

History of the French Hybrid Grapes in North America

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Introduction:

Origin and Purpose of French Hybrids

By the simplest definition French hybrids are a group of grape selections that originated in France from crossing European (*Vitis vinifera*) varieties with certain North American species. Selections were from both wild types and early 19th century cultivars. The name French-American hybrids is also frequently used in the U.S. to identify them. To further amplify how ambiguous the hybrid grape picture has become, newer varieties with French hybrid parentage have also been developed in the U.S. and Canada. These are generally categorized as American hybrids, or American varieties.

The French hybrids have made their home here in the U.S. and Canada, mostly east of the Rocky mountains, and appear to be serving a well defined role for the North American wine industry. The pioneer French breeders were Eugene Contassot, Albert Seibel, and Georges Couderc. Other early contributors Fernand Gaillard, Francois and Maurice Baco, Bertille Seyve, Eugene Kuhlmann, Pierre Castel, Christian Oberlin and others, primarily used the species *V. rupestris*, *V. lincedumii* and *V. riparia* in their crosses. By the time World War II came a new group of French hybridizers, Bertille Seyve-Villard, Joannes Seyve, J-F Ravat, Joanny Burdin, Jean-Louis Vidal, Alfred Galibert, Pierre Landot, Eugene Rudelin, and others, were playing an important role. Collectively they had been intensively carrying on this work of hybridization for three quarters of a century when individuals in the U.S. became interested in them

during the late 1930's and early 40's. In 1948, O. A. Bradt from the Horticultural Research Institute of Ontario, Vineland Station stated "In recent years there has been an increasing interest in the French hybrid grapes particularly from the wine standpoint" (4, 5). This statement is still appropriate in the 1990's as the hybrids fill a significant role in many if not most eastern and midwestern wineries, both as varieties and for blending. However, the projections for the future may not be as bright as in previous years. The mood of many eastern wineries is shifting more toward the traditional *V. vinifera* cultivars.

Phylloxera

Since the grape Phylloxera, *Daktulosphaira vitifoliae* (Fitch), the grape root louse, was so important in the creation of the French hybrids it is deemed appropriate that some early history be provided.

In the Bushberg Catalog, 3rd edition, 1883 (23) C. V. Riley stated: "Among the insects injurious to the grape-vine none have attracted as much attention as the phylloxera, which, in its essential characteristics, was unknown when the first edition of this little-known work on "American Grape Vines" was written (1869). This gall-forming insect, it is true, was noticed by North America grape-growers many years ago (especially on the Clinton), but they knew nothing of its root-inhabiting form. Even Fuller—who informs us that in Mr. Grant's celebrated grape nurseries (as far back as 1838) the men were in the habit of 'combing out,' with their fingers, the roots of young

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vines to be sent off, in order to get rid of 'knots'—never mentioning anything of this, nor of any root-infesting insect, in his excellent "Treatise on the Cultivation of the Native Grape," though 16 pages are devoted to grape insects. He further stated that in 1869 M. J. Lichtenstein, of Montpellier, France first hazarded the opinion that phylloxera, which was attracting so much attention in Europe, was identical with the American leaf-gall louse (first described by Dr. Asa Fitch, State Entomologist of New York, by the name of *Pemphigus vitifoliae*. In 1870 Prof. C. V. Riley succeeded in establishing the identity of the gall insect with those from Europe and also the identity of the gall and root-inhabiting types. This was later confirmed by other scientists in France and Austria. Professor Planchon from Montpellier also visited the U. S. and confirmed these observations. Later Bushberg Nursery sent "a few thousand cuttings, gratis, for testing, to Montpellier and the success of these has resulted in an immense demand for the resistant varieties." Together Profs. Riley and Planchon established that the insect was indigenous to the North American continent, east of the Rocky Mountains and was imported into Europe on American vines. Later, as this information became public knowledge, government regulations were set up to exclude not just the insect, but the remedy: Wood from the resistant American rootstock varieties onto which the susceptible European *V. vinifera* varieties could be grafted.

Eventually it was the grafting onto resistant rootstock varieties developed by such breeders as Millardet, de Grasset, Couderc and Ganzin, of traditional varieties that allowed the resurgence of the European *V. vinifera* grape industry. These rootstock hybrids used the American species *V. riparia*, *V. rupestris* and *V. berlandieri*.

A Need for New Varieties

The need for phylloxera resistant grape varieties was not the only reason French hybrids came into existence. In 1847 powdery mildew (oidium) (*Uncinula necator* Burr) was introduced into French vineyards from North America through botanists and other plant collectors. There is also evidence that downy mildew (*Plasmopara viticola* Berl.) and black rot (*Guignardia bidwellii* Ellis) arrived about 1878. Some chemical treatments had been discovered (Bordeaux mix and sulfur) but they required special equipment and were costly. Thus, a multiple need for resistant varieties existed: to avoid extermination from phylloxera, diseases and hold down production costs.

It had been observed in France that some of the wild American grape species and a few American varieties exhibited some resistance, or at least did not succumb as rapidly to these pests as did *V. vinifera* varieties. American varieties with *V. labrusca* parentage were deemed undesirable due to their objectionable, "foxy," flavor. But other wild species did not have this objectionable characteristic and had some resistance to phylloxera and some diseases. Thus, large quantities of wild American grape seeds were shipped to or collected by French viticulturists and the work to create new varieties began.

Hybrid Breeding Programs

Following the initial efforts of the rootstock breeders, as early as 1874 (17), programs were active at Montpellier to produce hybrids resistant to phylloxera, diseases and eventually to calcarious soils and yet capable of producing acceptable fruit for wine on their own roots. Collectively they became known as "*Les hybrides producteurs directs*" (the hybrid direct producers, HPD's). Some of the

breeders, such as Foex and Ravaz, were always cautious or opposed to the propagation of hybrids in quality vineyards but were enthusiastic about the rootstocks (17). According to the records (2, 13, 16, 17, 25) and contrary to public opinion, the first HPD's came from the United States: Clinton, Isabelle, Othello, Noah, Herbemont, Jacquez and others. For the most part they were hybrids of *V. Labrusca*, *V. aestivalis*, *V. riparia*, and sometimes *V. vinifera*. The taste of these foreign varieties caused them to be generally unacceptable in France. However, because of their productivity and disease resistance several of them were extensively planted.

