

Paul Howe Shepard: A Man Dedicated to Fruit, Fun, and Service

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Abstract

Paul Howe Shepard (1892-1961) is best known today both as a student athlete and longstanding Director of the Missouri State Fruit Experiment Station, where he pursued his passion for growing fruit. As a fruit breeder, he introduced 39 fruit cultivars from 1935 to 1956 when drought and high temperature extremes were the norm. His most enduring fruit cultivars are 'Loring' peach, 'Bluefire' and 'Ozark Premier' plums, and 'Ozark Gold' apple, although he also released 12 grape hybrids and a black raspberry cultivar. During the lean years of the Great Depression, Dust Bowl, and post-World War II, Shepard provided economic opportunity for families who had suffered great losses by breeding locally-adapted fruit cultivars and developing orchard plans and cultural methods to grow them on small parcels of land. For more than 25 years, he influenced millions of fruit growers with his *Country Gentleman* magazine articles and weekly newspaper columns. In 1954, Shepard was the recipient of the Wilder Medal and served as President of the American Pomological Society (APS) for the following five years. In honor of his lifelong service, the P.H. Shepard Award is presented annually to the authors of the best paper published in the Journal of American Pomological Society. A seminal plant breeder and horticulturalist, Paul Howe Shepard's work was never done as he was always pursuing a superior fruit cultivar and a better production method.

Paul Howe Shepard is recognized today as a gifted student athlete and a prolific fruit breeder. Each year, the Shepard award is presented to authors who publish the best research paper in the Journal of the American Pomological Society. This award was established in honor of P.H. Shepard in 1961 to commemorate his contributions to the American Pomological Society. To many, he was simply known as "Shep", Director of the Missouri State Fruit Experiment Station, but more importantly, he was a man dedicated to fruit, service, and outdoor fun.

Early years and education. Shep was born in Kansas City, MO in 1892. He grew up on a farm in Kansas, and later moved to Chicago where he briefly attended Lake High School. However, his family returned to Kansas City where he completed his secondary education at Westport High School. There he served as President of his senior class and achieved high athletic honors for both basketball and track and field. Shep played center position

for his basketball team, and after winning their championship game in 1910, he represented his school on the all-interscholastic team (Fig.1) (Anonymous, 1910). In track and field, Shep competed in four events, including pole vault and the other "jumps", but was most outstanding as a hurdler.

After high school, he enrolled at the University of Missouri, Columbia, MO (MU). He majored in Agriculture and also maintained his interest in sports, participating in football, basketball, and track. One of Shep's greatest moments in sports was drop-kicking a 53-yard field goal in a game against MU's fiercest rival, University of Kansas (KU) in 1912. Because MU-KU games were traditionally known as "border wars", such a record-breaking kick against the KU Jayhawks ensured his hero status. For the next two years, he was named the All-Valley Conference fullback. As a freshman, he was considered the best all-around track athlete at MU (Anonymous, 1911). During his col-

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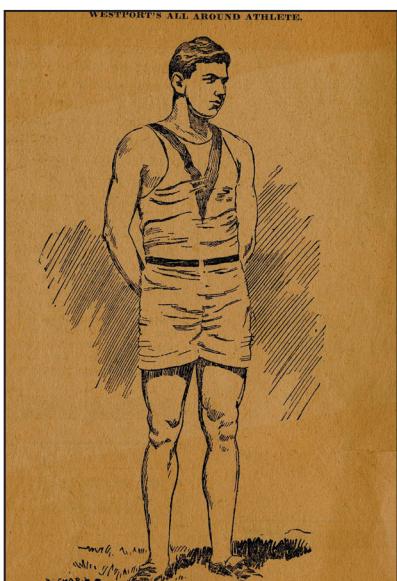


Fig. 1. *Kansas City Star* newspaper illustration of P.H. Shepard in recognition of his athletic prowess while attending Westport High School, Kansas City, Missouri.

lege enrollment, Shep likely took classes at MU taught by the notable pomologist, William H. Chandler, as well as Victor R. Gardener, Frederick C. Bradford, and Henry H.D. Hooker Jr., who later included much of their horticultural research in their classic textbook, *Fundamentals of Fruit Production* published in 1922 (Hibbard, 1978). Because Shep's greatest desire was to grow fruit, he traveled to Washington and spent part of 1915 working in Wenatchee and Yakima orchards. In 1916, Shep completed his undergraduate studies and earned a degree in Agriculture from MU.

