PLOUGH PRODUCER

Tony Turner is best known for the development of the Turner Hydramower in the 1960s and the highly successful company he established to make it, Turner Engineering. His involvement with ploughs, firstly those made by Bomford Bros and then the models he designed and made under his own company's name, may come as a surprise. In the second of his interviews with Terry Richardson, he sheds light on the little-known plough-making activities of Bomford Bros and Turning Engineering.

AS THE SON OF A farm manager, and with grandparents farming in Yorkshire and Somerset, it was almost inevitable that Tony Turner would be involved in the farming industry. The path he chose was agricultural engineering. Last month we found out how his apprenticeship with Bomford Brothers led to him becoming involved in the development of double-arm flail verge mowers.

After his idea for a hydraulic flail mower was taken no further by his employer, Douglas Bomford, he designed and built one himself in his spare time. He again offered it to Bomford Brothers, but they still turned it down, so he decided to go it alone.

As a result, the names of Tony Turner and his business, Turner Engineering Co., became synonymous with hydraulic flail mowers in the 1960s and 70s. What is much less well-known is that Tony was heavily involved in plough development, not under for Bomford Bros, but also during the Turner Engineering Co. era. It is his ploughs that are the focus of the second of our interviews with this talented and influential engineer.

CLASSIC TRACTOR (CT): You were focused on hedge cutters and verge mowers during your time with Bomford Bros in the 1950s and 60s, so how did ploughs fit into your schedule?

Tony Turner (TT): When I was serving my apprenticeship with Bomford Brothers, they were very much agricultural contractors, using big steam engines and Gyrotillers. Trailed conventional and reversible ploughs were already available for crawlers, but later on we started selling the two- and three-furrow three-point linkage-mounted reversible ploughs that I had fabricated and became the demonstrator for, selling many hundreds.

Bomford & Evershed was also heavily into steam ploughs for contracting, using reversible ploughs. Douglas Bomford, who we called 'DR' (Dee-Arr) behind his back and Mr. Bomford to his face, used to work with a company called Wilmotts from near Bristol, who manufactured the ploughs for him. By the time I had started working with DR, they had already developed a reversible plough from the steam engine days, but this was really a converted horse plough, which was then later redesigned to go behind a crawler. Large crawlers were very much the main ploughing machines at that time. Wheel tractors during that period were only low horsepower and were unable to manage trailed reversible ploughs.

The Ferguson System introduced on the TE-20 incorporated a hydraulic three-point linkage system, but the power and size of the tractor limited what it could do.

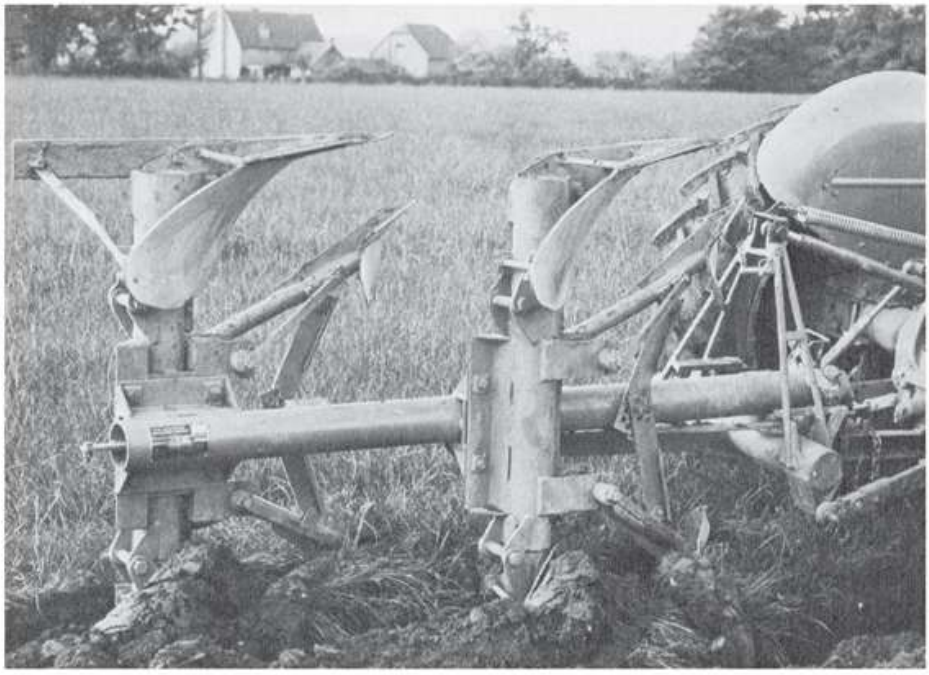
Above: One of the first four-furrow, fully-mounted reversible ploughs to be developed by Turner Engineering, using lengths of Rectangular Hollow Section (RHS) steel.

