UC Berkeley, Eugene Hilgard, and California Wine

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California wine began to become big business in the 1880s. The advent of the transcontinental rail shipment, coupled with the expanding immigrant market back east, changed everything. Hundreds of entrepreneurs who previously had no interest in wine bought land and planted grapes. From a base of roughly four million gallons per year in the mid-1870s, production boomed to well over twenty million by the early 1900s. The growth was not always easy, as the new production at first outpaced consumer demand, and from time to time prices plummeted, leaving growers in economic depressions, despite the increasing popularity of their products.

Opinions differed on how to regulate supply and demand. Some people urged better cooperation between wineries and growers, while others advocated replanting with different crops. Still others advanced the idea of increasing demand by using the excess wine to make brandy. Three men in particular embodied the controversies of the era. George Husmann, Eugene Hilgard, and Percy Morgan each thought of wine and the 1886 grape crisis differently.

Husmann, a Missouri viticulturist and the leader of that state's wine industry went west after he helped organize the shipment of Missouri vines to phylloxera-plagued France. Widely regarded as the most expert American wine grower of the day, Husmann argued that the solution to California's grape surplus lay in increased home consumption. Like Nicholas Longworth before him, he considered wine an antidote to whiskey, so wanted it to find a place on American supper tables especially in small towns and on farms, the agrarian America he knew and loved.

Hilgard too had moved to California from the Midwest, specifically from Michigan, where he had taught geology and natural history at the state university. An appointment as the first professor of agriculture at the University of California brought him to Berkeley, and in that role he promoted improved wine quality. In his view, the wine industry's problems came from there being too much cheap, flawed wine on the market, and the San Francisco Examiner soon printed a long letter from him in which he outlined how quality control in vineyards and wineries would lead to better wines sold at higher prices.

Percy Morgan, also a newcomer, saw the surplus as a way to make money. An accountant and would-be financier from England, Morgan argued that the solution to depressed prices was the creation of a monopolistic organization that could control supply and thus stabilize prices. It took time, but eight years later he became the Director of the California Wine Association (CWA). As he acknowledged, this "combination" existed simply to "raise the selling price of wines." Morgan did not much care who drank the wines, or what kind of wines they drank. His goal above all else was profit, and he clearly realized it.

The emergence of the CWA reflects the radical changes that transformed forever California wine growing, taking it from a collection of small, mostly individual agricultural enterprises to a mercantile industry, from a local concern to a national and even an international one. The different roles played by Husmann, Hilgard, and Morgan illustrate both what was lost and what was gained in the transformation.

Eugene Hilgard had little interest in the sort of wine served in saloons at that time--heady, often fortified tipple that people drank primarily, if not exclusively, for its inebriating effect. He cared only about premium table wines, and for nearly twenty years he fought a running battle with the leaders of California's commercial wine industry on behalf of improved quality. Although his position eventually carried the day, it did not do so in his lifetime. Instead, California wine achieved unprecedented popularity by becoming a standardized product, "wine for the masses." It remained as such through and especially after Prohibition.

Hilgard's arguments that high quality was the industry's only guarantee of long-term success fell largely on deaf ears. It would not be renewed on anything but an idiosyncratic basis until the 1960s.

Much like Husmann, Hilgard came to the United States from Germany as a boy, settling with his family on a farm in southern Illinois, where his father grew a wine called Hilgardsberger. At age sixteen, he returned to Germany, where he enrolled in the university at Heidelberg. He stayed abroad for six years, earning a doctoral degree in geology and soil science.

Geology was always his main field of expertise, with wine never more than a sideline. But as professor of agriculture, Hilgard took it upon himself to promote the application of scientific principles to practical farming. He arrived in California just as wine growing was becoming an important part of the state's economy, and he considered working to improve California wine an important part of his job.

A progressive thinker, Hilgard envisioned California wine becoming a world leader, arguing that modern science could make it such. In this regard, he was the antithesis of Husmann, whose views were much more parochial. Everything the Missourian knew about grapes and wine came from his own experience, and his experience with native or native-based hybrid grapes had little to do with California viticulture.

