

SAFFRON WALDEN HISTORICAL JOURNAL

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The Crawley Agrimotor of Saffron Walden

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The Crawley Agrimotor hauling a reaper-binder harvesting at Howe Hall, Littlebury Green in the 1920s. Ernie Morris on the tractor and Charles Casbolt on the binder. Photograph © Nick Crawley.

Historically, agriculture has been at the forefront of the local economy in north-west Essex, and Saffron Walden was always the marketing centre which also provided the support services needed by the industry.

It may therefore come as no surprise to learn that in the early 20th century the town had its own motor-plough production and assembly plant, which exported its products as far away as Australia and Egypt. The Crawley Agrimotor was manufactured here for ten years between 1914 and 1924. The success of the Agrimotor represents the culmination of many years of experimentation and trial by two local farmers, Albert and Arthur Crawley who both farmed at Hadstock. Together they had been developing original ideas since 1906/7, an early date, for the mechanisation of the vital ploughing operation. This work had not always been successful until they decided to develop a motorised plough which was to be a combination of a tractor unit with its own mounted three-furrow plough. Following completion of the development work, the concept reached the stage where a prototype could be manufactured.

'The Crawley Agrimotor of Saffron Walden' – *Saffron Walden Historical Journal* No 22 (2011)

This work was carried out by Garretts of Leiston in Suffolk, who were well-known as agricultural and steam engineers. Three machines were later built for the Crawleys and they became known as Crawley-Garrett Agrimotors.¹ These motor-ploughs participated successfully in the two-day trials held near Bury St Edmunds in 1914. They were also shown at the Royal Agricultural Society show held at Shrewsbury in that same year.²

Production of the Agrimotor was transferred from Leiston to The Tower Works, Debden Road, Saffron Walden during 1914 where a set of buildings existed on the site formerly used as a roller skating rink. These had been converted to an engineering and manufacturing plant. Thereafter the 'Garrett' element in the title was discontinued and the Agrimotor became known as The Crawley Agrimotor. On 20 April 1914 Albert Crawley of Hadstock applied for a patent for 'The Improvement in Self-propelled Tractors particularly for use with Agricultural Implements'. This was accepted in February 1915, by which time the First World War had commenced. Amongst other problems this led to a shortage of both labour and materials in the following wartime years.

A brief description of the Agrimotor will be helpful to readers' understanding without delving too deeply into the technicalities. The Agrimotor was powered by one of two makes of American lorry engines, both of which were designed to run on petrol. The Crawley's modified them to run on paraffin necessary during the war when petrol was in short supply. The plough was slung under the rear frame and could be lifted clear of the ground. The 48-inch steel travelling wheels provided traction. The driver was seated at the rear end of the frame with the controls in front of him. Ploughmen who were accustomed to walking behind a plough and a pair of horses would have found this seating arrangement at the rear end of the frame with the plough in front of him, and the engine still further ahead, in no way unusual – it was said they even called the controls 'reins'! Two speeds could be selected plus reverse. The cost of this motor-plough was approximately £400.

To convert this motor-plough to a tractor, a conversion unit had to be purchased at additional cost. The rear frame and plough were removed and replaced by a 'front-end' attachment comprising a single swivel wheel, controlled by a steering wheel, a seat and footplate and engine control levers. In this form it could be used for hauling cultivating implements attached to the rear end and during harvest a reaper-binder. The ability of the Agrimotor to make either round or square corners while working with a binder was a valuable time-saver at a traditionally busy time of the year. In this form output was about 2½ acres cut per hour. This conversion unit cost £65 making the total cost for both parts £465.