The Missouri fruit-growing industry was at its zenith in the early 1900's. In 1910, there were almost eight million peach trees planted in Missouri (Martin, 1959). Reports also indicate that there were 14,645 Missouri fruit growers with more than 7.3 million apple trees planted in 1913, including 23,424 ha of 'Ben Davis' and 'Gano' (also known as 'Black Ben Davis'), 4225 ha of 'Jonathan',

about 485 ha each of 'Missouri Pippin', 'York', and 'Ingram', as well as 131 ha of 'Geneton'. Remarkably, 75% of the apple orchards were < 4 ha and only a few pesticides (lead arsenate, Bordeaux mixture, and lime sulfur) were sprayed on 13.5% of these plantings (Faurot, 1913; Martin, 1959).

With such a thriving fruit industry, Shep and his partner leased two orchards and started one of their own in Jackson County, MO in 1916. However, not long thereafter, the United States entered World War I and Shep was called to duty. He served as a Second Lieutenant of field artillery in England and France. After the war, Shep came home to Missouri where he grew apples, pears, grapes, and cherries in his orchards for 12 years. With great pride, he often mentioned his largest single largest crop for one year was 42 (railroad) "cars" of apples and 2 "cars" of pears (P.H. Shepard, 1954). During this time, railroads, such as the Frisco and the Missouri Pacific, assisted growers in acquiring harvest labor, containers for shipment, and marketing the crop to distant buyers (Martin, 1959). In a 1924 address to Missouri fruit growers, Shep predicted that packing and shipping apples in bulk by barrels or railcars would become obsolete within the next decade in favor of graded fruit in another smaller type of container, much to the angst of coopers in attendance (Shepard, 1924).

Move to Mountain Grove, MO. In 1934, Shep dissolved his fruit-growing partnership and was appointed Director of the Missouri State Fruit Experiment Station, Mountain Grove, MO. This Experiment Station was established by a legislative act signed by Governor L.V. Stephens on 27 Apr. 1899 to develop fruit cultivars adapted to the Ozark region, improve their cultivation, and provide recommendations for pest control (USDA, 1901). At the Experiment Station, Shep conducted research on pruning and thinning of peaches and cluster thinning on grapes, for which he received graduate credit from the University of Missouri (Murneek, 1934). More importantly, Shep reinvigorated

the fruit breeding program as a major area of emphasis. During his tenure at the Station, Shep introduced 39 fruit cultivars and made the initial cross for 'Ozark Gold', which was released posthumously in 1970 (Table 1).

Shep used the popular apple cultivars of the day in his apple breeding program at the Fruit Station. 'Ben Davis' was chosen as a parent at the Fruit Station for its fire blight [*Erwinia amylovora* (Burr.)] resistance and

Table 1. Fruit cultivars introduced by P.H. Shepard.

