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The Inventor, the Dictator and the Businessman

*A bathroom in the Palace of Fontainebleau,
autumn 1810*

A short, slightly stocky man with straight dark hair entered the room and headed for the unusual-looking metal container situated in the middle. He was followed, very quietly, by his permanent footman, who reacted just in time to catch the woollen coat his master allowed to fall from his shoulders.

Raising one leg, Napoleon Bonaparte stepped over the high edge of the bath. His other leg followed, and the general slid into the steaming water, a look of bliss lighting up his face. He had every right to be pleased, as no one else in the world could boast the luxury of such a fine bath. Not even the Russian tsar.

Napoleon spent an entire hour in the water, but this was no waste of his time. During this period, he was having a continuous discussion with his secretary, Baron Fain. They went through documents, the French emperor dictated a few letters, and they checked to see whether the newspapers had anything of interest to tell them.

The wonderful thing about this bath was that the water did not cool down. At the back of it was a small metal cylinder containing a few pieces of burning coal. This cylinder was

linked to the bath by means of two small pipes, and via an ingenious system, the kettle sucked up the water, heated it and returned it to the bath at the perfect temperature.

Napoleon, renowned for always feeling cold, could not imagine a better way to start his day. Even when he was on the march, the bath had to accompany him, no matter how far he had to travel. Fortunately, it was relatively light and easily disassembled. How had he survived without it?

If anyone ever gave an ideal gift to someone who already had everything, then it had to be Jean-Jacques Daniel Dony. The resident of Liège was an inventor and the bath he gave to Napoleon was assembled by him personally. Dony was far ahead of his time, and the thermal siphon that automatically heated and pumped the water around was particularly ingenious. It would be a full thirty years before a British inventor patented a similar system. But he was not simply a handyman who happened to be a fan of Napoleon. Dony was a master of many crafts; he was also a metallurgist and a chemist. And a lay priest, but only in his spare time.

But more importantly, he had his own company. The bath was not just any old present, it was a business gift. He and the French emperor had known each other for quite a while; the business relationship between the inventor and the dictator dated back to 1805. In that year, Dony requested a concession from Napoleon to allow him to mine metals on a plot of land measuring 8,000 hectares, located in what was then the Ourthe department in the immense French Empire. More specifically, a thinly populated region situated between Liège and Aachen.

Napoleon asked his Ministry of Mines to advise him on the request. What was it about this region that Dony found so interesting? The engineers produced a thoroughly researched report on the mineral resources to be found there. To the north

of the village of Kelmis, in the municipality of Moresnet, in the middle of the area for which Dony had requested permission, and not far from the surface, ran a rich vein of smithsonite, a mineral from which zinc could be extracted. There was a small quarry, where a handful of workers excavated this yellow-brown substance. People had been digging there for centuries, and the report stated that the quarry had been mined since the fifteenth century.

This would explain Dony's interest. But why? This mineral was so complex to process that commercial companies had shown little interest. Which was why a French state-owned company had taken over and was responsible for running the quarry. The hill behind it was called *Altenberg* in German – Old Mountain in English – which was why the French called their zinc enterprise *Vieille Montagne*.

The fact that entrepreneurs had ignored the quarry up to then was due to technological limitations. Zinc was extremely difficult to produce, even more so in large quantities. The best method for dealing with smithsonite was to put it in so-called calcine ovens. The heat generated in these round ovens, often fuelled with charcoal, caused the zinc ore to disintegrate. Extracting the remains from the oven and grinding them down produced a white powder rich in zinc oxide.

Mixing this powder with liquid copper created a hard alloy – brass. This principle was already known in ancient Greece. But brass was too expensive to be used in large quantities, which was why it was sparingly produced. You could also mix small quantities of the white powder in a salve or lotion. This was believed to be beneficial for the skin, curing itching and chilblains. The market for this ointment was not massive either, of course.

Smithsonite was truly a niche product. On top of which, much zinc was lost in the calcine ovens. The amount of heat needed to get the ore to disintegrate caused some of the zinc

to vaporise and escape as a gas through the chimney. Additionally, a relatively large amount of energy was required to extract a small quantity of powder from a huge pile of stone. This all resulted in small profits.

