

AVA Petition. New, with minor overlapping.

Petitioner: Steven Burgess, President, Burgess Cellars, Inc. (est. 1972) on behalf of many growers in the area.

AVA name: Crystal Springs of the Napa Valley

Size: 4000 acres +/-, with over 30 historic and new vineyards consisting of 230 acres +/- vine-acres.

(1) Name evidence:

(i) Name relevancy and usage overview: The name "Crystal Springs" is used to describe the West-facing hillside of the Vaca Range where the Crystal Springs neighborhood exists. The most common type of spring, is a "gravity spring," which is a spring on a hillside. Springs flow from the entire Vaca Range, and this area is has many due to the topography. Central to the area is the venerable legend, but retired Crystal Springs Rural Health Retreat which dates back to the 1800s. It is now the Saint Helena Hospital on which the Crystal Springs Resort still stands. There are two roads, Crystal Springs Road and North Fork Crystal Springs Road that are active, County roads. One of the water utilities, Saint Helena Hospital, uses spring water, and a few wineries, vineyards, and residences are supplied by springs. Wildlife and fauna are nourished by the springs too.

(ii) Name usage- historical: Numerous "crystal springs" exist on the hillsides within the boundaries of Crystal Springs AVA. Ever since the 1800s, travelers and health enthusiasts have come to what is now the Saint Helena Hospital, but was historically named "Crystal Springs." Dr. Kellogg and others founded the Rural Health Retreat in the area, where clean air above the frost, proper diet, hygiene, and exercise were promoted. It is said that Robert Louis Stevenson was lured to the Napa Valley because of this, to help alleviate his symptoms of Tuberculosis. Springs number in the dozens on the hillsides, and many are shown on the USGS maps. Springs are numerous along this section of the Vaca range, from Mount Saint Helena to Soda Springs. Crystal Springs Road is roughly along the bottom of the proposed AVA, and the North Fork Crystal Springs Road passes along and through the proposed AVA. In the appendix are examples of historical and current use, with buildings, roads, neighborhood, and exclusive homes. Viticulture goes back to circa 1870. 1884 was when the Rossinis first purchased what became Souverain, and is now Burgess. Pestoni established vineyards in the 1890s in the region, and now there are many vintners sourcing fruit from Crystal Springs area.

(iii) Name usage-current & future: Non-wine industry use includes bicycle touring maps, neighborhood organizations known as "Crystal Springs" in the newspaper, and the aforementioned roads and buildings named "Crystal Springs." Exclusive real estate and wineries are in or on Crystal Springs, and it is seen in the listings. Current wine uses include multiple wineries that source fruit from the general area. Some wineries already use the term "Crystal Springs" on the labels, websites, and wine lists to identify the source. In appendix, usage from vintners Brasswood, DANA (VASO,) and Salvestrin are documented.

(2) Boundary Evidence:

Logic applies to each border, as the focus and integrity of Crystal Springs of the Napa Valley AVA is paramount. Crystal Springs AVA is an all-hillside AVA and along a portion of the West face of the Vaca range with generally uniform exposure, West-Southwest. The uniformity of conditions within the boundaries is significant, and the differences from adjacent AVAs is even more significant. Vineyards within the proposed AVA do not require frost protection, whereas adjacent Calistoga, Saint Helena, and Howell Mountain AVAs do require frost protection within their boundaries. Logic, reason, and climate establish this AVA.

Crystal Springs AVA ranges from 400' to 1400' elevation, which meets borders of existing AVAs. Most importantly, these elevations fill the gap between the highly-respected Howell Mountain AVA and Saint Helena AVAs, differentiating vineyards, grape qualities, location, and clearing up massive confusion for the consumer.

The bounds on each end are logical too, Old Howell Mountain Road on the South and the boundary of Calistoga AVA on the North. The logic for Old Howell Mountain Road as a boundary is because the physical "plane" of the proposed AVA is generally SW in exposure, Old Howell Mountain Road is the edge of the plane, where beyond it, the exposure becomes more Easterly, even Northeasterly. The logic for the other boundary is to be adjacent to the Calistoga AVA, yet continue up to 1400' instead of terminating mid-hillside at 880'. This helps consumers understand where the produce originates from and what conditions they were grown under.

There is one "pocket" in Crystal Springs AVA, known as Crestmont, exceeding 1400', so this region is excluded as it should be part of Howell Mountain AVA, although few acres are in this pocket anyway, as it is primarily residential or rocky outcroppings.

400' is the meeting of the mountains and the valley floor in this region, and the edge of existing and accepted AVAs along much of the borders. Below 400' is the valley floor, where cold air pools and frost is more common. Hillsides have shallow soils too, as the natural weathering processes have moved the soils to the valley floor over time.

1400' is where another accepted AVA begins, the Howell Mountain AVA. An inversion layer exists at about this altitude, where they experience comparatively warmer nights and cooler days than the hillsides and valley floor, which receive cooling from the marine layer that flows in from the Pacific Ocean. Howell Mountain is "above the fog." The moderate temperatures of Howell Mountain AVA are different that the 50 degree diurnal temperature range found on the hillside. Of utmost importance, Spring and Fall frosts become problematic at 1400' and above as temperature drops about 3 to 6 degrees for every 1000' feet of elevation. The adiabatic cooling, or

elevation cooling is the physical principle behind this phenomena. From 400 to 1400 feet, the adiabatic cooling is generally not enough to put vineyards at risk. A couple growers near the 1400' level have experienced some frost, but not nearly to the extent nor frequency of higher vineyards.