Cultivar	Date of Introduction	Parentage	Attributes
<i>Apple</i>			
Conard	1935	Ben Davis x Jonathan	Similar in flavor and appearance to Jonathan, ripened one week later and less susceptible to apple scab
Faurot	1935	Ben Davis x Jonathan	Similar to Jonathan in fruit appearance; ripened with Winesap with less premature fruit drop and long storage life
Fyan	1935	Ben Davis x Jonathan	Ripened about 2 weeks later than Jonathan and more disease resistant than its parents
Grove	1935	Ben Davis x Jonathan	Selected for its solid red skin color, bloomed 10 days after Delicious, fruit ripened after Winesap, long storage life
Whetstone	1935	Conard x Delicious	Spur-bearing habit, fruit ripened \approx 10 days after Winesap, stored well until May, and a good baking apple
Wright	1942	Ben Davis x Jonathan	More productive and less susceptible to apple scab and fire blight than Jonathan; striped skin
Delcon	1948	Conard x Delicious	Spur-bearing fruit habit, ripened 10 days before Delicious; dwarf tree size
Jonagram	1956	Ingram x Jonathan	Bloomed 12 days later and larger fruit size than Jonathan
Ozark Gold ^z	1970	Golden Delicious x (Conard x Delicious)	Fruit similar to Golden Delicious but ripened two weeks earlier; smooth, blemish-free skin
<i>Crabapple</i>			
Kent		Unknown	Large, edible, bright red fruit ripened in early September
<i>Peach</i>			
Missouri	1942	Frank x Hale Haven	Freestone fruit ripened two weeks before Elberta
Osage	1946	OP of Alton	Cling with pink juice, ripened two weeks before Elberta; cold-hardy fruit buds
Loring	1946	Frank x Hale Haven	Freestone, large fruit size, ripened two weeks before Elberta

Eleven Point	1947	Captain x Terret Monstre	Black wine or dessert grape in very long cylindrical clusters with no shoulder
Gasconade	1947	Captain x Terret Monstre	Medium-sized, black berries on large, compact clusters; suitable for wine, juice, or fresh dessert
North Folk	1947	Agawam x Early Daisy	Large, black berries; fruit crack-resistant and shatter-proof at harvest, ripened 10 days before Concord
Ozark Prize	1947	Dr. Collier x Sheridan	Black fruit larger than Concord and ripened 10 days later
Tetra	1947	Herbert x Worden	Very large, round black berries, likely a tetraploid, ripened with Concord
Blue Eye	1947	Ellen Scott x America	Black berries with high percentage <i>V. aestivalis</i> Michx var. <i>lincecumii</i> and <i>V. rupestris</i> , produced attractive red juice
<i>Black raspberry</i>			
Somo	1956	Unknown	Cold tolerant and vigorous plant, high productivity and resistant to anthracnose

^z Original cross made by P.H. Shepard and released posthumously in 1970.

^y OP=open-pollinated seedling.

long storage life in common cold storage and 'Jonathan' was used as a parent because it was considered a high quality apple with its pleasing flavor (Shepard, 1961). Other parents in the breeding program included 'Ingram', 'Delicious', and 'Conard' apples, which ultimately resulted in the release of nine apple cultivars by Shep between 1935 and 1956. These cultivars were introduced for various characteristics such as bloom delay ('Grove' 10 d after 'Delicious'; 'Jongram' 12 d after 'Jonathan'), later ripening than 'Jonathan' ('Conard', 'Fyan') or 'Winesap' ('Grove', 'Whetstone'), better resistance to apple scab [*Venturia inaequalis* (Cke.) Wint.] ('Conard', 'Fyan', 'Wright') or fire blight ('Faurot'), and long storage life ('Faurot', 'Whetstone') (Shepard, 1948). 'Delcon' was selected for its spur-bearing habit with fruit ripening 10 d before 'Delicious', high fruit yield, and dwarf tree size. Also, 'Kent' crabapple was introduced for its flavorful fruit, brilliant red skin color, and large fruit size (\approx 5-cm-diameter).

The peach breeding program at the Fruit

Station was initiated in 1937, with seven cultivars released by Shep between 1942 and 1947 (Table 1). His initial objective was to develop a cultivar better than the widely-planted 'Elberta' peach, which was considered the highest quality late-ripening cultivar at the Station (Shepard, 1961). A second objective was to breed early-maturing peaches with the assumption that they would avoid injury from Oriental fruit moth [*Grapholita molesta* (Busck)], which was introduced into the U.S. around 1913. 'Hale Haven' was often used as a parent in the breeding program. All of Shep's introductions ripened earlier than 'Elberta' peach and were mostly free-stone cultivars. 'Tulip' peach was exceptionally early, ripening six to seven weeks before 'Elberta' and was considered the best early-ripening peach at the Fruit Station. 'Loring' is the most notable peach cultivar developed by Shep and is still grown today.

