



Three of the best!

By Ian M. Johnston

"In your opinion, what is the best tractor ever made?"

The question was directed to me by a young bespectacled intelligent looking chap, to whom I had been introduced, at a recent field day. I was delighted to learn that he had apparently discovered the joys of old tractors having read two of my books on the subject. Consequently I realised that his was a serious question, deserving a serious well considered answer.

Having given the matter some moments of contemplation, quite possibly I went down in his estimation when I was obliged to respond by stating that I could not possibly provide a definitive answer. But he later understood when I pointed out to him that over a period of more than a century, there were at least 150 tractor manufacturers scattered across the Americas, Europe and Asia that had produced an incomputable variety of models.

But his question was the precursor for my little grey cells being stirred into action. Okay, to nominate one sole tractor would be ridiculous. But could I narrow the field down to a handful of truly exceptional pioneer machines that influenced the evolution of the farm tractor? This really had me pondering, until I was able to settle on three individual tractors which in my opinion (and only my opinion) could perchance qualify for this distinction.

Interestingly, one is an Aussie.

The Wallis Bear

Whilst carrying out research in the USA for a one of my earlier books, I visited the prairie town of Bluffton, Ohio, for the purpose



The only remaining Wallis Bear – owned by Fred Schmidt of Blufftown, Ohio. (Photo IMJ)



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This photo of me standing beside the Bear gives an idea of its immensity. (Photo M. Daw)

of calling on Fred Schmidt. Fred was a well known tractor identity in Ohio, as he was the proud custodian of the world's only surviving Wallis Bear, which had actually been in his family since 1962.

When the doors of his barn were rolled open, I confess to being stunned as my gaze swept across a range of around a dozen pristine Wallis tractors, before focussing on the massive and technically amazing Bear.

According to the majority of tractor book scribes, The Wallis Tractor Company of Cleveland, Ohio, was created in 1902, under the control of H.M. Wallis, a relative of Jerome Increase Case. Frankly I dispute the company name, as the term 'tractor' did not come into usage until 1906. Certainly a manufacturing company was formed by H.M. Wallis, but I suggest under a different title.

But let me not descend into a battle of semantics.

The Wallis Bear No. 1 was released with little fanfare in November 1902. It is known that a mere nine units were produced over a period of the next nine years. Fred Schmidt's example is No. 3.

So what is so special about the Wallis Bear? It is a case of where do I start!

The tractor was equipped with – turning brakes, power steering, spring loaded clutch, coil spring front suspension, force feed lubrication by gear driven pump, all speed governor, fully enclosed transmission, four cylinder engine with 7.5 x 9 inch bore and stroke of 1480 cubic inch displacement. (These specs could almost relate to a modern day tractor).

All that in 1902, a time when the few tractors in existence mainly featured exposed transmission gears, cone clutches, cart

brakes, single or twin cylinder crude engines, navy type chain steering, oxen fat lubrication and no governor.

Fred started the engine for me with very little effort, using just one pull of the rear located crank handle. I was impressed by how smoothly the massive engine ran with no noticeable vibration.

For the record, Wallis produced an extensive range of 'conventional' tractors, until the firm was acquired by The J.I. Case Plow Works in 1915.

Definitely, Fred Schmidt's Wallis Bear ranks in my mind as being one of the greatest of all artefacts in a classic tractor collection, and certainly a contender for being rated as one of the top three tractors of all time.

Caldwell Vale

The story of the Caldwell Vale has its beginning in Adelaide, when in 1907 the brothers Felix and Norman Caldwell registered a patent for a revolutionary transmission design, which described a means of delivering power in equal proportions to all four wheels of a vehicle.

In order to prove the efficiency of their design, they constructed a rudimentary six metre long chassis consisting of two parallel steel girders supported on an axle and iron wheels at either extremity. A massive 30 hp twin cylinder McDonald water cooled engine was centrally mounted and provided power to all four wheels and (remarkably) a four wheel steer mechanism.

A custom designed 10 disc plough was attached to the underside of the contraption, which could be raised and lowered by means of a cleverly conceived power-lift system.

The overall design of the Caldwell brother's invention was unprecedented in 1907 and was brought to the attention of the dignitaries of The Roseworthy Agricultural College of South Australia. A demonstration was arranged, the results of which created a sensation to the amazed agriculturalists, who were accustomed to ploughs being pulled by teams of plodding draught horses.

Henry Vale, a Sydney based financier, learning of the potential of the revolutionary motorised plough, offered the brothers financial backing to establish a tractor manufacturing plant at the Sydney suburb of Auburn. Accordingly, in 1910 the firm of Caldwell Vale Motor and Tractor Construction Company commenced business at Park Road, Auburn, telephone number Rookwood 114 – a two hour drive in a sulky from Sydney Central.

