

NG MILESTONES

Garratt One Fifty

On the 150th anniversary of the birth of Herbert Garratt, *David Joy* looks at examples of his impressive legacy still at work today.



Herbert Garratt, the man who did so much to transform narrow gauge motive power, was born 150 years ago on 6th June 1864. The anniversary has passed almost unnoticed in the UK, where his inventive genius undoubtedly played a key role in sustaining the reputation of Beyer Peacock as 'the Rolls Royce of locomotive builders'.

This may seem surprising, but in many ways it is wholly appropriate that the 150th should instead be commemorated in South Africa where Garratt locomotives became such a triumphant success. The decision to mark the anniversary was taken by Wilfred Mole of the Sandstone Steam Railroad. When he approached me with the idea in December, he rightly pointed out; "We have four working Garratts all from different manufacturers so I am sure we can build some sort of celebration around that."

No other railway can make such a claim and so no apologies are made for again featuring Sandstone, which has probably appeared in these pages more often than any other overseas preservation enterprise. The most recent occasion was *NGW* 92, when *World News* previewed this year's 'Stars of Sandstone' festival that took place from 12th to 21st April.

That issue went to press as plans were still taking shape and Wilfred Mole was subsequently able to supply more detail; "Visitors to previous events will clearly recall triple-headed Garratts and even four Garratts working together, often banked by an



NG15. That is a cumbersome and difficult thing to arrange and so we have decided to stay with convention during the show and run the Garratts double-headed. It is no coincidence that every day is double-headed and every day we shall have two Garratts working so that this entire event is a true commemoration of Herbert Garratt and his superb achievements."

From first to last

Such an occasion inevitably poses questions concerning the origins of Sandstone's four working Garratts from four different builders. It is a fascinating saga, which can only be fully appreciated in their historical context. Going back to Herbert Garratt's younger years, he was born in London and as a teenager was already both inventive and restless. By the age of 15 he was an apprentice

Opposite: Garratts preserved at Sandstone and the Welsh Highland worked on the Alfred County Railway. NGG16 heads a freight in June 1982. Photo: David Rodgers

Above: No 88 is one of only four Garratts built by Cockerill, seen at the Stars of Sandstone festival in April 2014.

Below: Hanomag no 49, Sandstone's oldest working Garratt, takes water in 2008. Both photos: Hannes Paling

at the North London Railway's Bow Workshops. When only 19, he became a ship's engineer and crossed the Atlantic before returning to Britain and two years later taking out a patent for improving steam engine valve gear. Long-term employment constantly eluded him, but he had spells as an engineer in Cuba, Lagos and Peru. Between times his industrious inventions ranged from a spark extinguisher to a patent improved boiled-egg timer!

In the early 1900s Garratt drew up sketches for a radical type of articulated locomotive with a large boiler slung between power bogies at either end, one bogie carrying the main water tank and the other coal plus additional water. It would spread the weight over numerous axles, provide maximum flexibility on curves and yet only require a single



crew. His ideas were rejected by several manufacturers, but his luck finally changed when they found favour with Beyer Peacock. The design was patented in 1907 while Garratt was working as an Inspector for the New South Wales Government Railways. He moved to Manchester late in 1907 but his Australian stint may be the reason that the first two Garratts built went to Tasmania two years later. Sadly, he died in 1913 at the early age of 49 and did not live to see his locomotive conquer the world and become a dominant form of motive power in much of southern Africa.

From 1919, Beyer Peacock began to deliver NGGs of various classes to South African Railways for use on its 600 miles of 2ft gauge lines in Cape Province and Natal. Way beyond the size and specification of anything that was being used elsewhere on so narrow a gauge, the initial 2-6-0 + 0-6-2s began work in Natal on the Umzinto to Donnybrook line, abounding in 150ft radius curves and 1 in 33 gradients. In performing the work of two conventional locomotives they halved the required number of man hours and proved an outstanding success.

Beyer Peacock supplied hundreds of massive machines of all gauges to many corners of the world, but in 1927 the patent expired and the firm's monopoly was broken. Among those quick to seize the opportunity was the German builder Hanomag, which by the following year had delivered 49 Garratts to South Africa including 12 2ft gauge 2-6-2 + 2-6-2s to South African Railways. Among them was no 49, which spent most of its

working life on the 76-mile Alfred County Railway linking Port Shepstone with Harding. After withdrawal and abandonment, it was eventually extracted from the undergrowth and restored by the Sandstone team to become its oldest working Garratt in late 2004.

Global events soon saw German manufacturers fall off the agenda and at the same time Beyer Peacock managed to stay ahead of the competition by taking out new patents on various design improvements. Licence agreements were signed with several firms, including John Cockerill of Seraing in Belgium. The only four Garratts it ever built entered service in South Africa in 1937 and included no 88, which again was based at Port Shepstone throughout its working life. Withdrawn in 1992, it arrived at Sandstone ten years later after purchase from a private collector.

The one working Garratt at Sandstone to have been built by Beyer Peacock dates from 1937, when the company supplied eight NGG16s to South Africa. No 113 was also originally allocated to Port Shepstone but ended its days on the spectacular line climbing 4,500ft in its 97-mile journey from sea level at Umzinto to a junction with the Cape – Natal railway at Donnybrook. On the closure of this line in 1986, it was simply steamed into its shed, had its fire dropped and then left to the elements. Restoration at Sandstone began in 2001 and return to traffic took place in February 2003.

