

1814

Birth of John Bennet Lawes



John Bennet Lawes was born on 28th December 1814, at Rothamsted Manor in Harpenden.

1819

Birth of Princess Victoria

Princess Alexandrina Victoria was born on 24th May 1819.



She acceded to the throne, as Queen Victoria, on 20th June 1837.

1822

Death of Lawes' father

Lawes' father, John Bennet Lawes Snr, died in 1822.

The family moved out of the Manor, and the estate was let to Maximilian Richard Kymer from 1823.

1823 Lease of Rothamsted Manor

It is Agreed this Ninth day of June One thousand eight hundred and twenty three **Between Marianne Lawes** of Rothamsted in the County of Hertford Widow of the one part and **Maximilian Richard Kymer** of Streatham in the County of Surry Esquire of the other part as follows The said Marianne Lawes **Doth** hereby agree to demise and Lease And the said Maximilian Richard Kymer **Doth** hereby agree to hire and take **All** that Capital Messuage or Mansion House called Rothamsted in the Parish or Hamlet of Harpenden in the County of Hertford with the Gardens and Plantations thereto belonging **And Also** all that piece of Pasture Ground lying in front of the said House called the Park with the Grove of Wood on the North side thereof containing altogether by estimation Eighty six Acres more or less **And** also the Deputation of the Manor of Rothamsted with the exclusive privilege of sporting and shooting on all the Lands and Grounds late belonging to John Bennet Lawes deceased in the said Parish or Hamlet of Harpenden (Except all Timber and other Trees with free liberty of ingress egress and regress through and over the said ground called the Park to cut down sell and dispose thereof and to cart and carry away the same at all seasonable times in the year) for the Term of **Thirteen Years** from the twenty fifth day of March last if John Bennet Lawes the son of the said Marianne Lawes shall so long live at and under the yearly Rent of **Four hundred and twenty five Pounds** payable quarterly on the twenty fifth day of March the twenty fourth day of June the twenty ninth day of September and the twenty fifth day of

1830

The July Revolution



The July Revolution in Paris.

Lawes was there with his mother at the time, and helped to build the barricades.

1834

Return of the Lawes family to the Manor

The tenant of Rothamsted became bankrupt in 1834, and Lawes' mother decided to retake possession of the estate.

An Inventory of Household Furniture, China, Glass and other effects upon the Premises at Rothamstead Park Harpenden Herts late the property of Maximilian Richard Kymer Esq. Which were seized in execution by the Sheriff of Herts and assigned to William Stanton of Hitchin Herts and now valued and appraised from the Said Mr Stanton to Mrs Marianne Lawes. Novr. 3. 1834

We the undersigned having carefully examined all the articles described in the foregoing Inventory and having allowed for deficiencies Claimed by Mrs Lawes do Valu and Appraise the same, conclusively, between the parties at the sum of Six Hundred and Twenty Two Pounds fourteen Shillings & sixpence

Witness our hands this 3rd Day of November 1834

Willm. Langford
Appraiser.
Hitchin

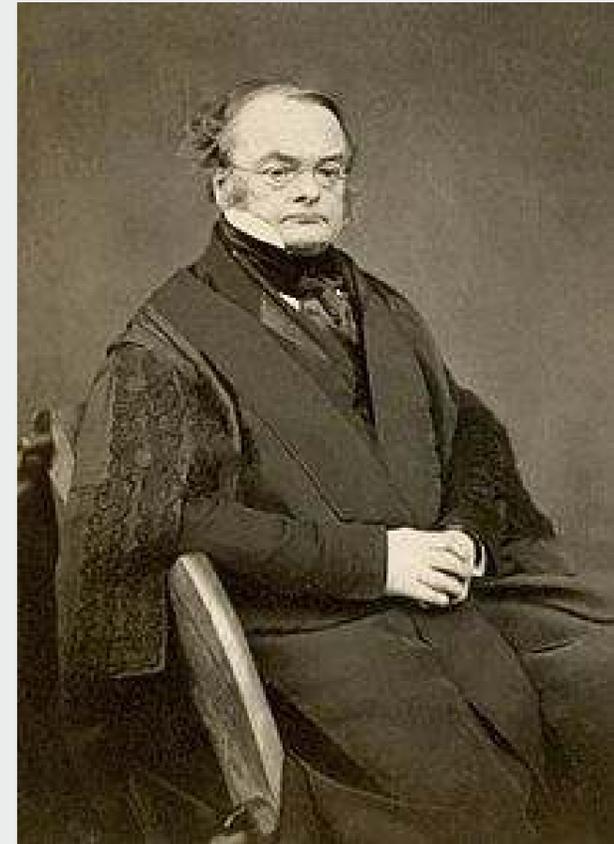
J H Rumball
Land Surveyor auctioneer & Valuer St Albans

1834

Lawes' departure from Oxford University

Lawes matriculated at Brasenose College, Oxford but left in 1834, without taking his degree, to “setup as a country gentleman”. While at Oxford he attended lectures on plant nutrition given by Charles Giles Daubeny, Professor of Botany, which stimulated his interest in Chemistry.

Shortly after leaving Oxford he “order(ed) one of the best bedrooms to be fitted up as a Laboratory”.



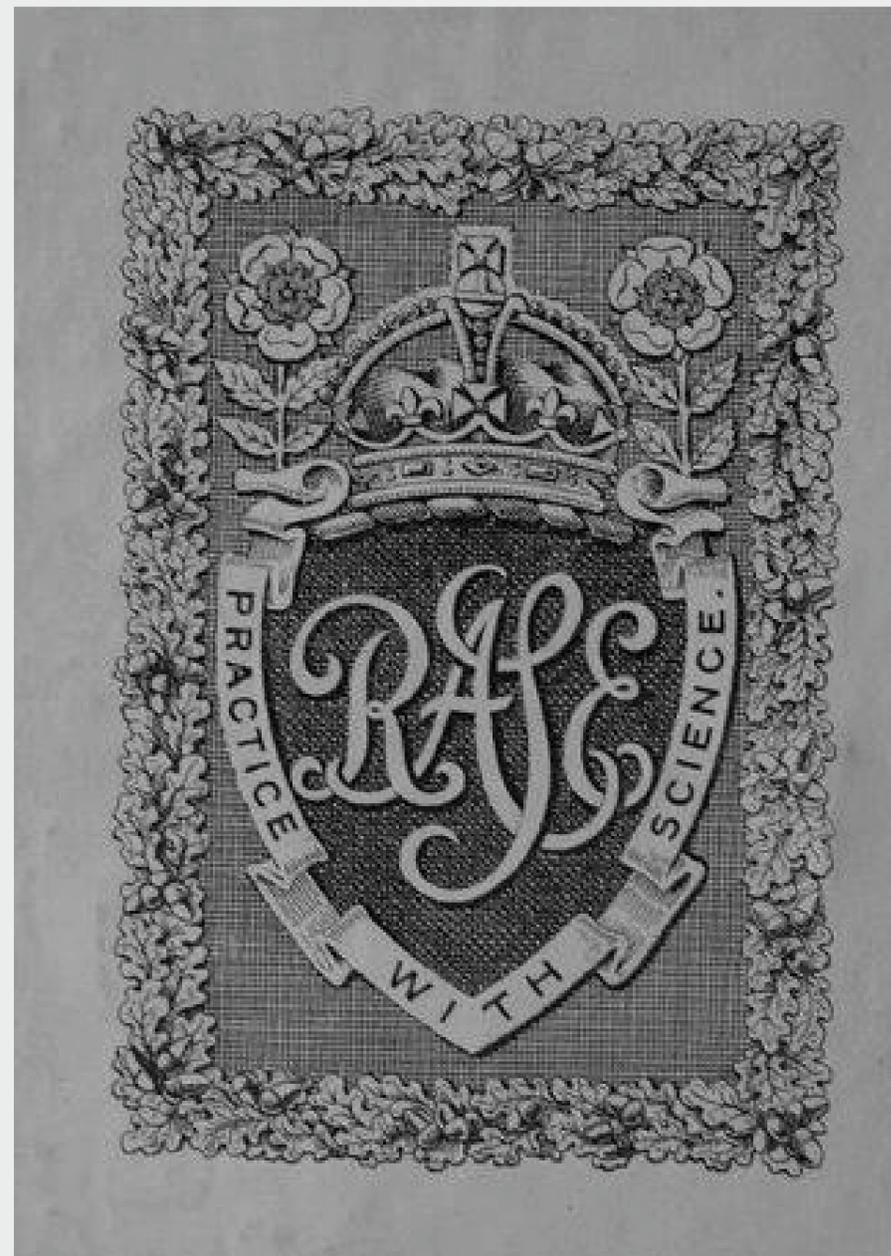
Professor Daubeny

1838

Foundation of the RASE

The Royal Agricultural Society of England was founded in 1838, and was granted its Royal Charter in 1840.