By contrast the breeding programs conducted by previously mentioned French breeders, with *V. vinifera* as the major parent crossed primarily with *V. rupestris* and *V. lincecumii* developed a group of HPD selections, and is the focus of our present discussion. Varieties with *V. Labrusca* parentage were seldom used by the French.

The HPD's acquired good acceptance by French growers and considerable acreages were eventually planted. According to Wagner (29) by 1955 35% of the table wine produced was of hybrid origin. In 1958 Galet (17) stated this amount as 42%. None, however, had been granted the right of "appellation d'origine." Hybrids had been forbidden in the Appellation d'Origine Contrôlée (AOC) and Vin de Qualité Supérieure (VDQS) since 1927. Their use was for ordinary wines with no appellation (*vin ordinaire*) and table grapes. It is also worthy of note that the goal of the later breeders was to back-cross the best of the hybrids with the best of the *V. vinifera* varieties rather than cross the best of the hybrids with the best of the hybrids.

During this latter period and up to the present day there have been restrictions on the planting and sale of HPD's. Earliest restrictions were by the French in 1953 followed by restric-

tions in the Common Market in 1976 (16, 17). Restrictions by the French have always been more severe than those of the Common Market. As a result acreage has significantly decreased. However, in 1900 there were 123,500 acres (50,000 ha) of hybrids in France. By 1929 plantings had grown to 534,007 acres (216,197 ha) (14.5%) and to 1,005,368 acres (402,147 ha) by 1958 (31%) (16, 17); in 1968 there were 726,904 acres (294,293 ha) (23.5%) and in 1979, less than 179,102 acres (72,511 ha) (14%). Wagner in 1978 (29) stated that the 13 most popular hybrids in France occupied 487,000 acres in 1974. An acreage greater than all the true wine grapes in California at the time. Wagner (29), quoting from Galet's work, indicated that all the Cabernet Sauvignon in France around Bordeaux and other regions totaled 24,000 acres. Comparatively this was the same as the acreage of Baco noir. In 1990 the acreage of HPD's in France was estimated to be 87,000 acres (3.5%) (17).

Where did it start in the United States?

A search into where the impetus came for the exploration and use of French hybrids in the U.S. most logically leads to Philip and Jocelyn Wagner of Boordy Vineyards, Riderwood, Maryland, a suburb of Baltimore (Fig 1). In the Spring of 1935 as an amateur wine maker he had planted some grafted *vinifera*: Carignane, Sirah, Franken Riesling, Semillon, and others. All, with the exception of Chardonnay failed.

The Wagners first became involved with the French hybrids in the late 1930's when Philip was working as London correspondent for the *Baltimore Evening Sun*. In a British publication about Greece various aspects of restoring Greek agriculture were discussed. Pertaining to viticulture it recommended a series of grape varieties including several French hybrids. He also visited East Mailing where researchers were studying the French

hybrids. As editor of the *Baltimore Sun*, he traveled back and forth to France and in his search of the French literature came upon references to the grapes known as HPD's: the hybrid direct producers. Visits to the New York Agr. Expt. Sta., Geneva and Fredonia, New York also opened up other options and trials of some of these materials were begun.

Some of their early experiences with HPD's were had while traveling through the wine districts of France where they saw hybrids being grown and harvested in the Dijon and Beaune area. During these travels they also became acquainted with the individuals breeding the hybrids and a very articulate person by the name of Gerard Marot, the president of "FENAVINO" (Fédération Nationale de la Viticulture Nouvelle et du Syndicat des Hybrid-eurs et métis-seurs viticoles). The official monthly publication devoted to the defense of the French hybrids was the 'La Viticulture Nouvelle'. Many misconceptions concerning the hybrids were widespread in France and soon found fertile ground in the U.S. The HPD breeders were a very modest group and had to combat powerful anti-hybrid forces. They were not looked on favorably by the scientific community but as a group that just crossed one grape with another (28). The big industrial producers were the anti-hybrid people of southern France. Wherever the hybrids grew the vinifera producers would lose a part of their market. These people had heavy influence with the viticultural establishment and a big block of members in the Chamber of Deputies. They also dominated the press and media. Most of the HPD breeders were so circumscribed by this time that they found it difficult to exchange promising hybrids with friends or associates.

Introductions and Trials in the United States and Canada

The Wagners were not among the very first people to introduce French

hybrids (HPD's) into the U.S. But, since their first explorations into the feasibility of growing the hybrids in 1936-37 they have probably done more to further their cultivation and progress than any other individuals. The French hybrids, they found, already existed in obscure collections of several individuals and organizations. George Husmann had some hybrids shipped into California in 1911 and Hilgard may have brought some into the U.S. before the turn of the century. They were not being studied or utilized at this time. Hybrids also existed at the New York Agricultural Experiment Station as early as 1911 and may have been from the group introduced by Husmann (9). Active in their introduction and cultivation were Fred Gladwin at Fredonia and Richard Wellington at Geneva.

The USDA Field Station at Fresno, California obtained some hybrids during the late 1920's and early 1930's. A chapter in the 1937 Yearbook of Agriculture by Elmer Snyder (26), contains a very comprehensive review of grape breeding in the U.S. and lists the French hybrids in their Oakville collection. The Univ. of Calif. Davis later acquired a substantial number of the hybrid selections in their collection. Two shipments of 20 selections each were introduced from France in 1927 and 1939 by the New York Agricultural Experiment Station at Geneva (9). Among the first shipment were Seibel 1000 and 5898. Seibel 7053 was included in the second group.

