

Albert Etter: Fruit Breeder

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Abstract

Albert Etter was an innovative private fruit breeder who worked mainly with strawberries and apples. His most notable introductions include the Ettersburg 80 (Huxley), Ettersburg 121, and Fendalcino strawberries, as well as the Pink Pearl, Waltana, and Jonwin apples. Although the Etter strawberry cultivars have little commercial importance today, their germplasm remains a fundamental component in many leading modern cultivars. Perhaps more significant was the influence of Etter's unconventional approach on other breeders. He emphasized the value of unimproved, often wild parent material, and frequently made "wide" crosses between genetically diverse types. With strawberries, he demonstrated the particular usefulness of *Fragaria chiloensis* as a germplasm source. His breeding work with apples made heavy reliance on crabapple material and obscure, apparently unpromising cultivars. His apple selections include a series of pink- and red-fleshed cultivars, the best known of which is Pink Pearl.

Although he remains largely unrecognized today, Albert Etter's long and productive career as a private fruit breeder should qualify him for a significant place in American pomological history. He was something of a horticultural "child prodigy," initiating breeding experiments with dahlias and strawberries as a teenager growing up on his family's farm in Ferndale, California. When he turned 21, Etter moved to a remote homestead tract in the upper Mattole River Valley. Here, with the help of his brothers, he cleared the land for ranching and established his "Ettersburg Experiment Place." He spent the rest of his long life hybridizing new fruit varieties. While his most notable work was with strawberries and apples, he also performed crosses of other fruits, including plums, grapes, pears, cherries, and

gooseberries. In addition, he did some breeding work with chestnuts.

A self-proclaimed 'hillbilly' whose formal education ended with the ninth grade, Etter was able to make impressive contributions while working alone and without financial resources. During the first decades of the century Etter enjoyed a brief taste of public acclaim for his strawberry introductions. He was fortunate to obtain the enthusiastic endorsement of Professor Edward J. Wickson, Dean of the University of California College of Agriculture and an influential pomological writer. As editor of the Pacific Rural Press, Wickson was in a position to promote the career of the young hybridizer and Etter undoubtedly benefited from his patronage. [26, 27, 28, 29, 30, 31]

Despite this favorable publicity, he never managed to profit materially from his labors. Etter was a talented horticulturalist, but an unrewarded businessman. This aspect of his career illustrates the difficult plight of the private fruit breeder before the Plant Patent Act of 1930. Although the last years of his career were largely devoted to his new apple cultivars, he did not receive much recognition for this work during his lifetime. He was known locally as the "Luther Burbank of Humboldt County"—a title that does not do justice to the man's unique and lasting contributions to American pomology.

At the time of his death, Etter and the Ettersburg cultivars had been nearly forgotten. It is only with the recent renaissance of amateur interest in

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choice fruit—as well as the pomological community's renewed concern for germplasm preservation—that some of Etter's introductions are again being propagated and grown for their exceptional qualities.

The Strawberry Legacy

Etter's career as a strawberry breeder is well-documented. His early work was frequently chronicled in the pages of the Pacific Rural Press, a popular agricultural journal of that period. [19, 21, 22, 23, 24, 25, 27, 29] Many of these articles were reports written by the breeder himself. [5, 6, 7, 8, 11, 12, 15] Etter's vigorous new strawberry hybrids received a good deal of publicity and many distinguished scientists made the long trek to Ettersburg to meet the breeder and observe his methods. One of these visitors was Dr. Roy Clausen, a geneticist from the University of California at Berkeley. Clausen's article in the *Journal of Heredity* (1915) gives a detailed account of Etter's innovative approach to strawberry breeding. [2]