In subsequent years, Lawes was a member of its Chemical Committee and Council, and published many of his papers in its journal.



1839

Creation of the Barn Laboratory

A barn near Rothamsted Lodge was converted into the 'Barn Laboratory' in 1839; it was used until 1855.



1840

Wedding of Queen Victoria

On 10th February 1840, Queen Victoria married Prince Albert who in 1856 chaired a meeting of the Society of Arts at which Lawes spoke on the 'chemistry of Agriculture'.

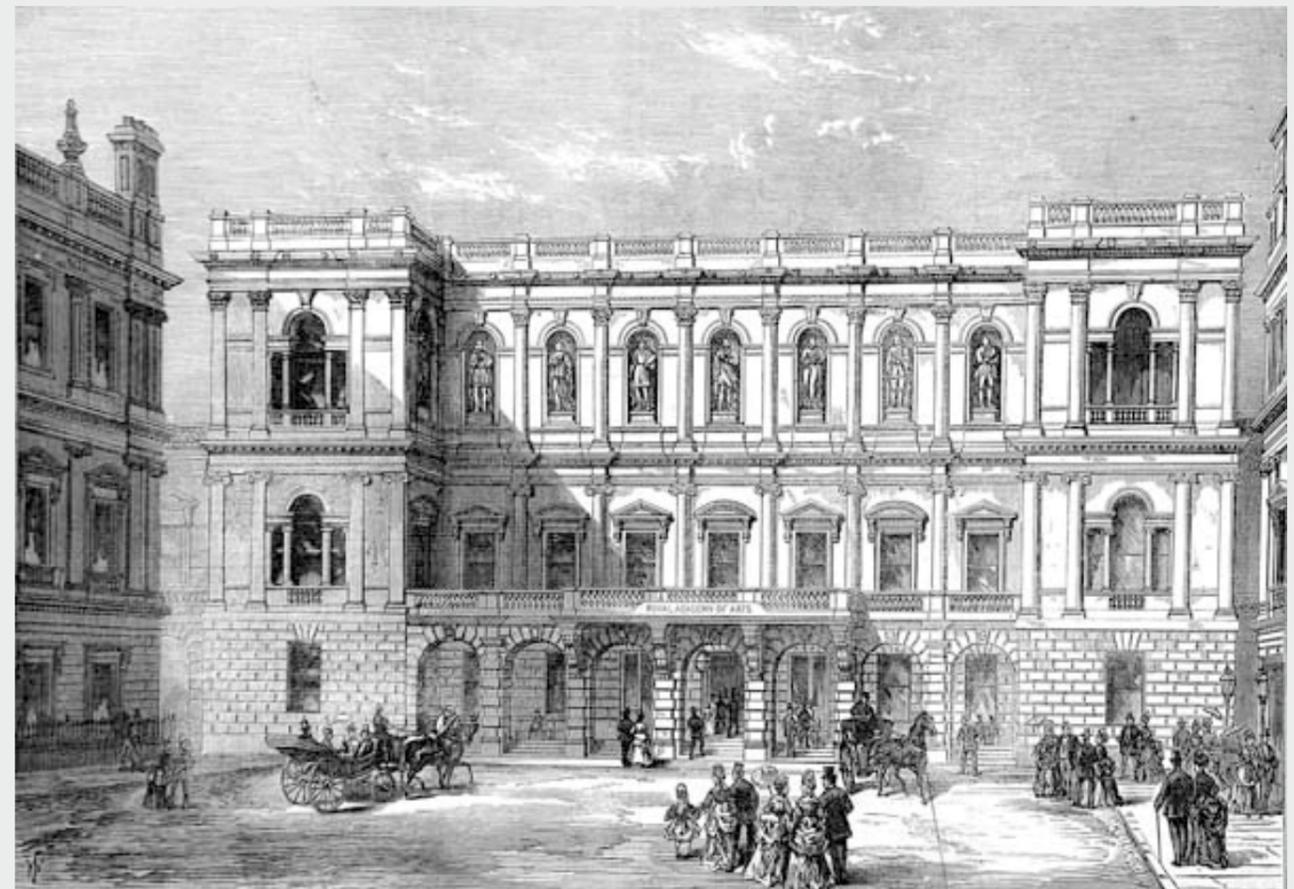


1841

Foundation of the Chemical Society

The Chemical Society was formed in 1841; it was granted a Royal Charter by Queen Victoria in 1848.

Lawes was a member of its Council and published scientific papers in its journal.



1842

Lawes' Patent granted

Lawes' process for manufacturing superphosphate fertiliser, by treating bones or mineral phosphates with sulphuric acid, was granted a patent (No. 9353) in November 1842.

In this year he also married Caroline Fountaine, youngest daughter of Andrew Fountaine of Narford Hall in Norfolk, on his birthday.

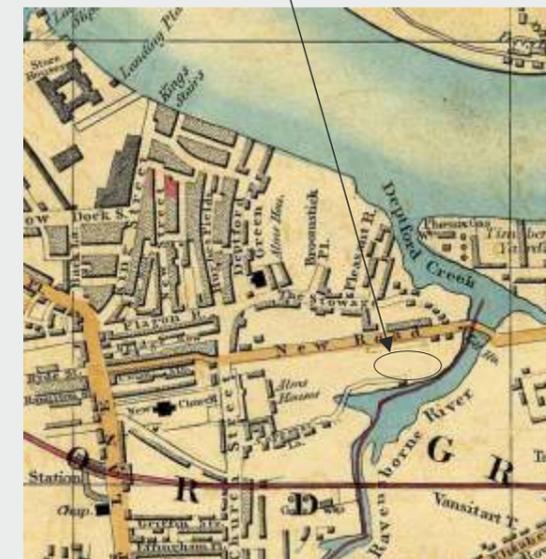
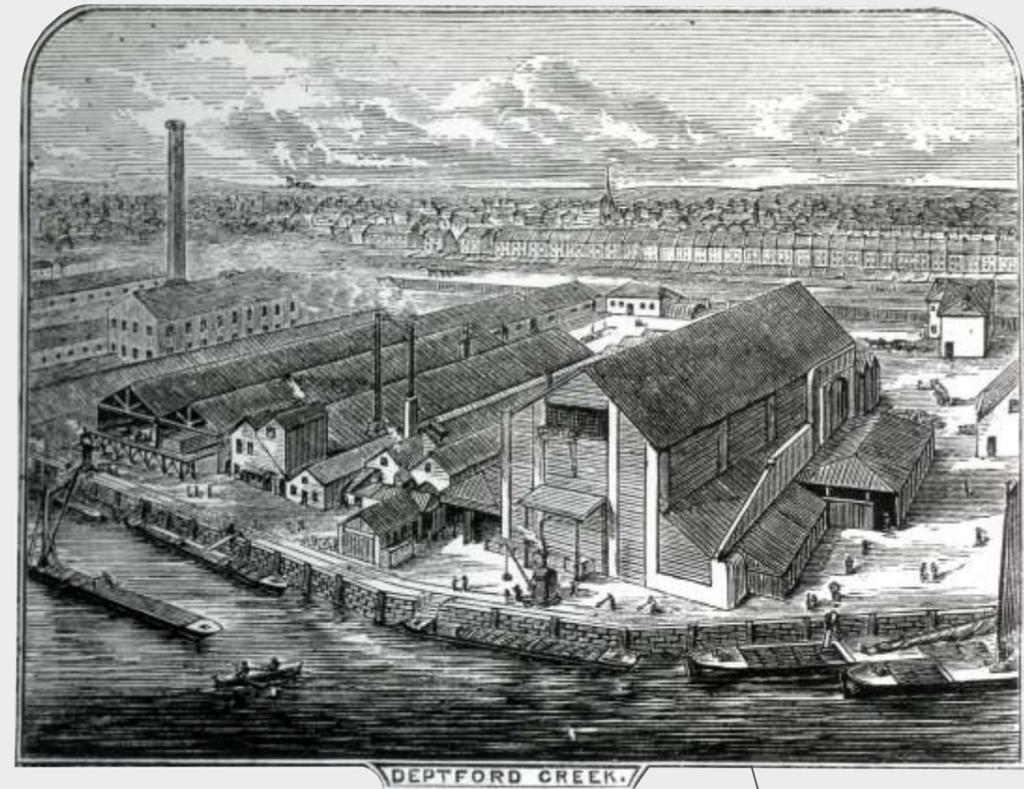


1843

Establishment of Lawes Manure Company

Lawes' first factory, which was at Deptford Creek, was opened in 1843.

It was an ideal site for using boats to bring in raw materials, including large quantities of sulphuric acid, and to ship out 'J. B. Lawes's Patent Manures'.



1843

Dr Henry Gilbert appointed



Lawes and his wife moved out of the Manor in the middle of 1843 while the Lawes Manure Company was being established.

Dr J. Henry Gilbert, who had studied under Liebig at Giessen in 1840, was appointed from 1st June 1843 to supervise the activities of the Laboratory at Rothamsted.