To Philip Wagner this early period was a very exciting experience and his notes after viewing the collections of R. T. Dunstan (12) and J. R. Brooks in North Carolina stated: "Their collections are a sufficient basis for an entirely new viticulture" (29). They became very active with the hybrids and facilitated the importation and exchange of materials with many individuals and organizations in the eastern U.S. and Canada. Through this period

Wagner's Boordy Vineyards nursery, established in 1941, represented the only source of rooted hybrids. It was not until 1952 that the New York Fruit Testing Association, listed its first HPD's. But through this entire period and even today the nursery at Boordy Vineyards is a source of hybrid vines. A large acreage of the plantings along the whole Chataqua grape belt, for Taylors winery and several others was provided by Foster Nurseries, Fredonia N. Y. Walter Foster Gloor, owner, was eventually succeeded by his son, Bob Gloor, who carried on the business until 1988. In Ontario, Mori's Nursery and several wineries produced vines for many new hybrid vineyards. Large quantities of wood were also sent to British Columbia nurseries for propagation.

To get possession of hybrids the Wagners picked them up everywhere: France, the New York, Agr. Exp. Sta, at Fredonia and Geneva, New York; USDA Field Station, Fresno, CA; R. T. Dunstan, Greensboro North Carolina; Napa Valley, Canada and other places. Dunstan's sources were from quite an independent starting point from the others. He obtained a series of HPD's of Seibel and Seyve-Villard from France in 1938. Subsequent selections were collected from the hybridizers Galibert, Perbos, Joannes Seyve, Vidal, Landot and Couderc. S.V.12-375 could have come from this source.

George Hostetter, Brights Wines Ltd, Ontario Canada, imported some hybrids in 1943. Seibel 10878 was grown and wine marketed by them in 1946-47 (5). However, Jordan Winery is acknowledged to being the first to market wine in quantity from Seibel 9549.

In the Finger Lakes, according to Alexander Brailow and Philip Wagner (7, 28), one of earliest commercial French hybrid vineyards was planted in 1944 by Gold Seal on the east side of Keuka Lake. It came about when Ed Sillsman, a Frenchman and a sales-

man for Goldseal had dinner at the Wagners and a bottle of Baco #1, red wine, was served. Sillsman was delighted at the quality (28). Gold Seal ordered Seibel 1000 vines and planted the vineyard. The vines were described in later years as having "trunks as big as oak trees." The vineyard may now be replaced or removed, but it existed for 30 to 40 years.

When Eastern American wineries began to use the hybrids it was only for blending.* Many were eventually named because the winery people thought it would be impossible to sell a wine with a number such as Seibel 5279, Seibel 9549, etc. Philip Wagner (28) didn't find the numbers offensive. In fact the names didn't mean very much to him. "Because once one got interested in them the numbers had a music all their own."

There were periodic meetings between wineries and research people to evaluate progress with the hybrids and communicate their findings. At one such meeting at Fredonia, in the fall of 1945, Alex Brailow (7), winemaker at Gold Seal recalls the following: "We had a whole lot of samples and all we had was a bucket and jelly glasses." Richard Wellington was very important and very influential in the discussions that went on at this time with the French hybrids.

Adhemar de Chaunac brought some of the best Canadian made wines to such a meeting. He was especially proud of the Port wine made from the variety President; also included were some wines from Munson varieties. When they started tasting the hybrids showed up so well that Adhemar could hardly believe it. It should be noted that about this time the Canadians were especially worried about wine imports from such countries as South Africa and Australia because the Commonwealth had not provided any trade barriers of any sort. Their immediate concern was that they had to grow better grapes. The French hybrids now

appeared to be at least a partial solution to these problems. Such selections as Seibel 1000 and Seibel 2008, probably obtained from U.S. sources, had been planted in Ontario in 1918 and 1943.

Following the New York meeting several actions were initiated to introduce more hybrids into Ontario. Jake Hostetter, foreman at Brights Wines at this time, was contacted by the Vice President and asked to help the Ontario Ministry of Agriculture obtain vines or cutting of the hybrids (14).

In 1946 two shipments of hybrids were obtained from France. One for Brights and one for the Horticultural Experiment Station. The number of vines obtained by Brights was much smaller than the one for the OMAC but consisted of many selections (14). Contacts were made with French nurseries to import the hybrids. Records were not available as to what was obtained for Brights.

The shipment for the Ontario Ministry of Agriculture was received in late 1946 by the Horticultural Experiment Station, Vineland Station, Ontario after many bureaucratic roadblocks and 6 weeks at sea (14). Included were 39 numbered selections as cuttings, rooted vines and grafted vines. Richard Wellington as well as Adhemar de Chaunac and Jake Hostetter were influential in helping find nursery stock. O. A. Bradt (5) remembers they were in bad shape on arrival. One row of each (150 vines) were planted into the vineyard at the Rittenhouse Grape Sub-Station in the fall of 1947 and the spring of 1948: half on sandy soil and half on heavy clay soil. Seibel 9549 came in as cuttings in late Spring, 1947 and was planted out in the Fall of 1947 and Spring of 1948. Materials were obtained from Seibel, Bertille-Seyve and Seyve Villard.

Of the Taylor brothers Greyton was the one most interested in making wine from the hybrids. The photos (Figs. 2 and 3) are from meetings at Taylors and Pleasant Valley Wine

Companies in 1951 and 1952. Richard Wellington, John Einset and Willard Robinson from Geneva, Charles Fournier and Alexander Brailow from Gold Seal, Greyton Taylor from Taylors, Adhemar de Chaunac and George Hostetter from Bright's and others were very important in this movement. Herman Weimer and Herman Amberg were both very much involved with the New York industry. Both are still active in the Eastern wine industry but with strong emphasis on vinifera varieties.