Another appreciative observer was Dr. George Darrow of the United States Department of Agriculture (USDA). During his visits in the 1920's, Darrow obtained the breeding material that was later used to develop the Fairfax strawberry. Etter obviously made a deep impression on the young scientist, and Darrow became Etter's devoted biographer. In his strawberry article for the USDA's *Yearbook of Agriculture of 1937*, Darrow included a description of Etter's work—complete with photograph and extensive cultivar listing. [20] He further commemorated Etter's career with a paper published in 1963 [4] entitled "Albert Etter: Strawberry Breeder." This paper formed the basis for a work that was included in Darrow's definitive book *The Strawberry—History, Breeding, and Physiology*. [3] Further information on the Ettersburg strawberry cultivars is contained in A

History of the Strawberry by Stephen Wilhelm and James Sagen. [32]

While Etter introduced over 50 new strawberry cultivars [16], several of which had outstanding potential none were successful in gaining wide-spread commercial planting. The main impact of the Ettersburg cultivars was as germplasm for other breeders. When the Yellows virus (*Xanthosis*) threatened the entire strawberry industry of California, Etter generously donated his entire collection of cultivars and other breeding material to the University of California-sponsored research program. [32] Fendalcino, an Etter cultivar resembling Banner but with imperfect blossoms, showed significant virus resistance, and became an important component in the pedigrees of the new California cultivars—including Lassen, Torrey, Tioga, and the more recently introduced Douglas and Chandler.

Other North American cultivars with Ettersburg material in their parentage include Corvallis, Northwest, Totem, Albritton, Southland, Louise, Jubilee, Simcoe, Howe, Borden, Redheart, Guardsman, Merrimack, and Fairfax. (For a more complete listing see [3].) Of these, Darrow's Fairfax stands out for its remarkable high flavor, which derives in large measure from the E-450 cultivar. In England, where Ettersburg 80 (Huxley) enjoyed considerable commercial importance, Ettersburg germplasm was incorporated in Cambridge Favourite and Cambridge Vigour.

Most of the numerous new cultivars described in Etter's strawberry catalogs have by now been lost to neglect. His own collection was not maintained during his last years, and by the time of his death in 1950 all the original Ettersburg plantings had been lost to marauding sheep and deer. Fortunately, we have managed to re-collect several Etter cultivars from local homestead gardens. Two have been obtained from foreign germplasm col-

lections. The fact that these have survived this long is testimony to their toughness. We have hopes that others may turn up in the future. We have noted an impressive tolerance to droughty, infertile soils and suspect a resistance and/or tolerance to virus and other diseases; also, some resistance to various insect, mite, and nematode pests is suggested.

'Rose Ettersburg'—Etter's first introduction; very large, pink berries, high-flavored, very aromatic. Plants vigorous, drought-resistant, and productive. Derived from a cross between a Sharples X Parry hybrid and an acidic, light-colored *F. chiloensis* selection from Peru. This was grown to some extent in Tasmania, Australia, but we have not yet been able to locate any plants.

'Ettersburg 80'—This is probably Etter's most widely distributed cultivar. It was formerly grown commercially in England as "Huxley;" and in Australia as "E-89" or "Ettersburg." According to Etter, this was bred from crosses of Rose Ettersburg with the local "Wood strawberry" and a *F. chiloensis* selection collected by him near Cape Mendocino. Although Etter reported this "Wood strawberry" as *F. californica*, Darrow has suggested that this parent was really a local form of the octoploid species *F. ovalis*. [3] More recent investigations indicates the likelihood that Etter's woodland "californica" species is actually *F. virginiana glauca*; this subspecies of the octoploid *F. virginiana* is native to Northern California. [1] The E-80 showed excellent adaptation to many different climates, and displayed an especially high tolerance to the heat and drought of California's interior valleys, where it earned a reputation as 'the fireproof strawberry.' The berry has large size and exceptional flavor, with a firm, solid flesh. Its primary shortcoming is a lack of color toward the center. The plants display the vigor and beautiful dark green,

leathery foliage typical of Etter's *F. chiloensis* hybrids. We obtained E-80 from Australia through the generosity of the New South Wales research station at Rydalmere, and it is again being grown and propagated here in Ettersburg.

