



The birth of the Bubble!

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Generally speaking, two methods exist, and sometimes coexist, to generate bubble chains in Champagne glasses. Natural effervescence depends on a random condition: the presence of tiny cellulose fibers deposited from the air or left over after wiping the glass with a towel, which cling to the glass due to electrostatic forces. These fibers are made of closely packed microfibrils, themselves consisting of long polymer chains composed mainly of glucose. Each fiber, about 100 micrometers long, develops an internal gas pocket as the glass is filled. Capillary action tries to pull the fluid inside the micro-channel of the fiber, but if the fiber is completely submerged before it can be filled, it will hold onto its trapped air. Such gas trapping is aided when the fibers are long and thin, and when the liquid has a low surface tension and high viscosity. Champagne has a surface tension about 30 percent less than that of water,

and a viscosity about 50 percent higher.

These microfibr gas pockets act as nucleation sites for the formation of bubbles. To aggregate, CO2 has to push through liquid molecules held together by van der Waals forces, which it would not have enough energy to do on its own. The gas pockets lower the energy barrier to bubble formation (as long as they are above a critical size of 2 micrometers in radius, because below that size the gas pressure inside the bubble is too high to permit CO2 to diffuse inside). It should be noted that irregularities in the glass surface itself cannot act as nucleation sites—such imperfections are far too small, unless larger micro scratches are purposely made.

Photograph at right courtesy of Guillaume Polidori, Philippe Jeandet and Gérard Liger-Belair.

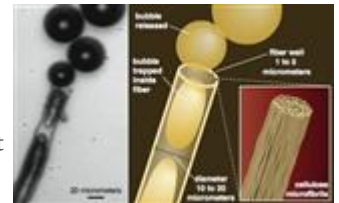


Illustration by Barbara Aulicino. Once a bubble grows to a size of 10 to 50 micrometers, it is buoyant enough to detach from the fiber, and another one forms like clockwork; an average of 30 bubbles per second are released from each fiber. The bubbles expand from further diffusion of CO2 into them as they rise, which increases their buoyancy and accelerates their speed of ascent. They usually max out at less than a millimeter in diameter over the course of their one- to five-second travel time up the length of a flute. Glassmakers use a laser to engrave artificial nucleation sites at the bottom of the glass; such modified glasses are commonly used by Champagne houses during tastings.

Special points of interest:

- A week that was..... Cape Argus Cycle Tour, White smoke rises at the Vatican!
- Spirit of the Robertson's Harvest team remains red-alert as sea of red's come in.
- The birth and the end of a Bubble!
- Full-house as our Sales Team visits Robertson.

Interns gets to do night shift and make wine!

Our harvest interns Jollette and Carel get the chance to manage our night shift when our Pellenc harvesting machine runs on the farm (see picture on right) Comparing hand picking by day and machine harvesting at night—has one major quality advantage over hand har-

vesting. Machine harvesting is nearly always done at night. As a result, the fruit will arrive at the winery 10-20OC cooler than hand harvested fruit, that was picked during the day. The rate of juice browning and oxidation in general are temperature dependent.

The higher the temperature, the faster it happens.



Look at Varietals: *SHIRAZ/SYRAH*



Syrah or Shiraz is a dark-skinned grape grown throughout the world and used primarily to produce powerful red wines. Whether sold as Syrah or Shiraz, these wines enjoy great popularity. Shiraz is a noble variety of French origin. Better known as Syrah elsewhere, the largest production of Shiraz is now found in Australia. Made in several different styles here, it yields deep purple smoky and spicy wines which develop a com-

plex character with age. Shiraz wines display firm tannins (although they are typically ripe and smooth, not abrasive like younger reds can be), a medium to full body, and the rich round flavors of black cherry, blackberry, plum, bell pepper, black pepper, clove, licorice, dark chocolate and smoked meat.

In 1957 winemaker Bernard Podlashuk, generally referred to as “The Father

of Shiraz in South Africa”, was the first to bottle Shiraz as a single cultivar under the Bellingham label. He was followed in 1963 by Groot Constantia and in 1965 by Klawer Co-op. By 1978 a mere 20 wines were recorded but the early 1990’s saw a boom in plantings and local popularity pretty much followed world trends. From 1992 vineyards expanded by leaps and bounds from approximately 900 hectares to about 10 000 hectares in 2009.

Mossie’s shares his rare beauties!



The Esterhuysenia Graham Beckii

a new rare species in the Aizoaceae (Mesembryanthema, Ruschioideae) from the Rooiberg.

