a liking that cannot be displaced.

We are well aware that it is so much trouble, in the midst of spring farm work, to get time to plant flower beds annually, and then, in harvest time, to care for them properly, that many have to pass this little bit of recreation and pleasure, in the midst of their duties. We could spend much time in picturing the beauties of all the favorites of the window gardens and the greenhouse, but we pass them at this time, and beg of you to this spring plant a few things which we shall recommend, so as to have a few beauty spots about your home. Don't feel that they must be planted in the front yard, for company to enjoy, for if you have not the time to make a handsome lawn or tasteful garden there, better sow it to grain, and have it look clean, and make the flower bed or border near the sitting room window, where, when you sit for a short rest, or after the day's labor, you can enjoy their resting and pleasing influence.

Then, an important item with many of us is the expense. To be sure, a fine collection of hardy, iron-clad, self-caring-for plants will cost as much, or even more, the first year, than would the foliage varieties, or annuals; but, after this is over, there is no more; but they grow, increase and beautify for years, and all they need is a generous enriching once in two or three years, and an occasional dividing up, so as to give a friend or neighbor something in exchange for what they may have.

But you must not infer from what I have said that this class of plants, which I urge you to cultivate, needs no cultivation; for, like everything else that is grown on the farm, the more they are cared for the better they will repay you; the richer you make the soil when you plant them, and the more you hoe and weed them, the better they will treat you. But I do say, that when the work crowds on you, so that you cannot think of flower culture, they will grow right along, be as cheerful as ever with their beauteous bloom, and greet you with a smile when you do again have time to make their acquaintance. I mean that they will stand neglect and not perish, better than their more fastidious relatives.

No gardening can be done without care, but I only appeal to the common sense of my hearers, when asking them if there is not a vast difference in favor of the beds or borders of hardy flowers, than those which wholly disappear with the frosts of September and October, leaving nothing but bare earth and nothing in it.

When we have a flower border like the one I advocate for the farm; that is, one permanently planted; have we not a more continuous season of bloom, from the first Pæonias that bursts in May, or even the Crocus and Snowdrop, and Hyacinths and Tulips of April, to the Hardy Phlox that looks well after the frost has killed its foliage?

To be sure, a bed of genaniums, or verbenas, or pansies, are gorgeous, and should adorn every one's yard, if they can afford them, have the time to attend to them; but the first bloom we get from them is in June, and when they die down it is forever.

I must say, however, that there is nothing whatever used in the making of a flower bed, that excels in beauty, perfume, size or blooming qualities, many of the specimens belonging to the family of hardy perennials.

What are you acquainted with that is more beautiful than the large family of Iris, or Fleur-de-Lis Lillies? Such is the Gold Banded Lily of Japan; and the purity of the Eastern or Virgin Lillies, the old-fashioned White Lily of our father's garden, the deep blue, carmine and white Delphiniums or Larkspur, the Evening Primrose, the delicate blush pink and deep crimson Pæonias, Carnations, the Narcissus, Jonquiel, Hyacinths and Everlasting Peas. And

what are more beautiful or showy than the hardy Phloxes, the old-fashioned, deep-red Pæony, Penstemons, Poppies and Chinese Pinks?

They are a sea of flowers, of brightest hues, and in bloom for the whole season.

Do not plant flowers where tree roots will rob the soil of all nourishment and starve them out; and still, many sorts need a protection from the direct rays of the sun, which is best afforded by either lath screens, or better, the planting where the shadows of buildings or trees will protect them from the boiling heat of an afternoon sun—much the hottest part of the day.

If you have no good place in your dooryard for a few flowers, or if you care more to give your chickens a free range, and can't afford a little yard for your flowers, plant them in the kitchen garden, around the edges or along the borders—for I trust none of you are so careless towards home comfort to not have such a place—and then keep down the weeds, for the flowers will give more beauty than weeds any day.

I can but call your attention to a small list of varieties to choose from, before I leave this subject, which will be as follows:

Roses (mosses, climbers, June and hybrids), Dielytra, Chrysanthemums, Day Lily.