Why then was Dony so keen to pay the not-exactly-trifling sum of 40,500 francs a year for the privilege of excavating the zinc-filled earth in and around Kelmis? You could quite easily buy a nice house in Paris for that amount. Every year.

But the lay priest from Liège was no fool. He had produced an invention for extracting zinc, called the reduction oven. The ingenious design of this closed heater meant that there was virtually no oxygen present. The stone containing the smithsonite was heated in the lower part of the oven in between layers of glowing coal. It became so hot that all the zinc in the stone vaporised and rose to the top of the oven without being oxidised.

But the gas did not escape through the chimney. The system Dony used bears a slight resemblance to the distillation process of liquor. The zinc vapour was transported upwards through a pipe, away from the heat source, so it cooled down. The gas then became a liquid and condensed on several sloping panels. Then it dripped into a rectangular container, where it congealed. The result was an oblong-shaped slab of very pure zinc.

It is safe to say that his invention, at a time when metallurgy as a science was in its infancy, was a revolution. It made it possible for zinc to be produced in great quantities for the first time. It made for an extremely handy material – it was relatively light, strong and could fairly easily be rolled into panels. With some help from a mill, a mould and a little heat, you could fashion these panels into any shape you wished.

And perhaps the biggest advantage of all – zinc does not rust. Which means you could use it in any place where there was water; it was suitable as a roofing material or for lining

reservoirs and piping. Coating iron in fluid zinc made the iron resistant to rust – a process that was invented by the Italian Luigi Galvani in 1772, giving rise to the term *galvanise*.

Of course, producing a zinc bathtub was also a possibility. To demonstrate how fantastic the zinc mined from the quarry in Kelmis was, Dony manufactured the wonderful portable bathtub that Napoleon so quickly became addicted to.

Resting on little ‘legs’, this object had a remarkably short length and was tall – just like all bathtubs of the day; Napoleon sat upright in the tub. The exterior was painted to look like marble so that only the inside revealed that it was made from metal. The side was adorned with a laurel wreath with a capital N at the centre. In 1809, Dony presented the bath* as a gift to Napoleon, as a token of his gratitude for the concession he had had for the previous four years. A year later, he sent Napoleon a zinc bust. Depicting Napoleon, of course.

The French emperor was so impressed by the bathtub, that he realised that the inventor from Liège could exploit the quarry much better than his own state company. In 1810, in addition to granting him the concession to mine the smithsonite, his government gave Dony a patent to produce zinc using his new method. Dony did not allow the grass to grow under his feet. In addition to the quarry in Kelmis, he set up a factory in Liège in record time to further process the metal.

The concession, the patent *and* his new type of oven, gave Dony everything he needed to earn a fortune. He found himself in a situation all entrepreneurs dream of: he had a monopoly. He had the only quarry where substantial amounts of smithsonite of the right chemical composition were found. Only in the Prussian town of Kattowitz (today known as

* Some sources report that this occurred in 1811, but in view of Dony’s financial state, this does not seem very likely.

Katowice, in Poland) and on Sardinia did similar veins exist, but those quarries were much smaller and – much more importantly – they did not have access to Dony’s revolutionary oven.

But there were two problems. The first was that although Dony was a fantastic inventor, he was an abysmal businessman, the archetype of the brilliant nerd devoid of any social skills. The only surviving portrait of him shows a sympathetic man with big eyes. Not a hard seller, but rather someone who was too good for this world.

This proved to be his undoing. Thanks to his invention, his small factory eventually started to produce vast amounts of zinc, but there were no buyers to be found. Which was quite a feat considering his fantastic product and his monopoly. But such issues could be resolved by hiring the right commercial people.

A thornier issue the man from Liège came up against was a chronic lack of finances. He needed to invest enormous amounts of capital to get his factory running at a profit. As an inventor, he was used to pumping relatively small amounts of money into his projects, but the situation he was faced with after starting his company was entirely different. The lack of ready cash gradually caused more and more problems for Dony.