By contrast, Eugene Hilgard was the quintessential nineteenth-century scientist, emphasizing controlled experimentation, systematic analysis, and statistically verifiable inquiry. He promoted what he called "rational winery practice" and was quick to apply European research, especially research involving the use of pure yeasts and cool fermentation, to California.

While Husmann came to California to help the individual farmer, Hilgard issued hundreds of bulletins and reports for an entire industry. No matter that the pre-Prohibition industry often ignored him, Hilgard's insistence on high quality, coupled with all the scientific literature issued under his supervision, made him one of the fathers of today's world-class California wines.

Phylloxera probably first came to California in a shipment of eastern vines sometime in the late 1860s. Unlike in Europe, where the bug seemed to travel miles in minutes, here it moved slowly, appearing, as some farmers put it, “lazy.” No one indentified it positively until 1873. The louse’s sluggish pace, combined with the fact that the decline in French production was helping to increase consumer demand for American wines, led many growers to dismiss its threat. Some went so far as to talk about phylloxera as a friend, suggesting that it was a different type than the European foe.

Yet phylloxera was no friend. It moved slowly because it sometimes failed to develop a winged form as it had in Europe, but once in a vineyard, it destroyed grapevines just as eagerly as it did in France. An inspection of the southern Napa vineyards, where the infection was especially acute, convinced Hussman that while California had the potential to be America's, indeed the world's, greatest wine producer, its vineyards were in grave danger. "It is worse than useless to try to ignore [phylloxera], as has been done in some sections of the State," he wrote. "It will make itself seen and felt, and no mechanical or chemical means have as yet been found that are of real practical value. All the insecticides that have so far been tried, have proved too costly and impractical in their application; and we must resort at last to the only practical preventative, now recognized by all nations to be their salvation, viz., American resistant vines."

Yet when it came to the specifics of replanting, Husmann's expertise, which seemed so formidable in Missouri, turned out to be largely irrelevant in California. For one thing, he had no experience growing *vinifera*. He certainly knew native American grapes, but any advice he might offer concerning which *vinifera* variety to graft onto which native rootstock was at best conjecture.

Meanwhile, Eugene Hilgard advocated using the native vine *Vitis californica*, reasoning that there would be no question of adaptation with such a hardy and abundant plant. Back in the 1850s, Charles Lefranc had grafted French varieties onto wild vines in his Santa Clara vineyard, and they were still bearing fruit. Yet that had been before the phylloxera infestation, and *Vitis californica* turned out not to be resistant after all.

Hilgard and the other researchers at Berkeley then began to experiment with new rootstocks. They based their work on research conducted by French scientists who by necessity had investigated hundreds of different types of rootstock. Much as in France, the California researchers soon discovered that *Vitis riparia* and *rupestris* worked best, but it took them years to identify which varieties within those species were the most resistant.

In 1896, a young Berkeley scientist, Arthur Hayne, went to France, met with French researchers, and returned convinced that a relatively obscure variety called the *St. George du Lot* would provide the best all-around rootstock for use in California's vineyards. Hilgard, always willing to trust good, sound scientific evidence, agreed. Husmann did not. The old man from Missouri argued that laboratories and research stations were no substitute for a lifetime of experience in actual vineyards, and in a series of public letters called Hayne an "incompetent" for suggesting otherwise. But no one much listened. By then, Husmann's was a voice from the past, one that could not speak to the realities of commercial California grape growing and winemaking.

The forward-thinking university scientists advised using the *St. George*, and soon tens of thousands of California vineyards were replanted with *vinifera* varieties grafted onto this *rupestris* rootstock. For nearly twenty years, Hilgard and the other university researchers considered phylloxera their most urgent challenge. So in addition to researching the resistance of different rootstock, they surveyed the state's vineyards for evidence of infestation and studied the life cycle of the insect itself.

They even planted a small vineyard in Berkeley, replete with infected vines in order to conduct field experiments. That led to trouble. When the state legislature had funded the creation of the University of California's viticulture department, it also had established the Board of State Viticultural Commissioners, an appointed body charged with "promot[ing] the viticultural industries of the state." At first, the board and the university worked together. Soon, however, the board's members, led by its chief " Charles Wetmore, and the university scientists, especially Hilgard, began fighting. Much of the conflict was political, as each side accused the other of trying to run its affairs.

