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In the beginning was the grape



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When I graduated, in 1971, wine was regarded as such a frivolous subject that I didn't dare confess my wish to waste an Oxford education on a career in it. Fortunately for me, fermented grape juice has gained dramatically in status in the intervening years and has become an obsession for some and a thoroughly respectable leisure pursuit for many all over the globe - not least in Asia, where wine has become one of the most potent symbols of sophistication.

One of the most important differences between how wine is bought today and how earlier connoisseurs viewed it has been the rise and rise of grape varieties at the expense of geographical names. We now know wine as Chardonnay, Cabernet Sauvignon and Pinot Noir rather than as Chablis, Claret and Burgundy. Our wine-drinking forefathers would probably have been hard pushed to name a single grape variety, whereas many a wine list and supermarket

aisle today is dominated by them.

When learning about wine it can certainly be much easier to divide the world of wine varieties rather than geographically, particularly if you concentrate on the handful of vine varieties that have risen to international prominence: the three so far mentioned, Merlot, Syrah (called Shiraz in Australia), Sauvignon Blanc plus the likes of Grenache, Chenin Blanc and Riesling. You might call varietal labelling a taxonomic boon.

But even wine professionals are likely to know much less about individual grape varieties than they think. Only those paying close attention to a brand new branch of wine science will have noted the extraordinary discovery in 1996 that the famous Cabernet Sauvignon vine, responsible for the grandest red wines in the world such as Châteaux Lafite, Latour and Margaux, is in fact the natural progeny of the distinctly less revered Cabernet Franc and the grape variety responsible for the white wines of Sancerre and Marlborough in New Zealand, the pale-skinned Sauvignon Blanc.

If they did take account of that revelation, they may also have noticed the next major discovery made three years later: that a decidedly obscure, pale-skinned eastern French variety called Gouais Blanc, hardly grown at all today, turns out to be the natural progenitor, with the much more famous Pinot (which comes in several colours), of at least 16 well-known grape varieties, including the grapes responsible for both Beaujolais and Muscadet, and Bridget Jones's beloved Chardonnay.



How were these completely unexpected relationships discovered? Step forward Professor Carole Meredith, then of the University of California at Davis. Today she grows Syrah grapes on her Lagier-Meredith vineyard high above the Napa Valley but before she retired as a grape geneticist she and her PhD student John Bowers made both these major breakthroughs in wine and grape knowledge, the second in conjunction with Jean-Michel Boursiquot's team at INRA in Montpellier, using the same ground-breaking techniques.

In the past, grape varieties were identified visually. A handful of international experts knew enough about the exact shape of leaves, shoots and bunches to be able to spot, for example, a Lesser Spotted Vermentino in the vineyard. But now we can establish far, far more detail about the precise relationships between different varieties by analysing and comparing their DNA. It was while generating a database for the DNA profiles of the most important grape varieties in the Davis vine collection that John Bowers noticed that the DNA profile of Cabernet Sauvignon was perfectly consistent with its being an offspring of Cabernet Franc and Sauvignon Blanc. This was the first time anyone had identified the parents of a famous wine grape variety and it astounded us all. Before then, no one thought that a dark-skinned variety could possibly have a pale-skinned parent.

It is now assumed that Cabernet Sauvignon (pictured above in one of the 80 glorious full-colour plates from Viala et Vermorel's seminal century-old ampelography in *Wine Grapes*) is the result of a spontaneous crossing of Cabernet Franc and Sauvignon Blanc in a Bordeaux vineyard some time before the first known references to the variety in the late 18th century. Subsequent DNA profiling has gone on to make other surprising and less well known discoveries. It turns out that Cabernet Franc is also a parent of Merlot, so the popular blending partners Cabernet Sauvignon and Merlot are actually half-siblings. The other Merlot parent was found serendipitously in 2009 and christened Magdeleine Noire des Charentes. It turns out to be a particularly obscure, early-ripening variety that vine researchers stumbled across in Brittany, not classic wine country at all, in the form of a single unnamed vine, presumed a descendant of a plant that was grown there in the late Middle Ages when vines were planted this far north. Another four old vines were then discovered in the Charentes, hence its name. Even more recent DNA analysis has shown that Magdeleine Noire des Charentes is also a parent of Malbec, Argentina's most characteristic grape, also known as Cot and Auxerrois in France. Malbec and Merlot are therefore half-siblings.

