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Milestones in agricultural engineering

Since 1987 agricultural engineering innovations which have altered the course of farming in their time and brought with them at least some advances, have been presented in this spot. If one follows the mechanisation of agriculture through the engineering milestones 25, 50, 75 years ago and longer then it's amazing to realise that many ideas and recommendations are not at all as new as they at first appear.

Fig. 1: Albrecht Daniel Thaer amongst his students (Pedestal of the Thaer Memorial in Berlin).

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Whether an event or innovation becomes recognised as a milestone is usually not evident at first. Very often small beginnings end up having massive influences whereas developments welcomed as of huge importance become banalties in the passage of time. Only when looking back can one balance the values of developments – a major reason why history is so important. This point of view is emphasised by an event which took place on May 14, 1752 in Celle. A young woman gave birth to a baby boy, admittedly not an ocurrence out of the ordinary – and further development of the young man, christened Albrecht Daniel Thaer wasn't anything out of the ordinary either, as scholar, student and through examinations to become a doctor of medicine.

However, his appointment in 1778 as state physician and the award of the title Court Doctor in 1780 was not quite the usual run of events. But the change that brought this person right out of the ordinary first took place when Thaer found he was dissatisfied with the art of healing and discovered agriculture. A small farm was taken-over. But this farming doctor wasn't interested in tradition. Instead he wanted to identify productive forms of arable and livestock production, in short an advanced, rational agriculture.

1802

Thaer did not want to produce just anything, but only the best and the most cost-efficient. „A farmer that produces everything that he needs is like a tailor that makes his own shoes"; he told his fellows. And these people came to see what the remakable medic had developed. First a few individuals then increasingly more until Thaer decided hold actual courses about his experiences with rational agriculture. Exactly 200 years ago in 1802 the first of his courses opened in Celle where a large part of the proceedings was the reporting on modern forms of agricultural

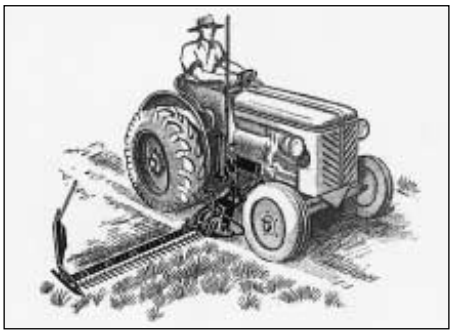

Fig. 2: Rasspe achieved great success with mounted grass mowers after WW II.

engineering brought to championship standard, especially in England. The seeds thus sown by Thaer took root dramatically. The Bavarian Max Schönleutner and the Prussian Heinrich v. Thünen were among the participants of the first course. Together with many others they helped form the breakthrough to a modern agriculture with basics which apply even today, described by Thaer so: „Agriculture is a business with the purpose or producing profit or making money through production of vegetable or animal substances."

1827

175 years ago Friedrich Wöhler made a name for himself in the laboratories of the state careers school in Berlin. He discovered aliminium, a metal at first more expensive than gold. However, efficient production systems made the light yet strong but, above all, non-rusting metal a reasonable price. Agricultural engineering had a big role in the victory march of this light metal. Whether in the farmhouse and steading economy or in agricultural machinery manufacture, in every aspect its application is a fact of life now. Another milestone is formed by the story of the company P. D. Rasspe and Sons from Solingen. From modest beginnings as hammersmiths the Rasspes developed over time into the worldwide largest manufacturer of agricultural machinery parts. After WWII Rasspe made a great success with tractor mowers, giving nearly 1000 people work and food.

1852

Soil is the basis of all agriculture. Its content decides on low or high yields. What was, therefore, more natural than to improve it where the ground was wet and soft. 150 years ago in the fields of the „Agricultural Instruction and Investigation Institute Hohenheim" ceramic drainage pipes were used for the first time. Their manufacture took place in drainage pipe presses and the agricultural engineers also had good ideas for laying the pipes. The individualistic as-

sortment of implements used in sustainable soil improvement ran from drain spades through laying rods to drain pipe carriers. However, the soil alone is not everything. Without Man and his masterful control of machinery and implements the work would not succeed. With this in mind, the first ploughing match was held in Baden near Vienna one and a half centuries ago. 16 teams took part with the winner a 17 years old horse plougher. However Christian Friedrich Röber had concentrated most on the agricultural implement. In Eichroth near Wutha he opened a workshop for wagon and plough manufacture which later developed into a specialist facility for grain cleaning machinery.