He was left with no choice. His entire organisation had to grow drastically if he wanted to achieve the right economies of scale. To make the Kelmis quarry profitable, the acquisition of extra reduction ovens was paramount. To supply the smithsonite to the ovens efficiently and without any hiccups, a transport system from within the quarry also had to be set up. A reservoir was required to supply water to wash the stones before heating them; mud polluted the end product and required too much energy to burn off.

Dony decided to pump all his own money, as well as the capital provided by a few small investors, into the quarry. In

1810 he had a basin dug to the south of Kelmis to supply the water for washing the stones. These high expenses, combined with poor sales, caused his debts to soar. An unacceptable situation.

However, help seemed to be at hand. Dony encountered Hector Chaulet, an extremely wealthy bookkeeper. In exchange for a place on the management team Chaulet was willing to put 300,000 francs into the business as a loan. With the benefit of his business management background, his aim was to push the firm *Dony et Compagnie* into the black. It looked to be a win-win situation for both gentlemen.

Unfortunately, under Chaulet’s guidance, the profit and loss account failed to improve immediately. But this was hardly his fault. It had more to do with dramatic events taking place in Europe and the stocky man with whom the whole zinc adventure started.

In the previous twenty years, Napoleon had conquered half of Europe. His tactical insight and military strategy were the envy of many. But in the winter of 1812 and 1813, he overplayed his hand by attempting to bring Russia to its knees.

He returned defeated, but *with* his bath – a detail that was fortunately recorded by his secretary – from his disastrous campaign in the east. His army was decimated after a cruel winter full of hardships. At Leipzig, the Frenchman waged a decisive battle against the Russians, who were assisted by the Prussians and the Austrians. They defeated the French in what was the worst bloodbath prior to the First World War. The winners banished Napoleon to the Italian island of Elba.

Several hundred miles to the west, the effects of the defeat were felt by Dony and Chaulet. The market for zinc collapsed the moment Napoleon lost his grip on Europe. The turmoil on the continent was bad for trade in raw materials; no one was spending until it became clear who would emerge victorious.

Both men were left sitting on a gigantic stockpile of zinc. More than 80 per cent of what they produced was put into storage. For the struggling Dony et Compagnie it was a total disaster and bankruptcy became inevitable, despite Chaulet's 300,000 francs.

This was when Mosselman appeared on the scene. A man describing himself on official documents as a 'shopkeeper.'

Referring to François-Dominique Mosselman as a shopkeeper is like saying that Bill Gates was a computer salesman. You are in the right general area but completely off in terms of scale. In early nineteenth century Europe, only kings and emperors (and perhaps the Rothschilds) were wealthier than this Flemish gentleman.

His wealth had been acquired partly through inheritances. Mosselman's forefathers were some of the richest and most respected residents of Brussels. And to top it all, François-Dominique was married to a woman from the ultra-rich Tacqué family. She was an only child, and heir to her family's entire capital. The Mosselmans lived in a fantastic house in Brussels that had no less than 67 windows (a fact that came to light thanks to a window tax return). Additionally, the couple owned a whole list of estates, town palaces and pieds-à-terre in the area between Antwerp, Liège and Paris.

The wealth of the Mosselman family had been founded on meat and textiles. But François-Dominique was no rich man's son, content to spend daddy's money. After he took over the business from his father together with his brother Corneille, the family capital increased immensely. Together, they climbed to the top of the financial and social ladder.

The Mosselman brothers had an unerring feel for business. As well as fabrics and steaks, they entered the grain market. To them, war was not a threat but an opportunity to make big money. From 1810 onwards, they earned a fortune by provid-

ing the British and Prussian armies with clothing, sandwiches and meat, so that they could fight Napoleon on a well-filled stomach. Striking to say the least, since the brothers had previously supplied the same goods to the French troops.

But the most lucrative deal was François-Dominique Mosselman's alone. In 1808 he bought the near-insolvent bank owned by Jacques Récamier. This Frenchman had made a crucial error by getting himself overly involved in politics. Together with his wife, he organised intellectual salons, where speakers had openly expressed their doubts about Napoleon's policies. In revenge, the French emperor orchestrated the downfall of the couple. With perfect timing, Mosselman acquired the bank for the bargain price of 410,000 francs, the equivalent in today's money of some 1.3 million pounds. From that moment on, it became the *Banque Mosselman*.

