William Heath Robinson (1872-1944) was a versatile artist who created stunning romantic illustrations for stories by Edgar Allan Poe, Rudyard Kipling, Hans Christian Andersen and many other distinguished authors. In the early 1900s, however, he began to branch out into humour, and it was his charming machines and inventions that earned him a place in the English language: a “Heath-Robinson contraption” now describes any sort of absurd device that might (possibly) work.

This is why, when Sheldrake Press invited me to write a book about Heath Robinson, I jumped at the chance to try to explain the background to some of his work: why he chose to draw those particular pictures.

We chose to include 300 of his humorous drawings, many of which have not been published in books before. Some are simply whimsical ideas about life; his “Spring cleaning in Highgate Woods” shows earnest men and women dusting birds’ nests, polishing trees and fish, and even sponging down the ducks in a pond. Many of our favourite drawings, however, show improbable machines and curious inventions.

Some of Heath Robinson’s finest machines were commissioned for advertising cards or brochures for a variety of companies who enjoyed his humorous approach. Crawford’s biscuits, an old Scottish firm, opened a new factory in Liverpool in 1897, and in the early 1930s the managers invited him to go and see the process, and produce a picture for advertising and packaging.

The result is all wheels and pulleys, bustle and steam, with hordes of workers in evidence. By this time, steam engines were giving way to electric motors in many
factories. I find it hard to believe that a 1930s factory would have, as its main sources of power, one man pedalling and another winding a handle, but that is how Heath Robinson saw it. The man on the handle is wearing a kilt, perhaps a subtle reference to the company’s Scottish origins.

The hygiene precautions so important in food manufacturing are also on display: all the workers on the shop floor are wearing aprons and chef’s hats, apart from the poor chap pedalling the paddles. Curiously, all the workers are men. During the late 19th and early 20th centuries many women worked in the cotton mills in Lancashire, and you would expect to find some in a biscuit factory in Liverpool.

A long line of men is shown staggering upstairs with sacks of flour, sugar and yeast – at least ten times as much yeast as would be needed – but on the shop floor only four men are actually doing anything. All the others are just watching, or perhaps supervising. At a time when automation was already reducing the use of labour and raising productivity, Heath Robinson partly explains this in his autobiography My line of life: “Whatever success these drawings may have had was not only due to the fantastic machinery, and to the absurd situations, but to the style in which they were drawn. This was designed to imply that the artist had complete belief in what he was drawing. He was seeing nothing in the matter, in fact he was part of the joke. For this purpose a rather severe style was used, in which everything was laboriously and clearly constructed in what he was drawing. He was seeing no joke in the matter, and this belief it was necessary to persuade the spectator. At the slightest hint that the artist was amused, the delicate fabric of humour would fade away.”

The production line had become fashionable after 1913, when Henry Ford reduced the time it took his workers to make a car from 12 and a half hours to 93 minutes. Curiously, we rarely see a real production line in any of Heath Robinson’s factories. A rare exception in this book is his Christmas cracker factory, where a sequence of workers each performs a single operation.

For most of his drawings he used simple pen and ink, occasionally with a tonal wash or two. The vast majority of printing for magazines was in black and white; so he coloured them in with watercolour only when he was asked to do so – and for these he was paid extra.

In 1925 the managers of G&T Earle invited him to their factory making “Pelican” cement, at Wilmington near Hull, and he produced for them a series of superb drawings which were bound in an elegant book called Railway Ribaldry. These drawings are fairly true to life; cement factories do use long rotating kilns, tilted at a slight angle, with the hot end at the bottom. The chalk-clay mixture tumbles slowly down, reacting together to make cement. Mind you, the factory I visited did not use human power to rotate the vast cylinders, nor did I see a mantelpiece with a clock and a cat sitting there enjoying the warmth. In fact, the furnace was so hot that standing a few feet away I thought my clothes were going to catch fire.

There is also a pelican in a cage to the lower right of the scene. Each one of these Wilmington pictures features a trademark pelican observing the scene.
During the 1920s, asbestos cement was an important roofing material; it was cheap, strong, and impervious to rain and fire and the dangers of asbestos fibres had not yet become apparent. Heath Robinson drew an “efficient plant for the successful mixing of asbestos fibre with cement,” in which the asbestos fibres are blown in from the bottom left, and mixed in a huge bath with the cement that is poured in from above. The main rotation is powered by a steam engine so primitive that it could scarcely turn the stirrer paddle, but the outlet of the slurry is controlled by a high-tech radiophone signalling system. The cement-factory machine may have been based on the real thing, but sometimes Heath Robinson’s imagination took over, and he strayed far further from reality. In 1935 he produced a book called *Railway Ribaldry*, to celebrate the centenary of the Great Western Railway. One of his drawings purported to show the boring of the first tunnel “with an early type of rotary excavator”. In real life, one of the greatest challenges Isambard Kingdom Brunel faced when building the GWR in the 1830s was digging Box Tunnel, a few miles east of Bath. This tunnel is nearly two miles long. The east end went through soft ground and had to be lined with 30 million bricks. The west end went through Bath stone, which had to be shifted with explosives. Every week the workers used a tonne of candles – their only source of light – and a tonne of gunpowder, which resulted in about 100 fatal accidents. All the rest of the work was done by hand, using pickaxes, shovels and wheelbarrows.