The hybrids spread rapidly through the Finger Lakes between 1940's and 60's. The wineries in New York growing and making wine from the hybrids in the 1940's were Taylors, Widmers, Gold Seal and Great Western. Taylor winery was the early leader but Widmer and Gold Seal followed quickly. By 1963 Taylor Wine Company was making wine from more than 200 acres of Seibel 5279; 43 acres in company owned vineyards. One of the problems with the hybrids, Seaton (Zeke) Mendall of Taylors recalls was bunch rot (19). Not black rot, but bunch rot: where the berries crack and just turn into a moldy, rotten mess. Seibel 7053 did not grow well in the Finger Lakes, but grew better in Western New York. Grower comments were, "You could spray everyday and still get wiped out by the Downy mildew." Seibel 9549 looked like a real winner to many wineries, growers and researchers. The Canadians and Boordy Vineyards were the chief proponents for its culture. As far as can be determined the source of vines for all the Seibel 9549 vineyards was from the Canadian source. The original Seibel 9549 vines were at the Vineland substation's vineyards until 1990. It became the third most planted variety in Ontario reaching 2100 acres in 1981 (5, 14). Catell (9) states that Seibel 1000 was apparently the first hybrid introduced into Canada.

The first French hybrids introduced into Ohio were cuttings of S.1000 by

Mantey Winery in Sandusky in 1941 (18). They were then sent to Foster Nursery to be grafted onto Couderc 3309. Additional vines of Baco #1 were planted in 1955. The plantings consisted of 1.38 acres of Seibel 1000 and 1.3 acres of Baco #1. Both plantings still exist at Firelands Winery (formerly Mantey Winery). Norman Mantey, one of three brothers and owner of Mon Ami Winery in Port Clinton, made a 'Pink Rose' wine from the Seibel 1000.

In 1954 Meiers Wine Cellars obtained Baco #1, Seibel 1096, 5898 and 4643 from Boordy Vineyards and planted them on North Bass Island (8). In 1962 they added Seibel 10878 and Seibel 7053; also from Boordy. Additional Baco vines were planted in 1968. Two rows of the original Baco still exist. Myron Baker, Morrow, Ohio, planted Seibel 5279 in 1960. Vines were furnished by and fruit sold to Meiers Wine Cellars, Cincinnati, Ohio.

The Ohio Agricultural Research and Development Center, planted S.1000 in their vineyards at Wooster in 1956. In 1960, the first in a long series of hybrid selections were planted in research vineyards at the Southern Branch, Ripley, Ohio.

H. C. Barrett, a fruit breeder at University of Illinois, obtained a number of French hybrids in 1947-1949, through the USDA Plant Introduction Station in Maryland (2, 3). They were evaluated both for their value as new varieties as well as breeding parents.

Emmett Schroeder in Hutchinson, Kansas (25) who characterizes himself as an amateur grape grower, evaluated a number of French hybrids; not for wine but as table grapes. As far as can be determined he obtained many of his selections from France between 1947 and 1949 through his church contacts (3).

Virginia Polytechnic Institute had introduced hybrids into their grape program as early as 1950 and by 1953 was reporting their potential use and adaptation for Virginia (20).

The first French hybrid vineyard planted in Pennsylvania was in 1953 by Melvin Gordon at Birchrunville. Nursery stock was purchased from Boordy Vineyards (9).

Industry Expansion

Availability and use of grapes from California during Prohibition and the disruption of wine from France during World War II both created an interest in and demand for non-foxy wine grapes in the eastern U.S. Wineries couldn't supply the demand and started increasing production which required serious vineyard expansion programs. In the Finger Lakes wineries met some serious resistance from growers (19). They couldn't get the growers to put new vines in the ground. To solve the problem Goldseal, Taylor, Great Western and Widmers had to buy land and establish their own plantings. Taylors would plant a whole farm or several farms to Delaware, Ives, hybrids, or anything they could get. When Seaton Mendall went to work at Taylors in 1943 they had 7 acres of grapes; 10 years later approximately 900 acres had been planted. But nobody was paying attention to soil conditions or other such details. It took several years to meet the demand but they finally did.

Prior to the war there were no serious grower relations programs among any of the wineries in New York. The growers suffered under the processors. But, when the war started and imports were cut off the wineries decided they had to treat the growers better. Burt Taylor decided that quality control was a problem and they needed an 'in field quality control program' to improve their grower relations. Bad fruit was sent to the winery and had to be turned down. In 1943, Mendall started a one-man operation trying to coordinate with growers and get them to do a better job (19). Mendall was in charge of vineyard operations for 10 years. As the 'troubleshooter' he was

in close contact with each grower two or three times a year. When harvest time came, he knew what each grower had in his vineyard and its quality. Thus, Taylors eliminated the inspection problem at the plant. If something questionable did come in Mendall just called on the phone to straighten it out. Still only verbal contracts were given. Wineries paid on time and treated growers right, but written contracts were not given until years later. Tom Chadwick joined Mendall and took over when he retired from Taylor's in 1979.

Mendall's first experience with French hybrids was in 1943 when Taylors got some hybrids from Philip Wagner at Boordy Vineyards. The first variety obtained was Seibel 5279. Some Seibel 1000 vines were obtained about the same time but they soon went out. Taylors planted a large acreage of Seibel 5279 (200 acres by 1963) and used it for blending purposes. "Unfortunately it had to be planted on pretty good soil. When it was planted on some of the shallow clay soils with a foot to bedrock, the vines just did nothing. They almost stood still. If you got a pound per vine on them you were lucky. You had to have a good soil" (19). Mendall still thinks that Seibel 5279 is a good blending wine.

In the late 1940's and early 50's, everyone was very optimistic about wine. At Gold Seal they were growing some hybrids and were recommending varieties that they wanted the grape growers to plant. The wine business was changing rapidly. Growers were selling their American varieties but also got stuck with some when varietal demands changed. In 1953-54, the most popular wine was pink Catawba. Actually it was barely over 50% real Catawba, because quite a few hybrids were blended into it. In general, the trend during this period was to try to make wines that appealed to the public, rather than adhere to an earlier philosophy: "This is what we make;

you like it; you buy it!" At one time this policy was successful but it wasn't anymore, because wine consumers were again buying a significant quantity of imported wines.

