

HISTORY OF CANMAKING

The French connection

This year marks the 200th anniversary of the first patent being granted for a technique for preserving foods in metal cans. But who really developed the process? John Nutting investigates in the first part of a history of canmaking

It is known, and certainly widely in the canmaking industry, that an Englishman Peter Durand registered a patent in 1810 for preserving meat and vegetables in such a way that anyone who wanted to use metal for canned products would have to buy it from him to exploit the process.

Durand's patent marks the first event that led to the creation of the global canmaking and canning industries, both of which were vital to the mass production of preserved foods, which is why this year is celebrated as the 200th anniversary of the food can.

Less widely known is that Durand was in fact an agent acting for one of a number of entrepreneurs who at the beginning of the 19th century had been working to find a solution to a need for keeping a range of foods safe for human consumption after lengthy periods during transportation.

It is generally thought that France's future Emperor Napoleon Bonaparte voiced a need for feeding his armies in winter, which would give him a strategic advantage and is said in 1795 to have offered a 12,000 Franc prize to anyone who could solve the problem.

This account of the prize is fiction, says Norman Cowell, former senior lecturer in the department of Food Science and Technology at Reading University, who has carried out extensive research into the origins of tinsplate food packaging. There was certainly a need by the French military which was trialling preserved vegetables. The key to the cross-channel link was that because the French had been in conflict with England since 1803 as part of the Napoleonic wars, securing

the necessary patent in London required the collaboration of a British national.

French confectioner Nicholas Appert had been developing the sterilisation of vegetables in corked Champagne bottles since 1804 at his factory in Massy, south of Paris. Around 1809, he was given the grant after presenting his products to the French scientific establishment. Subsequently, the French Navy successfully tried out a variety of preserved foods using his techniques.

The story of how Peter Durand came to file his patent in August 1810, three months after reviews of Appert's first edition of *L'Art de Conserver, pendant plusieurs Années, toutes les Substances Animales et Végétales* were appearing in Paris, suggests that he was less the inventor of the food can and more an agent for another Frenchman, Philippe de Girard, who had been working on the use of tinsplate cans for preserving food in the year leading up to early 1811 when he demonstrated them in London.

The history of tinsplate being used for a variety of applications was by then already several hundred years old. The manufacture of tinsplate, or the whitening of iron, started in the 14th century in Bavaria and Saxony. It prevented iron's corrosion and enabled the soldered fabrication of intricate articles such as pots, lanterns, decorative boxes, plates and drinking vessels that were more robust than pewter, which is soft because it is mostly tin. By the end of the 18th century the tinsplate industry had expanded so much that South

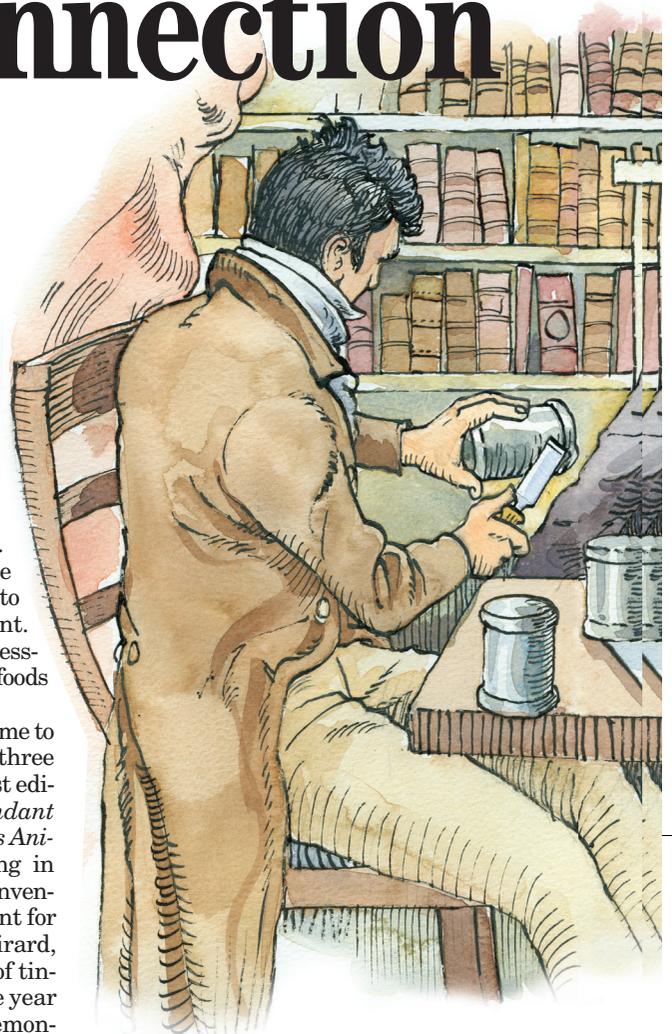
Wales alone was home to several dozen manufacturers.

