

*A HISTORY  
OF THE  
LAWNMOWER.*

As we look back in history, the idea of lawn care probably started with sheep.

As time passed, the desire for beautiful lawns and gardens spread over hundreds of years from the privileged aristocracy to the general population.

In America we know that George Washington kept Mt. Vernon well manicured by having plenty of sheep around. Thomas Jefferson did likewise at Monticello.

In the decades to follow, a wide variety of gas and electric powered lawn and garden products were introduced, all designed to provide time saving convenience that allows for maximum enjoyment of our suburban lifestyles, keeping our lawns and gardens beautiful and enhancing property values.

The lawn mower was invented in 1830 by Edwin Beard Budding, an engineer from Stroud, Gloucestershire, England.

He obtained the idea after seeing a machine in a local cloth mill which used a cutting cylinder (or bladed reel) mounted on a bench to trim cloth to make a smooth finish after weaving. Budding realised that a similar concept would enable the cutting of grass

if the mechanism could be mounted in a wheeled frame to make the blades rotate close to the lawn's surface. He went into partnership with a local engineer, John Ferrabee, and together they made mowers in a factory at Stroud. Examples of the early Budding type mowers can be seen in Stroud Museum, the London Science Museum and at Milton Keynes Museum.

These early machines were all made of cast iron and featured a large rear roller with a cutting cylinder (reel) in the front. Cast iron gear wheels transmitted power from the rear roller to the cutting cylinder. Overall, these machines were remarkably similar to modern mowers.

Budding and Ferrabee were shrewd enough to allow other companies to build copies of their mower under licence, the most successful of these being Ransomes of Ipswich which began making mowers as early as 1832. The company has made mowers virtually continuously ever since, and is now the world's largest manufacturer of lawn care equipment.

By the 1850s, Budding's early patents had lapsed and other companies were able to introduce their own machines. In the middle of the decade.

Working as an engineer in Gloucestershire, Budding's attention was drawn to the problem of cutting lawns, an increasing number of which were being grown. At Blenheim Palace, for instance, fifty men were employed with scythes to cut the grass but they often left bare patches. The problem with the scythe was that it depended on a very sharp blade hitting the grass very quickly, so that the grass would be cut and not just bent out of the way. This made scything a labourious task, but one that required skill if the

lawn was not to be decimated.

Budding knew that if the grass were trapped between two blades - like a pair of scissors - then it would be easier to cut. In 1830 he was inspired by the nap-cutting machines he was using. These consisted of helical blades that were run over newly woven cloth to give it a smooth finish. He patented his idea the same year and went into partnership with John Ferrabee, the owner of Phoenix Mill foundries, where they started making machines "for the purpose of cropping or shearing the vegetable surface of lawns, grass plats, and pleasure grounds". The blades were driven by a series of cogs that were, in turn, driven by a large roller. Excepting the fact that Budding's original machine was made of cast iron, it was very similar to many modern lawnmowers.

His other invention of note was the adjustable spanner. Before the Budding spanner, workmen laboured with the old versions, in which the spanner was adjusted and then wedged into place, creating problems when the wedge came loose. The same problem reportedly happened to Budding, and with only a screw available to replace the wedge, the adjustable spanner in its modern version was born.

At this point, we talk about The Scythe.

## **The Scythe**

The scythe is known as a "ley" in the Lake District and has been used for cutting grass for hay, oats or barley for animal and human food, and bracken for bedding.

A scythe needs to be fitted to the user so it does not have to be lifted much for use. David Trotter recalls: "You could adjust the handles, they had like a wing nut on. You could drop the ley or alter it just as you needed."

The scythe mainly replaced the ancient sickle during the 1850s but it was in use earlier in some places. It was faster, more comfortable and more efficient to use than the sickle, which needed the user to bend nearly to ground level.

Garnett (1910) quotes a sale of the effects of Wm Hawkrigg, Yeoman of Underhelm, Grasmere, held in 1710: as well as an "oxe-yoak" he had owned "a scythe and strickle [sharpening tool for the scythe], a sledge, two flaving spades and a peat spade, sickles, a tarr kett [kettle] and tarr costrell" and pewter dishes.

John Gate: "Them old men, when they went to cut a field of hay, three or four of them, it was so much money pay for cutting a field, and so much ale. Geyley often though, they'd send a man to t' pub for ale and he wouldn't return!"

The popular image of the scythe is of the type with the curved handle called a sned, or snaith. However, it is a southern version of the tool. The older northern version has a straight handle and was only slowly replaced with the more efficient curved-sned ley. This example has no handles attached.