Wineries had great hopes for Seibel 9549 from the standpoint of giving them a red blending wine which could possibly replace Ives. Unfortunately, Tom Chadwick and Mendall at Taylors didn't have any land to plant their Seibel 9549 on except old vineyard sites. Fred Taylor insisted they use the old sites. The vines were all planted on their own roots and on heavy clay soil. Vines grew well and as a general estimate produced about 5 tons per acre on six to eight year vines. They then decided to urge growers to plant them as they needed more grapes every year. Red wines were much more predominate than white. So when the grower put in a vineyard they told them to plant Seibel 9549. Unfortunately the growers were putting these on new sites where a vineyard had not been before and on better soils. But when these vineyards came into production and were about 5 years old, they were producing 10-12 tons per acre and Taylors were anticipating a production of 5 to 6 tons. They were flooded with grapes. To compound the problem the wine market changed from red to white! "The growers were wild."

O. A. Bradt at the Horticultural Institute at Vineland, Ontario Canada started cluster thinning research in 1949 when the hybrid introductions began to fruit. This work was continued for several years. The benefits to be derived were reported in appropriate publications and many grower field meetings. Growers in New York didn't cluster-thin any of the hybrids until Seyve-Villard 5276 came along.

Gold Seal did not go too heavily into the planting of hybrids. Dr. Konstantin Frank colored the picture to a great extent for them. He was one of the greatest opponents to the use of

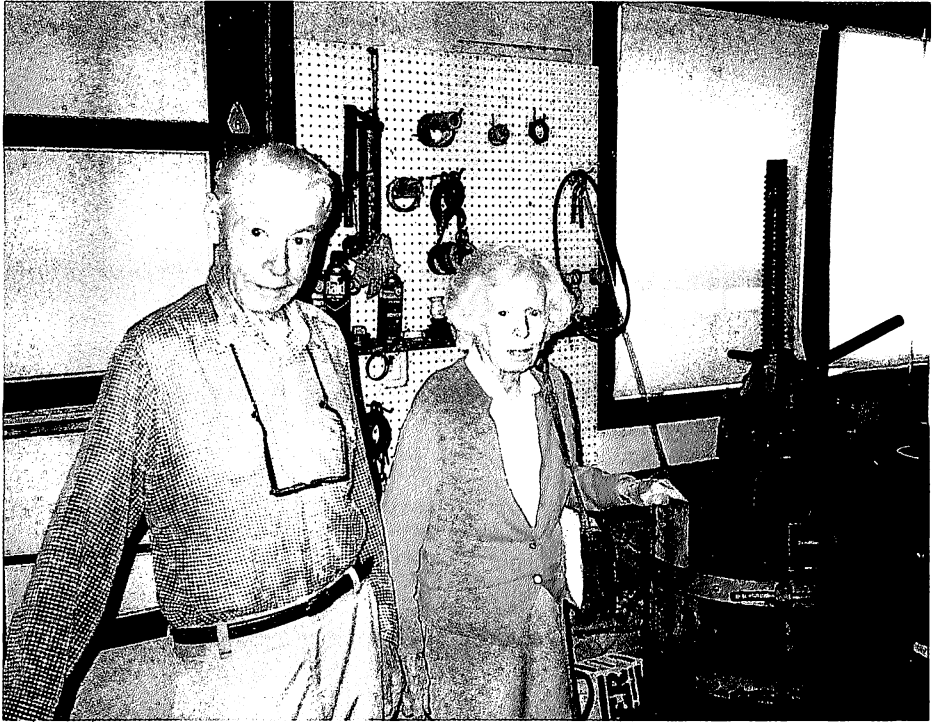


Figure 1. Josylin and Philip Wagner, Owners and operators of Boordy Vineyards and pioneers in the introduction and expansion of French hybrid grapes in the United States (1992).

hybrids in the east. Alexander Brailow, wine maker at Gold Seal since 1946, brought him from New York (7). Prior to this Frank was working as a dishwasher in New York City. He barely knew English. He wrote to Professor Richard Wellington with whom Alexander Brailow had worked at the NYAES. Professor Wellington, knew that Brailow knew Russian and put him in touch with him. Brailow invited Frank to come to Geneva. Nelson Shaulis obtained work for him at the Geneva Experiment Station working with blueberries but he wasn't satisfied there. Eventually Brailow helped him get a job at Gold Seal as vineyard manager. Charles Fournier was president of Gold Seal at this time. Frank was very opinionated and difficult to work with, but was a good vineyard manager. "No hybrids, no labruscas,

pull everything out and plant viniferas, now!" Frank preached. According to numerous sources (7, 19), Frank created problems for the whole French hybrid program at Gold Seal. He hated the French hybrids. Had no use for them whatsoever. He eventually built and started his own winery in 1962, in Hammondsport, N.Y. and attained quite a reputation. Frank died in 1985. His son, Willie, now owns the winery and is again making wine.