A range of sophisticated four wheel drive tractors followed, commencing with a three ton 40 hp with four equal wheels, capable of hauling an eight furrow mouldboard plough, set to a depth of 10 inches, at three mph. It is interesting to note that this



A historic photo of a Caldwell Vale operating in Central NSW. (Photo IMJ archives)



A 1912 photo of a Caldwell Vale outside the Auburn premises. (Photo IMJ archives)



An 80 hp 1910 Caldwell Vale restored by the late Fred Schuster. (Photo IMJ)

extraordinary performance would be beyond the capabilities of a modern 40 hp tractor!

This was followed by an 80 hp heavy duty range, each with four wheel drive, power steering, four wheel steer, and four wheel brakes. The engine, designed and built by Caldwell Vale (as were all their tractor engines) was of the 'square' configuration, i.e. identical bore and stroke. This again emphasises the ingenuity of the designers, as 'square' engines did not really come into prevalence until around half a century later!

A number of the 80 hp units were employed dragging a line

of wagons loaded with supplies, to outback stations. The top speed of the tractors was a dependable six mph. This may at first sound painfully slow, considering the distances to be travelled.

But in practice a Caldwell Vale tractor could haul a 50 ton load at double the speed of a team of oxen or horses, and continue so doing 24 hours a day. But there was one snag! Fuel consumption of the big 11 litre engine equated one mile per gallon!

Certainly, this amazing Aussie tractor has to be considered in the class of one of the top three most innovative tractors of all time.



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An Ivel at work near Leeton, NSW, around 1910. (Photo IMJ archives).

Ivel

Agriculture in Britain is, and always has been, different to that in North America and Australia. The small acre fertile arable farms of Britain, with their rich deep soils, were traditionally worked with either single or two horse implements. This method of farming differed significantly when compared to the shallow soiled broadacre grain belts of Australia and the Americas, which required the employment of either large teams of horses or mules, often numbering up to 20 animals, or as mechanisation took hold, large heavyweight tractors.

These early heavyweight tractor designs were greatly influenced by the huge steam powered traction engines which they replaced. The philosophy of the era was that 'big was beautiful'. This thinking is evidenced by the two tractors already examined – the Wallis Bear and the Caldwell Vale.

Dan Albone was born and reared in the tranquil Bedfordshire village of Biggleswade, through which the river Ivel meanders. His passion was cycling and at age 13 he designed and built a bicycle, complete with suspension, upon which he entered and won numerous cycle race events.

In 1880, on his twentieth birthday, he founded The Ivel Cycle Works. But his interest was not restricted to cycles, as he harboured a fondness for the agricultural activities which surrounded his rural village. Gentle Suffolk Punch heavy draught horses were the choice of the farmers, for pulling the single furrow mouldboard ploughs commonly in usage.

Following the Industrial Revolution, mechanisation was appearing everywhere throughout Britain and Dan Albone believed it could also be applied to, and benefit, local farmers.

In 1902 he filed a patent for a farm vehicle powered by an internal combustion petrol engine and opened a new business named Ivel Agricultural Motors Ltd. The Ivel tractor was born!



An 1903 Ivel, restored by Norm McKenzie, being admired at a field day. (Photo IMJ)



A view of Norm McKenzie's Ivel illustrating the drive mechanism. (Photo IMJ)

Unlike the first American and Australian tractors, the Ivel was a compact and relatively lightweight machine that could replace two Suffolk Punch horses. It was, in fact, the world's first tractor ideally suited to the British and European farming methods. It attracted an immense amount of interest and indeed won several gold medals at agricultural shows.

The tricycle configured design had the single steer wheel at the front of the tractor with two large steel driving wheels at the rear. The engine utilised initially was a twin cylinder eight hp Payne, but was replaced in 1906 with a more sophisticated French made water cooled 10 hp Aster, featuring twin horizontally opposed cylinders and a large evaporative water tank. The transmission was connected by a heavy duty belt and consisted of a cone clutch and a single forward and reverse gear.

Between 1902 and 1920 around 500 Ivel tractors were produced, many being exported to distant parts of the world, including Australia.

The reason I have included the Ivel in my selection of tractors that qualify as being "Three of the Best", is the fact that Albone did not let his creation be influenced by the direction of other designers, who were focussed on heavyweight tractor development.

As a consequence the Ivel proved to be the forerunner of the multitude of modern tractors such as Fergusons, David Browns, Fordson Dextas, and so on.

It is interesting to note that Dan Albone introduced the Benz powered Ivel motor car in 1898 and the Ivel motor cycle range in 1901. He died in 1906, aged 46 years. ■

IAN'S MYSTERY TRACTOR QUIZ

Question: Can you identify this 1925 four wheel drive articulated tractor?

Clue: It is European.

Degree of difficulty: Any tractor historian would identify it in a flash!

Answer: See page 48.