Today, tunnels are dug with tunnel boring machines – TBMs – which resemble giant mechanical moles 100 metres long. The teeth in front cut through soil and rock and the spoil is carried through the machine and out to the nearest exit on a conveyor belt. The operating crew have cooking and toilet facilities on board. The first effective TBMs appeared in the 1860s and 1870s and they were well advanced by 1935. Heath Robinson’s “early type of rotary excavator” has a long lead screw and a cutting head apparently made of knives, forks and spades, driven by two men pedalling. It appears to be propelled by three men in a rugby scrum formation, and another pulling on a rope. There is a large steam engine on board, but the function of this engine is not clear. This is a wonderful contraption, but it bears little relationship either to Brunel’s Box tunnel excavation or to Thirties TBM reality.

Perhaps my favourite of all Heath Robinson’s machines is more domestic – the “interesting and elegant apparatus designed to overcome once and for all the difficulties of conveying green peas to the mouth”. I have loved this machine for at least 60 years. On the right the butler, in full evening dress, stands spooning peas into a boiler, from which they drop one by one through a funnel on to a conveyor belt, powered by the gent on the left. This takes them up across the table and drops them into a spoon, which, when tilted with a piece of string, delivers them to the gent’s mouth, presumably half-cooked and stone cold. The apparatus is ludicrous, and takes up most of the table, while the diner has to be highly skilled to turn the handle at just the right speed to catch each pea as it falls from the funnel, while operating the spoon with the other hand. If he pauses to pick up his knife and fork, the peas will cascade over the table and on to the floor. Why should Heath Robinson invent such a machine? He sometimes thought like an engineer, perceiving a problem and then inventing a solution. I suspect he was brought up with strict Victorian manners, which dictated that peas (like most food) should be eaten from a fork with the prongs pointing downwards. This is almost impossible, since the peas roll off the fork, and perhaps the machine was just his solution to that particular problem.
Another solution appears in the poem attributed to Ogden Nash:

I eat my peas with honey; I’ve done it all my life. 
It makes the peas taste funny, but it keeps them on the knife.

Most of the problems that beset us are those we face at home and in our daily routines. Naturally, therefore, Heath Robinson designed a variety of machines to assist domestic life, including machines for instant removal of warts and rotten teeth, and for clearing the breakfast things off the table. There are automatic shampoo chairs, home-made steam baths, and painful-looking figure-reduction devices, not to mention a cunning system for saving bathers from quicksands.

A delightful idea depicting how to hold a wedding breakfast in a small flat involves a complete table being lowered around the wedding party, who are already seated shoulder to shoulder in all their finery.

A wedding breakfast is not an everyday occurrence, but the trumpet alarm clock should be a feature of every heavy sleeper’s bedroom. And for those who live in high-rise flats surely the folding garden is a must? In their book How to Live in a Flat, Heath Robinson and K R G Browne explain: “The Deckcheyrie for Unbalconied Flats... will be found to work perfectly, we shouldn’t wonder. If not we’re sorry.”

Could this possibly work? I would class this one as “marginal”. The helium balloons are scarcely big enough to support the washing, and would have almost no effect on lifting the structure. The supporting ropes might be strong enough, but the pulleys above the doorway are carrying a huge load; I hope they are bolted through the wall. Meanwhile, the man in the chair, the flowerpot, the baby and the dog are all beyond the anchor points, and I would not like to put all that weight on the end of what looks like a normal ladder.

On the other hand, I admire the details: the woman washing on the left, who can presumably use the crank below her to wind down the washing line; the dog in the kennel (although it has not much of a run); the baby rocker; the rabbit hutch; the parasol to guard against sun and drips; the garden flowers; even the bird in the cage on the wall. But how, I wonder, can anyone reach the watering can? And how can the garden be folded up again? It’s a wonderful flight of fancy.

After a hard afternoon reading the paper in the deckcheyrie, followed by dinner and a game of cards, all a visitor needs is a good night’s rest in the temporary aerial spare bedroom.

I am sometimes asked whom from the past would I most like to have met. Erasmus Darwin would be a favourite, but how I would have enjoyed talking to William Heath Robinson.