Is it surprising that those with access to the equipment necessary to test the DNA



of vine varieties - a centrifuge and a thermocycler that will rapidly heat up and cool the DNA to separate the strands for analysis - can hardly stop themselves trying to make more discoveries? Dr José Vouillamoz, a Swiss grape geneticist, is one of these and, with Julia Harding MW, one of my two co-authors of *Wine Grapes - A complete guide to 1,368 vine varieties including their origins and flavours* in which we reveal about 300 previously unpublished relationships. He reckons there are fewer than 100 people in the world researching this topic but that they are all driven by a desire to understand the relationships between the thousands of different varieties of grapevine in the world, to discover unsuspected synonyms, and to unravel the DNA profiles of 'unidentified old plants that might represent relics of forgotten varieties and that might provide the missing links in pedigrees', just as Magdeleine Noire des Charentes did.

One pedigree diagram that José has produced expressly for our book is so big that it has to be printed on a special three-page insert. On it is a family tree headed by Pinot and showing 156 wine grape varieties that are related by parent-offspring relationships, including all 16 Pinot x Gouais Blanc progenies identified by Meredith's and Boursiquot's teams back in 1999 and, perhaps more surprisingly for wine devotees, Syrah/Shiraz, whose origins have been the subject of so much feverish speculation over the ages.

The Pinot family tree also shows exactly how it is related to what you might call the Cabernet cluster of varieties (Cabernets Franc and Sauvignon, Merlot, Cot/Malbec etc); how, via another mate, its partner the obscure Gouais Blanc is a parent of Hungary's most famous grape variety;

how via another partner Pinot begat Savagnin Blanc of the Jura, which turns out to be the parent of such famous and supposedly unrelated varieties as Sauvignon Blanc, Chenin Blanc, Grüner Veltliner, Verdelho and Petit Manseng. It would increasingly seem that, instead of all the grape varieties we know today having entirely independent origins, there is a small core of 'founder varieties' that have given rise through spontaneous crossings in the vineyard to the host of distinctly different grapes we know and love today.



But José's full-colour Pinot family tree (much, much more extensive than the black and white one shown here for the recent German hybrid Cabernet Carbon) is littered with tantalising question marks representing as-yet-unidentified parents, and it may well be that the mystery of their identities will be solved only by finding and analysing old, almost abandoned vines in obscure places. The origins of the widely planted Zinfandel grape in California, for example, were hotly disputed for over a century. Some claimed they must be American, others that they were Hungarian or Austrian. Several books have been substantially devoted to uncovering exactly who imported the cuttings into the US and where from. In our book, thanks to the discovery of a single vine growing in the garden of an elderly lady south of Split in Croatia, we reveal that its original name is in fact Tribidrag, the etymological discovery I treasure most from our four-year trawl through the vineyards of the world.

Austin Goheen, a California plant pathologist visiting Puglia in the late 1960s noticed a strong similarity between the local Primitivo wines and vines and Zinfandel and had cuttings shipped back to the US. By the late 1970s, using isozyme analysis, the technique that predated DNA profiling, it had been established that the two varieties were identical - and, much to the dismay of the American authorities, Puglians started labelling their Primitivo for export Zinfandel in the hope that it would add to its sales potential.