Above inset: Tony Turner, flail mower/hedge cutter pioneer and one-time plough fabricator, designer and manufacturer, remains heavily involved in engineering at the age of 85. He is the chairman of GreenMech, the wood chipper and shredder manufacturer he founded in 1993, and the head of Turner R & D Limited, an engineering design company.

DR was very interested in mounted reversible ploughs, and he came up with an idea and produced a sketch of a mounted, two-furrow reversible for tractors. He gave it to me to construct, test and prove. DR designed it, I made it.

CT: How old were you then when you were called upon to fabricate something completely different?

TT: This would have been when I was about 20 years old, so around 1954-5. Bernard Hodgkinson was a draughtsman for DR, and I owe a lot to him for all the help he gave me, especially the way he encouraged me to achieve my dream of learning to fly. Bernard



Above: Bomford Bros introduced a three-furrow, semi-mounted reversible plough in 1963. It went on to make 95 three-furrow ploughs between 1963 and 1967, the latter year being when plough production ceased, and 24 four-furrow variants.

Right: Bomford Bros launched its first two-furrow, fully-mounted reversible plough in 1959. It was designed by Douglas Bomford and used a tubular beam made from 5in-diameter water pipe. There were no disc or knife coulters, just large skims.

had been a navigator on Lancaster bombers in the Second World War and then became a lead navigator with the Mosquito pathfinders that marked the targets for the following bombers. He was a Squadron Leader and a very capable man. He had a great understanding of equipment design and I worked with him while making the first prototypes of Bomford's sickle-bar verge mowers and hedge cutters, and then the company's two-furrow reversible mounted plough.

CT: Was there anything special about the Bomford mounted two-furrow plough, other than it being made to utilise the three-point linkage that was becoming popular at this stage?

TT: Well, there was, because if you look back at ploughing in those days, much of it was similar to the ploughing matches of today, where you would expect the perfectly-cut furrow edge with a disc coulter and then the furrow laid perfectly over, giving a visually idyllic finish. But with our plough, the main idea was to bury the rubbish and crop residues. Therefore, disc coulters were a 'no-no'; instead, we used nice, big, aggressive skimmers to bury the rubbish in the bottom of the furrow, minimising disease carry-over and leaving a broken, almost cultivated, finish.

The mouldboards and wearing components were made by a firm in South Wales, the name of which escapes me. I suspect they were the same manufacturer that supplied most other British plough manufacturers at the time.

The construction of the Bomford two-furrow plough was based around a 5in-diameter, heavy-duty water pipe material, which was both strong and durable and reasonably cost-effective. It did the job.

CT: Were there other small reversible ploughs available at the time from other manufacturers?

TT: As far as I know, the plough that I built was thought to be the first-ever of its type, certainly in the UK, in so much as it was built as a fully-mounted two-furrow plough for three-point linkages on tractors, not for crawlers.

We took a plough to the Irish Ploughing Championships that year and I demonstrated and sold them all over the country, from Scotland down to the West Country. The plough performed amazingly well and I literally sold hundreds of them. Bomford Brothers was also an agent for Fowler, Field Marshall and Track Marshall in the Midlands at that time, and we supplied many of its customers with conventional ploughs and some reversibles.