(3) Distinguishing Features:

- (i) Climate. Crystal Springs AVA is of the upmost integrity because it is all hillside of mostly SW exposure. There is not a level area in it. This topography makes for the most important and defining qualities- frost free and reliable ripening. There is a long growing season is due to safe Spring and Fall climates. Every other AVA bordering this proposed AVA has significant frost within its boundaries and require orchard fans, heaters, sprinklers, or misters. Vineyards in the Crystal Springs AVA do not need these protections. There are three main reasons for this: Cold air does not pool on hillsides, compression heating occurs as the air flows down at night, and 1400' is generally not high enough for elevation-induced frost. Howell Mountain AVA, Calistoga AVA, and Saint Helena AVA all have significant lands that experience frost and the vineyards require protection from it. The distinguishing features support the boundaries. Like Saint Helena AVA and Calistoga AVA, the Pacific's marine layer influences Crystal Springs. Unlike Howell Mountain, which is above the marine layer. Crystal Springs may be the most-reliable nested AVA in the Napa Valley AVA.
- (ii) Geology. The Vaca range in the proposed area is volcanic in origin. From the palisades made of igneous rock, to metamorphic and sedimentary rocks made of tuff. Some areas have obsidian and red volcanics too.
- (iii) Soils. Weathering and erosion over millions of years have left little top soil, and therefore exposed rocks including parent material are common. Uplifting and weathering has made the available soils quite varied, even within a parcel. Soils are important, but they are a tertiary concern compared to climate, exposure, and slope in viticulture. The hills are covered mostly with drought-tolerant species such as oaks, chaparral, ghost pines, and manzanita.
- (iv) Physical features. The area is entirely sloped, no flat areas or natural lakes exist, however, being hillside, there are springs and seasonal creeks as well as drainages.
- (v) Exposure: With the boundaries encompassing a generally SW exposure, the solar radiation is high, allowing for mature fruit every vintage.
- (vi) Elevation. The proposed AVA is from 400-1400', 1000 vertical feet of hillsides.

(4) Maps and boundary description.

- (i) Maps, supplied. Calistoga and Saint Helena quadrangles USGS 2015 (Imagery 2012)
- (ii) Boundary description. Maps used: USGS Saint Helena (2015) quadrangle and Calistoga (2015) quadrangle, 7.5 minute series. Clockwise direction: (1) Begin at "Four Corners" near Angwin. Proceed down Old Howell Mountain Road 3.4 miles to where it crosses the 400' contour, which is 95' uphill from Big Rock Road. (2) Thence, follow the 400' contour West and then Northwesterly approximately 6 miles to "North Fork Crystal Springs." (3) Thence, continue up the road to the 880' contour. (4) Thence, follow the 880' contour northwesterly to Biter Creek. (5) Thence, follow Biter

Creek uphill, northeasterly to the 1400' contour. (6) Thence, proceed Southeasterly along the 1400' contour to White Cottage Road. (7) Thence, go East down White Cottage Road 130' feet, to the starting point, "Four Corners." (8) EXCLUDE the "pocket" near "Four Corners" known as Crestmont in the Saint Helena quadrangle, to the South of the intersection, as it is above 1400' is excluded from Crystal Springs AVA.

(b) AVAs with AVAs, comparing and contrasting.

Comparing: The entirety of Crystal Springs of the Napa Valley AVA is in the Napa Valley AVA. Crystal Springs AVA, is like Napa Valley AVA in that robust, reliable, and complex vintages are grown within it. The diurnal temperatures, influence from the Pacific Ocean's maritime air and plentiful sunshine are consistent with the general reputation of the larger, ubiquitous Napa Valley AVA.

Contrasting with Saint Helena AVA: Crystal Springs of the Napa Valley AVA is an entirely hillside, rural, frost-free region with roughly homogenous exposure, South-West. These features produce distinctly different grapes than valley floor. With few exceptions, slopes are steep from 15 to 40%, well-drained, and exposed. Whereas Saint Helena AVA is mostly less than 5% slope, requires frost protections, has riparian habitat running through it, and is not homogeneous in topography as parts of it follow City Limits into the hills. In Dr. Skinner's 2003 report he concludes Saint Helena AVA is "subject to damaging, early season frost events..." whereas Crystal Springs is not subject to the frosts. Saint Helena AVA is adjacent to proposed, with only *minor, incidental* overlap with Crystal Springs where the City Limits are over 400' to Gerrymander in some homes at the base of Old Howell Mountain Road. This overlap is only caused by city management decisions for roads and taxes, nothing to do with agriculture.