1843

Start of the first 'Classical' experiments

The first of what are now called the 'Classical' Experiments, which tested effects of fertilisers on the yield of turnips, was sown in Barnfield in June 1843.

The better-known Broadbalk experiment on winter wheat was first sown in October 1843. Experiments on animal nutrition began in c. 1849.



1843

Birth of Lawes' first child



Lawes and his wife often visited Mamhead, in Devon, to stay with Robert Newman and his family, who were close friends.

During one of these visits his son, Charles, was born at Teignmouth on 3rd October 1843.



1844

Birth of Lawes' daughter

Lawes' second child, a daughter, christened Caroline, was born at Hampstead, Middlesex on 4th December 1844.



1845

Foundation of the RAC



The Royal Agricultural College at Cirencester was founded in 1845; in later years, Gilbert was one of its Honorary Professors.

Although a talented chemist he was not a charismatic lecturer !



1846

Repeal of the Corn Laws

The Corn Laws were repealed by Sir Robert Peel's Government in 1846, partly as a result of the Irish Potato Famine of 1845/46.

In 1848, Lawes met Peel and gave him advice on what manures he should use on his farm, and subsequently received an order to supply them.



1851

The Great Exhibition

The Great Exhibition at the Crystal Palace in Hyde Park (from 1st May to 11th October) was visited by Lawes on several occasions, including on the 17th May when he was accompanied by his wife and sister-in-law.



1852

Start of the 'Classical' barley experiment

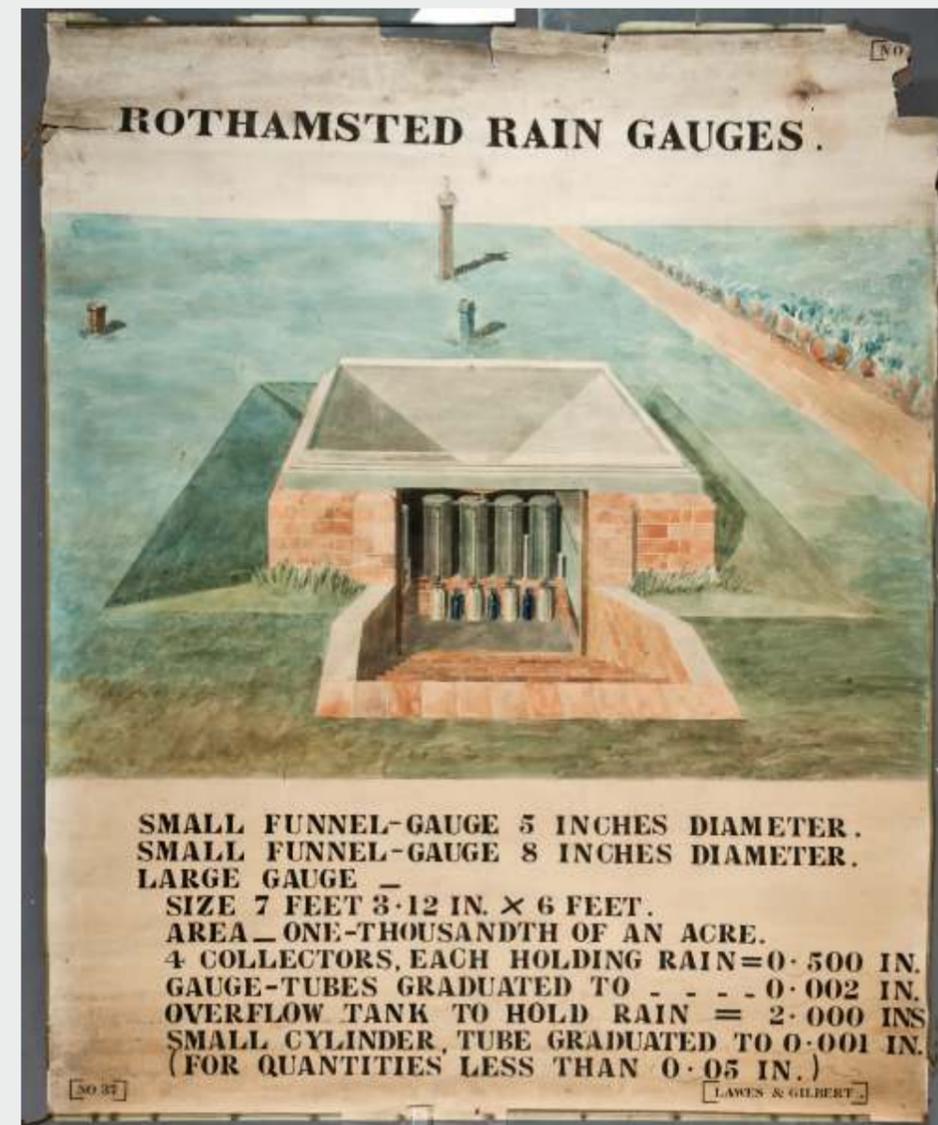
The Hoosfield spring barley experiment was started in 1852.



1853

Start of rainfall measurements at Rothamsted

Measurements of rainfall started at Rothamsted in 1853. On 27th January, Lawes wrote in his diary “Rain guage (sic) put up in Barn field 1000th part of an Acre.....”



1854

Lawes elected a Fellow of the Royal Society



339

Certificate of a Candidate for Election.
(It is desirable for every Candidate to give in his own hand.)

Name *John Bennett Lawes Esq^r*
Title or Designation *F. R. S.; Member of the Council of the
Royal Agricultural Society;*
of Rothamsted, near St. Albans, Herts.,

Qualifications in brief
*We have a systematic investigation on Agricultural Chemistry
contained in a series of papers published in the Journal of the
Royal Agricultural Society of England & in the
Gardener's Magazine, from 1847 to 1854; bearing upon various cultures
in the water given off by plants in relation to the position of their several
stems, on the sources of alkalies in agriculture, on the
feeding of the animal production generally; -*

being desirous of admission into the ROYAL SOCIETY OF LONDON, on the undersigned,
propose and recommend him as deserving that honor, and as likely to become a useful and
reliable Member. Dated this 2. day of *November* 1854.

From General Knowledge.	From Personal Knowledge.
<i>John Herschell</i>	<i>Charles Buxey.</i>
<i>P. C. Brouncker</i>	<i>Charles Darwin</i>
<i>A. W. H. Newman</i>	<i>John Lubbock</i>
<i>J. H. Gladstone</i>	<i>Lyon Playfair</i>
<i>John Henry Mackenzie</i>	<i>Wm. Allen Miller</i>
	<i>Howard Volley</i>

Elected
ENW

Held in the Society on the 2. day of *January* 1854.
To be Held in on the 1. day of *June* 1854.

* If of an oblong or thick, this should be done by filling up the blank with the word, None.

Lawes was elected, at the age of 38, a Fellow of the Royal Society for his extensive investigations on agricultural chemistry, contained in a series of papers published in the Journal of the Royal Agricultural Society of England.

1855

Opening of the Testimonial Laboratory

The Testimonial Laboratory was opened by the Earl of Chichester on 19th July 1855.



It was built, at Lawes' request, using subscriptions contributed by the farming community in recognition of his services to agriculture.

1855

Foundation of Pennsylvania State University

The Farmers High School of Pennsylvania became Pennsylvania State University on 22nd February 1855.