Shep was particularly interested in developing plums adapted to the Ozarks because little breeding had been done for this region before 1937 (Shepard, 1961). Most of his

plum introductions were from crosses of 'Burbank' x 'Methley', and 'Stanley' x 'President', even though many others were made. The four aforementioned cultivars were likely used for their fruit flavor, size, productivity, and resistance to bacterial leaf spot (*Xanthomonas arboricola* pv. *pruni* (Smith) [Vauterin, Hoste, Kersters and Swings]) (with the exception of 'Burbank'), but Shep especially favored 'President' because it commanded "top price" and had impressive fruit size (Shepard, 1942). Shep believed that the other two of his best crosses were 'Ozark Premier' and 'Bluefre' plums, which are still produced today (Shepard, 1961).

Thirteen grape cultivars were introduced by Shep in 1947, using mostly a cultivar of a native grape species as one parent crossed with a *Vitis vinifera* L. cultivar (Table 1). During his lifetime, the most widely planted cultivars in Missouri were 'Beaver', 'Blue Eye' (Fig. 2), and 'Bokay' (Shepard, 1961). Although none of his grape releases have



Fig. 3. P. H. Shepard examining a grapevine at the Missouri State Fruit Experiment Station.



Fig. 2. 'Blue Eye' grape cluster introduced by P. H. Shepard in 1947.

survived the test of time, he developed some interesting cultivars (Shepard, 1948). 'Eleven Point' vines produced clusters of grapes often measuring > 30 cm-long. 'Bokay' also produced extremely large clusters with yellow berries that could be cold-stored for two months. In the five years preceding his death, Shep made several thousand crosses, using a seedless grape cultivar and an American-type grape cultivar (Fig. 3). He most wanted to introduce a red seedless grape adapted to the Midwestern region of the U.S. While Shep had produced several black, red, and white seedless grapes, he felt that their quality was not sufficient for release.

The only bramble cultivar that Shep ever introduced was 'Somo' (abbreviation for south Missouri) black raspberry (Fig. 4). Black raspberry production was perpetually plagued by hot, dry summer weather, winter injury, and anthracnose [*Elsinoe veneta* (Burkh.) Jenkins]. After twelve years of observation, 'Somo' was introduced in 1956 as



Fig. 3. 'Somo' black raspberry released by P. H. Shepard in 1956.

the most productive, vigorous-growing black raspberry grown at the Fruit Experiment Station (Shepard, 1956).

More than fruit breeding. In 1954, Shep received the Wilder Medal from the American Pomological Society. In the award notification, H.B. Tukey wrote, "To Paul H. Shepard,

who has devoted a life to fruit problems in the Ozark region, especially to the varietal problems and origination of improved sorts for fruit breeding and varietal studies in the Ozark region" (Tukey, 1954). Beyond fruit breeding, Shep was concerned about the slow decline in fruit production in the region after the early 1900's. Thus, he actively conducted research on the economics of fruit production, use of grape rootstocks to enhance their production, and fruit pests and diseases, which culminated in the publication of several bulletins and circulars (Tables 2 and 3). Shep also incorporated his research findings into the articles he wrote in 1939 and 1940 for *Country Gentleman* magazine, which addressed agricultural topics and had a circulation of more than 1.6 million. In 1956, he summarized his research on the effect of 23 rootstocks on the productivity of 'Concord', 'Campbell', 'Moore', and 'Delaware' grapevines in the *American Fruit Grower* (Shepard, 1956). Shep also wrote a weekly column for the *Weekly Star Farmer* which was published by the *Kansas City Star* newspaper for more than 20 years (Shepard, 1960). In 1941, he received much notoriety for developing a

Table 2. Circulars authored by Paul H. Shepard at the State Fruit Experiment Station, Mountain Grove, MO.