Contrasting with Calistoga AVA: The Calistoga AVA has a multitude of exposures, altitudes, topographies, and slopes, from steep mountains to benchlands to fans, to flat valley floors to riparian habitat. Elevations range from about 300' to over 1300', which in this region includes the aforementioned diverse topography. The wide range of conditions in the Calistoga AVA make it a stark contrast to the Crystal Springs AVA, which is all hillside, and a SW-facing plane in general. The flat areas of Calistoga have severe frost. All of Calistoga AVA has Pacific Ocean influence from the Calistoga gap (Chalk Hill- Knights Valley- Fountaingrove gaps.) Calistoga AVA boundary is adjacent to Crystal Springs where it climbs up Howell Mountain and heads North from the 400' to the 880' contour, then along the 880' contour to Biter Creek- no overlap. The petitioners of the Calistoga AVA were unaware of plans for the Crystal Springs AVA. They may have stopped at 400' if they had known, instead of proceeding to the arbitrary 880' contour. In 2003, when Dr. Skinner's report was published, Calistoga AVA did not yet exist, and Saint Helena AVA was described as "lies at the northern end of the Napa Valley..." Thereby Calistoga is also "subject to damaging, early season frost events..." unlike Crystal Springs.

Contrasting with Howell Mountain AVA: Crystal Springs AVA, like the Howell Mountain AVA is one of focus, high integrity and firmly distinguishing characteristics. Unlike the Howell Mountain AVA, Crystal Springs does not have the same harvest-time risks with frost. Nor does Crystal Springs have frost concerns during bud break. Howell Mountain is Napa Valley's only "all-mountain" nested AVA that does not have boundaries that go down to the valley's edge- it is the top of the mountain only. The adiabatic cooling of 3-6 degrees per 1000' feet of elevation strongly affects Howell Mountain's climate. Also, above about 1400', in the Howell Mountain AVA, there is an inversion layer common during the growing season. The cool, dense air from the Pacific flows into the Napa Valley, from the Calistoga gap and the Petaluma Wind Gap pushing the warmer air up, hence, inverted from the normal. (Normally, higher elevations are cooler, whereas Howell Mountain has warmer nights compared to marine layer influenced areas under about 1400'.) Howell Mountain is adjacent to Crystal Springs, no overlap. Dr. Skinner's report states that "frost does occur in the coldest years." Growers commonly use frost-protection into June on Howell as elevation and radiant frost are significant concerns in Howell Mountain AVA.

Appendix: Separate attachments of non-wine name evidence and distinguishing features metric.

Non-wine & Wine Name Evidence Appendix for Crystal Springs of the Napa Valley Petition

As a neighborhood, Crystal Springs is an area that bands together. On June 30th, 2005 and June 22, 2016, Alan Goldfarb, the Napa Valley Register and Saint Helena Star published articles titled: "Crystal Springs neighbors trying to stop Woodbridge's winery project."

https://napavalleyregister.com/community/star/news/local/business/crystal-springs-neighbors-trying-to-stop-woodbridges-winery-project/article_45268603-62c5-5ac8-b66e-ac96d837cea1.html



As an area, it is a scenic and well-travelled bicycle route. Here is an article from 2016, and some links to rides marketed to all touring cyclists:




JULY 7, 2016 1:10 PM PST

Napa: Silverado- Howell Mountain- Crystal Springs-Franz Valley-Ida Clayton

<https://ridechronicles.com/2016/07/07/napa-silverado-howell-mountain-crystal-springs-franz-valley-ida-clayton/>

<https://ridewithgps.com/events/47305-north-bay-napa-county-region#routes/14490907/preview>

As a luxury area to reside in, in the Napa Valley:
<https://www.youtube.com/watch?v=mWekW4t4Ypo>




Cyd Greer presents North Crystal Springs Estate Napa

4,087 views · Sep 20, 2018

65 0 SHARE SAVE

This screenshot shows a YouTube video player. The video frame displays a lush vineyard in Napa Valley with a wooden post in the foreground. Text overlaid on the video reads "Presenting North Crystal Springs Estate Napa Valley". The video player interface includes a play button, a progress bar at 0:10 / 5:08, and standard YouTube controls like settings, full screen, and share options. Below the video, the title "Cyd Greer presents North Crystal Springs Estate Napa" and view count "4,087 views · Sep 20, 2018" are visible, along with engagement icons for likes (65) and comments (0), and buttons for "SHARE" and "SAVE".



Cyd Greer presents North Crystal Springs Estate Napa

4,087 views · Sep 20, 2018

65 0 SHARE SAVE

This screenshot shows a YouTube video player. The video frame displays an aerial view of a vineyard in Napa Valley, showing rows of grapevines and a winding path. The video player interface includes a play button, a progress bar at 0:30 / 5:08, and standard YouTube controls like settings, full screen, and share options. Below the video, the title "Cyd Greer presents North Crystal Springs Estate Napa" and view count "4,087 views · Sep 20, 2018" are visible, along with engagement icons for likes (65) and comments (0), and buttons for "SHARE" and "SAVE".