Traditionally the scythe is a man's tool, while the wooden hay rake is thought of as a woman's tool.

John Gate recalls: "Now when we went to farm in Mosedale (1930s), there was two or three o' these lying on t' wall tops and up in t' barn. You know the shaped sned on a scythe? well these were straight. They must ha' gone out of fashion."

The straight scythe is the older form of reaping equipment, and it survived longer in Northern England than in the South where it was replaced by the S shaped version. In its turn it had replaced the short handled curved, serrated blade sickle in the 1850s. The scythe has been used since Roman times to mow hay, but in Cumbria the back-breaking sickle stayed in favour for a long time because it was the tool of the itinerant Irish workers who "followed the harvest" from the early areas such as the Solway, Eden valley and South Lakeland up into the later hill farms' harvest.

The long handled scythe became the tool of choice for wheat and other crop harvesting in other areas in the early 1800s. A man with a scythe could cut up to 2 acres of oats or wheat a day; barley took a little longer because it dulled the blade faster.

The scythe itself was superseded in the later years of the 19th century by the horse drawn mowing machine, although it was still common to "open out" fields of grass or corn in front of the large machine using a scythe, and to mow awkward areas that could not be got using the mower.

Now back to the Lawnmower

Thomas Green and Son of Leeds introduced a mower called the Silens Messor (meaning silent cutter), which used chain to transmit power from the rear roller to the cutting cylinder. These machines were lighter and quieter than the gear driven machines that preceded them, although they were slightly more expensive. At roughly the same time, Alexander Shanks of Arbroath introduced its range of Caledonia mowers and Ransomes introduced the Automaton. All were available with either gear or chain drive, and grass collection boxes were an optional extra. All these models, in various sizes and with minor modification, were in production well into the 20th century.

The next major innovation in lawn mower design was the introduction of the sidewheel machines. Although invented in England, these machines were popular in North America where grasses are often coarser than in Europe. They had cast iron wheels at each side which drove the cutting cylinder directly by means of ratchets inside the castings. They did not have a metal rear roller, and were very light and inexpensive to make, which made them very popular all over the world.

Motorised mowers appeared in the 1890s as lightweight petrol engines and small steam power units became available. Although steam mowers were the preferred choice for a few years, by 1900

petrol engine mowers were winning in the market. Ransomes, Sims and Jefferies introduced a petrol engine mower in 1902, and led the market until the First World War, although Shanks and Greens also made petrol engine machines during this period.

The period immediately after World War One saw an unprecedented growth in lawn mower production. Technology had advanced, companies needed to find new markets for peace time products, and customers were moving to new suburban housing with small gardens.

One of the most successful companies to emerge during this period was Atco, at that time a brand name of Charles H Pugh Ltd. The Atco motor mower, launched in 1921 was an immediate success. Just 900 of the 22in cut machines were made in 1921, each costing £75. Within five years, annual production had accelerated to tens of thousands. Prices were cut and a range of sizes was available, making the Standard the first truly mass produced motor mower.

Another company which became incredibly successful in the 1920s and 30s was Qualcast. Models such as its E sidewheel and Panther roller mowers sold in millions, at just a few pounds each, to people with small lawns who needed an economical and reliable mower for a few minutes a week.

Surprisingly, seemingly modern ideas such as electric power and rotary cutting were all tried out in the 1920s and 30s, although they did not become popular until much later. Innovations in the 1930s and 40s led to lighter designs and smaller, more powerful petrol engines. By the 1950s lawn mower technology had advanced greatly and machines were inexpensive and generally reliable.

Hayters started to produce their range of products in 1947 at Spellbrook, near Bishops Stortford. Herts.

## **Hayters ...**

Founded by Wilf and Doug Hayter, they tried many ideas and products before turning to the birth of the Rotary Mower.

Some of the ideas started with a sawmill at their Spellbrook based firm, and for a time they built small caravans, also go-karts to mobile welders. The story of how the idea for the rotary mower came about was that, one of the brothers riding his bike home from the pub, fell off, and whilst he sat watching the wheels spin, he noticed the front wheel chewing up the grass as it spun. The introduction of plastic components in the 1960s reduced costs further still, although traditional designs were similar.

The major innovation of the last thirty years has been the rotary hover mower, made possible by widespread use of lightweight plastics and high-power, lightweight electric and petrol motors. The first 'hover' mowers were introduced by Flymo in the early 1960s. These machines were blue and white, rather than the more familiar white and orange designs seen today.