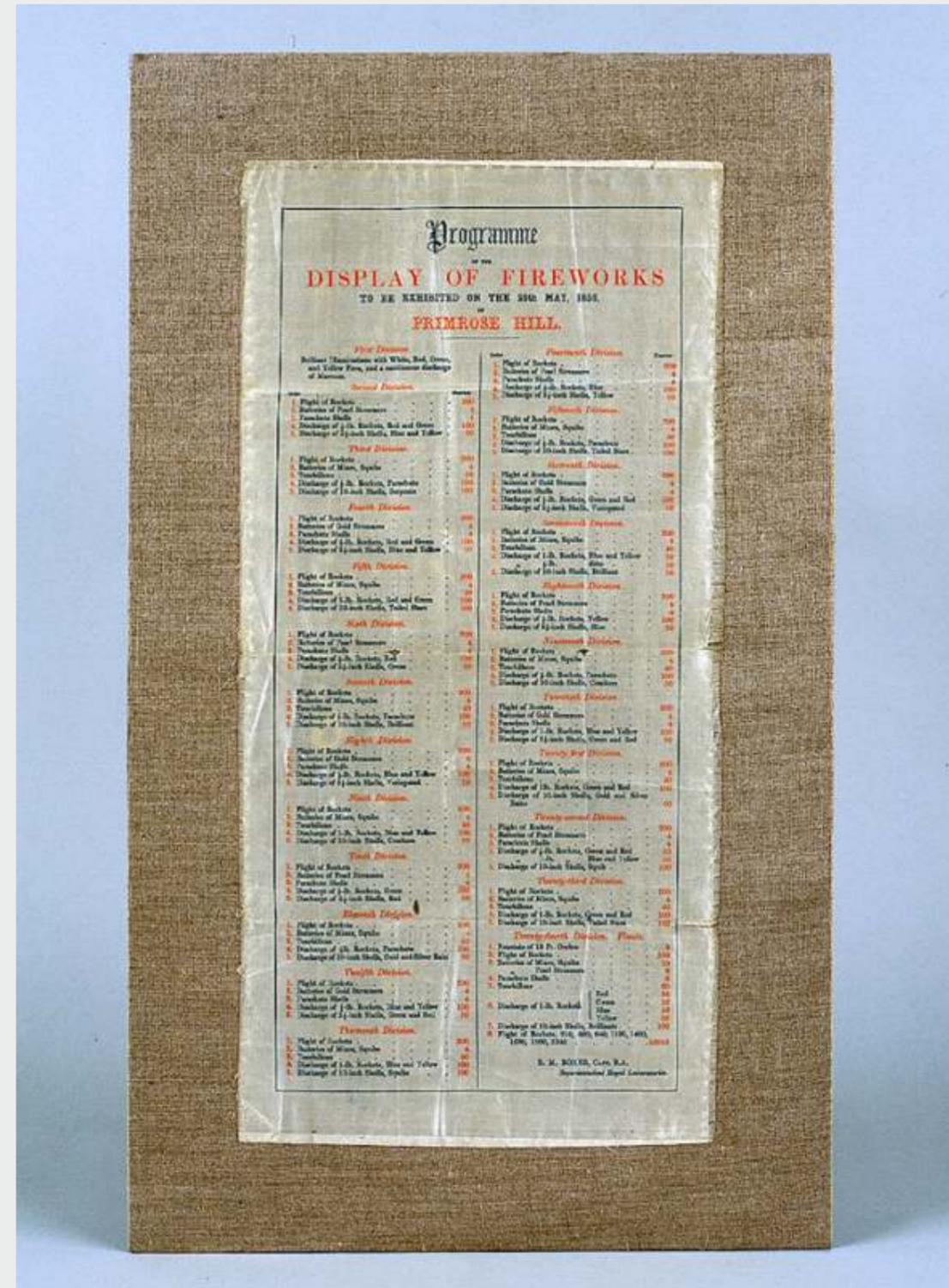
Evan Pugh, the first President of the University, worked at Rothamsted, studying the sources of nitrogen for plants, from 1857 to 1859.



1855

End of the Crimean War

The Crimean War ended in 1856. The occasion was marked with a fireworks display at Primrose Hill. Lawes recorded in his diary for the 29th May that “All my family and Mrs Wardes’ family came up to London to see the fireworks.....”



1856

Start of the Park Grass Experiment

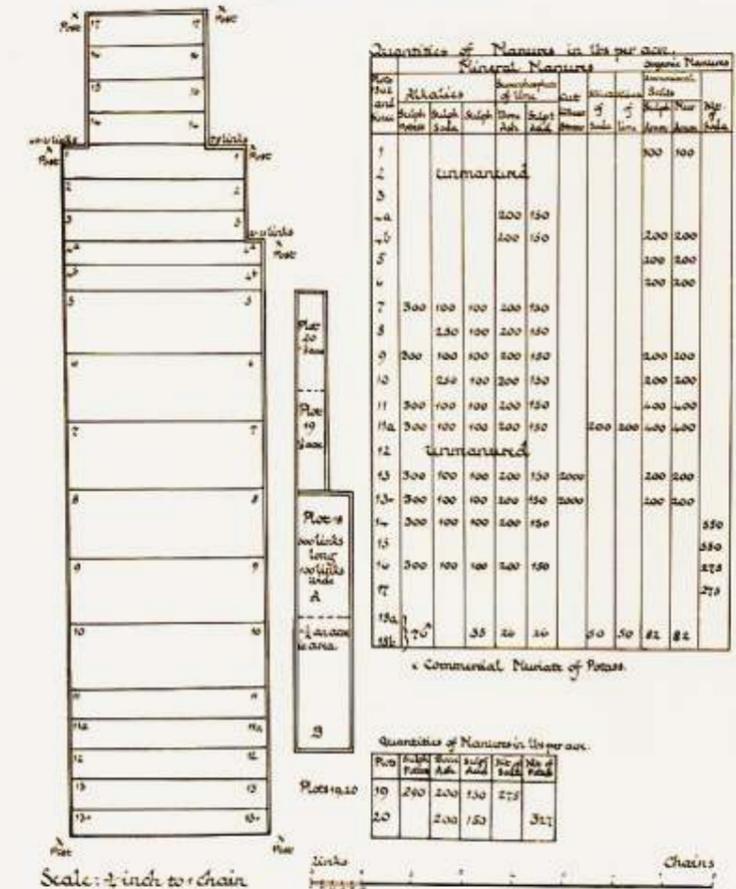
The Park Grass experiment was established in 1856. Designed to measure the effects of fertilisers on yields of permanent grass cut for hay, it is now regarded as the foremost long-term ecological experiment in the world.



Gilbert demonstrating Park Grass

ROTHAMSTED PARK EXPERIMENTAL GRASS PLOTS

As in Season 1865

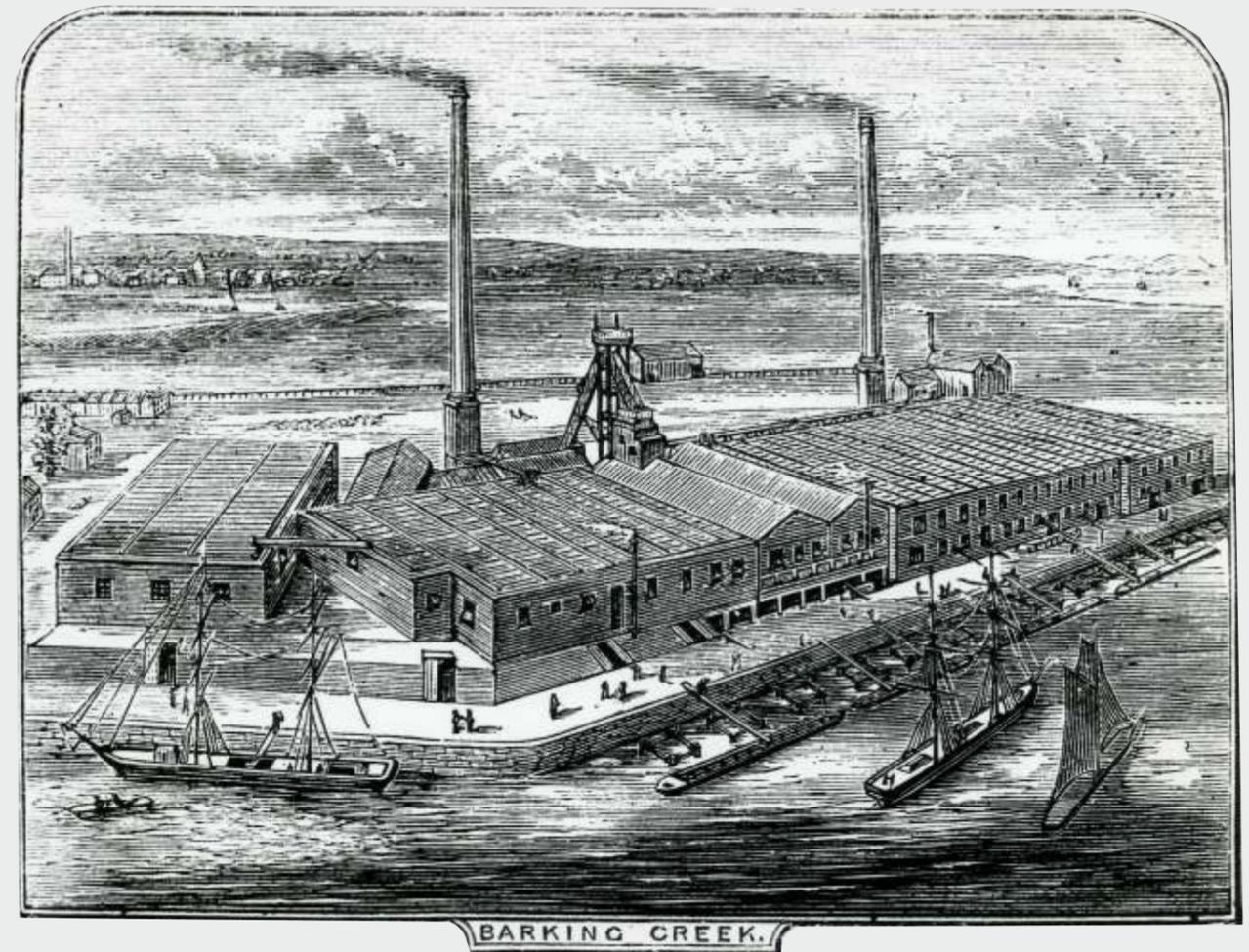


Plots 1, 2 and 3 are each 378.79 links long, by 66 links wide = $\frac{1}{4}$ of an acre
 Plots 4, 5, 6, 11, 11a, 12, 13, 13a are each 400 links long, by 62.5 links wide = $\frac{1}{2}$ of an acre
 Plots 7 to 10 inclusive " " " " " by 125 " " = $\frac{1}{2}$ of an acre
 Plots 14, 15, 16, and 17 " " 251.58 " " by 66.55 " " = $\frac{1}{2}$ of an acre.
 * Plots 14-17 added 1855
 * Plot 19 and 20 added 1872

1857

Lawes opened a second factory at Barking Creek

In 1857, Lawes paid £12,000 for 98 acres of marshland at Barking Creek. On it he built new works to produce the sulphuric acid that he used to manufacture superphosphate fertiliser.



