On Gardens, Flowers, and (Possibly) Fruit in Cheese – Three Cheeses as Three Versions of Tending the Large Gardens that Carefully Managed Pastures Really Are

Ursula Heinzelmann

ABSTRACT: Ruminants – contrary to humans – are extremely good at surviving and thriving in and from pastures, the humblest, and the largest of gardens. Herding, that is domesticating these animals, allowed our neolithic ancestors to survive in otherwise unwelcoming areas, unsuited for food crops. Humans provided food and shelter, in return animals allowed them to partake of their milk. This symbiotic relationship has created some of the most biodiverse environments, very good at storing greenhouse gas. Three case studies, in Anatolia, Germany and the Netherlands, explore cheeses that just cling to their garden, have been created anew to do justice to it, or had to reclaim, almost reinvent the garden.

When we decided on the 2024 topic my cheese-self immediately started thinking about a paper on vegetal rennet, a historic and contemporary overview of the use of plants instead of the enzyme from ruminants' fourth stomach to coagulate and guide milk into cheese. Then I saw how much research has been done rather recently on vegetal rennet and got interested in why. Short, I fell into the 'vegetarians save the world' rabbit hole. And emerged with some thoughts much larger than thistles and lady's bedstraw.

The importance of how we humans shape the relationship with our ruminant fellow animals can't be overstated. An erstwhile fundamentally symbiotic connection has veered into a human-dominated, large-scale operation. Refusing these animals their innate way of life, that is grazing, we are degrading cows, for instance, to 'climate killers'. The contemporary trend towards so-called 'vegetarian' cheeses using vegetal extracts such as thistles, fig or lady's bedstraw instead of animal rennet tries to block out life's inherent connection with death, but does not change anything about the animals' situation.

Ruminants, a group of roughly 200 species including cattle, sheep, goats and others such as camels, are able to survive and thrive in and from pastures, the humblest, and the largest of gardens – something we humans are incapable of. An intricate digestive system comprising four stomachs enables them to break down complex carbohydrates. Herding, that is domesticating these animals, allowed our neolithic ancestors to survive in otherwise unwelcoming areas, which were unsuited for food crops, but could be used as pastures (think of wet marshes or mountains).[1] Humans provided food and shelter, in return animals allowed them to partake of their milk. This symbiotic relationship has shaped landscapes and created some of the most biodiverse environments, very good at storing greenhouse gas.[2]

The interaction between ruminants and humans and the resulting milk and cheese can happen at all kinds of levels. At one extreme, without human intervention, milk serves its only natural purpose, nourishing newborns, and there is no cheese. At the other extreme, with humans over-dominating, we are faced with monotony and boredom (at the best, think of processed cheese) or extinction at the worst (think of threatened breeds and the recent 'camembert alert'[3]). Balance is required, which means different things in different situations. Let's look at three cheeses, to better understand what is at stake, and to hopefully inspire you to think wider and deeper and harder, next time you are standing at the cheese counter, remembering that ruminants' existential need is to be in the garden.

We start in eastern Anatolia, 1000 kilometres east of Istanbul, with *Erzincan Tulum Peynir*, a sheep's cheese. *Erzincan Tulum Peynir* – that is the landscape of the majestic mountain plateaus high above the valley of the Karasu, the black river that is called the Euphrates further south. But it is also the families who come up from the villages in summer with sheep and tents, translating that landscape into cheese. Sheep and people live in a symbiosis without which, until very recently, it would have been impossible to exist here. It is hard work under tough conditions, but also what the head of one of those families calls 'our factory without smoke'.

In May, the families with their flocks (typically between 200 and 300 animals) move up to the plateaus at over 2,500 meters, where the pastures are green and lush and the people live in tents until September. The men milk the sheep in the morning and evening (by hand), the women then immediately slurry the milk with home-made rennet and scoop it into cloth bags to drain. Early next morning, these bags are taken to a central tent that acts as the first dairy. There, the men fill large bags with the fresh curds, sew them up and stack them. Whey continues to ooze out for a week while lactic acid bacteria break down the lactose. In a second step the now firm, sour curd is emptied into a large tub, broken up with the feet and mixed with local salt. Then it is filled again into large bags to be collected by the cheese merchants driving up from the town.

In some streets in Erzincan, there is one cheese shop next to another and they all have their contacts to certain plateaus and families. Cheese, here, is a whole culture of life, not only a commodity. In the small urban manufactories, the matured, salted curd is broken up once again and pressed either into large plastic cans (these are the *bidon tulum peynir*) or, traditionally, into cleaned animal skins sewn into sacks, sometimes from sheep, but preferably from goats, whose skin is more robust. The larger these *deri* (literally leather, skin) *tulum peynir* are, the more rustic they appear, due to the unshorn exterior. The interesting thing is that after the four-month maturing period, at just above zero degrees imitating the winter mountain air they once experienced, the *deri* version is significantly more complex in flavour than the one from the *bidon* (which can be fantastic) – but the very special quality of the milk is always apparent: extremely concentrated and with a deep umami flavour that in wine we would describe as mineral.