As an address to some of Napa's finest wines. Napa Valley Vintners Public Information Site,
napavintners.com winery finder:
<https://napavintners.com/winery/merus/>



The screenshot shows a web browser window with the URL napavintners.com. The page features the Napa Valley Vintners logo and navigation menus for "NAPA VALLEY AVA" and "WINERIES & WINES". The main heading is "Napa Valley Wineries". A yellow banner contains the text: "Due to current health and safety measures, all wineries are accepting visitors by". Below this is a listing for the Merus winery, which includes a photograph of a "NAPA VALLEY" sign, the winery name "Merus", and contact information. The address "424 Crystal Springs Road" is circled in blue. A "WINERY FINDER" section is also visible at the bottom left.

napavintners.com

napa valley vintners

NAPA VALLEY AVA WINERIES & WINES

Napa Valley Wineries

Due to current health and safety measures, all wineries are accepting visitors by



Merus

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[website](#) | [email](#)

Hours:
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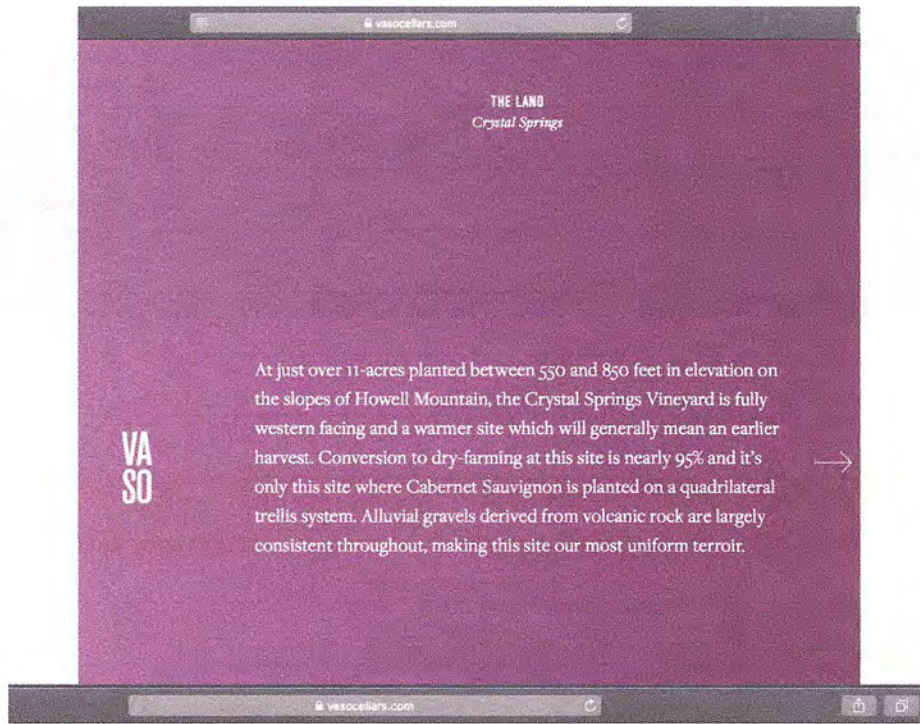
Tastings/Appointments:
707-251-5551

WINERY FINDER

Search by Winery Name

enter name

As a choice vineyard location:
<https://www.vasocellars.com/crystal-springs/>



THE LAND
Crystal Springs



A local estate-only winery featuring grapes from the Crystal Springs area. Marquez, Marcus. *Brasswood Wine List, 2020*. brasswood.com/wp-content/uploads/2020/07/COCK-AND-WINE-Friday-PDF-UPDATE.pdf

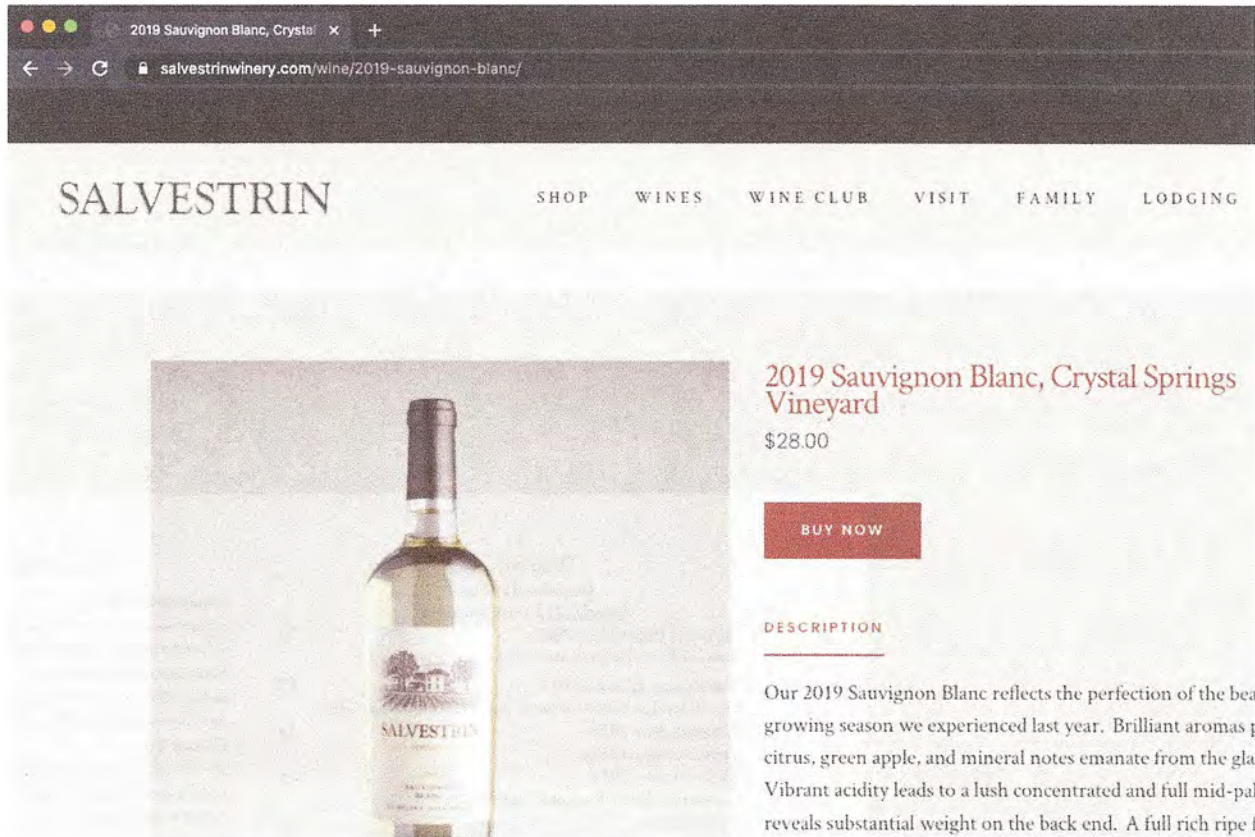
<http://brasswood.com/wp-content/uploads/2020/07/COCK-AND-WINE-Friday-PDF-UPDATE.pdf>