Demand for Garratts continued into the 1960s, with the very last completed in 1968. Beyer Peacock



This page: Rails 3ft 6in apart are technically narrow gauge but little else on the South African 'Cape Gauge' is diminutive. There are few more awesome sights that a GMA/M 4-8-2 + 2-8-4 in full cry, as shown by no 4072, built by Henschel in 1952, pounding through the Sunday's River Valley near Pretoriuskloof in July 1990.

Following page: Quick to break Beyer Peacock's monopoly on Garratt production when the patent expired in 1927 was the German firm of Hanomag. In the same year it supplied 37 GF 4-6-2 + 2-6-4s to South Africa. No 2401 was performing in fine style in July 1990 at 7th Reverse on the Barkly East – Aliwal North line. Both photos: David Rodgers

was then in the throes of total closure and so the order was passed to the Hunslet Engine Co, that sub-contracted it to South African subsidiary Hunslet Taylor, although the boilers were built in Leeds. It is one of this batch, no 153, which was similarly abandoned at Donnybrook after a working life of only 18 years. It now forms the fourth working NGG at Sandstone, where the Garratts thus span a 40-year period. They create a truly awesome sight, especially when working a double-headed train, and are a fitting memorial to the achievements of one of the great inventors of the steam age.

Journeys to remember

It is nine years since I was last at Sandstone, a visit which proved to be a photographic highlight of a South African tour led by David Rodgers. It wasn't just the total steam experience in covering the entire 15-mile system or striving to keep warm before dawn to record locomotives silhouetted against the rising sun. It wasn't even the shots taken at dusk from an open wagon with the Garratt showering the party with red-hot cinders. Above all, it was the big skies and rolling landscape stretching away to distant horizons, with the sound of silence adding the final touch of sheer magic.

David has led many tours to South Africa and is an outstanding photographer, as shown by his pictures that accompany this article. Two of them capture the awesome majesty of a very different kind of locomotive to those on the 2ft gauge at Sandstone. In truth, these last were really only a sideline for manufacturers such as Beyer



Peacock, which until the mid-1950s was turning out Garratts by the hundred for the 3ft 6in gauge main lines in southern Africa. The sight and sound of these monsters storming 1 in 30 gradients with long trains was unforgettable.

Not until my first trip to Zimbabwe in 1993 had I fully appreciated that what was technically a narrow gauge engine was in fact a totally different species. Standing at rail level and looking up at a locomotive almost 100 feet long and weighing 220 tons, it would have dwarfed a British Rail 9F 2-10-0.

This realisation was only heightened when taking a footplate ride in a cab that had plenty of space to spare and no swinging of a shovel thanks to the provision of mechanical stoking. Class 20 no 740 'Ingwezi' was a truly modern 4-8-2 + 2-8-4 steam locomotive built as late as 1957.

These feelings of awe were rekindled during the 2005 visit to South Africa when travelling behind a massive GMA/M, a survivor of the class that in the 1970s battled over Montagu Pass and made it a centre of worldwide pilgrimage for visiting photographers. Descending to the 2ft gauge may have been less spectacular but was on a more friendly scale. This was certainly the case on the Banana Express, which was operating a passenger service over the first eight miles of the Alfred County Railway as far as Izotsha.

It was a short but magnificent run alongside the Indian Ocean, and one destined never to be repeated as all services were withdrawn less than a year later.

At the time I thought it was the



most memorable journey I would ever make behind a 2ft gauge Garratt, but sometimes you can be so wrong. By 2005 four of the NGGs that had at various stages worked out of Port Shepstone had already gone to Sandstone. Two others, both built by Beyer Peacock, had also left in 1997 to enter service on the newly reconstructed Welsh Highland Railway the following year.

I never imagined that Snowdonia would quite match the Indian Ocean, but in terms of the unexpected there was no contest when I joined the first train of the 2013 season at Porthmadog on the bitterly cold morning of 23rd March. Rain turned into snow as no 143, the last locomotive to be built at Gorton, headed through the Aberglaslyn Pass before pausing at Beddgelert to pass the service coming down from Caernarvon. There we waited – and waited. Half an hour elapsed before no 138 finally appeared, the snow on

the 'cow catcher' clearly showing that it had experienced a rough ride over the top. In blizzard conditions, a tree had blown over the line and had needed chopping up and heaving out of the way.

Travelling over the Welsh Highland in snow during the main operating season is a rare experience, and I could not help wondering how 143 would fare as it climbed over the notoriously difficult S-curve out of Beddgelert towards the summit at Rhyd Ddu. I need not have worried. There was not a trace of slip as it headed into deeper snow and conditions became increasingly grim. Much of northern Britain was to be brought to a standstill that weekend but not the Welsh Highland.

Herbert Garratt would surely have been impressed... **NGW**
 ■ Grateful thanks are due to Wilfred Mole and John Middleton for help with this feature.

Above Serious snowfall as late as 23rd March got the Welsh Highland's 2013 services off to a challenging start. No 138 is clearly displaying signs of a difficult journey over the summit as it finally arrived at Beddgelert with the morning train from Caernarvon. Photo: David Joy