From Anatolia we go to the very south of Germany, and a completely different story.

Dorfgemeinschaft Heggelbach, on the western end of Lake Constance, is a farming community of six families, founded in 1987. Back then, it was a run-down estate whose new owners soon realized that selling their biodynamic-certified milk to conventional dairies was a financial fiasco and so decided to set up their own cheese dairy. Soon the first *Heggelbacher Alpkäse* was produced, and the cheese dairy developed into the most profitable part of the farm.

Since 2016 Stephan Ryffel has been responsible for Heggelbach's cheesemaking, and it's indicative of the farm's success that in 2020 he moved, vats, cave and all, into a new, generously sized building. Stephan has a degree in agriculture, spent eight summers working on the Alps, wrote his thesis on sliced cheese production and worked for some time at the Swiss agricultural research centre Agroscope. He combines a great deal of practical experience with a clear vision.

And part of that vision are the 50 Heggelbach cows, Braunvieh or Swiss brown with proud curved horns. Since more than 15 years they have been living on grass, clover and hay. Exclusively. No silage, no concentrated feed, no cereals of any kind. 'Ruminants,' Stephan says, 'are specialists in the digestion of grass. This is what we want to promote and not the digestion of grain, which humans can eat directly.' This attitude is very rare in commercial dairy farming today, and generally thought of as economically unviable. But 5200 litres of milk per animal per year is still a good amount – and what a milk that is! – and viable if transformed into good cheese.

The most original Heggelbach cheese of all is *Felsbrocken*, rock. Made from raw milk, it is compact and extra hard like Parmigiano, without the washed rind typical of alpine cheeses. Immediately after being brined the young wheels spend ten days at 25°C, to 'fat-sweat'. They mature very slowly; *Felsbrocken* is sold with 15 months at the earliest and Stephan doesn't cut the wheels, but rather breaks them open, horizontally, and in fact, just like Parmigiano, due to its compact and yet crumbly, loose texture the rock tastes best when broken…

So, a rock, yes, but the opposite of hard on the palate! It smells of melting butter with a hint of caramel, the milk's lushness making way for a very fine, elegant acidity and minerality, reminding me of herbs and baked celeriac. At once sweet and savoury, its ageing potential is far from exhausted at 15 months – those cows and their pastures have much more potential.

So far we have seen a cheese that just clings to its garden, and one that has been created anew to do justice to it, and thus make it economically viable. To finish, I'd like to introduce you to a cheese whose maker had to reclaim, almost reinvent the garden: let's go to the Netherlands.

The van de Voort family's farm near Lunteren, 50 kilometres east of Utrecht, is situated in an idyllic location, surrounded by heath, pines, birches and oaks yet, typical of this densely populated country dedicated to efficiency, close to

the motorway. Ninety Jersey cows live here – which is unusual in itself: traditionally, Holland's main milk producers are black and white Friesians, bred in the USA to become the super-efficient Holstein-Friesians, and re-imported as such. Just as unusual: visits to the farm always begin with Jan Dirk van de Voort, in his mid-60s, calm, friendly, almost a little mischievous, reaching for a spade and leading you to the pasture behind the red-brick buildings. There, he digs out a small square of soil, explaining the many different worms and how important it is to increase the humus content with straw manure and to stop mowing and ploughing the pastures.

Jan Dirk and his family have achieved something extraordinary: in the middle of the Gouda world, they have developed a completely new cheese, Remeker, and thus not only broke free from conventional trade and price structures, but also found their way back to consider animals as partners. To understand what this means, it is important to consider the Dutch cheese psyche and history as such.

Cheese, trade and building polders are Dutch specialties – almost a quarter of the country's current surface area lies below sea level. In the 17th century, it was hoped that the reclamation would lead to wheat fields – only to realize that all it was suitable for was pastures. With the industrial revolution the dairy industry began to expand rapidly. Within 50 years from the first milk factories in the 1870s, the milk production doubled. By 2000, it had tripled. Today, there are virtually no more traditional mixed farms in Holland, and dairy farms are becoming ever larger and more efficient. They use over half of the small country's agricultural land and with the help of 1.5 million cows produce over eleven billion kilograms of milk a year. Over a quarter of this is exported in the form of cheese.

The aim has always been to extend milk's shelf life and reduce its volume in order to increase the trade potential, and from a technological point of view, the mild, inexpensive supermarket Gouda is a masterpiece of the Dutch food industry. The round wheels are supposed to mature 'dry' and clean. In pre-coating times, this meant a lot of work to keep the wheels free of mould in the humid maritime air, something that is now considered virtually impossible. Which is why coating them with polymers, invented after the Second World War, today is seen as a traditional characteristic of Dutch Gouda.