Some of this was financial, since the same legislative appropriation funded both enterprises, and some surely was no more (and no less) than a monumental clash of egos. A public battle fought, mainly in the newspapers, erupted over the issue of Hilgard's experimental vineyard. Phylloxera had not yet infected nearby vineyards, and some growers worried that the Berkeley campus now posed the "danger of contagion." Wetmore, who owned property in the neighboring Livermore Valley, declared that research should be conducted only in areas already infested, and he urged university officials to destroy the experimental vineyard.

Hilgard was furious. He insisted that research required a controlled environment, that the campus vineyard posed no threat to anyone, and that scientific experiments could not be left to amateurs. Wetmore responded in turn, arguing that it was senseless to conduct research that endangered other men's livelihoods. He said, “If we are to have state institutions maintaining pests for the purpose of educating the professors and their assistants... our university is working on a very small plane." Hilgard's feud with Wetmore lasted for nearly fifteen years, coming to an end only when the legislature finally decommissioned the board.

For twenty years, Hilgard promoted the use of superior varieties, issuing numerous reports on the soils and climate of California's wine-growing regions in order to assist in deciding what to plant. He and his university colleagues examined virtually every variety in California, and they constructed a model winery on the Berkeley campus where they produced small lots of wines made from grapes grown all over the state. They then published a detailed series of papers, filled with scientific analysis as well as tasting notes, on the wines they made.

In 1880, the *Mission* was still the dominant wine grape in the state, but by 1900 it had faded into obscurity. The same sort of enthusiasm for grape growing that back east led to the cultivation of new hybrids led to experiments with imported varieties in California. "New" grapes, such as Cabernet Sauvignon, Cabernet Franc, Petite Sirah, and Zinfandel (for reds), and Semillon, Sauvignon Blanc, Trarniner, and Green Hungarian (for whites), yielded better and better wines. Some of them could be found, in small quantities, in private clubs and choice restaurants as far away as England.

Despite the phylloxera crisis, the 1880s and 1890s constituted California wine's first golden age. The wines seemed to improve every year, and demand for them increased steadily. Low-priced, everyday wines, many produced from grapes grown in central and southern California, often were flawed. But the top wines from the North Coast counties near the San Francisco Bay merited considerable acclaim. These were the wines that Eugene Hilgard held up as harbingers of a prosperous future. "Now is your golden opportunity," he told a meeting of wine growers in 1880. He urged them to emphasize quality rather than quantity, to rip out their Mission vineyards so they could replant with better varieties, and to make wines that could compete with the finest imports.

Hilgard opposed what he called the "old style" of wine -- highly alcoholic, frequently oxidized plonk that he thought should be "consigned to the rubbish pile." California wine, he said, was good enough to "show its own face in the best of company." By all accounts, the finest California wines could do just that!

Around the turn of the century, the University of California was the most respected center of American wine-related research. After Eugene Hilgard’s retirement in 1904, Frederic Bioletti took over the program. Because his research involved more than grapes, he kept going during Prohibition, even though the university regents banned wine study beginning in 1916. Following Repeal, wine work shifted from the Berkeley campus to the College of Agriculture at Davis.

Over the next fifty years, the professors, led by Alfred Winkler and Maynard Amerine, made Davis the leading institution of its kind in the world. This was not because Winkler and Amerine conducted more impressive research than their colleagues elsewhere. Rather, it was because American grape growers and winemakers so readily adopted their mindset, especially the fundamental notion of using science and technology to control an otherwise capricious nature.

Significant research took place in Europe too. Indeed, the most important person in the creation of modern wine was the French scientist Louis Pasteur, who in the 1860s first identified the basic principles of fermentation. Pasteur was the world's leading authority in the then emerging field of microbiology, pioneering investigation into what he called "the large role played by the infinitely small in nature." He worked on wine for only a few years, but in that time he almost single-handedly created the discipline of enology -- the rigorous analytical study of wine, as opposed to the merely sensory appreciation of it.

Lukacs, Paul. *American Vintage; The Rise of American Wine*. Boston, New York: Houghton Mifflin Company, 2000.