Most of the Turner ploughs were based on a four-furrow concept, initially for crawler use, but then later modified to suit the higher-horsepower tractors of the late 1960s/early 70s.

Left: A 1966/67 Track Marshall 70C holding aloft a Turner four-furrow, fully-mounted reversible plough. The three-point linkage was designed by Roger Dowdeswell and made and marketed under license by Turner Engineering.

Above: Bomford Bros manufactured a total of 1400 reversible ploughs between 1959 and 1967. The two-furrow model, a later version of which is shown here, was by far the most popular, accounting for 91.5% (1281 units) of all production.

CT: You left Bomford Bros to set up your own business, Turner Engineering, specialising in the manufacture of flail mowers. What made you think about entering the plough market?

TT: In the early 1960s, I decided to set up my own flail mower manufacturing business. We then had it good for around five or six years. Turner Engineering was focussed initially on selling the County Hydramower to local authorities, but farm machinery was never far from my thoughts. By this time, a longer, 15ft-reach model had been produced and an increasing number of these were being sold to farmers and contractors to cut their hedges. That was all fine until the local authorities had to make significant cut-backs in their budgets, which directly affected the sales of hedge-cutting and verge maintenance machinery. We then felt a little too exposed, having all our eggs in one basket with local authorities, so I started to consider other options to spread the customer base. I decided then that we really needed to develop another product. I had a lot of experience in developing ploughs, so it was a simple decision to make.

CT: You were already manufacturing and marketing Roger Dowdeswell's design of three-point linkage for crawler tractors. How did that come about?

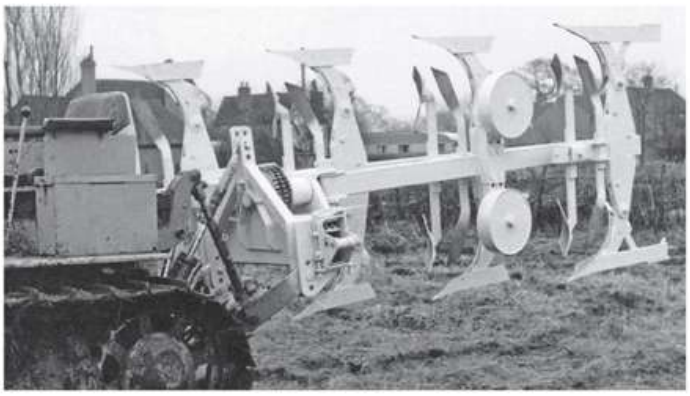
TT: Well, Basil Thwaites, of the Thwaites construction machinery firm at Leamington, was a neighbouring farmer to Roger Dowdeswell, near Southam in Warwickshire. Roger had come up with a design for a three-point linkage on crawler tractors. Crawlers were very popular in East Anglia where there were large tracts of arable land. A three-point linkage and reversible plough could significantly increase daily performance.

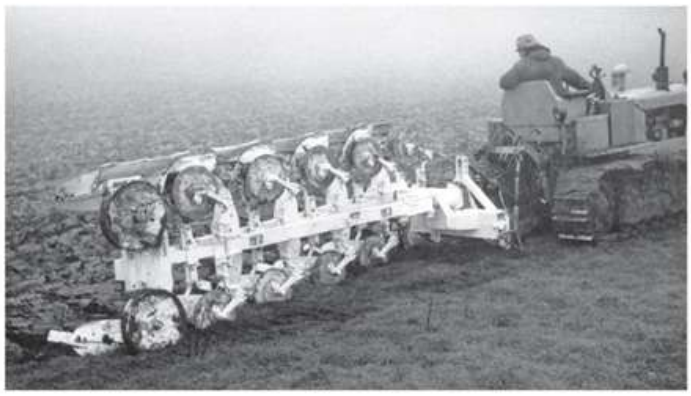
Roger Dowdeswell didn't have manufacturing facilities to produce his linkages. Basil Thwaites, who I knew well, suggested to Roger that we, at Turner Engineering, could make his three-point linkage under license, and so we did just that. I started manufacturing Roger's three-point linkage back in the mid-1960s, until Roger started his own company in 1971. Roger became a really good friend and was always visiting us to see how the production of the linkage was going and making a few design improvements on the hoof. He was also very interested in our flail mowing products. He was a nice person to work with.