It requires a great deal of inner independence to think outside of this context and at the same time to live within it. 'When I took over the farm in 1981,' Jan Dirk told me, 'I worked completely conventionally, I was always the first to apply artificial fertilizer in the spring. We switched to organic in 1993, but it wasn't until 2004 that we stopped dehorning and using antibiotics. That was very difficult at first, until I realized that the big balance was missing. We, the cows and the theory, it all has to fit together.' With a large gesture of both hands, he indicated two different levels like an unbalanced scale: 'I had to come down and let the cows up, now we are on the same level and I understand much better what they offer me. The animals needed more space, so we built a new barn. We also thought

about what kind of feed a cow is really built for, grass and hay, not silage or concentrates. Everyone always wanted more cows, but nobody wanted to smell cow dung – how is that supposed to work? Can you be a farmer like that? The cow manure must have the consistency of a fine ointment, then everything is just right!'

This is also a fundamental part of a visit in Lunteren: Jan Dirk reaching into fresh cow dung, rubbing the brown mass between his fingers, then a gesture towards the visitor, almost an invitation to taste. Colleagues and students now regularly come to Lunteren and want to learn from them, but, he said, this cannot simply be transferred, everyone has to develop a feeling for their own situation, their own soil, their own manure, their own feeding: 'I always tell everyone: this is what I think, not: this is how you have to do it.'

His father had already switched the herd from the usual black-and-white cows to the beautiful Jerseys who produce less, but much richer milk. Jan Dirk's grandmother still made cheese, but then the milk was collected by the dairy. When Jan Dirk started making cheese again in the mid-1980s, he had to start from scratch. 'Everyone said that you couldn't make good cheese from Jersey milk, that it contained far too much fat. However, they forget that it also contains more protein, which is ultimately crucial when making cheese!'

There were many small steps. Raw milk was a matter of course, but then came the switch to a different salt, and gradually a new shape, away from the rounded wheels and towards cheeses pressed in hoops in the alpine style, with the Remeker logo embossed on them. And then, the question of coating. 'I always wanted to get rid of the coating, and my wife had been living in India, so we came up with the idea of rubbing the wheels with ghee instead of coating them.' Ghee is completely dehydrated butterfat; an easy undertaking with Jersey milk. 'When we started with ghee, we were told again that it wouldn't work. The butterfat would go rancid too quickly. But since our cows have horns again, it's not a problem at all.'

The van de Voorts live biodynamic agriculture like few others. However, Jan Dirk only read Rudolf Steiner's writings a few years ago, he told me to my surprise, and really liked the suggestions and impulses: 'We do things in a certain way because we observe and go our own way. Everything is connected to everything else, and the cows show you the way. It's all so complex, and the deeper you delve, the more possibilities open up!'

On my first visit in 2010, the ghee-rubbed wheels were still the exception; seven years later, the colourful coating survived only as a picture on the kitchen wall. The flavour development has been just as fundamental and almost unbelievable. I had liked Remeker from the start on, but it now represents a different world. There are four levels of maturity, culminating in the 18 months old *Pracht*, splendour, truly splendid with crystals yet crumbly like the finest shortbread, with and a great umami spiciness, so that the sweetness that is often so intrusive with fast-matured gouda is completely integrated.

There we are: three cheeses, three versions of tending the large gardens that carefully managed pastures really are. For saving the one huge garden that is our

world – which more honestly should read, ourselves. And no, I don't have a perfect plan for that. All I do know is that if you love cheese, you should definitely ask and know about how the animals lived and what they ate, to try and understand the world and shape it, at least a tiny, crumbly, savoury bit.

Notes

[1] Salque, M., Bogucki, P., Pyzel, J. *et al.* Earliest evidence for cheese making in the sixth millennium BC in northern Europe. *Nature* **493**, 522–525 (2013). https://doi.org/10.1038/nature11698 acc. March 4, 2024

[2] My (fleeting) evaluation of the environmental/climate situation is based on a University of Oxford study from 2017 and the subsequent reply by the Sustainable Food Trust: Garnett, T., Godde, C., Muller, A., Röös, E., Smith, P., de Boer, I.J.M., zu Ermgassen, E., Herrero, M., van Middelaar, C., Schader, C. and van Zanten, H. (2017). *Grazed and Confused? Ruminating on cattle, grazing systems, methane, nitrous oxide, the soil carbon sequestration question – and what it all means for greenhouse gas emissions*. FCRN, University of Oxford; as well as the reply by the Sustainable Food Trust: https://sustainablefoodtrust.org/news-views/grazed-and-confused/ acc. March 01, 2024

[3] https://news.cnrs.fr/articles/french-cheese-under-threat acc. March 4, 2024