'Ettersburg 121'—One of Etter's chief goals was to produce a strawberry tailored to the needs of the West Coast canning industry. According to Darrow (1937), the E-121 was the "best canner in United States." [20] Some 250 acres of the cultivar were grown in the vicinity of Salem, Oregon during the 1930's. E-121 produced a uniform, globular, medium-sized fruit with a brilliant red color which did not fade through processing. The flesh was very solid and remained firm after boiling. It further distinguished itself by its productivity (over 200 berries per plant), a desirable growth habit that held the berries well off the ground, and a predisposition of the berries to easy hulling. Its parentage is highly unusual for a commercial cultivar; Etter claimed that the E-121 derived directly from crossing a white-fruited Alpine (*F. vesca*) with the Cape Mendocino beach strawberry (*F. chiloensis*). This attribution is unlikely since octoploid species such as *F. chiloensis* will not cross with the diploid *F. vesca*. E-121 is itself a progenitor of the USDA-Oregon State introduction Corvallis, which in turn produced Northwest, once the leading cultivar in Oregon and Washington; Northwest has been superceded by Totem, its offspring with Puget Beauty. Dr. Stephen Wilhelm re-collected the E-121 from a germplasm source in England. We obtained specimens from this importation through Dr. Royce Bringhurst of the University of California at Davis, and are now propagating it on a limited scale.

'Trebla'—Another Ettersburg canning cultivar and obviously a personal favorite of the breeder (Trebla = Albert spelled backwards). Trebla was

a complex hybrid of several other Etter selections, and purportedly contained Alpine, *F. californica*, and Rose Ettersburg in its background. Darrow questioned the validity of this pedigree, citing the apparent incompatibility caused by differences in chromosome ploidy. [3] It has a distinctive growth habit, very tall and vigorous, and holds its crop well above the ground. While its foliage does not have the characteristic leathery quality of many of the other Ettersburg cultivars, Trebla nevertheless shows remarkable tolerance to both drought and frost. The berries are elongated-conical, medium in size and deeply colored to the core. The brisk high flavor varies with growing conditions—probably precluding its commercial acceptance. Etter claimed this to be his most productive cultivar, estimating yields of 25,000 quarts per acre over a six to seven week period; he used no irrigation. [16] We have re-collected this cultivar from an old homestead garden where it was grown as an heirloom fruit.

'Red Cross'—A seedling derived from a cross of E-216 (a complex beach hybrid) with pollen of 'Trebla.' While lacking the firmness needed for a commercial cultivar, this berry was recommended by Etter as an ideal fruit for the home consumption. The plants have exceptional toughness, drought resistance, and disease tolerance; we have been able to re-locate this cultivar at two different homestead sites. Fruit has the pleasant high flavor of the wild "Wood" type, and is so richly colored that it stains the fingers.

'Fendalcino'—In terms of germplasm contribution, this was one of Etter's most important cultivars. While its imperfect (pistillate) flowers rendered it undesirable for commercial purposes, this lack of stamens made it ideal for breeding experiments. Fendalcino (derived from Fendall X E-121) demonstrated a remarkable toler-

ance to Yellows virus and was used by the University of California as foundation material in its now famous breeding program. The University's effort received the Wilder Silver Medal in 1954. Unfortunately, this valuable source of germplasm was not preserved by pomological institutions and we have as yet been unable to locate any specimens.

'Latecross'—Like 'Fendalcino,' a pistillate cultivar, Latecross blossoms and ripens late in the season. The berry is very large and of good quality. However, its pollination problems have made this an erratic bearer. This cultivar was selected by Etter toward the end of his strawberry career and was never formally introduced. This was re-collected locally from an old, neglected garden planting.

'Califour'—Another minor Etter cultivar we have obtained from a local family's homestead. The berry possesses an exquisite "wild" flavor, but is too fragile for commercial purposes.