Bulbs—Hollyhock, Sweet William, Foxglove or Digitalis, Snapdragon or Antirrhinum, Pinks, Hardy Phlox and Phlox Drummondii, Columbine, Penstemon.

Shrubs—Lillies, Poppy, Iris, Anemone or Windflower, Pæony, Petunias.

List of window plants, twelve best for all kinds of culture:

Geraniums—Take the Concord, for the million.

Begonias—Flowering and ornamental.

Calla.

Carnations—Clove Pinks, many colors, great size, constant bloomers.

Rose Geranium—For foliage.

Heliotrope.

English Ivy.

Maurandia.
Vinea.
Fuchsia.
Mignonette.
Primrose—Chinese.

Mr. McClelland moved the appointment of a committee on final resolutions.

The motion prevailing, the President appointed Messrs. McClelland, Gipson and Gallup.

Mrs. M. D. Cole, of Berthoud, read an excellent paper on

Woman's Work in Horticulture.

"Many a power, within earth's bosom,
Noiseless, hidden, works beneath;
Hence are seed, and leaf and blossom,
Golden ear and clustered wreath—
These to swell with strength and beauty
Is the royal task of man."

The Colorado ranch woman has plenty of work to do. Our farms are so new that very many of us have not gathered around us, the numerous little appliances to lighten labor, which are found in the homes of eastern farmers. Hence we work harder and more hours than our eastern sisters to accomplish the same results. So I appear before you, not to recommend more work, but less and pleasanter work. We work too much in the same old way our mothers did—scrub too much, and iron too much. A certain amount of this kind of work must be done to keep our homes cosy and comfortable, but some of us sweep and dust until we are in danger of becoming like the woman who lived only to—

"Flourish the mop and wield the broom,
To scrub and scour and dust the room.
With grease and with dirt she struggled forever,
For ever at war and for ever alert,
She spent her whole life in a ceaseless endeavor,
Then lay down and died, and was buried in dirt."

Our work indoors is so monotonous that, if we only could, by leaving undone some things which we do only from habit, and which are not essential to health, comfort or cleanliness, thus find time for work in the garden, it would relieve us somewhat of this sameness. We need more work in the open air. Our health and our nerves demand it, and for our digging and working the soil, mother earth will well reward us, not only in dollars and cents, but she gives a bonus besides, of renewed vigor and strength. "But," says one farmer's wife, "I have no time, and it tires me so." I find there are two ways of working in the garden. One is to rise early, hurriedly get the breakfast, hurriedly dress the little ones, then, in a rush, wash the dishes, sweep the floors, make the beds, black the stove, do the baking; then, heated, hurried and tired, rush out in a blazing sunshine and work with the hoe in the same desperate manner some two or three hours, to get as much as possible done before dinner time. In this way one not only gets tired, but is quite certain to get sick also, and perhaps spend the next two or three weeks singing "Come, ye disconsolate."

Another way is to go immediately after breakfast, leaving the work in the house undone for an hour or so, and work leisurly in the cool of the morning, stopping frequently to inhale long draughts of the sweet, pure air, gaze at the landscape, the ever changing clouds and sky, and admire all the beauty Dame Nature ever spreads before us. So, shall we, at the end of one or two hours' work, return to our house duties, not wearied or worn, but refreshed and invigorated, and in the companionship of nobler and better thoughts, while our petty cares and vexations shall "fold their tents like the Arabs, and silently steal away."

Some person has said we should every day read a poem, look at a beautiful picture, and speak a kind word. So all of us who make our gardens under the shadow of the old Rockies are specially privileged; we have our pictures ever before us, and ever changing with each passing breeze, and each new phase of sun and sky, from when the morning sunlight touches their tips, till bathed in the brilliant hues of the sitting sun.