CT: You mentioned the need for Turner Engineering to diversify. Tell me the story of how you further developed your ploughs.

TT: Well, as we were already working on the three-point linkage for crawlers for Roger Dowdeswell,

This Track Marshall 70C crawler, dating from late 1966 to early '67, appears in a number of the period photos that Turner Engineering took to promote its fully-mounted reversible ploughs. This 70C has an optional hand clutch.





Above: Turner Engineering's decision to use RHS for its plough beams had the benefit of making them stronger, but also lighter and easier to lift on a three-point linkage.

Above right: One of very few Turner Engineering ploughs fitted with disc coulters and arms, the latter possibly made by Dowdeswell, to meet a specific customer requirement.

it became a natural thing to start looking at developing our own plough. I decided to use the experience I had gained from manufacturing ploughs during my time with Bomford Brothers to develop larger reversible ploughs specifically for crawler tractors, which fitted to the Dowdeswell linkage.

By that time rectangular hollow section (RHS) steel had become readily available. We then started to utilise this in our own plough construction, because it was stronger and enabled the manufacture of larger implements for the higher-horsepower crawlers that were being used on large arable farms. We initially focussed on four- and five-furrow reversible ploughs for the crawler market, but when higher-horsepower tractors started to appear, some of the designs were altered to suit the new wheeled-tractor specifications. This was sometime during the late 1960s.

CT: What design improvements did you build into these new ploughs?

TT: Obviously they were very heavy-duty to meet the higher horsepower needs, but one thing I did design into the product was the shear-pin breakaway for the plough bodies. I learned this from experience with the crawler ploughs; if you hit something hard and the traction doesn't slip, then something has to give.

With our Turner Engineering products, I incorporated a safety break-away device and that was a big improvement in terms of reliability and product longevity. Weight also was an important factor and by using RHS steel profiles, we were making our product lighter but stronger.

CT: How well did your ploughs sell?

TT: We only made less than 20 ploughs all told. All of a sudden, the demand for our flail mowers for local authority verge cutting work took off again, and we didn't have the facilities to manufacture both product ranges. I decided to make a serious management decision, and that was to focus on the flail mower and hedge-cutter markets. These were already established and our product had been svery well received.

Roger Dowdeswell was already starting to develop his own workshops. He had seen how we went about manufacturing our own products and we talked to him about taking over our plough manufacturing side. I don't remember the finer details of the deal, but we gave him a couple of demonstration ploughs, loads of bits and pieces, and obviously quite a lot of drawings as well. I think I owed him some royalties on his three-point linkages, so we ended up with an agreement – he went his way and I went mine. He developed his plough products from where we had left off, made a tremendous success of it and the rest, as they say, is history.

A farmer-developed, high-horsepower six-wheel drive tractor working with a Turner Engineering four-furrow reversible plough in the early 1970s.

CT: Did Roger start afresh with his own designs or did he modify what you had already developed?

TT: If you look closely at the first Dowdeswell ploughs that came out of his factory in 1971, they were very similar to the design I had developed in both structure and specification. Roger developed the plough to meet the needs of the changing market and became very successful at it. But when you look at it, that's progress!

Roger developed further the products that I had manufactured, which in themselves had been borne out of my experience with DR and Bomford Brothers. That's very much how things change in the agricultural industry; it's all an evolution based on previous experience. I'm really proud that our designs were taken on by a very successful operation that became globally renowned.