Winery	Wine Name	Year
House Coc	Cucumber Patch	10
House Coc	Cucumber bitters, soda water	10
House Coc	square one cucumber vodka	10
Brasswood Manhattan	Brasswood Manhattan	12
Brasswood Manhattan	savage & cooke american whi	12
Brasswood Manhattan	unfita tortino vermouth rosso	14
Brasswood Manhattan	Cherry Sour	14
Brasswood Manhattan	cherry infused traverse city bo	15
Brasswood Manhattan	traverse city cherries	14
Brasswood Manhattan	fresh lemon, egg white, rosemu	14
Brasswood Manhattan	I Left My Heart in Oaxaca	15
Brasswood Manhattan	mezcal, rothman & winter ap	15
Brasswood Manhattan	pato santo bitters, tajin rim	15
Industry Mai Tai	Industry Mai Tai	15
"Top Brass"	Brasswood Cellars	
"Top Brass"	Bartolo Tap Wine Program	
"Top Brass"	Rose of Pinot Noir 2018	10
"Top Brass"	Russian River Valley Estate Vineyard, Sonoma Coast	10
"Top Brass"	Sauvignon Blanc 2019	12
"Top Brass"	Crystal Springs Estate Vineyard, Saint Helena, Napa Valley	12
"Top Brass"	Chardonnay 2018	14
"Top Brass"	Carmenere, Napa Valley	14
"Top Brass"	Petit Verdot 2016	15
"Top Brass"	Coombsville Estate Vineyard, Napa Valley	15
"Top Brass"	Syrah 2016	14
"Top Brass"	Russian River Estate Vineyard, Sonoma Coast	14
"Top Brass"	Merlot 2016	15
"Top Brass"	Coombsville Estate Vineyard, Napa Valley	15
"Top Brass"	Wines By The Glass	

Salvestrin Sauvignon Blanc from the Crystal Springs area 2019 vintage:

<https://www.salvestrinwinery.com/wine/2019-sauvignon-blanc/>



The screenshot shows a web browser window with the URL <https://www.salvestrinwinery.com/wine/2019-sauvignon-blanc/>. The website header features the brand name "SALVESTRIN" on the left and navigation links "SHOP", "WINES", "WINE CLUB", "VISIT", "FAMILY", and "LODGING" on the right. The main content area displays a bottle of wine on the left and product details on the right. The product title is "2019 Sauvignon Blanc, Crystal Springs Vineyard" with a price of "\$28.00". A red "BUY NOW" button is positioned below the price. A "DESCRIPTION" section follows, with a red underline. The description text reads: "Our 2019 Sauvignon Blanc reflects the perfection of the best growing season we experienced last year. Brilliant aromas of citrus, green apple, and mineral notes emanate from the glass. Vibrant acidity leads to a lush concentrated and full mid-palate. A full rich ripe finish reveals substantial weight on the back end. A full rich ripe finish."

2019 Sauvignon Blanc, Crystal Springs Vineyard

\$28.00

BUY NOW


DESCRIPTION

Our 2019 Sauvignon Blanc reflects the perfection of the best growing season we experienced last year. Brilliant aromas of citrus, green apple, and mineral notes emanate from the glass. Vibrant acidity leads to a lush concentrated and full mid-palate. A full rich ripe finish reveals substantial weight on the back end. A full rich ripe finish.

The Aforementioned History:

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eighteen years of his life. He made a record as a man kindly and helpful to all—a man who strove to carry out the highest code of ethics in his every day career.

ST. HELENA SANITARIUM.

Preserving and regaining health by natural methods is the platform of the St. Helena Sanitarium, established in 1878 and now the oldest and largest health institution in the west, devoted to the principles of hydrotherapy and physiological therapeutics. This institution was founded by W. A. Pratt, J. N. Loughborough, Dr. M. G. Kellogg and others, the original name being The Rural Health Retreat. They who established this Retreat were also actively interested in the founding of the famous Battle Creek Sanitarium and of many other similar institutions, not alone in this country, but throughout the world.