This opportunistic way of doing business was part of his DNA. François-Dominique Mosselman was a thoroughgoing entrepreneur, making deals was the only thing he knew. If he thought it would work in his favour, he used his family ties, friendships – and even sex – to close a deal. He married off his daughter Fanny to the industrialist and diplomat Charles le Hon from Brussels, but she also regularly shared her bed with the French minister and investor Charles de Morny.

What did her father do? He appointed the two Charles as managers of companies he invested in. This enabled him to make excellent use of their contacts in government and industry, since both men were not in any position to refuse Fanny's wishes. On some occasions, the two men even sat on a committee together. Interesting meetings indeed.

So, it was almost inevitable that at some point Mosselman would spot the opportunity that was Dony et Compagnie. Records fail to show when this happened. But somewhere between 1810 and 1813, the man from Brussels with a fine nose

for a promising investment realised that the chance of a lifetime was lying in wait in the hamlet called Kelmis. While poor Dony was getting himself deeper into trouble, sly Mosselman bided his time, ready to strike when the time was ripe.

And that moment finally arrived on 25 April 1813, when it became clear that Napoleon had returned from Russia with major problems and the market for zinc was at a standstill. On that day, Dony and Mosselman were in Liège at the notary Dujardin's office. For 550,000 francs (the price of a complete block of houses in Paris), Mosselman purchased 75 per cent of the shares in Dony et Compagnie, which in turn was in possession of the concession and the patent. This gave him a controlling interest in a company that had the potential to become huge, for a relatively small sum.

Chaulet stayed on as financial expert, but from that moment on Dony was little more than a spectator in his own company. He resigned from the management team and left Liège a disillusioned man. He moved to the French Atlantic coast for a while, where his health took a turn for the worse. The money he received for the sale of his shares went straight to various debtors; it was not enough to pay off all his bills. The smithsonite had ruined him.

As soon as the purchase was finalised, Mosselman wanted to invest in the quarry in a big way. But he first had to pay off all the debts he inherited from Dony. Mosselman even had the French state on his back because Dony was in arrears with payments for the lease. The French government, under new leadership following the fall of Napoleon, threatened to take him to court if they did not get their money. But it was not long before they had other issues to address.

Eleven months after Mosselman seized power in the Kelmis quarry, Napoleon did the same, but with France. He escaped from Elba and set off for Paris. With astonishing ease, he be-

gan recruiting and organising an army in the French capital. With enough men he could recapture the territory he lost all those years before.

This news changed everything. Everyone expected Napoleon to march northwards, towards Brussels. The thinking was that if he succeeded in conquering Belgium and the Netherlands, he would be able to drive a wedge between his closest rivals, the British and the Prussians. In that case, Napoleon would gain a strategic advantage in a short space of time and the French general would meet little resistance to his further plans in Europe.

What happened next has become known in the history books as the Hundred Days. Napoleon succeeded in finding a few trusted generals to support him and various troops willing to fight for him. It was not long before the Frenchman was almost back to his former strength. And indeed, he led his armies to the north, on the way to the Low Countries.

Just before Brussels, at the small town of Waterloo, he was confronted by his opponents' armies, the majority of whom were British. They seemed to be the weaker party, but their leader, Wellington, outsmarted Napoleon by pretending he had fewer men than was the case. Napoleon succumbed to temptation, unwisely launching a frontal attack on the British troops. Fortunately for Wellington, the Prussian troops arrived just in time to join forces with the British army. Together they even succeeded in defeating the mighty Imperial Guard.

Napoleon fled and surrendered a little later. When he was exiled to the island of St. Helena in the Atlantic Ocean, several months later, he was forced to leave his bathtub in Fontainebleau. On his arrival on the island, he had an exact replica produced by a local blacksmith, but to his disappointment without the heater. The original bathtub became the property of his secretary Fain and, after some peregrinations,