

The 1903 IVEL

By Barry South



Any vehicle started with a crank handle must certainly qualify for inclusion into the CHC, especially one that is an early groundbreaking veteran. The vehicle in question is a 1903 IVEL agricultural motor, later known as a tractor. This machine was designed, developed and built by Dan Albone in Biggleswade, England. It was introduced in 1902 and soon won awards at agricultural shows. It became the iconic implement of the time and was the first commercially available tractor in the world, exported to numerous countries. With a low centre of gravity and relatively light weight, it performed better as a “tractor” than the earlier steam traction engines. It also performed better than the “British cart horse” and did not require as much attention, nor fodder. As a result, it substantially increased agricultural efficiency, productivity and reduced costs.

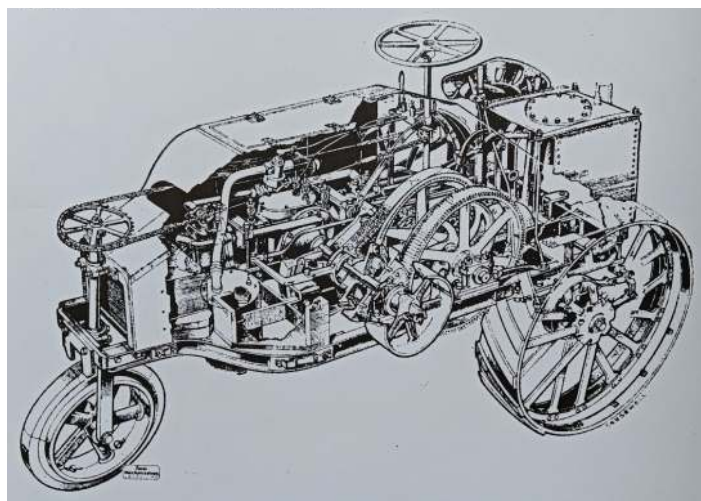
IVEL Serial number 141 was imported new into Southern Rhodesia in 1904 by Ernest Hamilton South, a civil engineer by training, grandfather and personal hero of the writer. The landed cost of the machine was 343 pounds sterling and petrol, then known as “explosive liquid”, cost 3 shillings a gallon landed Salis-

bury. At that time, he farmed only tobacco where Lake Chivero (formerly Lake McIlwaine) now lies, roughly 15 miles south of Harare. Large teams of oxen were typically employed in Southern Africa for ploughing etc but due to the threat of East Coast fever in 1903/4 EH South ordered the IVEL agricultural motor from England to ensure production for the forthcoming season.

After his death in 1965 it was donated to the Salisbury Museum by my Aunt and restored by the Salisbury Polytechnic under the supervision of the lecturer of mechanical engineering, RHH Orchard. The IVEL was moved from Harare and is now a static exhibit at the Mutare Museum, Zimbabwe.

The 1903 IVEL is powered by a 2.5 litre twin cylinder horizontally opposed, four stroke, internal combustion engine. The engine was made by Payne & Co, of Coventry. The tractor has forward and reverse transmission. Drive is to the rear wheels via 2 stages of speed reduction, the second stage by heavy chain and sprockets to the rear axle. Two cone clutches (on this model) allowed the driver to engage neutral, start the engine, go forward or engage reverse.

Steering is via a steering wheel



and chain to the single front wheel, formerly rubber covered. Due to the high gearing, it could haul 2.5 ton which enabled ploughing creating two furrows in appropriate soils. In addition, it was used for harrowing but at faster speed. Maximum speed in service was about 3 to 8 mph depending on load and need. Maximum revolutions were approximately 900 rpm. Furthermore, the tractor has an auxiliary power take-off by way of a belt pulley to drive stationary equipment such as a pump, via a flat belt at appropriate speed. The pulley is likely to be crowned to keep the belt from disengaging/sliding off sideways.

Although a brake is installed, a compression release from the cylinders was generally used to bring the machine to a standstill. This clearly worked best on level ground! Both engine cooling water and oil lubrication are positive loss, not circulated. Cooling was achieved by evaporation. The fuel tank capacity is 12 gallons, and a surface carburettor is utilised. This works by drawing air through a petrol reservoir, thus creating an air-fuel mixture fed to the cylinders via the inlet valve. The mixture is regulated by the addition of further air for correct fuel-air ratio.