In 2010 a rare succulent plant, the *Esterhuysenia grahambeckii*, was discovered on a cliff face of the Rooiberg, near Robertson in a section of the Graham Beck Private Nature Reserve.

It has since officially been classified as a brand new sub-species of the pointy-leaved *Esterhuysenia* family. This delight-

ful little plant, with its delicate rose pink petals, pays tribute to the memory of Mr. Beck, whose conservation legacy paved the way for this remarkable discovery.

This fascinating and utterly captivating mesembs or vygie is unique to the area. These unique succulent plants grow in the foothills of the Rooiberg mountain which is situated in our Game Reserve in Robertson and grow prolifically in this region.



Spotlight on: Chrisjan Mankoe

Chrisjan fondly known by all as “*Appelkoos*” or just “*Appel*” has been involved with the initial planting of the original vineyards on Madeba since 1983 working for Alec le Roux. He spent 10 years on Madeba and then they moved to Le Chasseur. He missed Madeba so much that he had returned just a year later and then joined our cellar team in 1994.

Chrisjan was married in 1987 to Lenie who works in the Garden team at Madeba. They have an adopted daughter of 6 years old. *Appelkoos* is a childhood nickname—when he was little his cheeks were always rosy and shined—hence the name! Chrisjan’s current position is general cellar worker and he has completed SKOP I

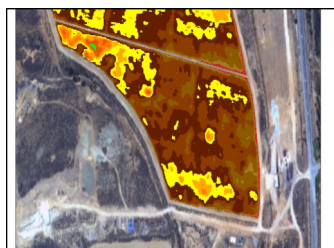
& II. The things that bothers Chrisjan: “*Not much in life but I detest ‘vloek en skel’*”

What makes Chrisjan happy: “*Loves being a team player in the cellar and contribute in working hard. I used to enjoy rugby and played for the local team Golden Spurs.*”

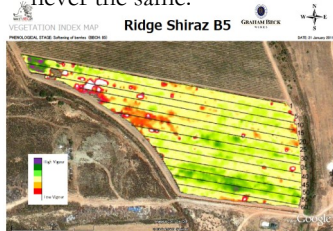
The Ridge — Finally growing Up?

It has been a fantastic 20 years for this vineyard. Planted in 1993 was the one of the very 1st registered single vineyards in South Africa. Today The Ridge Syrah has carved it own following and niche.

It is our most researched vineyard in the Graham Beck Wines stable. IR (infra red) pictures are taken on a quarterly basis and the information recorded is then used to do TLC stuff. All 'problem' areas can be GPS referenced to the exact 1meter and care can be given to stress and over figur vines.

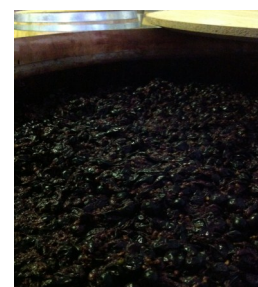


See yearly changes... it is never the same.



Through the years we weaned the style of The Ridge from 100% American Oak flavour to 85 +% French Oak. However we still would consider a little American Oak for "lipstick and eye shadow" from year to year. The use of new oak is also down and Pierre has introduced open barrel fermentation (see right) in 500 Liter barrels. Absolutely brilliant!

In its life we have declassified 3 vintages as it not speak the sense of place! In 2003 our vintage 2000 was voted the best Syrah in the world at the International Wine Challenge.



"Very busy period and visitors to Robertson!"

The last week has been extremely busy receiving many of our VIP visitors from abroad. We have had Guido from Sauter Wijnen from the Netherlands. See more detail and pictures of their new wine emporium at <http://www.sauterwijnen.nl/over-ons>

Then we had our visitors all the way from Japan. Mottox sales team had a wonderful time and I am sure they left as great and

determined ambassadors to take our bubbly to the next level in Japan. In true Japanese tradition we had enjoyed with them a beautiful bottle of Saki rice wine they brought as a thank you gift.

The in the week we also had Jamie Goode from the UK. He has become a friend of Erika and myself. Both of us has shared seminar platform with Jamie. Jamie runs a fascinating blog and always

find it extremely informative. Jamie is a London-based wine writer who is currently wine columnist with UK national newspaper The Sunday Express. He won the 2007 Glenfiddich Wine Writer of the year award. Jamie has also made numerous presentations and lectures, conducted many tastings and is an established wine judge at International Wine Challenge. He is one of the organizers for the International Sparkling Wine Symposium and the Sparkling Wine Review. Jamie came to wine writing by a rather convoluted route, via a PhD in plant biology.