## **Electric Lawn Mowers.**

The first mains electric lawn mower appears to have been suggested, at the very least implicitly, in 1895 by William John Stephenson-Peach. He was a grandson of the Rocket's (the railway engine) designer and "uncle" of the famous original Morgan three-wheeler car. Stephenson-Peach, named as W.J.S. Peach in some earlier patent applications, then lived at Askew Hill, Repton. He was a mechanical engineer with proper workshop facilities and "Teacher of Engineering" to Repton School and Cheltenham College.

Stephenson-Peach's first relevant patent was applied for in March 1895 and granted on 11th January 1896 under the reference No. 4830 of 1895. This patent describes: "An improved combined lawn-roller and portable motor, together with apparatus connected therewith". The machine looks like a scaled-down road roller. The patent is clear that the motor could be an oil engine, electric motor, or any other suitable motor. Electric motors were, of course, well known and in use long before 1895, as the patent makes clear in usual patent language when discussing electric motor control. Importantly, the main thrust of the patent - as far as the specific use of an electric motor is concerned - concerns the device for taking up the slack in the electric cable and generally keeping it clear of the machine and the ground. This device was clearly intended as a safety device and a method of prolonging the life of then expensive flexible cables. Note there is no mention of lawn mowing capabilities in this patent.

Stephenson-Peach's second relevant patent was applied for in August 1895 and granted on 19th October 1895 under the reference No. 14,714 of 1895. The title is: "A combined lawn mower, roller, and portable engine or motor". The machine, which was slightly different in layout from the above roller, could be used a mower and roller or just as a roller. The mower was an attachment at the front of the "roller" whose cylinder was powered by the "roller's" motor.

The specification states that any kind of suitable motor could be used, such as the oil engine as illustrated in the patent drawings. This patent specification, however, does not refer specifically to electric propulsion, though the patent refers to the use of a steam engine. However, given the roller patent which he applied for the same year, it would be perverse to say from an inspection of these two patents that Stephenson-Peach did not consider, or ruled out, the use of electricity for his combined roller and mower.

Note that Stephenson-Peach also applied for a number of other patents at this around this time, but these did not proceed to grant. Their subject matter is not on record as such at the British Library.

After 1895, the history of the development and/or manufacture of electric lawnmowers appears to be rather silent until about 1925. It was relatively widely accepted [in the UK] that the Ransomes Sims and Jefferies Electra, launched in 1926, was the first production product electric lawnmower. However, it appears that an American machine appeared the previous year.

## The Coldwell Electric Mower

It seems that the first mains-electric machine to be made as a production product was the Coldwell. Coldwell was a very well-known manufacturer of mowers in the US. A magazine article in September 1925 said that the machine had been "recently" released after two years of development.

A rather too cursory check of US patents does not reveal that Coldwell were granted any patents for an electric machine of this or any other type between about 1920 and 1930, though the company was granted mower-related US patents during this period.

## The Ransomes Electra

Though it has to be possible that more than a few enterprising owners added mains electric motors to their mowers before 1925 without publicising the resulting contraption, there appears to be no well-known record of any such machine, and certainly no UK or US production machine. The first machine to be made as a full production item in the UK was the Ransomes Electra, which was quite widely advertised towards the end of 1926.

The Electra was covered by both UK and Australian patents. The UK patent was No. 268,504. It was applied for on 11th February 1926 and granted on 7th April 1927. The final ("complete") specification had been submitted on 30th September 1926. No US patent appears to have been granted (and one assumes none was applied for), though Ransomes did obtain US patent protection at this time for some of their other products.

The most distinctive feature was the method(s) of keeping the electrical supply cable out of harm's way - though it appears that at least some owners soon removed this tram (street-car) looking feature.

Ransomes, who also made electric motors and were well-known for their electrically powered factory trolleys, etc, were already producing their first trolleybuses by the time the Electra was launched. The designer of the Ransomes cable pole mechanism was William Scott Murdoch.

In fact Ransomes also experimented with a swing pole mechanism before the Electra was first launched. Mowers that appeared on the market somewhat later made use a similar swing feature, such as the Qualcast Super Panther Electric lawnmower.

The Electra was first sold in 16" and 20" sizes; The "lighter" and somewhat cheaper 14" (~35.5 cm) model was added to the range a little later. Unlike the larger machines which were essentially electrically-powered versions of existing Ransomes petrol (gasoline) mowers, the 14" Electra was essentially an electrically-powered version of the sturdy Ransomes Countess manual mower.