1877

125 years ago there was no lack of interesting new introductions in agricultural engineering. For instance Albert Braedickow from Alt-Landsberg introduced a dibbling machine with the dibblers mechanically operated through 'thumbs'. A. Ingermann from Kloldmoos, on the other hand, was able to patent a weeding machine mounted on a two-wheeled chassis. Through three steerable rakes this was able to tear out of the ground the woody stems of runch and charlock. But did these and other innovations actually work well? Following up this question was the 1877 founded Testing Station for Agricultural Machinery at Bonn-Poppelsdorf. True to the proverb that 'better' is the enemy of 'good', this tested agricultural machinery of all types for on-farm suitability.

The farm machinery companies Stille, Münster and H.C.Fricke, Bielefeld can celebrate 125 years of existence. Over decades they enjoyed the highest reputation from farmers for their dung spreaders and plant protection implements.

1902

100 years ago academic involvement in farm machinery was moving into a golden period. At the Agricultural University in Berlin the first ever chair of agricultural engineering in Germany was established and occupied by the later Privy Councillor Prof. Dr. Gustav Fischer. The intensive training of students in agricultural engineering was just as important to him as the testing of farm machinery for suitability and durability. Privy Councillor Fischer became the grounder of the tradition of farm engineering research that still remains with Berlin through the service of renowned professors such as Dencker, Kloth, Meyer, Marks, Heyde and Göhlich.

Fig.3: Cassani diesel tractor from 1927

The list of completed farm machinery innovations in 1902 is long. Walter A. Wood from Hoosick Falls (USA) presented for the first time a mower-binder with fitted engine. In Germany, G. Schulz, Magdeburg-Neustadt struck a dramatic note: at the DLG exhibition in Mannheim this medium sized company grounded in 1890 launched a universal long-straw baler with wire or twine binding. There are also firm jubilees to celebrate: IHC, Heinrich Wilhelm Dreyer, Gebr. Hagedorn as well as the Germany branch of De-Leval belong to those who can look back on 100 years of business.

1927

With the publication of the book „Die Standorte und Erzeugnisse der Deutschen Landmaschinen-Industrie" (Locations and products of the German Agriucultural Machinery Industry) LMV celebrated 30 years of existence. This company achieved the blueprint of a compendium which established standards in German agricultural engineering history. Widening the overview 75 years ago brings us to an international event with the Cassani brothers from Treviglio entered the tractor-manufacturing scene with a 40 PS diesel SAME, a name the company is still connected with. On the farms of the Grafen Bismarck-Varzin combine harvesters and rowcrop tractors from the USA were introduced for the first time. While at Limburgerhof an IHC farmyard manure spreader had its German premier. From a national point of view the steam potato-processing facility traced back to Bruno Victor is worthy of mention being the precourser for large-scale production of steamed potatoes, a stimulator for intensive pig production.

Fig. 4: The small Unkel combine „Piccolo" at work in 1952.

1952

Nothing seems able to brake the creativity of the agricultural engineer. Whether crawler tractor or combine, wheeled loader or precision drill: on nearly all those areas there appeared significant new developments. Gustav Unkel's „Piccolo" small combine for example fascinated the farmer just as much as the Robot, a lightweight crawler tractor built by LHB in Salzgitter. Even more sustainable, however, was the grounding of the main advisory centre for electricity utilisation (HEA). The training and information here played the leading role in electrification of agricultural in Germany.

1977

A quarter century in history is less than a blink in time. For the individual it is, however, a period that makes a review rewarding. In this context, we can look back to Justus, a versatile cultivation implement which was designed to produce ready seedbeds from stubble or to work on plough-depth cultivations. Full of promise were also the trials of the FAT Tänikon with extremely low pressure wide cross sectional tyres. With inner pressure sinking as low as 0.3 bar, specific ground pressure was minimised. With its models 1440 and 1480 IHC introduced the first axial combines and SAME presented jubilee tractors under the names Tiger and Buffalo. Apropos jubilee tractors, the 500,000th tractor from David Brown was not only silver, it carried the coat of arms of Her Majesty the Queen. At the Royal Smithfield Show in 1977 this tractor was auctioned for charity. But that's another story and long yesterday's news.