1857

Lawes appointed a member of the Sewage Commission

Pollution of the River Thames culminated in the 'Great Stink' of 1858. Lawes had been appointed to the Royal Commission on the Sewage of Towns in 1857. His main role was to investigate the use of sewage in agriculture.

He established experiments at Rugby, which showed that sewage could be used to improve yields of grass and that grass treated with this material improved milk production in cows.



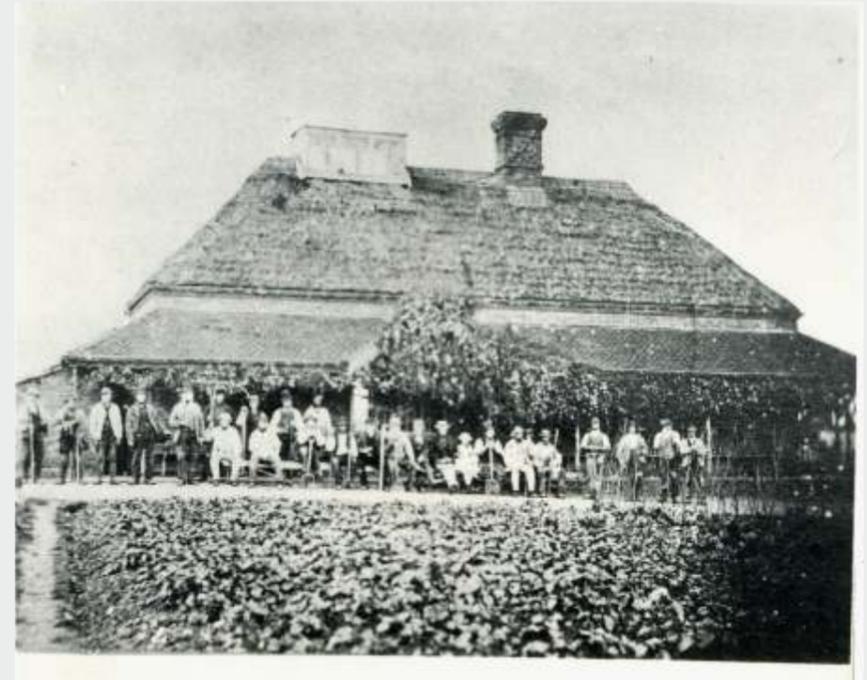
1857

Opening of the Allotment Club House

Lawes set aside a substantial area of his land as allotment holdings for the benefit of the agricultural labourers and villagers of Harpenden.

In 1857, he paid for the building of a Club House, to be managed by the allotment holders themselves.

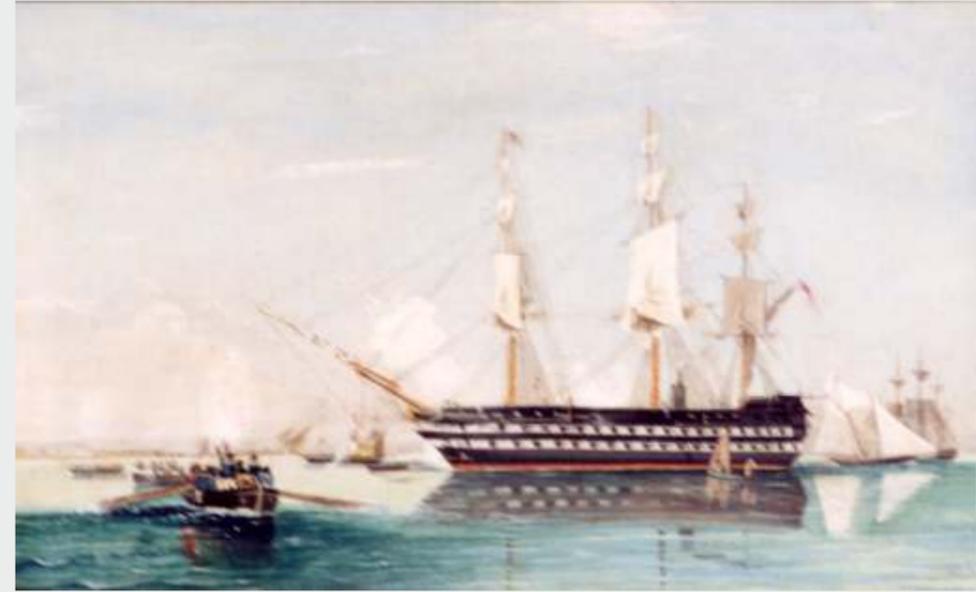
Two years later, in 1859, Charles Dickens paid a visit and described his impressions in an article entitled 'The poor man and his beer'.



Exterior c. 1860s; interior c. 1930s

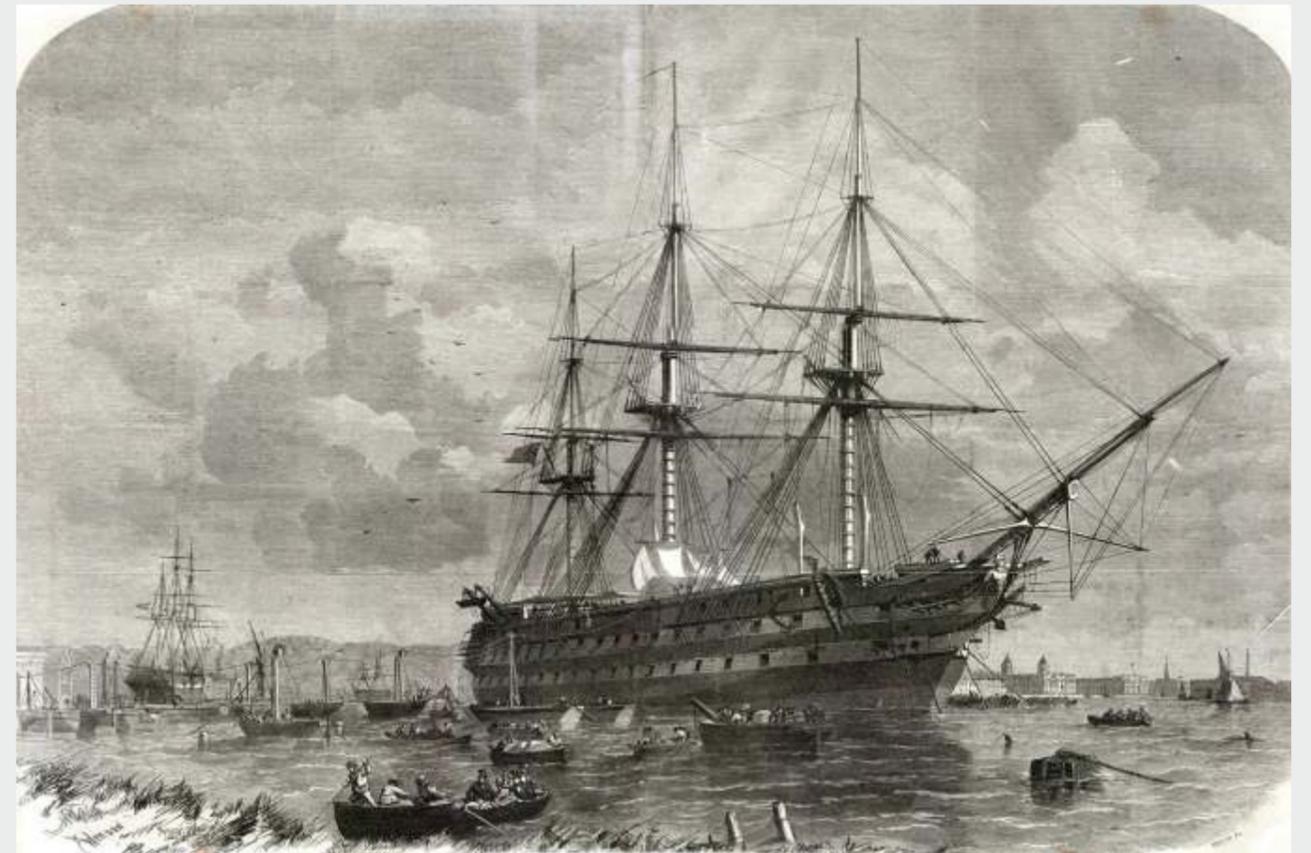
1857

First attempt to lay an Atlantic Cable



The first attempt to lay an Atlantic cable was made in 1857.