Concerning the hybrids Frank expounded that they had a smooth leaf which was attractive to the aerial form of phylloxera. The proliferation of the aerial form completed the normal cycle and thus increased the intensity of the phylloxera population. By contrast the American varieties were not attractive to aerial phylloxera and therefore led a limited (half hearted) existence only

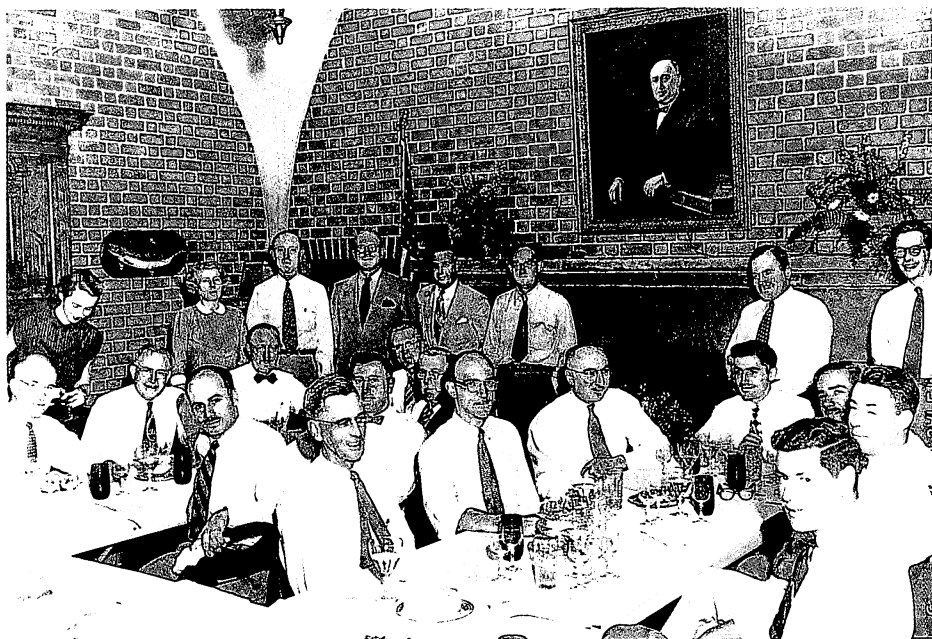


Figure 2. Tasting at Taylor Wine Co., July 13, 1951. *Standing (left to right):* Waitress?, Mrs. Josylin Wagner, Charles Fournier, Ludwig (attorney), X, Greyton Taylor, X, Ferguson. *Sitting (left table-left to right):* X, X, George Oberle, John Einset, Richard Wellington, Tony Doherty, Hector Carveth. *Sitting (right table-left to right):* E. Carleton, Willard Robinson, Adhemar de Chaunac, Chemist from Chateau Gay, Alexander Brailow, Philip Wagner, Harry Hatch (owner of Bright's Winery).

X = Unidentified people, agents from Washington, D.C. or friends of Greyton Taylor.

on the roots, thus enabling these vineyards to survive without severe phylloxera damage. This philosophy was expounded in an unpublished paper entitled "The Present Vista for the *Vitis Vinifera* European Grape Varieties in the East" (15). According to Frank all French hybrids were destroyed in Gold Seal vineyards by 1957. A controversy also raged between Frank and the New York wine industry that the French hybrids contained wood alcohol (Methyl hydrate). Also, there were other 'Biostatic' (toxic) substances in French and American hybrids which, when fed to chickens, produced crippled offspring. This information was based on experiments conducted by Hans Breider in Wurtzburg, Germany using chickens (27). Gil Stoewsand was hired by the New York Agricultural

Experiment Station, Geneva to determine if there were such problems with hybrid wines. His investigations proved conclusively that it was the chicken ration itself that was deficient in vitamins and other components and not the wine made from the hybrids.

The overall quality of wines in the east was improved through this period by the use of the hybrids and provided the wineries with some different wine types. Taylors Lake Country series became the leader in the business and sold extremely well. Varietal wines gradually became popular with Taylors after they acquired Great Western and the Pleasant Valley Wine Co in 1962.

Taylor's were the first to establish prices on grapes. This eventually resulted in their setting the grape prices for the whole region. That policy re-

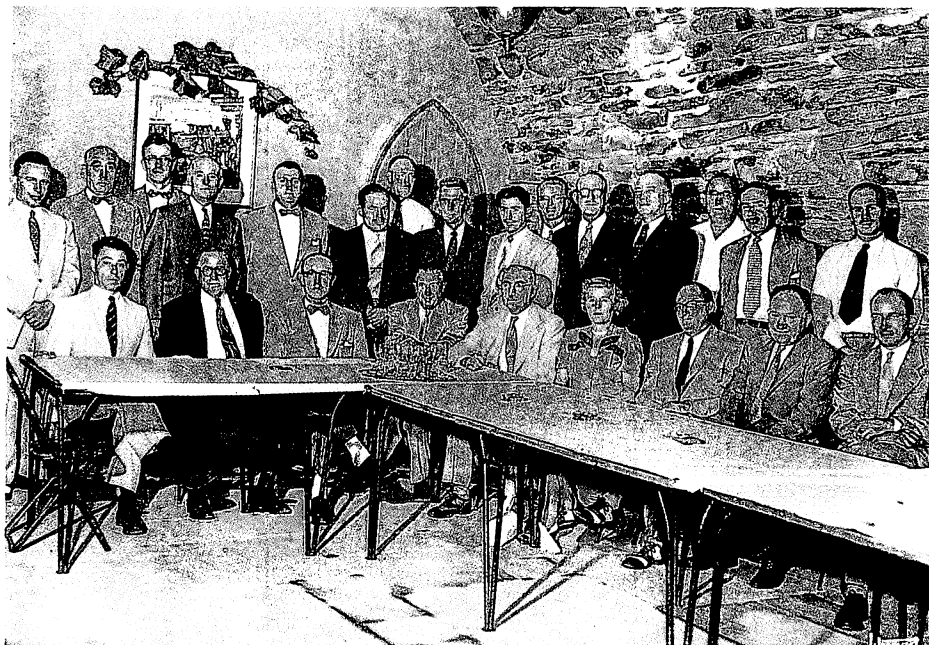


Figure 3. Tasting at Pleasant Valley Wine Co., (Great Western), July 28, 1952. *Standing (left to right):* X, X, X, X, Hector Carveth (Chateau Gay Winery), X, George Oberle, E. Carleton, Chemist (Chateau Gay), John Einset, X, X, X, Alexander Brailow, Tony Doherty. *Sitting (left to right):* Philip Wagner, Ludwig, Charles Fournier, X, Adhemar de Chaunac, Josylin Wagner, Greyton Taylor, X, X.