An institution having for its object the restoration of health by natural remedies should be located where nature is at her best. The founders of this Sanitarium therefore very wisely selected a quiet retreat among the wooded foothills of Howell Mountain, one of the prominent landmarks of the upper Napa valley. Visitors from all parts of the world unanimously declare that here is the Switzerland of America. The scenery is surely that of the Alps. With an elevation neither too high nor too low, with climate most peculiarly adapted to the needs of the sick; with an abundant supply of absolutely pure, soft, limpid water from the Crystal Springs, which first gave name to the place; with scenery and surroundings ever charming and always restful, the location may be considered among California's best.

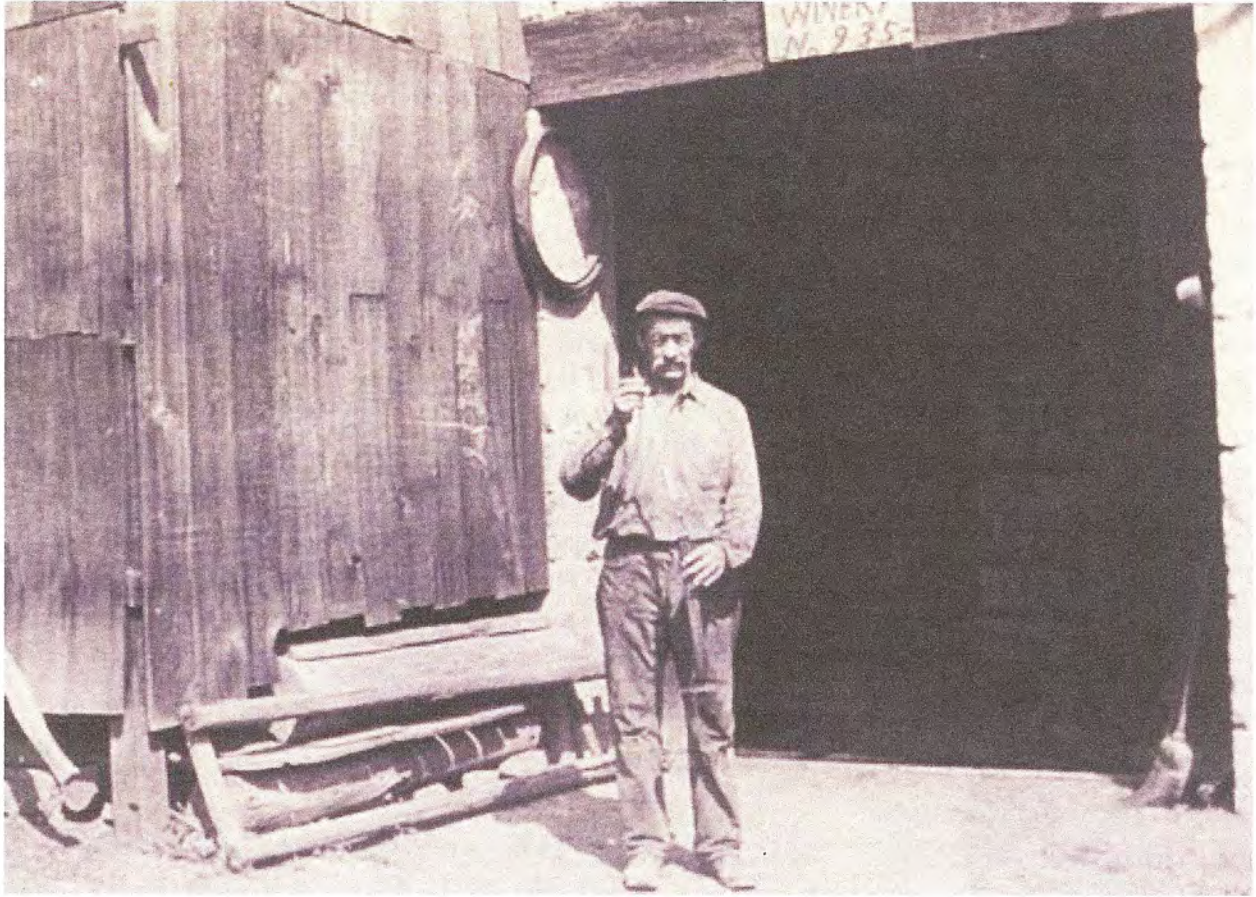
In its earlier history the Sanitarium was patronized largely as a health resort, for which class of guests it has still unequalled advantages. The development of the resources of the place and the addition of modern facilities for the treatment of the sick have gained for it a worthy reputation for its professional work.

The main building of the Sanitarium is a fine five-story structure with up-to-date equipment. The hospital is a modern four-story building, so planned that the direct rays of the sun enter every room. There are seven cottages for the accommodation of the guests, each containing from two to twenty rooms. The grounds comprise about one hundred acres of ground, for the most part heavily wooded. A small portion is covered with fruit trees and a vineyard and garden. All Sanitarium methods cluster around the central idea of health culture under conditions very different from those found about an ordinary hospital. While all possible treatments are used for the direct treatment of disease, the most careful attention is given to those influences which directly strengthen, renew and invigorate the body with all its varied functions. Since the existence of disease man has ever sought some remedy outside of himself that will counteract or cure the conditions within which are the cause of his suffering, in his search forgetting that nature has already provided forces within him sufficient for the cure of all curable diseases. All the remedies used in this institution are based upon this fact.