The 14" appears to have sold in greater numbers than the larger versions, though it is fair to say that the Electras did not exactly electrify [!] the market place, especially not the British domestic market. The original 16" and 20" models continued to be shown as being available until about 1936 when they cost £47.10.0 and £57.10.0 respectively. Those models had been joined a little earlier by an expensive (£85 in 1936) heavyweight 30" (~76 cm) model available to "special order".

A very few exported examples apparently survive, and at least one seems to have ended up in South America.

The 30" machine's electrical control gear - one cannot generally control motors of the size (3hp) fitted to the 30" by means of just a simple on/off switch - was modified during the "production run" of this large mower.

The factory also produced at least one interesting 24" (~61cm) model during. Whilst the original 14" machine (£27.10.0 in 1936) was shown in company brochures as being domestically available as late as 1940, Ransomes had announced further electric lawnmowers towards the end of 1936. These were the Lawnic and Bowlic which had been developed during 1934.

The Bowlic was advertised as being particularly suitable for bowling green use. Neither the Lawnic nor Bowlic had drive to the land rolls nor any special cable clearance mechanism. These machines were exported under the Anglec and Cellec names respectively.

The Electra was still available after 1945 in various versions, but essentially for the export market.

Other interesting machines were the superficially attractive JP Super mains electric, especially when fitted with a Brook Cub 1/3hp capacitor start/run single phase motor, and the electric Rotoscythe (though a rotary, albeit the first practical one, all Rotoscythes are interesting from the engineering and patent points of view).

## **The Easy Way to Maintain Your Lawn**

The amount of time and money you spend maintaining your lawn depends a lot on what your idea of a lawn should be – not necessarily what your lawn actually needs. Early lawns of the Middle Ages did not require much maintenance. That's because they were inspired by glades or grassy openings in the forest (not pictures in magazines or golf courses). These lawns were meadow-like mixtures of grasses and flowers that were planted amongst fruit trees, vines, flowers and herbs and enclosed by fences or courtyards.

There was no mowing. Grass was kept from growing too tall by trampling it into a soft, woven mat-like surface. If you too can adjust your expectations to taller grass, a mix of other plants in your turf, such as clover, and midsummer periods when your grass temporarily turns brown, you can achieve a low-maintenance lawn – and one that's closer to the original spirit of the lawn.

## **The Right Height**

There are several reasons not to cut your grass too short. First, grass grows from the crown, not the blade tips. This trait makes grass ideal for lawns because they keep on growing despite the regular mowing off of their upper stem, leaf sheath and blades. This is also why it's important not to damage grass crowns by accidental scalping with the mower. No crown, no grass! Second, keeping grass on the longer side also allows it greater surface area to carry out photosynthesis. This in turn results in healthier plants. Third, taller grass grows slower than shorter grass. You

can use this simple fact to eliminate up to 20 percent of the mowing you do annually. That's a savings of about 8 hours for the average lawn owner, not to mention a savings of gasoline and wear and tear on equipment.

Finally, by keeping your grass at high end of its recommended mowing height, you can prevent 90 percent of all weeds from germinating – and thereby eliminate the need for herbicides.

### **When to Mow**

Most cool season grasses should be cut when they reach heights of 3 to 3-1/2 inches – typically once a week. Warm season grasses should be mowed when it is 2 to 2-1/2 inches tall. Cut no more than 1/3 of the grass height at each mowing to avoid damage to plants. If the lawn grows too high for you to cut off 1/3 the height and have an acceptable length, cut off one third now and mow 1/3 off again in two or three days.

Cutting more than 1/3 the height will cause grass clippings to lay on top of the lawn and decompose more slowly and will give the grass a more open bristly appearance. In addition, short cutting will stunt or slow root growth and weaken the grass plants.

### **What to do with your lawn clippings**

Today's advice, contrary to 20 or 30 years ago, is to leave clippings on the lawn. The old belief that clippings contribute to thatch build-up is false. Thatch is a build-up of roots and stems, not grass blades. Use a mulching mower and leave clippings where they fall. It not only saves the labour of collecting and composting them, it also reduces the need for adding fertilizer to

your lawn and helps to conserve soil moisture. There are exceptions, however, to this advice.

If you have neglected your mowing or must mow in wet conditions, the long clippings are likely to form heavy soggy clumps that cover the grass. In such cases, the clippings should be removed so they do not smother the grass.

The idea of leaving clippings on the lawn is not new. In 1859 Henry Winthrop Sargent, a garden book writer and editor, wrote that “except during May and June when the growth of grass is more rampant, and has to be gathered, we have removed our box for catching the grass as it falls from the rollers, and permit it to fly in a little shower all over the lawn as the cutting progresses. In this way, the lawn-top dresses itself, by returning all that it produces.”

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