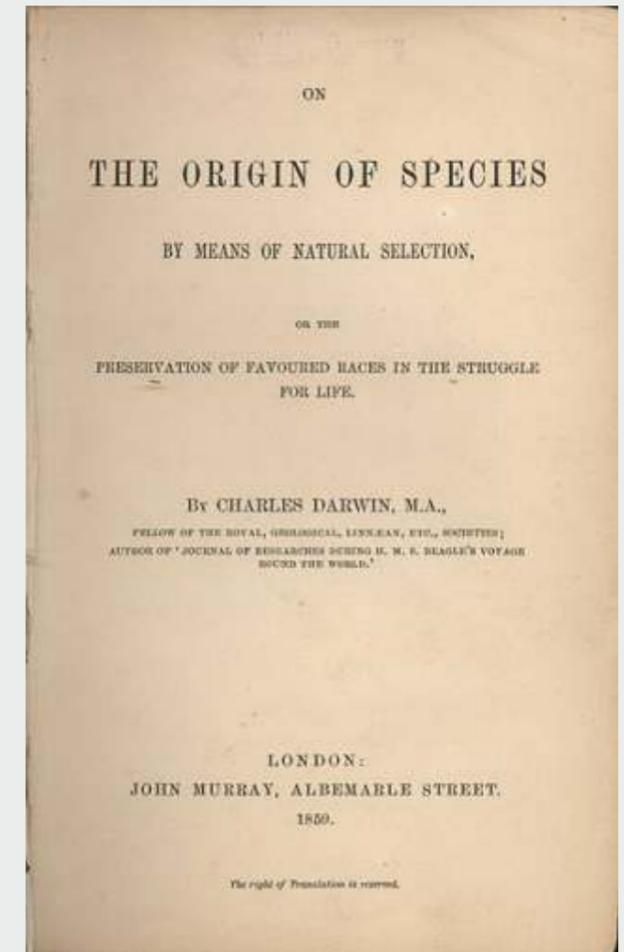
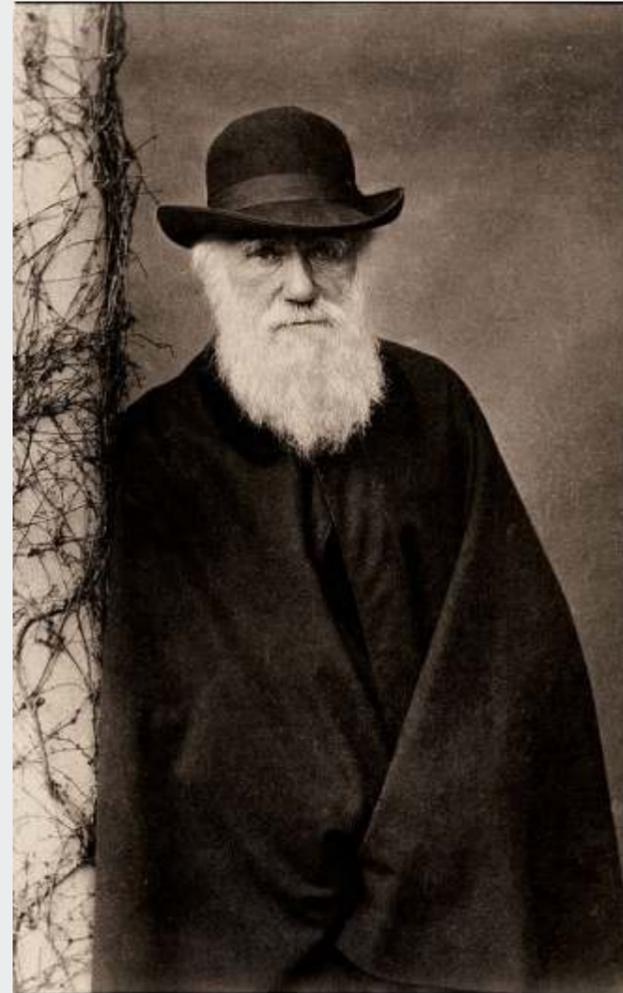
On 17th July, Lawes “Went down to Barking from North Woolwich in Penrice’s steam boat, went on Board the Agamemnon to see the Atlantic Cable...” (Penrice was his wife Caroline’s grandfather). This first attempt failed.



1859

Publication of the Origin of Species

Darwin's book on 'The Origin of Species by means of Natural Selection' was published in 1859. Darwin corresponded with Gilbert, on scientific matters, in 1875-76 and 1881-82.



1860

The arrival of the railway in Harpenden

The railway came to Harpenden on 1st September 1860 when the Hertford, Luton & Dunstable Railway opened its line through East Harpenden.

Lawes was one of the first directors of the company.



1865

End of the American Civil War

Lawes exchanged letters with Evan Pugh (see 1855) during the course of the War, and these give a rare insight into his political views.

In 1861, he wrote “Up to the present time the conduct of your Country has not come up to the hopes and wishes of those who have democratic longings.....”.



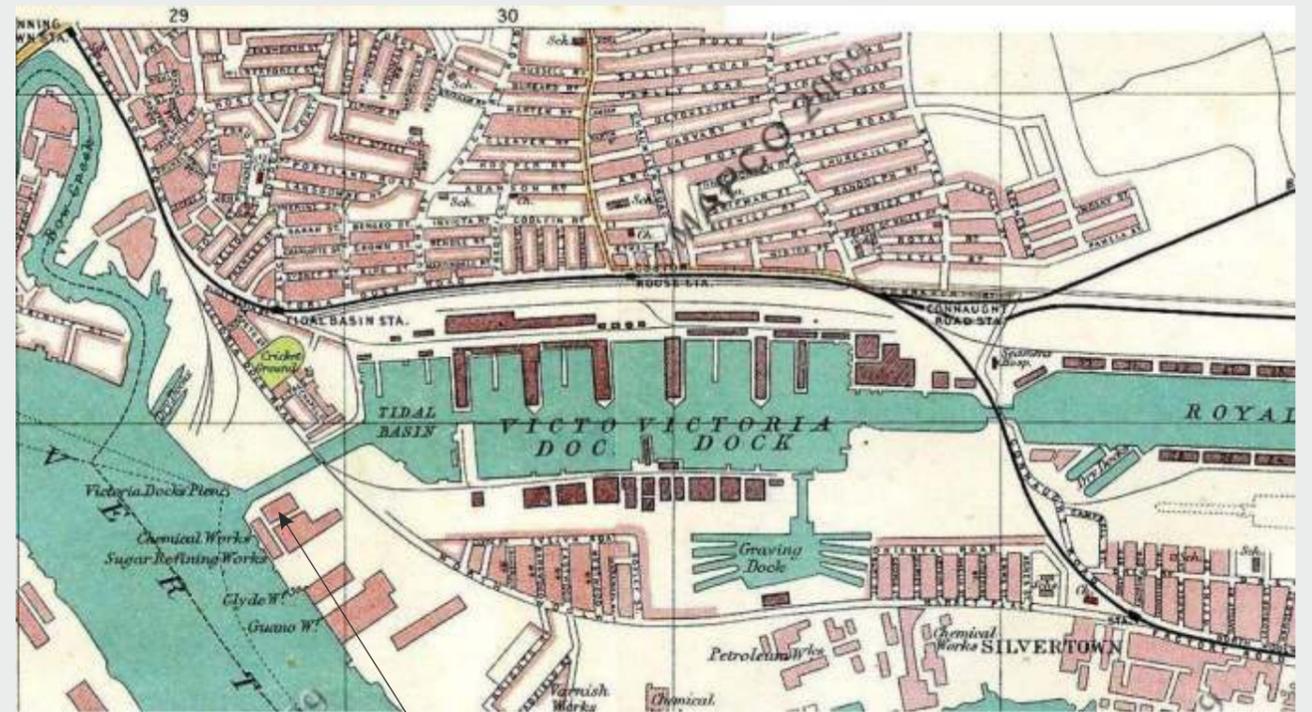
From left: General Sherman, General Grant, Abraham Lincoln, Admiral Porter

1867

Purchase by Lawes of the Atlas Chemical Works

These works, which manufactured Tartaric and Citric Acids, were at Millwall.

Lawes purchased the business, which had become insolvent, in order to help his long-time business associate, Mr Northcott, who had invested all of his savings in the company.