Japanese Saki



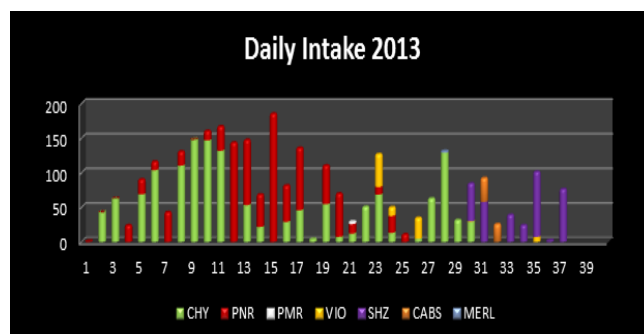
Jamie Goode

The harvest rollercoaster — so far!

Full on red, red, red and more red. As we have been able to help out Erika with some tank space to ferment some Shiraz and Cabernet from Darling we have had all red wine fermenters literally filled to the brim.... Tank Tetris on reds is more scary than that for base wines. TankTetrisVersion 2.013 is a

'daymare' or is it a nightmare! Any how this vintage is really tough and will separate the 'men-from-the-boys' but we are holding well and the end in not insight but we know it is out there sometime.

Enjoy the snap shot and our 'rollercoaster' path og harvest 2013.



Graham Beck Harvest 2013 News IX

Should you wish to contribute to this newsletter please forward or send me any interesting story or information you might think we can add to the next one. There is so many wonderful untold stories.....

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Nothing less

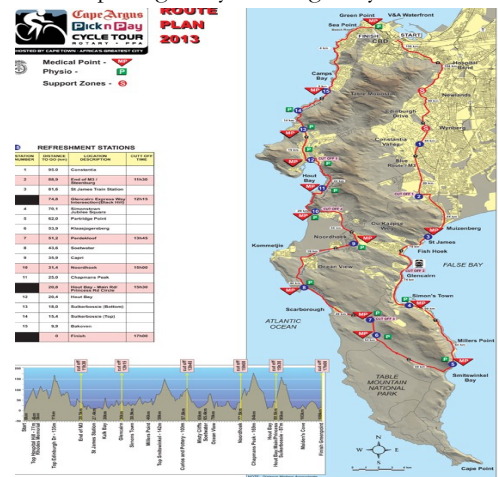


So Far: Harvest 2013
Total Grapes
2 907 Tons

2 907 000 kg of grapes
= 1 889 550 bottles of wine



Yes I did it!!! Completed my #5 Argus. Seen here on a stunning stretch past Misty Cliffs on a mountain bike. Time 4:51. Congratulations and well done to Chris du Toit also completing this year's Argus Cycle Tour!



The end of a Bubble!



A Champagne bubble's life comes to an end when it bursts at the liquid surface, but how it pops depends on how long the wine has been fizzing. Immediately after pouring, sparkling wines form a layer of foam at the top surface, and bubbles in this foam collapse in avalanche fashion—the bursting of one induces its neighbors to pop as well, producing clusters of disintegration events.

After a few seconds, the Champagne surface loses its foamy head and settles into a raft of close-packed bubbles, where each bubble has six neighbors in a single layer (top photo, left). Most of the bubble is actually below the liquid surface—only the top, or bubble cap, pokes through, much like an iceberg in the ocean. The fluid of the bubble cap begins to

drain away, and after about 10 to 100 microseconds, it reaches a critical thickness of less than 100 nanometers. At this point the membrane is so unstable that any disturbance in temperature or vibration will cause it to rupture.

Bubble bursts happen too fast to see, but high-speed photography shows that a bubble collapse leaves a temporary indentation in the fluid surface, forming a flower-like structure with the surrounding bubbles (top photo, right). The sides of the former bubble suddenly experience positive pressure, whereas the bottom of the cavity becomes a zone of negative pressure, so the sides rush down towards the bottom in order to equalize the imbalance in tension.

This sudden, dramatic increase in surface tension in the area of the former bubble has a remarkable effect on its neighbors. Paradoxically, even though the bubble has burst upwards, surrounding bubbles are not blown up but sucked down into the hollow left by the disintegrated bubble cap. The shear stress is so great that it deforms the adjacent bubbles into elongated shapes (bottom photo, left). The stretching significantly increases the surface area in the surrounding bubble caps, and they also absorb the energy released by the collapse of the central bubble, much as a tiny air bag would do. photographs courtesy of Guillaume Polidori, Philippe Jeandet and Gérard Liger-Belair.