Croatians next tried to board the Zinfandel bandwagon, encouraged by high-profile, Croatian-born Napa Valley winemaker Mike Grgich of Grgich Hills. Goheen had already heard rumours in Puglia that Primitivo was thought to be of Croatian origin and that it might in fact be identical to the dominant red wine variety across the Adriatic, Plavac Mali. In 1979 he had cuttings of Plavac Mali sent to him in California, where three years later he had established that there was no isozyme match between it and Zinfandel. But Grgich was keenly aware that establishing Zinfandel's Croatian origins would be a feather in Croatia's cap, so in the late 1990s he encouraged Carole Meredith and her team at Davis to undertake a 'Zinquest' which involved a team at the University of Zagreb's hunt for suitable vine samples to be sent to California for analysis. Finally, in late 2001, a match was found, with a handful of plants known locally as Crljenak Kaštelanski (literally, 'the red from Kaštela') growing in a vineyard north of Split. The next year, one more vine of this variety was found under the name of Pribidrag, south of the city in the old lady's garden in the village of Svinišće. Last year, a special technique developed for profiling ancient DNA proved that this variety was identical to a single 90-year-old herbarium

specimen of a local variety known in the region of Split as Tribidrag as early as the fifteenth century. I look forward to enterprising California producers giving their varietal Zinfandels historic value by labelling them Tribidrag - and the accompanying tussle with the TTB [Alcohol and Tobacco Tax and Trade Bureau].

Digging a little deeper into the story of grapes provides huge surprises. Many of the grape varieties we all take to be French are nothing of the sort, for example, and Spain plays a much more important part than many oenophiles realise. There will be many lovers of the wines of Châteauneuf-du-Pape who don't realise that two of the principal grape varieties responsible for it, Grenache Noir and Mourvèdre, are in fact Spanish. In Spain they are principally known respectively as Garnacha and Monastrell, and both have for long been sidelined in favour of Tempranillo, Rioja's most respected grape and regarded as somehow more 'noble' than Garnacha. Tempranillo is certainly distinguished, if only by its sheer number of common synonyms (in our book we list all principal synonyms and, perhaps even more revealingly, the most commonly used erroneous ones). For Tempranillo we list more than 30, most of them proved by DNA analysis. The technique has recently demonstrated, intriguingly, that a variety called variously Malvasia Nera, Malvasia Nera di Lecce and Malvasia Nera di Basilicata in southern and central Italy is none other than Spain's Tempranillo. However did it get there?

Perhaps even more controversially it would seem that the obviously genetically important variety Cabernet Franc, grown today mainly in the Loire, St-Émilion and Pomerol, may well have originated not in France at all but in Spain's Basque country. This was long suspected because Basque clones of the variety are more primitive and archaic than those grown in France, but recent DNA profiling has established close parent-offspring relationships (it is often impossible in these cases to say which is the parent and which the offspring) with another two ancient Basque varieties, heavily hinting that its roots lie in the País Vasco rather than in Bordeaux or the Loire.

The origins of Carignan, until recently the most planted vine variety in France, are also in fact in Spain, where it is known variously as Cariñena, Mazuelo and Samsó. Its DNA shows that it is identical to the variety Sardinians know as Bovale Grande. But Sardinia is also famous for its Carignano, which most growers know is identical to Carignan but few realise is genetically identical to the Bovale Grande they grow alongside it. That the same variety can develop local characteristics is evidenced by how reluctant many growers in north-west Italy are to accept that the vine varieties they know as Vermentino, Pigato and Favorita are in fact genetically identical. The same variety is known as Rolle in southern France, but it is not the same as the vine called Rollo in Liguria - vine variety nomenclature is extremely complex.

There are thousands of different vine varieties - some used for table grapes, some for dried grapes, others as rootstocks for grafting. To attempt to keep our book to a manageable size (and it is already more than 1,200 pages) we decided to limit our attention to those grape varieties we could find making wine in commercial quantities. According to our final estimate, they number 1,368, but so interested are the winemakers of the world in rescuing indigenous and nearly extinct grapes, as well as planting what the Australians call 'alternative varieties', that I suspect any second edition of *Wine Grapes* may well run to almost 1,500 varieties.

Wine Grapes - A complete guide to 1,368 vine varieties including their origins and flavours by Jancis Robinson, Julia Harding and José Vouillamoz, Allen Lane/Ecco
RRP£120/RRP\$175, 1,240 pages

See our special offer on the book (£75 including UK post and packaging) [here](#).