To attain the best results in any work, no matter how ordinary or mechanical, requires thought and system. We must use our brains to help our muscles. Most every housewife plans her meals one or two days ahead, but some of our food may be prepared some three or six months ahead; for instance, our chickens may be canned in November, and we thus not only save the food they would have eaten, but have something ready for dinner when we come in from our garden work. It is also very convenient to have when company drops in to dinner unexpectedly.

Potted ham may also be prepared weeks before the garden work comes on, and with very little extra time. I merely boil the ham until tender, chop it fine, season to taste, with a dressing of mustard, catsup, vinegar, etc., pack it in little jars, keep in cool place, and it is always ready for use. Home-made bologna is also good food to prepare in any of the moments we may have to spare previous to seed time.

When the time for outdoor work arrives, it should be previously arranged and planned, if we would use our time and labor to the best advantage. An excellent plan is to have a plat marked off on paper, with lines representing the roses, then write on each row what we intend to plant. Many of us attempt too much. We plant too large an area, then finding it almost impossible to keep the weeds down, get discouraged. We should plant only as much land as we can keep in perfect order, by working only from one to two hours a day. It is much easier to destroy weeds two days old than two weeks old. Whatever we do, let us do well, however mean and insignificant the work may be.

"Who sweeps a room as by God's law,
Makes that and the action fine."

The children should go into the garden with us. Those not old enough to help, will enjoy making mud pies. Indeed, I pity any child who is denied the privilege of making mud pies. And, above all, let us inspire our boys and girls with a love of nature and of agricultural pursuits, if you would keep them on the farm. Any person engaging in agriculture, without a love for it, and a hearty love for the free, independent life of the farmer, has missed his vocation —is out of place. He had better be a poor workman in most any other profession than an incompetent farmer.

The seeding time for early vegetables usually comes when our men folks are busy with their grain sowing, and therefore can give us but little help; but they are very willing to plow and prepare the ground for us, if we will but attend to the rest of the work. We should plant with special reference to the wants of our own table, though if we should have a few early vegetables to sell, the pay will not come amiss. We won't tear up many five dollar bills, with wheat at its present price.

I have done some gardening for several seasons past, and the mistakes of my gardens have been many. The coming season, profiting by the mistakes of the past, I propose to have an ideal garden. My early vegetables will be planted in good, rich, light, sandy soil, and on the sunny side of a very high furrow, and before the frost is fairly out of level ground. Later on, the top of the furrow may be hoed down on the plants. The rows will be thirty feet long. I will have two rows of American Wonder peas, two rows of onions in sets, one row of lettuce and spinach, two rows of radishes. For a succession, I like to plant a later seed, thus: A Marrowfat for a late pea. The later varieties do better, and are usually richer and of better flavor. The rhubarb also comes in for its share of attention, to be hoed, and enrichcd with fine dressing. I find that barrels put over it cause it to grow taller, and more tender and crisp.

No article of food comes to our table in the early spring, more welcome, palatable and wholesome than baked rhubarb. As soon as danger from frost is over, I shall plant four rows of black wax beans; one-half of them to be picked while tender for salting. We salted them last year as an experiment, and found it a complete success. For late radishes, one row of Black Spanish, planted the first of August, for fall and winter use. They are succulent and wholesome. The fruit of the hot bed comes next: tomato, cabbage, cauliflower. These are to be treated tenderly, and watered abundantly. If insects trouble them, I shall dust them with Persian insect powder, as it proved effective last year. No garden is complete nowadays without its rows of celery. Gardeners now tell us the White Plume and several other varieties, can be raised without the extra work formerly required in banking. I shall buy the plants if they can be obtained that way, if not raise them in my hot

bed. The early vegetables may be hastened in their growth by the use of liquid dressing.

A barrel set in the garden, filled with water, into which have been thrown a few shovels full of dressing from the hen houses, will be sufficient, with occasional renewing, for the entire season.

Later in the season there will be found in my garden rows of sweet corn, beets, carrots, turnips and parsnips, but shall leave for the man of the house for his garden, the potatoes, pumkins, squashes, cucumbers, beans, melons and later onions.