It shouldn't come as a surprise that food was original-

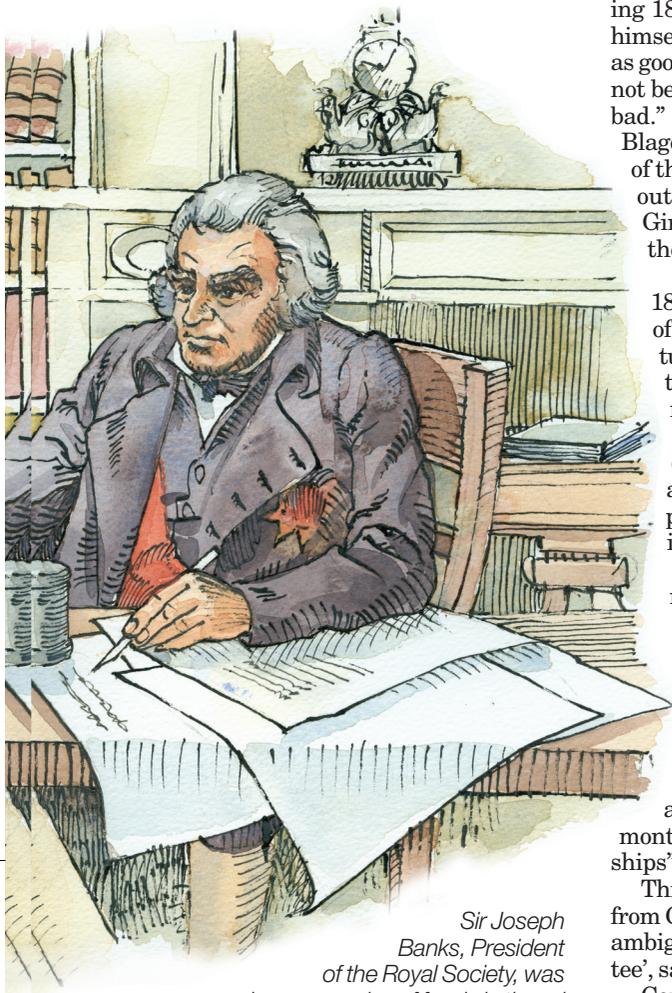
ly packed in tinsplate containers without sterilisation, and often with nasty results. Indeed, there are references to the Dutch navy using foods packed in fat within tinned iron canisters well before the end of the 18th century. Gordon Robertson, in his recent book *Food Packaging, Principles and Practice*, says that records show that between 1772 and 1777 the Dutch government supplied its navy with roast beef in this way. It is also recorded that 'Hollanders' packed cooked salmon with salted butter or olive oil in tinned iron boxes more than ten years before the Durand patent.

Peter Durand was born in London in 1766 and was baptised as Pierre. His parents Jean and Marie were Huguenots from Protestant stock who had emigrated from France. Cowell's research revealed that Durand was married twice and worked as a broker from offices at Craven Street, Hoxton, in north London for four years until 1807.

The 1810 patent for 'Preserving animal



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Sir Joseph Banks, President of the Royal Society, was shown samples of foods in tinned canisters in London by Frenchman Philippe de Girard in January 1811. Left: Could Peter Durand, who filed the 1810 patent on behalf of Girard, have looked like this?

Illustrations: Paul Simmons

and vegetable food', which allowed for a variety of packaging options including iron and tinsplate, wasn't the only one Durand registered, the second patent in 1811 being for an oil lamp, said to also have been invented by Girard seven years earlier. Durand, being a British citizen, would have been in a more secure position to take out a valid patent under the laws of the time than Girard, who would have been regarded as a visiting enemy alien.