The Apple Legacy

Etter began his apple breeding program shortly after arriving at Ettersburg in the 1890's, while the strawberry work received the most initial attention, Etter began to phase out berry breeding in the late 1920's, and thereafter devoted most of his energy to the apples. Unfortunately, he was frustrated in obtaining recognition for his apple introductions. His write-up by Darrow in the *USDA Yearbook of 1937* was a bittersweet moment; he had hoped that his apple cultivars would receive some attention in the section on *Malus*, but for some reason the editor neglected to mention this contribution. Etter was sorely disappointed. [13]

The apple program at Ettersburg began with a trial involving over 600 cultivars that Etter obtained through the University of California. Etter believed that a fresh approach to breeding was needed to suit the special

requirements of the Pacific Coast region, and that his place at Ettersburg was ideally suited to this project. He brought to his apple work the same emphasis on genetic diversity that he applied to strawberries. He delighted in the use of 'primitive' material such as crab apples and obscure culinary cultivars, and believed that the best results could come from unlikely crosses. One of his first and best introduction, 'Allgold' (later renamed 'Etter's Gold'), was a hybrid of 'Wagener' and the Transcendent Crab. Other parent cultivars that figured prominently in Ettersburg pedigrees include 'Reinette Ananas,' 'Manx Codlin,' 'Bedfordshire Foundling,' 'Siberian Crab,' and the red-fleshed 'Surprise.' [10, 11]

Etter was especially interested in novelties and did much hybridization with 'Surprise.' This cultivar was introduced from Europe into North America in the mid-nineteenth century for its unusual red flesh, a characteristic probably derived from *M. pumila* var. *Niedzwetzkyana*. 'Surprise' did not possess any remarkable dessert quality, but was sometimes processed into pink sauce. Etter used to create a whole new race of colorful cultivars ranging in flesh tone from light pink to deepest red. He eventually selected more than 30 red-fleshed types for further evaluation. [14] Most were characterized by a distinctive berry-like flavor, and several had excellent dessert quality. One of these, 'Pink Pearl,' was formally introduced, and has gained an outstanding reputation among amateur fruit growers throughout the United States.

As Etter neared the end of his career, impoverished and in poor health, he decided to turn over his best apple cultivars to California Nursery Company (CNC) in Niles District, California. George Roeding, Jr. of CNC worked with Etter in selecting seven cultivars for which patent applications were filed. These were introduced in 1944. As a knowledgeable nurseryman,

Roeding was able to narrow down Etter's vast assortment to a few fruits that might be most popular with the public. Unfortunately, the mood of commercial agriculture at that time was not very hospitable to new cultivars, and CNC did not have the resources to promote the Etter introductions effectively. Quentin Zielinski of Oregon State at Corvallis gave favorable mention to 'Jonwin,' 'Etter's Gold,' and 'Pink Pearl.' [33] Apparently none of the patented cultivars enjoyed much trial or exposure. It has remained for local Humboldt County growers and dedicated amateur enthusiasts to preserve Etter's apple legacy. Several of these cultivars are now gaining prominence in the amateur network and some are again being offered by nurseries.

'**Wickson**' (Patent #724, Spitzenberg Crab X Newtown Crab)—A small, late-ripening crab hybrid of extraordinary quality for dessert and cider. 'Wickson' has tested at 25% sugar in the juice and was developed by Etter in the hopes of creating a new apple champagne industry.

'**Etter's Gold**' (Original name 'Allgold,' Plant patent #659, 'Wagener' X Transcendent Crab)—A medium-sized, clear yellow apple of excellent dessert and culinary value. Ripens late and over an extensive period. An exceptional productive cultivar at Ettersburg.

'**Crimson Gold**' (Patent applied for, but never completed; original name probably 'Rosy Bloom')—One of Etter's last introductions. Etter often selected cultivars for very special purposes and 'Crimson Gold' was his best processing apple. It retains its quality and firmness through much boiling and can produce canned slices as attractive as a peach. Late ripening, medium-sized, deep red with a bloom.