The physicians of the Sanitarium devote their whole time to the attention of the patients. Their offices are equipped with every modern device for the alleviation of the sufferings of humanity, and their laboratory is similarly outfitted. Diseases of all kinds are undertaken and remarkable results are attained. A corps of trained nurses (ladies for ladies and gentlemen for gentlemen) attend to the many processes of treatment, each department being under the care and direct supervision of a competent man or manager.

Dietetics as a remedial measure is of great importance, and this subject receives proportionate attention at the Sanitarium. The culinary department

Finally, Albino Pestoni, at BW #935 with vineyards from 400-700' elevation:



Compare & contrasting all adjacent AVAs to Crystal Springs.	Crystal Springs AVA- Subject matter.	Calistoga AVA: North, Northwest, and West of Crystal Springs.	Saint Helena AVA: South and Southwest of Crystal Springs.	Howell Mountain AVA: North, Northeast, and East of Crystal Springs.	Conn Valley area: East and Southeast of Crystal Springs. NOT A NESTED AVA OF NAPA VALLEY.
Elevation	400-1400' All hillsides.	275'-1350' Floor and hillsides, with riparian habitat.	200-500'. Floor and hillsides with riparian habitat.	1400 and up, all hillsides and mountaintops.	N/A
Soils: Majority of soil listed, must be at least 10% to list. Source: USDA.gov	Shallow, thin, weathered soils. Rocky outcroppings. 33% are 50-75% slope, 17% are 14-60% slope, 15% are 12-57% slope. 13% are rock outcrop.	Valley floor is deep alluvials 25% are 0-2% slope. Hillsides vary on the East with shallow, weathered soils to rich, fertile soils on the Western hillsides and toe slopes. 20% are 12-60% slopes soils, 10% are 30-75% rock outcrops.	Valley floor is deep alluvial clay loams 24% are 0-2% slope. 15% are 0-5% gravelly loam. 10% are 12-57% silt loams. Hillsides vary on the East with shallow, weathered soils to rich, fertile soils on the Western hillsides and toe slopes. Hillsides frequent 40-60% slopes.	Hillsides are shallow, weathered soils. 27% are 2-30% loams. 20% are 12-57% slope silt loam, remaining soils are rock, gravels, or loams with varied slopes. Less-sloped areas can have deeper, but rocky soils.	N/A
Climate during growing season	Marine influence, little to no frost. High diurnal range.	Marine influence, severe Spring frosts occur, high diurnal range.	Marine influence, severe Spring frosts occur, high diurnal range.	Little to no marine influence, smaller diurnal range, frost from altitude and radiant heat loss occur in the Spring and Fall.	N/A
Frost during growing season	Inconsequential	Yes, severe	Yes, severe	Yes, regularly	N/A
Exposure	Generally SW	All. Northern, Eastern, Southern, Western, flatlands. Calistoga AVA topographically resembles a bowl, with a large flat area surrounded by hills.	All, mostly flat with Eastern and Western-facing hills on each side of valley where Saint Helena AVA goes into the hills.	Rolling terrain, with flatter areas and all exposures. Vines typically not planted on Northern exposures.	N/A
Topography	Generally a plane with 10-50% slope.	All. Flatlands, toe slopes, foothills, hillsides.	Flatlands, toe slopes, foothills.	Hillsides and a rolling plateau-like topography on top.	N/A

rticularly the Pfalz where two-thirds nan total of 220 ha/540 acres were he early 1990s and are better at pro- than red wine. Its most useful func- at, like Herold's even less popular NER, it spawned the promising R.

c.700 BC), the earliest agricultural ncient GREECE, wrote *Works and Days*. s is homely advice for the farmer: 'Be the middle of the cask, but when you id at the end drink all you want; it's saving dregs.' He is the first writer to le rustic pleasures: 'I love a shady rock e wine [from BYBLOS], a cake of cheese, milk, and some meat of heifers paste woods, uncalved, of first-born kids. y sit in the shade and drink the shining eat my fill, and turn my face to meet west wind, and pour three times an rom the spring which always flows, d, streaming down, and make my IATION one of wine.' Hesiod gives the he grape HARVEST as 'when Orion and ar [Sirius] move into the mid sky'.

H.H.A.

he Bergstrasse, one of the smallest gions in GERMANY (see map under). The northern vineyards on the slopes of Germany's Odenwald have separate region since 1971. They com- t 454 ha/1,122 acres of which a large ving proportion, 56 per cent in 1997, is in RIESLING. The best produces dis- d wine, comparable to that of the U. The area devoted to red grapes, PAR- SPÄTBURGUNDER, was eight per cent in l continues to grow. Of the 850 or so , approximately 620 deliver their grapes ge regional CO-OPERATIVE cellar at Hep- 1, which sells 70 per cent of its stock in ties within the region. Only a small and ng amount of the co-operative's wine is supermarkets, and sales directly to the er and to the wine trade are increasing gh Hessische Bergstrasse wines are rarely side Germany). The state of Hesse is the ineard owner with 38 ha/94 acres under sed on Bensheim. It is particularly well for its Riesling RIESLING, but the wines her vine varieties are also very elegant, npare well with those from elsewhere in ny. More than 80 per cent of Hessische asse wines are dry: TROCKEN, or OCKEN. I.J. & K.B.S.