Durand's whereabouts in the three years between 1807 and 1810 are unrecorded, says Cowell, but with his French connections he was very likely in contact with Girard.

In January 1811 Girard was in London and met the President of the Royal Society Sir Joseph Banks in whose presence a number of 'pots' were opened and examined. These must have been produced dur-

ing 1810. On Girard's letter introducing himself, Banks wrote: "The victuals were as good as before in all but two which had not been soldered tight. These were very bad." Royal Society Fellow Sir Charles Blagden was also present at the opening of the 'pots' and his diary agrees on the outcome with Banks, adding that Girard's patent was to be taken out in the name of Durand.

Nine months later in September 1811, Durand writes in the 'Repertory of Arts, Manufactures and Agriculture', a London-based journal relating to patent matters, that he "received from a friend abroad, more than a year ago, a communication of a discovery... I perceived that there was a great deal to be done to render it perfect... I substituted tin cases instead of glass jars or bottles."

He added that his 'cases' of meat, soup and milk had been opened and examined in the presence of "a number of scientific gentlemen both of the Royal Society and of the Royal Institution" and found to be perfectly preserved after "several months" and that two cases had been opened six months after manufacture including "four months on board one of His Majesty's ships".

This is almost certainly a translation from Girard's French, as indicated by the ambiguous title 'Statement by the Patentee', says Cowell.

Cowell is sure that the records show that Girard was heat-preserving food in tinned canisters in the latter months of 1810 and therefore "relegate Durand to the status of his British agent".

This is confirmed by a subsequent conversation between Sir Charles Blagden and Nicholas Appert, who says that although Durand sold the patent for £1,000 to Bryan Donkin and John Hall, who were planning to set up their 'preservatory' for canned foods in South London, this was on behalf of Girard. Durand presumably received a broker's fee for taking out the patent and selling it.

Born in Northumberland, Bryan Donkin was apprenticed in 1798 to John Hall who 13 years earlier had set up the Dartford Iron Works, east of London in Kent. After working on paper moulds Donkin started construction of a prototype paper-making machine, production of which started in 1803.

A clever and inventive engineer who was involved in a variety of activities, Donkin is regarded as the father of the modern paper industry. He applied himself equally enthusiastically to the manufacture of tin canisters supported by Hall,

and later by a third partner, John Gamble.

With the finalisation of Durand's patent transfer in 1813, manufacture could start at Donkin, Hall & Gamble's Preservatory in Blue Anchor Road (now Southwark Park Road), Bermondsey, in what was undoubtedly the world's first factory for making food cans. (It is arguable whether the earlier fabrication of so-called 'tin canisters' for non-food items could be called canmaking).

By 1818, customers for the canned foods included the navy and army; and with the British Admiralty using them the news would have quickly spread around the world.

This would have probably frustrated Nicholas Appert who after the abdication of Napoleon in 1814 arrived in London where he was given a testimonial letter from Sir Joseph Banks. Records at the Royal Society indicate that Appert thought that Girard had sold the patent for a derisory sum to Donkin, Hall & Gamble, which was now reaping the benefits.

Girard too would have reason to be angry. When Appert came to London, Girard had been suffering from business problems and was in a debtor's prison in Paris. His demise is apparently unknown, but Appert, in not moving fast enough from glass bottle to tinsplate cans, also failed to profit from his idea, dying with a state pension in 1841.

Donkin, Hall & Gamble's preservatory at Blue Anchor Road continued to operate, after two name changes to J Gamble & Co, until 1830 when it was transferred to Cork in southern Ireland to be subsequently run by Gamble's son. Bryan Donkin went on to other successful manufacturing activities such as printing machines, his company manufacturing industrial valves continuing with his name until the 21st century. He died in 1855.

There will always be some uncertainty about who should be regarded as the originator of canned food. While Philippe de Girard has the strongest claim, there is no doubt that Peter Durand filed the first patent that covered the idea, even though he was acting for Girard. Durand died in 1822 aged 55 in London and was buried in St Leonard's Church, Shoreditch.

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