Have, already, six long rows of strawberries, which will make my garden as large as I can attend. Last year I tried raising chickens and strawberries together. It was a success, as far as the chickens were concerned, but the berries did not thrive, and eggs flavored with strawberries are rather expensive for common use.

Blackberries we do not need to plant in our garden, as my neighbor across the way has invested in the Evergreen, and I expect to see it reach over on our farm, long before fruiting time, and supply us with all the berries we need. The Niagara grape is to be in our fruit garden of the future. We visited the Niagara County Fair in the fall of '84, and there such quantities of them, all of such perfect and uniform flavor, size and color, that we believe it to be the coming grape. I think, however, my fruit gardens will be best described a few years hence, and quaint old Andrew Marvel will do it better than I can:

"What wondrous life is this I lead!
Ripe apples drop about my head;
The luscious clusters of the vine
Upon my mouth do crush their wine;
The nectarine, and curious peach,
Into my hands themselves do reach;
Stumbling on melons, as I pass,
Ensnared with flowers, I fall on grass!"

One suggestion more: I would I could impress on every housewife the importance of keeping accounts. The day has passed by for haphazard or guesswork. We want to know if our labor pays, or if we are throwing it away. We

want to know if our vegetable garden pays, and our small fruits, and how much the different varieties yield, and which pay the best. We should keep a chicken account and know just how much they pay. I found my chicken account of last year very satisfactory, spite of great losses by storms and dogs.

We, the pioneer ranch women of Colorado, have endured, and are still enduring, many privations, and are feeling the sickness of hope deferred. Yet we should take courage, the dawn of a golden era for us even now appears. We are slowly gathering around us all the comforts of life. These do not always constitute happiness, but our ideas of happiness are always associated with these comforts. Most of us can sit down to well filled tables, of earth's choicest productions, and say, "All this food, except the tea, coffee, sugar and salt, is the produce of our farm, our garden, orchard, pasture or grain field." Our resources are wonderful, and are being more fully developed every year. and when, in the near future, we have attained to large and comfortable houses, embowered in trees, and shaded with vines, when our straw barns and granaries shall have given place to substantial frame, and we have gathered around us orchards of large fruit, our gardens of small fruits, our graperies, our flocks of geese, turkeys, ducks and hens, our patent beehives filled with golden honey, our fields of corn, oats, rye and barley, our lakes in which sport our fish, longing to be caught and fried, our flocks of sheep, herds of cattle and horses, grazing in well cultivated pastures; when our sons and daughters shall be in college, and we have plenty of help in, as well as out of door; when the churn shall be banished as far from our western homes as the handloom is from the eastern, and we have time for social and mental recreation and improvement, for literary clubs, farmers' clubs, kettledrums and sociables, then will the "winter of our discontent have passed away," and Colorado, with its sunny skies, its cool mountain retreats and its abundant blessings, be the ranch woman's paradise, and we, the envied of all the earth.

After the reading, a quartette of male voices rendered a beautiful piece of music, which was received with tumultuous applause.

President Faurot then presented his annual address, speaking as follows:

President's Address.

Members of the Society, Ladies and Gentlemen:

We have met again in annual convention, to collect from our past experience, and to formulate them, so we can make them useful in the future. It is but a little over a year since this society was organized, and about five years since the State society was first organized, and we have done a great deal, and still have a great work to perform, when we look back and see the condition of fruit culture in Colorado ten years ago. At that time we could hardly find fruit enough growing to make a showing at our county fairs. Compare the fruits at that time and what were raised in 1884—88,000 bushels of apples, 400,000 boxes of strawberries, 20,000 baskets of grapes; raspberries, blackberries, gooseberries and currants in the same proportion. And that the quality of our fruits are of the best, none can dispute. We have just begun our labor. We want more and hardier and better fruits of all kinds, and to find out what are the best kinds for us to plant. We want State experimental farms. One should be located at the Agricultural College, one in the southern district and one in the western. We hope in time that Colorado will be able to raise more and better and cheaper fruits, so that every man, woman and child can have all the fruit they want, and that we can have plenty to ship to less favored localities, and that every school house and farm will have its shade and ornamental trees and flower beds, and that Colorado will be a State worth living in, and the Horticultural Societies of this State hope to bring this about.