'**Pink Pearl**' (Patent #723, seedling of Surprise)—Probable Etter's most widely distributed and acclaimed apple cultivar. Beautiful translucent

skin that reveals the color of the pink flesh. Ripens mid-season (Sept.) and keeps tolerably well under refrigeration. It has excellent dessert quality and is becoming a favorite with connoisseur growers. Also useful for culinary purposes—in fruit salads, sauces, and pies—where the novelty effect of the color is appreciated.

'Humboldt' (Patent #658, original name 'Jumbo Transcedant,' a seedling of Transcedant)—Etter selected this cultivar for its ornamental effect both in blossom and fruit, but the small to medium-sized apples (quite large for a crab) have excellent eating and cooking quality. Ripens late.

'Alaska' (Patent #699, original name 'Bedfordshire Jr.,' a seedling of Bedfordshire Foundling)—A handsome, white-skinned, white-fleshed cultivar. Tree is impressive, vigorous, healthy and productive; fruit is medium to large and ripens late. Another multipurpose apple, with fine dessert and cooking quality.

'Jonwin' (Patent #710, 'Baldwin' X 'Jonathan')—This cultivar is unusual (for Etter) in its conventional pedigree involving well-established cultivars. If the parental attribution is correct, however, it would represent an interesting cross, since 'Baldwin' is now regarded as a sterile triploid and is seldom used for breeding. 'Jonwin' is a good-looking apple with commercial potential, an improvement in many respects on both its parents. It received some favorable reports from experiment stations, but was never promoted for widespread planting. 'Jonwin' perhaps deserves reevaluation by the research institutions.

'Waltana' (Probably 'Wagener' X 'Manx Codlin') Though not among the CNC selections, this has become one of Etter's most important and popular creations. It ripens very late in the season and has exceptional keeping ability ever under primitive California storage conditions. In areas where it

does not quite ripen on the tree, it can finish off very well in storage. Medium to large, thin red stripes on greenish ground, often quite highly colored. In the years since Etter's death, it has achieved almost legendary status with Humboldt County orchardists; it is prized for its excellent dessert quality (crisp, hard, juicy flesh with an abundance of both acid and sugar), high culinary value, and long keeping period. 'Waltana' is known locally as the "The Etter Apple," and in recent years has been more extensively planted in other areas of California and the Pacific Northwest. Reports from growers in diverse regions of the country (Michigan, Kentucky, Georgia) indicate that Waltana may merit wider planting as a connoisseur and small-scale commercial cultivar. It does, however, require a long growing season.

Other less well-known Etter cultivars that we have re-collected include:

'Katharine'—An outstanding late-keeping cultivar. 'Wagener' X 'Reinette Ananas.'

'Amber'—A crab hybrid with confectionary dessert quality.

'Leilah' ('Little Rosy Bloom')—Another crab hybrid of the 'sweetmeat' class, deep red and covered with a heavy purplish bloom. Ripens late for Christmas.

'Delilah'—A huge (up to 15" in circumference) handsome apple, ivory white with blush. Its size belies its crab ancestry ('Manx Codlin' X Transcedant). 'Delilah' earned its name from an exceptionally high acidity that renders it too strong for most palates. Etter recommended this especially for jelly, and also used it for breeding.

In addition, we have re-introduced (with new names) two anonymous pink-fleshed cultivars, 'Thornberry' and 'Pink Pearmain,' [17] and have at least another half-dozen cultivars of this class that we are considering for future propagation. Although the Ettersburg test orchard is in an advanced state of

decrepitude, there are still dozens of unidentified cultivars that are worthy of further study. We hope to continue our inventory of Etter's surviving material before the remaining old trees succumb to their inevitable fate.

[A listing of sources for plants and/or propagating material of Etter apple, strawberry, and chestnut cultivars may be obtained by sending an SASE to the author: Ram Fishmen, Greenmantle Nursery, 3010 Ettersburg Road, Garberville, CA 95440.]

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