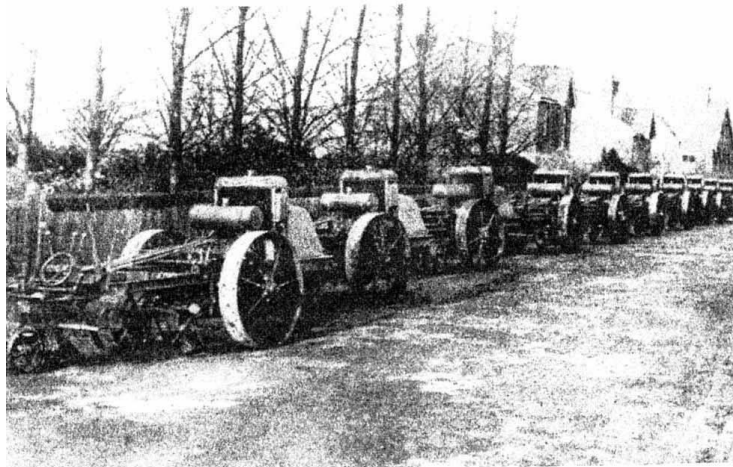
During the First World War, restrictions on the use of labour and materials led to the Agrimotor having to be submitted for further trials with Ministry of Food officials in attendance. These trials were conducted in the grounds of the Saffron Walden Training College. Following a satisfactory performance, it was agreed that the company would be supplied with materials for immediate production of the Agrimotor to help the war effort. However, this small decision to support the company, while welcome, was of little help in achieving the aims of the government to increase food supplies. British farming was in no position to respond since nationally three million acres of arable land had been put down to grass since 1870 and many former arable farmers had given up all arable production and farmed only grass with some livestock – ‘dog & stick farming as it was known’ and some having no arable equipment remaining on their farms. The reason for this state of affairs was that most supplies of essential foodstuffs, especially wheat for bread, had for many years been imported from cheap overseas sources. Be that as it may, a wartime government ‘ploughing-up’ policy was devised to increase home production of wheat and potatoes. In something of a late panic in 1917, the Ministry of Munitions placed orders in the USA for 6,000 Fordson and 2,632 International Titan tractors plus much other equipment.³ An additional problem arose over the shortage of farm horses due in part at least by wartime military requirements. Fortunately for the Crawley Agrimotor, the war ended in 1918 and the wartime order for tractors was suspended. Those that did arrive in time were available at a mere £150 each, later reduced to £130 ex-Cork from the new Fordson factory built there.

Moving on now to the post-war era, the important National Tractor Trials were held at Aisthorpe near Lincoln in 1920. The event was organised by the Royal Agricultural Society of England and took place in late September/ early October. It proved to be a very comprehensive testing ground for the 46 manufacturers represented. Their products were divided into seven classes according to type and their respective power ratings. The Crawley Agrimotor was entered in Class 7 for ‘self-propelled ploughs of up to four furrows’. There were six entries in the class. After a preliminary inspection each entry was required to plough both light and heavy land, and hilly ground. Turning circles were calculated as was fuel consumption and speed of ploughing. At the end of ten days, when all the testing had been completed, the awards were announced. The Crawley Agrimotor was awarded first prize in its class, a gold medal and £20. This was an outstanding achievement for a very small company. The second prize went to the American-made Moline Motor-plough.⁴

Production of the Agrimotor continued at The Tower Works in the early 1920s. Exports were made to Australia, Egypt and other overseas destinations but no details have come to light. The Indian Agricultural

³‘The Crawley Agrimotor of Saffron Walden’ – *Saffron Walden Historical Journal* No 22 (2011)

Journal had a short piece on it outlining the results of the 1920 Aisthorpe Tractor Trials. Locally, Agrimotors were used by Jossaume's for contract ploughing. One of their Agrimotors is now exhibited in the Garrett Longshop Museum at Leiston. It seems probable that Garretts continued to supply The Tower Works with steel castings for the Agrimotor and other components were purchased from Hedley & Edwards of Bishop's Stortford. Amongst the post-war improvements that could be incorporated into the Agrimotor was the option to purchase a two-furrow, two-way plough which was a time-saving option, which saved marking out the 'lands' before ploughing a field. This pre-dates the modern reversible plough by many years.