Title	Publication date	Circular no.
Blooming and Ripening Dates with Yields of 360 Varieties of Apples Grown at Mountain Grove, MO	1937	25
Spraying Apples for the Prevention of Fruit Set	1939	28
Spraying the Home Orchard	1940	29
Tomato Experiments in the Ozarks ^z	1942	30
Pruning Young Apple Trees ^z	1945	31
Growing Fruit for Home Use	1947	32
Grape Spray Schedule and Description of Grape Pests	1952	33
New Crabapple Variety (Kent)	1956	34
A New Black Raspberry Variety	1956	35
A New Apple Variety. The Jonagram Apple	1956	36
A 12-Year Financial Report on a Sample Home Orchard	1959	37
Home Orchard Spray Schedule	1960	38

^z Co-authored with G. Rook.

Table 3. Bulletins authored by Paul H. Shepard at the State Fruit Experiment Station, Mountain Grove, MO.

Title	Publication date	Circular no.
Plums in Missouri	1936	29
Grafted Grapes in Missouri	1941	30
Growing Plums in Missouri	1942	31
Concord, Moore and Campbell Grown on Vigorous Rootstocks in Missouri	1946	32
New Fruit Varieties Originated and Introduced by the MO State Fruit Experiment Station, Mountain Grove, Missouri	1948	33
Pruning Young Grape Vines in Missouri	1950	34

plan for a 2 ha (five-acre) fruit farm where one could “make a good living”, presumably without government assistance. Shep’s effort to assist potential fruit growers also received high accolades in a letter to the editor published in the *St. Louis Post-Dispatch* newspaper, which was entitled, “A Poor Man’s Sabine Farm”. The title of this article, likely refers to the title of the poem, “The Sabine Farm”, written by Horace around 30 B.C. (Anonymous, 2015). After this letter was published, Alice Koken, a Missourian who was “very much necessitated to earn a living”, wrote to Shep and later visited the Fruit Station for additional assistance in developing her own small fruit farm. To express her gratitude, she dedicated the following poem to Shep:

Fruit Farm

A dream! It comes to many
From Mountain Grove. And cheers
The haggard John Doe plenty
To learn, and lose his fears.

A five acre fruit farm
Is enough for any fellow
He has a strong right arm
He’ll make the acres mellow.
Spring returns to John Doe
He need not grow so old
Take up the shovel, pick and hoe,
Wear overalls, be bold.

He’ll plan and work and dig
And choose his orchard trees
And sweat and smile and rig
More arbors. He will seize
The hours of day and more
To make lush meadows pay
And ease his real heart-sore
Driving that wolf away.

Apples, peaches, cherries,
To blossom in the spring
Pears, quince, raspberries,
The fruit in fall’s the thing.

A dream! To plant our land
Turn barren soil to parks,
Paul Shepard’s outstretched hand
From Mountain Grove, Ozarks.

Shep also had a pivotal role in a cooperative grape project that was financially supported by the Sears-Roebuck Foundation. For this program, 2-ha vineyards were established by growers, with one-third planted with ‘Herbert’ and the remaining area planted with ‘Catawba’ grapevines (Martin, 1959). Juice from this project was pressed at the Fruit Station and shipped to St. Louis, Ohio, New York, and California. Unfortunately, the production of ‘Herbert’ grapes was not lucrative. However, ‘Catawba’ juice was highly profitable and was prized for making “the highest quality wine and champagne” (Martin, 1959).