Very few can understand the difficulties and discouragements that the pioneers in horticulture had to contend with here in Colorado. With our high altitude and peculiar climate, and without having any knowledge of what varieties would succeed and what obstacles we had to meet and overcome, and what we have yet to meet and overcome before we can attain the success we hope for.

Another great need of this society and the farmer of Colorado is a good and competent entomologist, who should be located at the Agricultural College or the State University. Our insects are getting quite numerous, and there are a good many that do not know their friends from their enemies among the insects, nor how to combat with them. The expense need not be much, and I would recommend the appointment of a proper committee to bring the matter before our Legislature, and ask them to provide for the appointment of a State entomologist in the interest of the entire State.

If the fruit interests of the State are not enough to warrant this, the farmer has a good many insects that trouble him, as well as the fruit man and gardener; and I would recommend this society to take some action in regard to our making an exhibit of our apples and grapes, and such fruit as we may have at our next annual meeting, and let the people see that we can grow fruit in Colorado, for the future of Colorado rests with the horticulturist and the farmer; and, ladies and gentlemen, if we make the progress in fruit culture for a few years to come as we have in the last few years that are past, we will come to the front as a fruit-producing State.

Experience verifies the fact that all the best lands we have for horticultural purposes are our uplands, the lowlands as a rule being a failure. What the meteorological influences are to make this difference, is a good subject for this meeting to discuss.

This is a noble cause we are engaged in, a cause that not only benefits ourselves, but is of very great benefit to the community and the State in which we live. Take the farmer and the horticulturist out of the country, and what would become of the country? I tell you, ladies and gentlemen, they are the bone and muscle of the country. They are the capital and the true aristocrats of this noble and free America. They are a noble and a generous class of people. We are not selfish, as many would think; but, on the other hand, we are ready and willing to impart knowledge and to give our neighbor the benefit of our experience, and it is through the horticultural societies of this State we propose to give you the benefit of our labor and experience. We are not like a great many people, that when

we have found a good thing we wish to hide it, and use it only for our own benefit; we are not of that class. But, on the other hand, we want our neighbors and our friends to get the benefit of our experience, that our children may begin where we leave off. It is only in this manner that we may hope to succeed and become a great State.

Look back in the history of this young State for a space of twenty years, and note the rapid strides it has been and is still making towards a great and prosperous State. Twenty years ago there were a few men—men of nerve and energy, scattered along our streams and through our mountains, isolated from home and friends and all kindred association—the advance guard of civilization. And who were those men and women? I can assure you that they were the representative men and women of the country from which they came. They were the farmer and the horticulturist.

It is now, as it has been in the past history of our civilized world. The farmer has been the advance gaurd of civilization. He goes ahead and paves the way; then comes the railroad, the great civilizer and benefactor, as they will tell you—and in one sense of the word they are; but show me one railroad that was ever built into a new country that the sturdy farmer had not gone before and demonstrated that it would be a good investment to build a railroad.

But, ladies and gentlemen, I do not wish you to understand that I do not appreciate our railroads. There is no doubt but what they are one of the greatest civilizers of the age; but at the same time we have rights that they ought to respect. We ought not to be at the mercy of the railroads, as many of us are. But one will say, how can we help ourselves? I can tell you how we can do it. Through the Farmers and the Horticultural societies of the State. Let us join hands, and make the railroads show us the justice that we are entitled to, let them see that we will no longer submit to the unjust discriminations that they are making against us and in favor of the States east and west of us, in bringing the products of those States into our markets, compelling us to compete with them; but let the railroads carry our products East as cheap as they carry from the East to the West, and let the