X = Unidentified people, agents from Washington, D.C. or friends of Greyton Taylor.

maintained for a number of years. About 1975, a law was passed in the state that processors had to notify their growers on or before August 15 what prices were going to be. Everybody eventually settled for an August date.

French Hybrids Named

Prior to 1970 names could be found for several of the hybrids and were freely used interchangeably with the numbers. But growers and wineries were not very comfortable with this procedure. How official some of these names were or where they came from was not broadly understood. Some of them had received names in France, both from popular use and by official organizations. In the United States names could be found in several authoritative publications. For example, the Register of New Fruit and Nut

Varieties, published periodically in the Proceedings of the American Society for Horticultural Science and later in HortScience, listed synonyms for 6 hybrid cultivars; 3 from Seibel and 3 from Seyve-Villard. They are as follows:

Seibel 5279 - 'Aurore' (Vol. 74, 1959)
Seyve-Villard 20-473 - 'Muscat de Saint Vallier' (Vol. 76, 1960)

Seibel 4643 - 'LeSequanois' and 'Roi des Noirs' (Vol. 81, 1962)

Seibel 4986 - 'Rayon d'Or' and 'Roi des Blancs' (Vol. 81, 1962)

Seyve-Villard 20-365 - 'Dattier de St. Vallier' (Vol. 87, 1965)

Seyve-Villard 20-366 - 'Pierrelle' (Vol. 87, 1965)

Two New York publications in 1965 (24) and 1968 (1) list names for 11 additional selections. They are:

Kuhlmann 188-2 - 'Marechal Foch'
 Seibel 5455 - 'Plantet'
 Seyve-Villard 23-410 - 'Valerien B'
 Baco #1 - 'Baco Noir'
 Kuhlmann 188-2 - 'Foch'
 Landot 244 - 'Landal'
 Seibel 4986 - 'Rayon d'Or'
 Seibel 5279 - 'Aurora'
 Seibel 8357 - 'Colobel'
 Seibel 10878 - 'Chelois'
 Seyve-Villard 12-375 - 'Villard Blanc'

The naming of an additional seven previously unnamed hybrids was proposed in 1971 and eventually accomplished under the authorization of the Great Lakes Nomenclature Committee in 1973; a committee representing five groups in the northeast U.S. and Canada, organized at Vineland, Ontario in January 19, 1972 (5).

Early in 1970 Seaton Mendall of Taylors made a call to Harold Olmo at the University of Calif. Davis (19). Olmo was then Registrar of New Fruit and Nut Varieties. Mendall told him that the Finger Lakes Wine Growers Association (FLWGA) wanted to name some of the previously unnamed French hybrids. Further, they were going to get together with the processors and ask each one of them to submit names that they would like to have these different numbered hybrid selections called. This action caused considerable concern both in and outside of the state of New York.

Mendall, in behalf of the FLWGA, then contacted the American Pomological Society and told them that there were a group of French hybrid wine varieties that were becoming important in New York as well as other states and wanted to name them. They thought seven selections had not been named by the French originators and they felt would never be sufficiently important to any of the French districts to be named. They were further told that New York and other eastern and midwest wineries were going to make varietal wines out of these French hybrid grapes and felt it

would be difficult to sell a bottle of wine with number (S.9549, S.10878, etc.) on the label. Therefore, the FLWGA was going to name them. Mendall attended the ASHS/APS annual meeting in Miami, Florida in November 1970 and presented their proposal at a general session. The APS Nomenclature Committee gave approval to go ahead but to select some short names.

It all came to a head at a meeting at the Taylors winery with the processors. As a result of discussing, arguing and voting a decision was finally reached. The names of 7 selections were published by the Association in an eight page leaflet dated August 24, 1970, entitled French-American Hybrid Names (22). Descriptions were supplied by George Remaily and George Slate of the New York Agricultural Experiment Station, Geneva N. Y. However, both Olmo and the Canadians were concerned that recognized procedures were not being followed. In a letter to N. H. Paul, President of Finger Lakes Wine Growers Association from E. A. Kerr, chairman of an *ad hoc* committee of the Research Section of the Research and Development Committee of the Canadian Wine Institute, on July 23, 1971, indicated that international rules were being circumvented since FLWGA was not conforming to the International Code of Nomenclature of Cultivated Plants of 1969.

In a letter to Gerard Marot in March 1970, George Slate listed six (not seven) hybrids that had not been named (Seibel 1000, 5898, 7053, 9549, 9110 and 13053). Marot replied that they were named and he should write to R. Seibel (Albert Seibel's nephew). A letter from Seibel, dated April 1970, suggests that only four of the seven were named and he preferred the acceptance of these, but names for the others could be made by the committee (FLWGA or the Great Lakes Grape Nomenclature Committee) and should

be accepted in North America and published in the Register of New Fruit and Nut Varieties. The names of the four were:

Seibel 7053 - Perle d' Aubenas;

Seibel 9110 - Clairette Seibel;

Seibel 13053 - Noir precoce de Seibel;

Seibel 5898 - Seibel Noir.