Bad and good times. Shep certainly knew adversity and hardship as a fruit grower and breeder during the Great Depression, Dust Bowl, World War II, and thereafter. The hottest Missouri summer on record occurred in 1934 with little rainfall, followed by the driest summer in 1936 with only 9.6 cm of precipitation in June, July, and August (Missouri Climate Center, 2016). Since 1901, 75 of 92 summer daily maximum temperature records at Mountain Grove were broken in the 1930's and 1950's. Like many other farmers, times were hard from 1935 to 1937 and Shep fell behind in his mortgage payments on his orchard, but there was more adversity to come. January 1940 was the coldest month recorded in Missouri, followed by the "Armistice Day freeze" (1940 Nov. 11) that killed many of the fruit trees in Kansas, Missouri, Nebraska, and Iowa (after which the fruit industry never fully recovered) (Talbert, 1942). The next decade was also severe with the driest year recorded for the state in 1953 followed by extreme summer heat in 1954. During this time, there is no record of any type of irrigation at the Fruit Station and aluminum pipe for irrigation in orchards was not widely available until after World War II. By today's standards, producing fruit under such conditions would be inconceivable. Yet, Shep was busily introducing fruit cultivars that could withstand intense drought and heat, as well as the unprecedented low November freeze that occurred during the 1930's to 1950's. Labor was also in short supply during World War II. As early as 1941, it was predicted that fruit growing in Missouri "during the duration of the war is going to require both head work and muscle work of the hardest and most trying character" (Talbert, 1942). Also during these hard times, Shep was not always paid by the State of Missouri. Amazingly, Shep stayed in Missouri, working for a meager salary even though he was offered a much more lucrative grape position at the New York State Agricultural Experiment Station's laboratory in Fredonia. His love of the Ozark region and his passion for fruit breed-

ing undoubtedly kept him at the Missouri State Fruit Experiment Station.

Shep was also an ardent hunter and fisherman (which likely helped sustain his family during the lean years). When colleagues visited him at the Fruit Station, a float trip on a nearby river or a fishing trip was often included on the itinerary. Seven of his grape cultivars were named for local rivers and streams he frequently floated or fished. In 1936, he caught the third largest muskie during a Canadian fishing contest and later reeled in another 13.6 kg muskie at Yoke Lake, Ontario. Photographs of such pastimes were featured in local newspaper articles, including one entitled, "The 'Champs' of a Fishing Party" after one such trip. In a letter dated 24 April, 1961 he wrote to his cronies of an impending fishing trip in Missouri:

The weather is clearin'
The time is nearin'
The fish are spawnin'
The water is warmin'
So let's go fishin'.
My tackle is waitin',
Fish are thru matin',
The dogwood is bloomin',
And I'm through groomin',
So let's get goin'.

Service to others. Shep was also an advocate for others, for which he was held in high esteem. In 1944, Shep wrote a letter to President Franklin D. Roosevelt concerning his radio-broadcasted plea for 17-year olds to enlist in the Army Specialized Training Program (ASTP) in which young men could "obtain a college education at the expense of the government." In reality, this was a six-week program offered at selected colleges to lure 17 year-old males into the armed services. Apparently, after six weeks, enrollees, regardless of whether they were offered an exam and passed or failed it, were sent immediately to military training. Shep's lack of confidence in the ASTP was also earnestly expressed in an article published in the Kan-

sas City Star newspaper on 9 Mar. 1944, for which Shep received great notoriety and commendations from those who had experienced this program. Unfortunately, consequences of his actions are unknown. As a religious man and community leader, Shep offered a helping hand to others and on at least one occasion sponsored a prison parolee at the Fruit Station.

Shep was a member of the Gamma Sigma Delta honorary agricultural society and the American Association for the Advancement of Science. From 1955 to 1960, he served as the President of the American Pomological Society. On 26 Aug. 1961, Shep delivered his final presentation, "Fruit Breeding Work at the Missouri State Fruit Experiment Station, Mountain Grove, MO" at an American Institute of Biology (AIB) meeting held in conjunction with the American Society for Horticultural Science Meeting at Purdue University. While at these meetings, Shep suffered a coronary occlusion and passed away. However, before his passing, Shep had industriously outlined his goals for 1961 to 1963, including breeding more cold hardy seedless grapes and apricots, evaluating nectarines at the Station, establishing the limits of cold-stored fruit, and investigating new mechanical fruit harvesters.

Epilogue. Perhaps Shep best summarized his pomological passion in his final AIB address stating, "Fruit breeding in my opinion is the most interesting of all work connected with Horticulture. Our greatest job is not the crossing, but the eternal inspection, appraisal, and record keeping. There are many disappointments and occasionally a thrill, when we first see the results of a cross. It took us years to restrain our enthusiasm for a new seedling until we knew all we could find out about it." (Shepard, 1961).