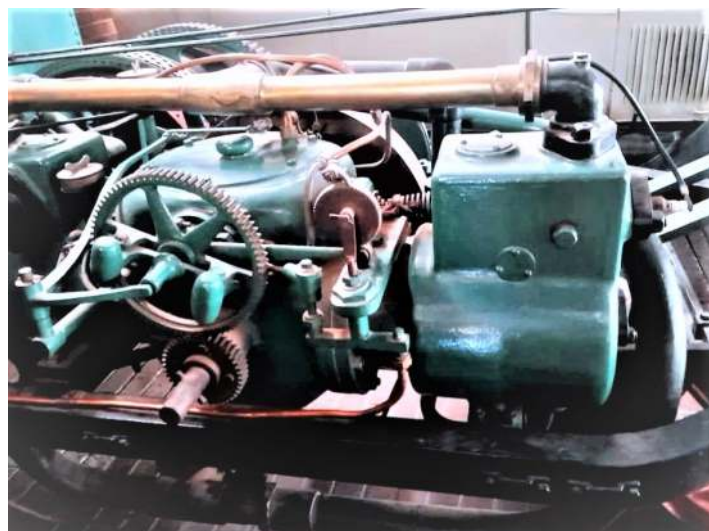
A trembler ignition system was employed which was commonly used in early 20th-century engines prior to magnetos and coil-ignition systems. The 1903 IVEL employed "atmospheric inlet valves", also known as an "automatic inlet valve". This type of valve used the vacuum created by the piston's downward stroke to open the inlet valve against a light spring and draw in fuel mixture without the need for a camshaft or mechanical linkage. Thus, only the exhaust valve is mechanically operated.

Each cylinder of this 1903 model has a 4.338" bore x 5" stroke, giving a volumetric capacity of 155 cu.in. (2,534 cc). The IVEL gave service till 1920 when oil consumption matched fuel consumption!

As a teenager of 17 years, I was put on a BOAC plane at Heathrow to visit my grandparents for a month in Southern Rhodesia. While there, I saw the IVEL standing alongside a farm building with its factory-made steel weather cover fitted. What impressed me more, however, was the ride in his veteran 1917 FRANKLIN open tourer motor car!

IVEL serial number 141 makes it the third earliest IVEL Agricultural motor produced of nine remaining in existence. Grandfather's adventurous spirit and willingness to adopt new technology is impressive. About five hundred IVEL tractors were sold, some of which still existing are in UK, Australia and Sweden. From 1906, the engine employed was of French manufacture, namely a Darracq, but of greater capacity. Dan Albone's 1902 prototype is now an exhibit in the British Science Museum. During WW1, the IVEL, suitably clad with armour plate, was successfully employed as a field ambulance to recover injured soldiers from the battlefield. It was fabricated by Messrs, Cammel, Laird and Co., and Mr. Albone arranged and organized the construction.

Interestingly, grandfather was clearly impressed with the performance of the horizontally opposed twin motor, why, because in 1908 he purchased a FAIRY motorised bicycle fitted with a small twin engine of the same configuration but with a conventional carburettor of FAIRY manufacture. It was the



UPCOMING EVENTS

While we do endeavour to keep to our programme, please check regular updates nearer the time.

NOVEMBER

Wednesday 6th:	Film night: TBC	20h00
Wednesday 13th:	Tom Bishop's 1975 VW Kubelwagen on the Africa Rally	10h00
	Repeat of morning talk	20h00
Sunday 17th:	Poker Run	08h30
Wednesday 20th:	Midweek Meander	09h45
Wednesday 20th:	Presentation on the Titanic - the ill-fated star of the Olympic liners	20h00
Thursday 21st:	Helderberg Group Dinner	
	Contact Tony Bruton 082 882 9640	18h30
Sunday 24th:	Natter at Timour Hall: Family Cars	10h00
Wednesday 27th:	QBM	20h00
Wednesday 4th:	Film Night: TBC	20h00
Saturday 7th:	Year End Dinner	18h30
Wednesday 11th:	Seniors Talk: Ryan Walker - 1962 VW Split screen Kombi	10h00
	Repeat of morning talk	20h00
Wednesday 18th:	Midweek Meander	09h45
Wednesday 18th:	Evening Talk: Dave & Di's Bentley Trip to the Normandy Beaches	20h00
Thursday 19th:	Helderberg Group Dinner	
	Contact Tony Bruton 082 882 9640	18h30
Wednesday 25th:	Clubhouse Closed	
Thursday 26th:	Champagne Natter at TBC: Italian Cars	10h00

NON CHC EVENTS - NOVEMBER:

Sunday 3rd:	Killarney Motor Show (More details at www.killarneymotorshow.co.za)
Sun 10 - Wed 13:	Fairest Cape Tour (More details at fairestcapetour@gmail.com)
Sunday 17th:	Tannery Car Show (More details at www.tannerycars.co.za)
Saturday 30th:	V&A Waterfront Motor Show - All Time Classics (More details at www.waterfront.co.za)
DECEMBER:	
Sunday 1st:	Century Run (More details from colin@greyviesgarage.co.za)

Note: Clubhouse will be open for all Wednesday night events. Events may be accessed online as well.

first motorcycle marque ever to be made in Blackheath, London and travelled pathways through the bush with ease; roads being undeveloped at the time.

Videos of other remaining IVEL tractors can be viewed on YouTube, however one video of a 1902 IVEL

running in Australia (Forbes Historical Museum) is of interest. During 2023, IVEL number 131 was auctioned in UK for a staggering amount, clearly illustrating the historical significance of a machine that revolutionised agriculture around the globe.