Much correspondence and many meetings by interested parties took place between 1970 and 1972. As a result of a meeting at Rochester N. Y. on January 19, 1972 a committee was set up, called the Great Lakes Grape Nomenclature Committee. Five organizations were to be represented on the committee. In March 1972 the committee was organized with O. A. Bradt from the Horticultural Research Institute of Ontario, Vineland, as President and representative of the Great Lakes Grape Research Coordinating Committee. Other members of the committee were: Ernest A. Kerr, HRIO, Vineland, Ontario; John, Einset, representing the NYAES; Seaton Mendall from the FLWGA (5). As a result of the January meeting a letter was written by O. A. Bradt to H. P. Olmo, Registrar of New Fruit and Nut Varieties, on March 30, 1972 requesting that, with one exception, the seven varieties, previously published by the Finger Lakes Wine Growers Association be approved and be officially accepted and recorded. The exception was 'Cameo', Seibel 9549, which the Canadians said did not fit this grape. Cameo meant something else, a lighter red wine; a light (white) yellow wine. Adhemar de Chaunac had done more than anybody else with it in its introduction and winemaking. In the end the grape was named De Chaunac in honor of Adhemar de Chaunac. The official names were:

'Rosette' (Seibel 1000)

'Rougeon' (Seibel 5898)

'Chancellor' (Seibel 7053)

'Verdelet' (Seibel 19110)

'De Chaunac' (Seibel 9549)

'Cascade' (Seibel 13053)

'Vignoles' (Ravat 51)

A copy of this letter to H. P. Olmo was also sent to Gerard Marot, President of the Federation Nationale de la Viticultural Nouvelle in France (FENAVINO).

In 1973 an article was published by O. A. Bradt and J. Einset in the Fruit Varieties Journal, with names of the seven French hybrids (6). As for the concerns of the French breeders there was some correspondence and finally Seibel's nephew was told that the varieties had been officially named in the U. S. No additional correspondence is available to indicate further interchange of information on the subject. In all probability it was Charles Fournier, President of Gold Seal Winery, who acted as the intermediary since all correspondence from them was in French.

French Hybrids Today

Between the 1940's and the 80's hundreds of hybrids were evaluated by growers, wineries and research institutions in states mostly east of the Rocky Mountains, Ontario and British Columbia, Canada. From this base has come the production of hundreds of acres of French hybrids (HPD's) and a significant volume of quality wine. The hybrids are still used for blending as well as for a respectable number of varietal wines. Most significant has been the large number of wineries, many small by comparison to California, that have come into existence because of the popularity of the hybrids. The freedom to depart from traditional eastern wines and produce new, more neutral and broadly accepted table wines may have been the key to the transition that has occurred.

The most prominent varieties to emerge through this 40 year developmental period are (Not in order of total acreage or importance):

White: 'Seyval Blanc' (S.V.5276), 'Vidal Blanc' (Vidal 256), 'Vignoles'

(Ravat 51), 'Aurore' (S.5279), 'Villard Blanc' (S. V. 12-275)

Red: 'Baco Noir' (Baco #1), 'Chambourcin' (Joannes Seyve 26-205), 'Marechal Foch' (Kuhlmann 188-2), 'Chancellor' (S.7053), 'De Chaunac' (S.9549), 'Chelois' (S.10878), 'Leon Millot' (Kuhlmann 194-2), 'Rosette' (S.1000), 'Rougeon' (S.5895) and 'Villard Noir' (S.V. 18-315)

By 1981 the acreage of De Chaunac in the province of Ontario, Canada, became the third most prolific variety with a peak production of 2100 acres. However, beginning in 1988 a major transition began in the grape and wine industry in Ontario, Canada and brought about many changes in variety preferences. Acreage of De Chaunac has been greatly decreased while Vidal has emerged as an outstanding variety for ice wine and table wine. Varieties of grapes now authorized by the Vintners Quality Alliance for appellation of origin in Ontario includes 11 French hybrids. Another 7 French hybrids may be used in blends (11, 15). There has also been a major shift to *V. vinifera* acreage. Since 1986, the number of vines planted to *vinifera* has grown from 955,000 to 3.2 million in 1995.

Varietals for Wine

'Baco Noir'
'Castel'
'Chambourcin'
'Chancellor'
'Chelois'
'Muscat du Moulin'
'Leon Millot'
'Marechal Foch'
'Seval Blanc'
'Vidal Blanc'
'Villar Noir'

Varietals for blending only

'Aurore'
'De Chaunac'
'Landal'
'Verdelet'
'Vignoles'
'S.V.23.572'
'J.S.23.416'

In the eastern U. S. there are similar but not so dramatic shifts toward the planting of *vinifera* varieties. Although the production of grapes from *vinifera* is still guaranteed to provide severe challenges from climatic extremes the demand from wineries for them is providing good economic opportunities. One thing for certain, the connotations of hybridization as exemplified by the words 'French hybrid' will be with us for many years to come. Breeding programs in Germany and North America have incorporated them into their programs. Examination of new varieties created by current breeding programs will frequently identify one or more of them in the parentage. The French, to avoid the negative association of the term 'hybrid' use the word 'metis' which connotes the crossing of pure *V. vinifera* varieties (21).

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Model of Apple Fruit Growth

Apple fruit growth (weight basis) at very low crop levels and apparently optimum environmental conditions displays an early positive curvilinear growth followed by linear growth to harvest, and is described well by the exponential function. The model also fits growth patterns of 'Empire' and 'Golden Delicious' apple fruit differing in the rate of growth in the exponential phase due to differences in the crop load. Estimates of cortical cell numbers in 'Empire' fruit from related studies suggest that during the linear phase in mid-season, different growth rates among crop load treatments were apparently controlled by differences in numbers of cells in the fruit, since estimated growth rates per cortical cell were essentially constant over several treatments. From Lakso et al. 1995. *J. Hort Sci.* 70(4):389-394.

New Jersey Apple Selections Differ in Ethylene, Softening, and Ripening

Pa 14-238 and D101-110 produced only low levels of ethylene at harvest and throughout most of the 86 days of storage at 4C, whereas 'Red Chief Delicious' and 'Golden Delicious' produced high levels of ethylene during the same period. The numbered selections converted aminocyclopropane-1-carboxylic acid (ACC) but not methionine (MET) to ethylene. 'Red Chief' readily converted both MET and ACC to ethylene at the end of cold storage. Pa 14-238 fruit were the firmest and did not soften during storage, however, D101-110 softened appreciably. NJ55 did not produce ethylene at harvest, but produced significant amounts during storage. Despite this characteristic NJ55 remained firm until the end of storage. From Gussman et al. *HortScience* 28(2):135-137, 1993.