Ten Crawley Agrimotors lined up on Mandeville Road looking towards Borough Lane, and awaiting dispatch to customers. The machines are complete with their built-in ploughs and look to have been photographed in the 1920s.
Photograph © Nick Crawley.

The Agrimotor was made at The Tower Works until 1924 after which manufacture was discontinued. The actual reason for the decision to cease production is unclear but probably price competition played its part. That may be so but there was another important factor. The Corn Production Act of 1917, a wartime measure, had given farmers a guaranteed price for their home-grown wheat. This led to an increase in the acreage planted. The war had ended in 1918 and within months the Act was repealed and yet again farm prices began to collapse as imports rose, so that between May and September 1922 farm cereal prices had fallen by a half and arable farming slid into recession.⁵ Many farmers diversified into sugar beet, dairying where there was a rail connection to the market, piggeries and orchards, in fact anything other than cereals. For the agricultural machinery manufacturer the future must have looked bleak.

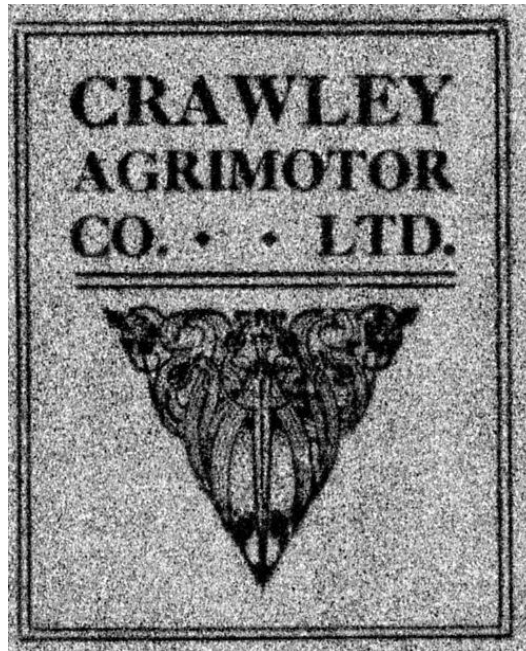
Although the Agrimotor was no longer made, the company continued to trade as The Crawley Agrimotor Co Ltd but concentrated on general engineering, making a range of products including deep well pumps, dragsaws and saw benches, to mention a few. The business expanded by co-operation with a firm of stationary engine makers named Hobbs who 'The Crawley Agrimotor of Saffron Walden' – *Saffron Walden Historical Journal* No 22 (2011)

had previously operated as Frome Engineering Co (Somerset) Ltd, but had moved their business to Saffron Walden and occupied premises in Mandeville Road adjoining the Crawley Tower Works. Hobbs later took over the Crawley business in 1928 and continued to trade as The Crawley Agrimotor Co Ltd and were still there in 1933 as shown in one of their advertisements.

Finally, was the Crawley Agrimotor a success or something less? Total production over the ten years 1914-1924 is thought to have been around the 500 mark, so an average of 50 per annum. Within its class of self-propelled ploughs it was judged to be the best. Included in this category were three 'big name' manufacturers with considerable resources for extensive research and mass production, for example John Fowler of Leeds, a well-established traction engine maker, Ransomes Sims & Jefferies of Ipswich, a firm of agricultural implement makers of world renown, and Motrac Engineering, well-known agricultural engineers in USA with their 'Moline' products. While within the motor-plough class it was the best, agricultural mechanisation was moving in a different direction.

New designs were concentrated on the development of tractors which could be hitched to a variety of different implements including ploughs, simply by attachment to the rear of the tractor, allowing rapid changeovers at busy times. This development, away from the self-propelled motor-plough but towards the tractors and separate implements, was becoming evident from entries in the Aisthorpe trials of 1920. In the tractor classes there were 26 entries including Fordson and General Motors, whereas there were only six entries in the motor-plough class.

The Crawley Bros nevertheless should be remembered as successful early pioneers who made their contribution to the mechanisation of British and overseas agriculture – and were a credit to Saffron Walden.



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