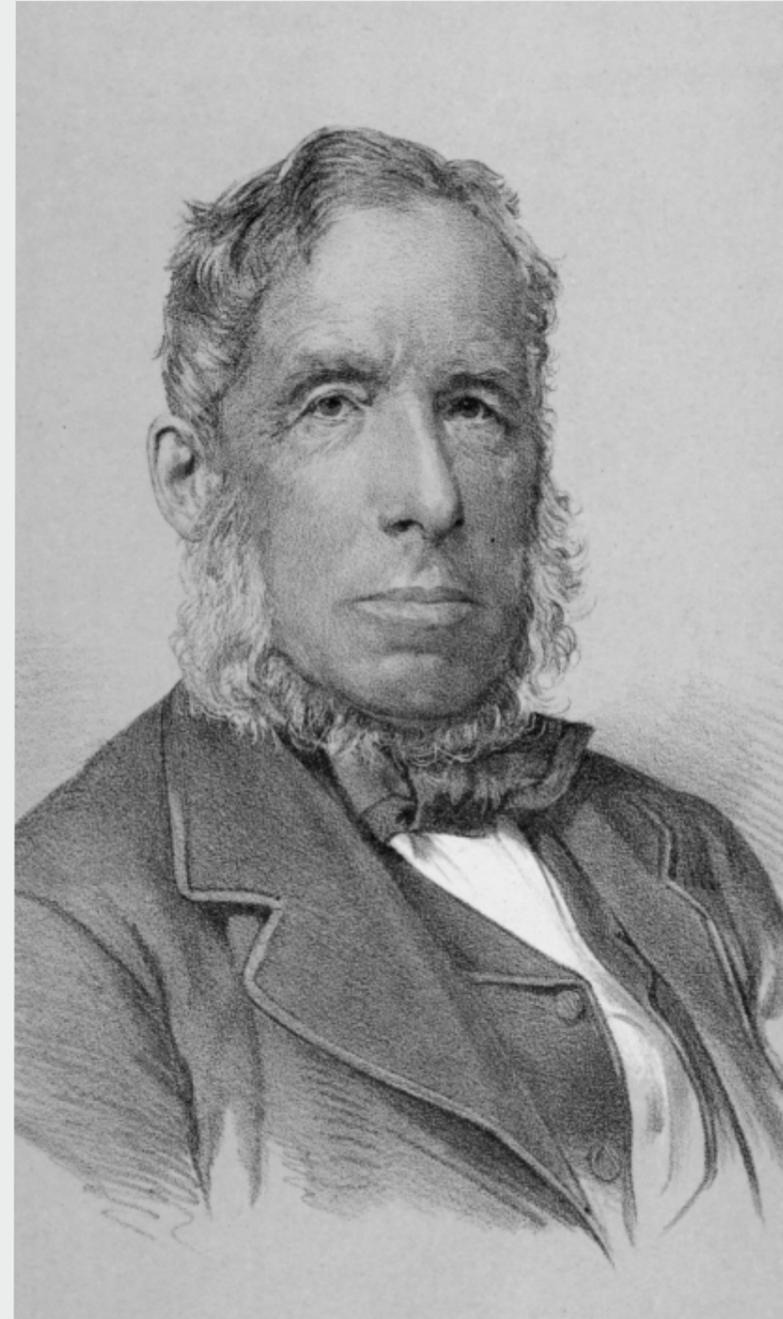


Atlas Works

1872

Sale of the Lawes Manure Company

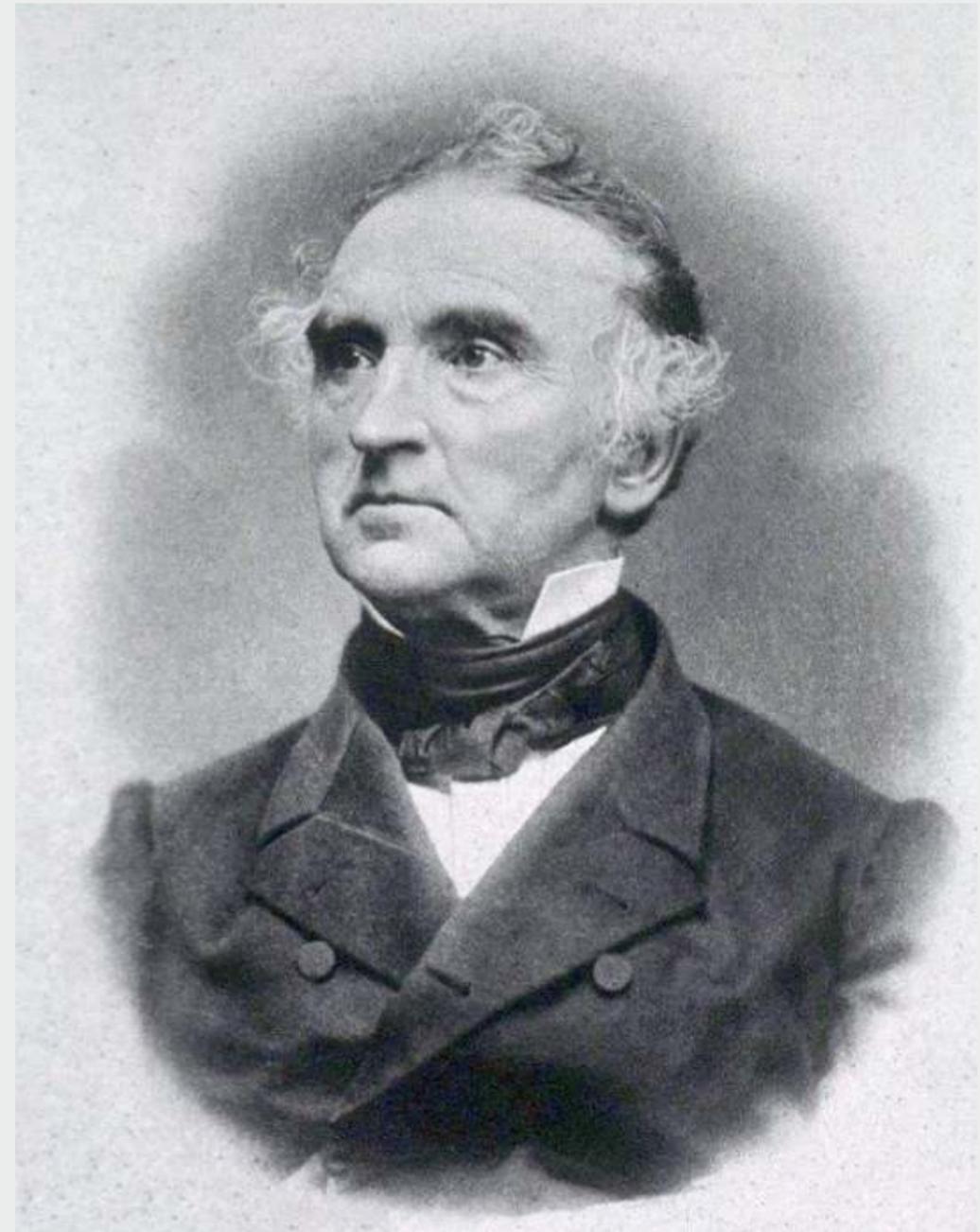
Lawes sold his Manure Company in 1872, and in a circular letter to his customers wrote “It is my intention to devote the remainder of my life to Scientific Agriculture, and I purpose, at an early period, to place in trust my Laboratory and Experimental Fields, with the sum of £100,000 the interest of which, after my death, will be applied to the continuance of the investigations which have been carried on for so many years at Rothamsted.....”



1873

Death of Liebig

The death of the chemist Baron Justus von Liebig on 18th April 1873 brought to an end a long and distinguished career. In earlier years, however, there had been a long, and sometimes acrimonious, dispute between him and Lawes and Gilbert on the sources of nitrogen for plants.