mill men pay you a living price for your wheat and ship the flour on to the Eastern market, where it will demand the highest price of any flour, and then, and not until then, may we hope for more prosperous times. We sometimes hear the remark, made by the city man, that the farmer and the fruit men are cheats. They say, I don't get a box of fruit, either of the smaller fruits or of the standards, without finding in a great many cases a lot of fine fruit on the top, and the balance of the box is green and small, not fit to eat sometimes. Now, that may be the case sometimes, but whenever the farmers or the fruit men are to blame, it is through a lack of knowledge rather than a wish to defraud. The blame rests in a great measure with the men that are handling our fruits. If the fruit comes to them in a bad condition, as it sometimes does—especially so with the strawberry and some of the softer fruits, through the carelessness of the express company—they go to work and top out the box, as they call it, putting all fine fruit on the top of the boxes, and the producer gets the credit of putting up poor fruit. Now, we should see that we have honest men to handle our fruits, and that the express company carry as carefully as possible.

I would recommend those of you growing the smaller fruits for the market, that you take great pains in having your fruit picked and packed; be very careful that there are no leaves or stems in the boxes, and in putting the boxes in the crate, see that the fruit is not jammed; and in picking the strawberry, be very careful that the calix is left on; for, I care not how fine a berry you may have, if it is not picked with care, it spoils the sale of your fruit; and I would advise, in gathering apples for the market, that you put in only the first grade apples.

Some farmers may not know what constitutes a first grade apple. They should not be over-ripe nor green, nor undeveloped, as those often are that grow in the center of a thick tree, not jammed nor dirty, and above all things not wormy. There are certain worm holes that do not make an apple second-class, but they are not common. If the worm hole be recent, small and through the apple from end to end, it does not usually lessen the keeping qualities or appearance. There is a growing tendency on the part

of the consumer to buy a colored apple. You will find scores of people that would rather buy a pretty apple of poor flavor, than to have an uncolored one of fine flavor.

This society, at its last meeting in Greeley, adopted a list of fruits, both of the standards and smaller fruits, that I would recommend to those of you contemplating setting fruit. Although the past year has been quite disastrous in many respects to the fruit growers' interests of this section, I trust those of us that are engaged in it will not be discouraged, for what has been our loss financially from the effects of the late frosts and wind of last spring and summer, has been of a benefit to our vines and trees, and the prospects are very flattering for a bounteous harvest in the coming season. I should like to say one word in regard to your buying fruit trees and vines. Never buy a tree or a vine on the recommendation of a tree agent, for they always have something new to sell, and they show you their fine plates and the beautiful fruit put up in alcohol, and tell you it is just the thing for you to plant; now, as a rule, those men come from the East and know very little about the practical part of fruit culture, and nothing about it in Colorado; but, if those smooth-tongued fellows come to you and tell you that they have got a tree or a vine that is impervious to the climatical influences of Colorado, and that it has been inoculated with a fluid that will cause it to produce fruit that will cure all the ails that the human body is heir to, you think that it is a wonderful thing; and yet we will find men ready to believe such nonsense, who will spend their last dollar for the benefit of the tree peddler.

We have a great many things to take into consideration in the cultivation of fruits in Colorado that they have in no other country. There is such diversity of soil and climate that the fruit man and farmer must be a careful and a reasonable man; he must use good judgment, and not rely wholly upon others for what may or may not do for you to plant, or the treatment you should give them. It is the purpose of the Horticultural Society of this State to place the desired information that the beginner may need to start him in the right channel, by giving you through our printed reports the experience of men as to varieties and kinds of fruits best adapted to this locality, and the treatment they should receive, as regards the amount of water and modes

of pruning, to attain the best results; and I trust that the men and women of this locality will give us their aid and counsel, for it is in unison of action that we can succeed.