In addition to the P.H. Shepard Award presented annually by the American Pomological Society, Shep was memorialized by the establishment of a University of Missouri scholarship and a building named in his honor that houses administrative person-

nel offices and pomologists at the State Fruit Experiment Station, which is currently part of Missouri State University. Perhaps Shep's spirit is best epitomized in an undated work in which he stated, "The undertaking (of growing fruit) challenges the imagination and perseverance of those American people with pioneering instincts.fruit growers as a group represent our finest type of American farmers. There is certain amount of gamble and romance in fruit growing that is appealing." Today, pomologists and fruit growers alike are the beneficiaries of Paul Howe Shepard's infinite pursuit of a better cultivar.

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Literature Cited

- Anonymous. 1910. Westport's all around athlete. Special Collections and University Archives, Meyer Library, Missouri State Univ., Springfield, MO.
- Anonymous. 1911. Shepard star of track team. Special Collections and University Archives, Meyer Library, Missouri State Univ., Springfield, MO.
- Anonymous. 2015. The Sabine Farm. Bartleby.com. 15 July 2016. <<http://www.bartleby.com/270/5/123.html>>.
- Faurot, F.W. 1913. Spray calendar. Missouri State Fruit Expt. Sta. Circ. 6.
- Hibbard, A.D. 1978. A century, 1878-1978, of fruit science at Missouri. Personal papers on file Univ. MO Division of Plant Sci., Columbia, MO.
- Martin Jr., W.R. 1942. Observation of the damage to Missouri orchards resulting from the November 1940 freeze. Proc. Missouri State Hort. Soc., 1941-1942.
- Martin Jr., W.R. 1959. The first 100 years of the society. Missouri State Hort. Soc. Souvenir. Columbia, MO.
- Missouri Climate Center. 2016. Significant weather events of the century for Missouri. Univ. of Missouri. 15 July 2015. <<http://climate.missouri.edu/sigwxmo.php>>.
- Murneek, A.E. 1934. Letter to P.H. Shepard. Special Collections and University Archives, Meyer Li-

- brary, Missouri State Univ., Springfield, MO.
- Shepard, P.H. 1924. Address to the MO State Hort. Soc., Independence, MO. Special Collections and University Archives, Meyer Library, Missouri State Univ., Springfield, MO.
- Shepard, P.H. 1936. Plums in Missouri. Missouri State Fruit Expt. Sta. Bul. 29.
- Shepard, P.H. 1948. New fruit varieties originated and introduced by the Missouri State Fruit Experiment Station, Mountain Grove, Missouri. Bull. 33.
- Shepard, P.H. 1954. Introduction provided to Guy Trail. Special Collections and University Archives, Meyer Library, Missouri State Univ., Springfield, MO.
- Shepard, P.H. 1956. A new black raspberry variety. Missouri State Fruit Experiment Station, Mountain Grove, Missouri. Circ. 35.
- Shepard, P.H. 1960. Budget narrative. Letter to P.H. Shepard. Special Collections and University Archives, Meyer Library, Missouri State Univ., Springfield, MO.
- Shepard, P.H. 1961. Fruit breeding work at the Missouri State Fruit Experiment Station, Mountain Grove, MO. Presentation at the Amer. Inst. Biol. Sci. meeting, Lafayette, IN, 28 Aug. 1961. Special Collections and University Archives, Meyer Library, Missouri State Univ., Springfield, MO.
- Talbert, T.J. 1942. Growing fruit under war conditions. Proc. Missouri State Hort. Soc., Columbia, MO.
- Tukey, H.B. 1954. Letter to P.H. Shepard, 19 Jan. 1954. Special Collections and University Archives, Meyer Library, Missouri State Univ., Springfield, MO.
- United States Department of Agriculture. 1902. Annual Report of the Office of Experiment Stations for the Year Ended in June 30, 1901. U.S. Dept. Agr., Washington, D.C.