ger is an Austrian wine speciality. *Heurig* means 'this season's' but *Heuriger* has o mean both wine from the most recent and the place where the wine is offered sumpation by its producer. A wine-maker's ffectively to set up his own wine bar was shed in the time of CHARLEMAGNE, ly recognized by Emperor Josef II in 1784, as continued as a tradition throughout A. These small, often family-run wine

taverns, can be found throughout Austria's wine regions but are a particularly popular tourist attraction in the suburbs of VIENNA. Food is usually served alongside the owner's wine, usually crackling new *Heuriger* wine but sometimes supplemented by old, or *alte*, wines. The wine of the new vintage officially becomes *Heurige* on St Martin's Day, 11 November. Before that it may have been sold at the unfermented MUST (*Most*) stage, as partially fermented *Sturm*, or as still cloudy new wine (*Staubiger*). Local by-laws determine when a *Heurige* may sell its new wine, which period it signals by hanging out a bush of pine twigs above the entrance. See also PRIMEUR, the French counterpart, minus the hospitality.

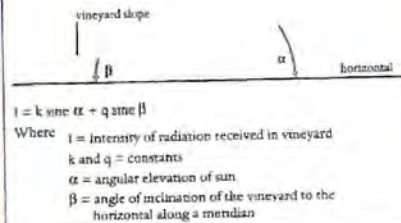
higher alcohols. See FUSEL OILS.

hillside vineyards. Even in Ancient ROME it was said *Bacchus amat colles*, or BACCHUS loves the hills, suggesting that hillside vineyards have long been regarded as a source of high-quality wine.

This is partly because hillside soils are typically shallow, so that vineyard VIGOUR is relatively low, a factor commonly associated with high wine quality. Over millions of years soil tends to be washed down the hillsides and accumulates in the valley floors. Vines planted there will typically be more vigorous as the soils are deeper and the roots will be able to reach more water and nutrients.

Vines may also be planted on hillsides for reasons of MESOCLIMATE, as hillsides are less prone to FROST because cold air can drain freely away at night (see AIR DRAINAGE and TOPOGRAPHY). If the slopes face the equator, they receive more sunshine during the day and can reradiate the heat absorbed during the day at night or during cloudy weather. In warmer regions some vineyards may be planted on hillsides to take advantage of cooler temperatures at higher ALTITUDES and therefore extend the growing season. Since the early 1980s there has been an increasing tendency to plant elevated sites in Australia, Argentina, South Africa, and

Hillside vineyards: the warmth received by direct radiation on the vineyard depends on the elevation of the sun combined with the inclination of the vineyard towards the sun. In simplistic terms the two angles can be added together, but the elevation of the sun controls the thickness of the atmosphere (an absorbing medium) through which the radiation passes. The inclination of the vineyard is independent of this variation.



California, for example, in order to produce a more COOL CLIMATE style of table wine.

Hillside vineyard sites have their drawbacks. SOIL EROSION is an obvious example, and in California's NAPA VALLEY there are strict regulations to avoid erosion. Working on steep slopes is particularly tiring, productivity is affected, and the costs are higher. In most vineyards of the world, rows run up and down the slopes. Where the slopes are too steep for tractors, as in CÔTE RÔTIE, parts of the MOSEL valley, and SWITZERLAND, everything must be done by hand, or by machines winched down into the vineyards. Where rows run across the slopes, the vineyard is normally laid out in TERRACES, as in Portugal's DOURO valley or France's hill of HERMITAGE.

R.E.S.

Hilltops, new wine region in NEW SOUTH WALES, Australia, also known as Young.

hippocras, popular medieval FLAVOURED WINE.

histamine, the amine involved in a range of allergic reactions in humans, was once thought the cause of some people's allergy to red wine. Improved methods of wine ANALYSIS have demonstrated that the amounts of histamine in wine are at least an order of magnitude below that required to cause an allergic reaction in the great majority of people. However, a few people have low levels of the enzyme which breaks down histamine, so histamine levels in their blood rise high enough to cause allergic reactions after drinking wine with even low levels of histamine. One ADELAIDE research project found levels of between 2 and 9.9 mg/l of histamines in wine, while another at DAVIS found an average of 1.8 mg/l in 253 California wines, with higher concentrations in fortified wines. A.D.W. & J.H.H.

Hochgewächs, one of a number of label clues to ONE of GERMANY's better wines launched to supplement those provided by the GERMAN WINE LAW. A wine labelled Riesling-Hochgewächs is a QBA which has reached much higher MUST WEIGHT and overall quality than the legal minimum. The term applies exclusively to Riesling.

hock, generic term for (white) Rhenish wines, from the RHINE regions of GERMANY, sometimes for the wines of Germany in general. A contraction of hockamore, an English rendering of the adjective Hochheimer, denoting wines from Hochheim on the river Main just west of Frankfurt (see RHEINGAU).

The earliest firm reference in English occurs in Thomas D'Urfey's play *Madam Fickle; or, The Witty False One* in 1676: 'Here's a glass of excellent old Hock.' The *Oxford English Dictionary* gives a first reference in 1625 in John Fletcher's play *The Chances*, but this depends on a corrupt reading of hock for hollock, a light red wine. However, it is likely that the term was already current in England by the 17th century, for its use is closely linked to the growth in popularity of Rhenish

SOURCE: THE OXFORD COMPANION TO WINE 351
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