I should like to see more of the ladies' names on our list of membership, for, gentlemen, we must interest the ladies if we wish to succeed; and I urge this society to try and interest capital towards the building of a good canning factory somewhere in this locality, so that the fruit growers of Northern Colorado could put up their soft berries and keep them off the market, for it is this class of fruit that hurts our markets, and I hope that the members of this alliance will come to our aid in this matter, for it is a well known fact that there is money in growing vegetables, if the producer can find a market for his produce, and it is of vital importance to the fruit grower that he should have some place to save his soft berries, and put nothing on the market but the very choicest fruit. In this way we can force the fruit that floods our market from Kansas and other points out of our market, and I consider this one of the greatest drawbacks to our fruit interest, and I do earnestly hope that the people of this section will do all in their power to advance the fruit interest of Colorado, for it remains with us to make Colorado one of the leading fruit States of the Union. We can, if we will, and not until we can come somewhere near producing the fruit that is consumed on our own markets may we hope for success. There is about one-half million dollars going out of Colorado every year for green fruits alone; one and one-half million for canned and dried fruit; fifty thousand dollars for cut flowers; about one million for chickens and eggs. This vast amount could and should be kept at home. If the farmer would turn his attention to these things a little more, he would find them far more remunerative than growing wheat at the present price.

The quartette again sang, responding to the hearty encore, with "Peter Gray," with killing effect.

At the request of persons present, the president gave an opportunity for further discussion on the grape.

Mr. Rust called for experience on the Evergreen blackberry.

No one seemed willing to give any, if they had it.

Mr. Webster was given permission to offer suggestions on the apple. In the course of his remarks, he gave the following list as "ironclad:"

Summer Tetofsky, Red Astrachan, Summer Pearmain, Red June, Early Harvest, Duchess, Maiden's Blush, Fameuse, Northern Spy, Wine Sap, Huntsman, Seek-No-Further, Blue Pearmain, White Winter Pearmain, Ben Davis, Pewaukee, Wealthy, Walbridge, Roxbury, Russett, Golden Russett, Sweet Pear, Utter's Red, Fall Pippin, Newtown Pippin, Geniting.

He thought it would be better for the people to plant only such as had been tried, than to spend time and money in experimenting on new and untried varieties. He had seen as fine a Maiden's Blush on the St. Vrain as anywhere. (Sensation among the young ladies in the audience.)

Dr. Shaw said he thought the list read by Mr. Webster should be in every orchard in northern Colorado.

Mr. Gipson could endorse Mr. Webster's list as "ironclad." Orchards suffered badly in '72. He thought the Yellow Transparent better than any on Webster's list.

Levi Booth would like to see the Shaker Pippin added to the list.

Mr. Webster hoped that the State would establish experimental farms for fruit.

Mr. Gipson, for committee, reported as follows:

WHEREAS, The Northern Horticultural Society, at its session just closing, has received marked courtesies at the hands of the people of Longmont and vicinity, and for which we are deeply grateful. Therefore be it

Resolved, That we, the members of said society, hereby tender our sincere thanks for the ample accommodations provided, and for favors shown, to the good people of this city in general, and to the following in particular: His honor, Mayor Dell, and other city officials; to Judge Terry

and the members of the committee of arrangements of the Farmers' Alliance, for considerate attentions shown; to the Longmont cornet band, quartette and glee club; also, to the various railroads leading to Longmont, for generous reduction in rates; to those attending the meetings, and to the press of this and other cities of the State, for kind assistance given us.

Resolved, further, That the hearty thanks of this society are due and are hereby tendered to the many ladies who have graced the occasion with their presence, and who have done so much to make our sessions interesting and profitable, and especially to those who favored us with their valuable essays.

Respectfully submitted.

A. E. GIPSON,
J. S. McCLELLAND,
A. GALLUP,
Committee on Resolutions.

Mr. Paddock, of Boulder, requested the society to pass an opinion on the merits of the Evergreen blackberry.

Dr. Shaw had seen one specimen which had spread, but the fruit was yet to appear.

Several fruitgrowers spoke, and the general opinion seemed to be that it was a fraud.

Mr. McClelland moved that we proceed to our business meeting.

Which was done.

The subject of marketing fruit was opened by J. S. McClelland, who stated that the efforts of last year had done good.

President Faurot was of the opinion that if the fruitgrowers of the district would adopt a uniform price they could control the market.

Mr. Rust thought no plan yet presented was feasible.

Mr. Gipson offered the following resolution on marketing fruit, which, on his motion, was adopted:

Resolved, That a committee of three be named by this meeting, consisting of President Faurot, of Boulder; Mr. McClelland, of Larimer, and Mr. Porter, of Weld, to consider the feasibility of selecting an agent, at one or more points in Colorado, to attend to, or arrange for, marketing the fruits of the members of this association the coming season, said committee to have power to act, if deemed expedient by them.

President Faurot, on behalf of the fruit growers of Boulder, invited the society to hold their next annual meeting at Boulder.

On motion the invitation was accepted.

Mr. Gipson moved that the president appoint a committee of three to secure an exhibit of fruits at the next annual meeting.

Carried.

After which the meeting adjourned *sine die*.

A meeting of the executive committee was held in the parlors of the Zweck Hotel on February 11.

Mr. Gipson moved, that in consideration of the generous donation of ex-President McClelland to the society of volumes of State Horticultural Reports of the different States, which he had procured at his own expense and distributed among the members, he be made a life member of this society.

Unanimously carried.

The special meeting of the Northern Colorado Horticultural Society at Longmont may be characterized as a "red letter" event in the history of horticulture in Colorado. The attendance, from the first, was large, the fine, capacious hall, Dickens' Opera House, being taxed to its utmost seating capacity much of the time. The citizens of Longmont proper, and of the highly cultivated farms adjoining, seemed to have become enthusiastic in doing all they could to make the meeting a success, and turned out *en masse* to listen to the many excellent papers furnished by the intelligent men and women designated on the programme.

The "Farmers Alliance" made all necessary local arrangements for the comfort of all, and held an interesting "Farmers' Institute," replete with good things, immediately following the adjournment of the Horticultural meeting.

The music, both vocal and instrumental, was good, and suitable to the occasion. The Longmont Cornet Band, by its stirring strains, called the people together.

The stage was graced with blooming plants, behind which appeared the earnest and attentive officers, and, in their turn, the various men and women who spoke in behalf of progress in "country living and country thinking," and the delights of horticulture for all.

The successful session at Longmont gives pleasant anticipations for the next annual meeting, at Boulder.

LIST OF ANNUAL MEMBERS

OF THE

Northern Colorado Horticultural Society

FOR 1886.

W. F. Watrous ..... Fort Collins
James Cassiday ..... Fort Collins
J. S. McClelland ..... Fort Collins
J. E. Washburn ..... Loveland
Albina L. Washburn ..... Loveland
A. Wild ..... Loveland
James McMillan ..... Loveland
P. D. Goss ..... Loveland
W. L. Porter ..... Greeley
A. E. Gipson ..... Greeley
Eli Hall ..... Greeley
William Newland ..... Boulder
Charles S. Faurot ..... Boulder
James Ackerman ..... Pella
L. H. Dickson ..... Longmont
Mrs. B. L. Carr ..... Longmont
Mrs. L. J. Cole ..... Longmont
G. W. Webster ..... Longmont
R. Streeter ..... Longmont
M. W. Barb ..... Longmont
J. M. Fox ..... Longmont
Robert Blum ..... Longmont
J. W. Bacon ..... Longmont
G. F. Savery ..... Valmont
Mrs. G. F. Savery ..... Valmont
H. P. Robbins ..... Longmont
A. M. Preston ..... Longmont
Mrs. Margaret Andrews ..... Longmont
Mrs. R. F. Coffin ..... Longmont
Julia D. Coffin ..... Longmont
E. J. Kaufman ..... Longmont
G. W. Rust ..... Boulder

CONTENTS.

REPORT OF STATE SOCIETY.

CONTENTS.

REPORT OF NORTHERN SOCIETY.