1877

UK Record Salmon caught in the River Awe

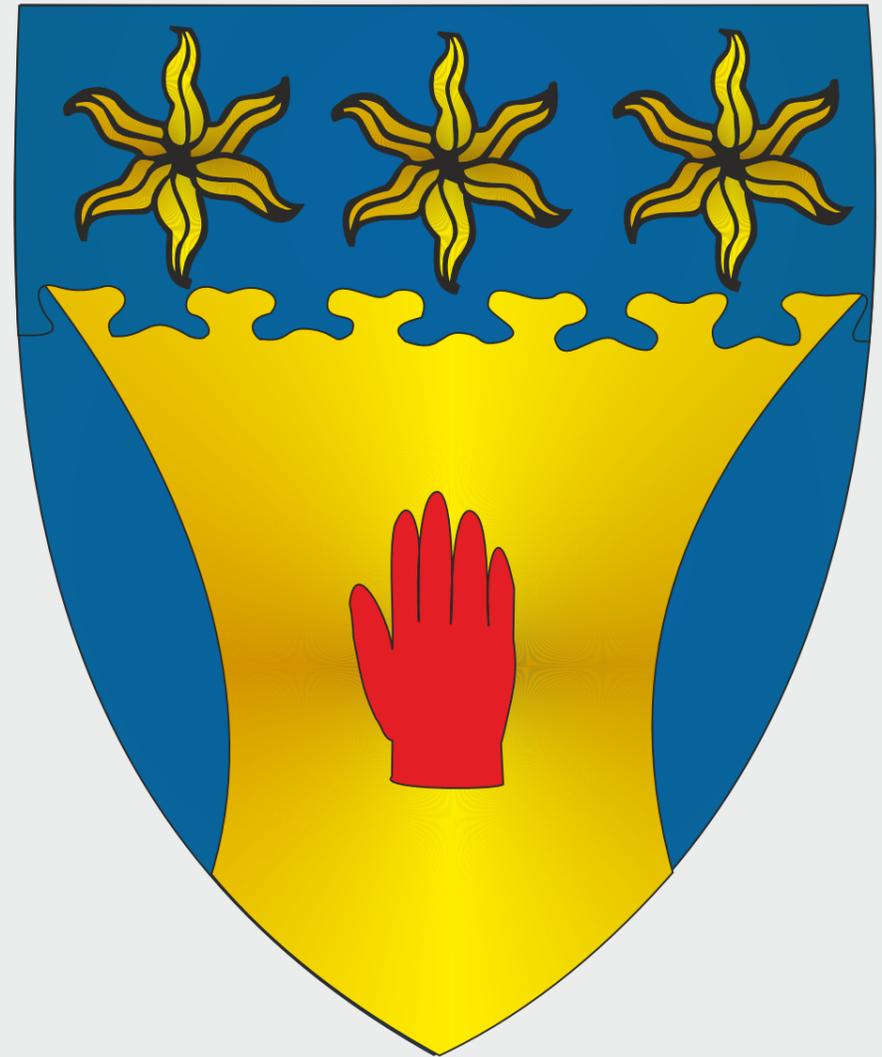
On 25th September 1877, Lawes caught a record-breaking salmon in the River Awe, Argyllshire, that weighed 54 lbs and was 51" long. It was caught with a rod and the "Baker Fly".



1882

Lawes created a baronet

It was announced in the London Gazette of 12th May 1882 that on the 10th May the Queen had been pleased to grant the dignity of a baronet unto John Bennet Lawes of Rothamsted in the County of Hertford, Esq., and the heirs male of his body lawfully begotten.



1882

Start of Broadbalk Wilderness

A small area at one end of the Broadbalk wheat experiment was fenced-off and left unharvested.



The self-sown wheat competed poorly with the weeds, and after only four years, the few wheat plants that could be found were stunted and barely recognisable as cultivated wheat.



The area has been left largely untouched since then and is known as Broadbalk Wilderness.

1888

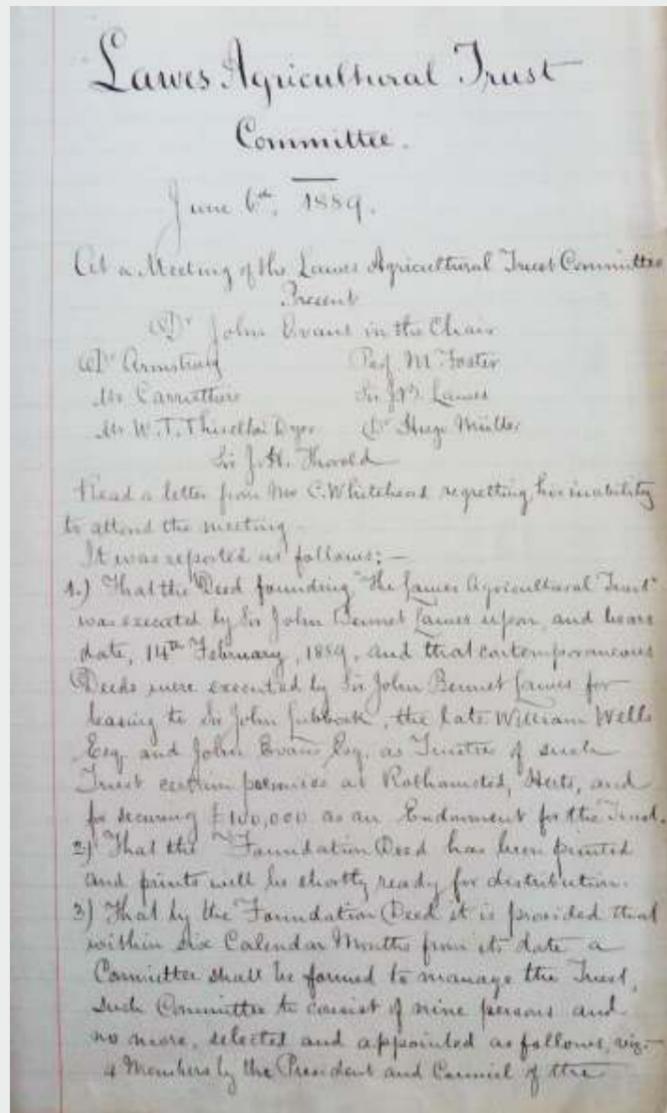
Discovery of Biological Nitrogen Fixation

The discovery of biological nitrogen fixation by Hermann Hellriegel was reported in a paper published in 1888.



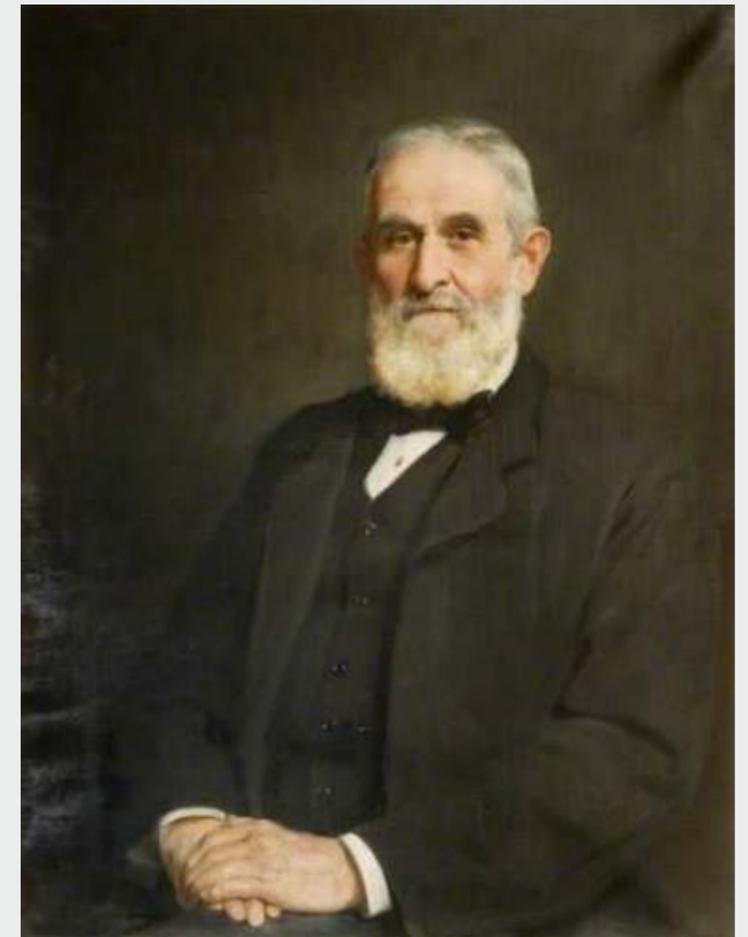
1889

Establishment of the Lawes Agricultural Trust



Although Lawes had stated in 1872 his intention to establish a trust, it was not until 1889 that he did so.

The first chairman of the Lawes Agricultural Trust was Sir John Evans who managed Dickinson's paper mill near Hemel Hempstead.



1890

Completion of the Sample House



The Sample House, which was used to store the growing collection of samples of grain, hay, roots, soil and other materials, was completed in 1890. It was also used for the routine processing of samples, including the separation of herbage from Park Grass.



1893

Rothamsted's Golden Jubilee

50 years of continuous experiments at Rothamsted were celebrated in July 1893 by a large and distinguished gathering.

A commemorative boulder was erected in front of the Testimonial Laboratory.



Inspecting the Granite Memorial. (Daily Graphic, 31st July, 1893.)



1893

Gilbert knighted

Gilbert was knighted by Queen Victoria at Osborne, on the Isle of Wight, on 11th August 1893. He complained, to Lawes, that it required a very early start from Harpenden to get there in time!



1895

Death of Caroline

Caroline, who had been married to Lawes for nearly 53 years, died at Ardchattan Priory, their holiday home in Argyllshire, on 25th November 1895. She was buried in Harpenden on 2nd December 1895.



1900

Death of Sir John Bennet Lawes Bart

Lawes died from dysentery at Rothamsted on August 31st 1900, aged 85.

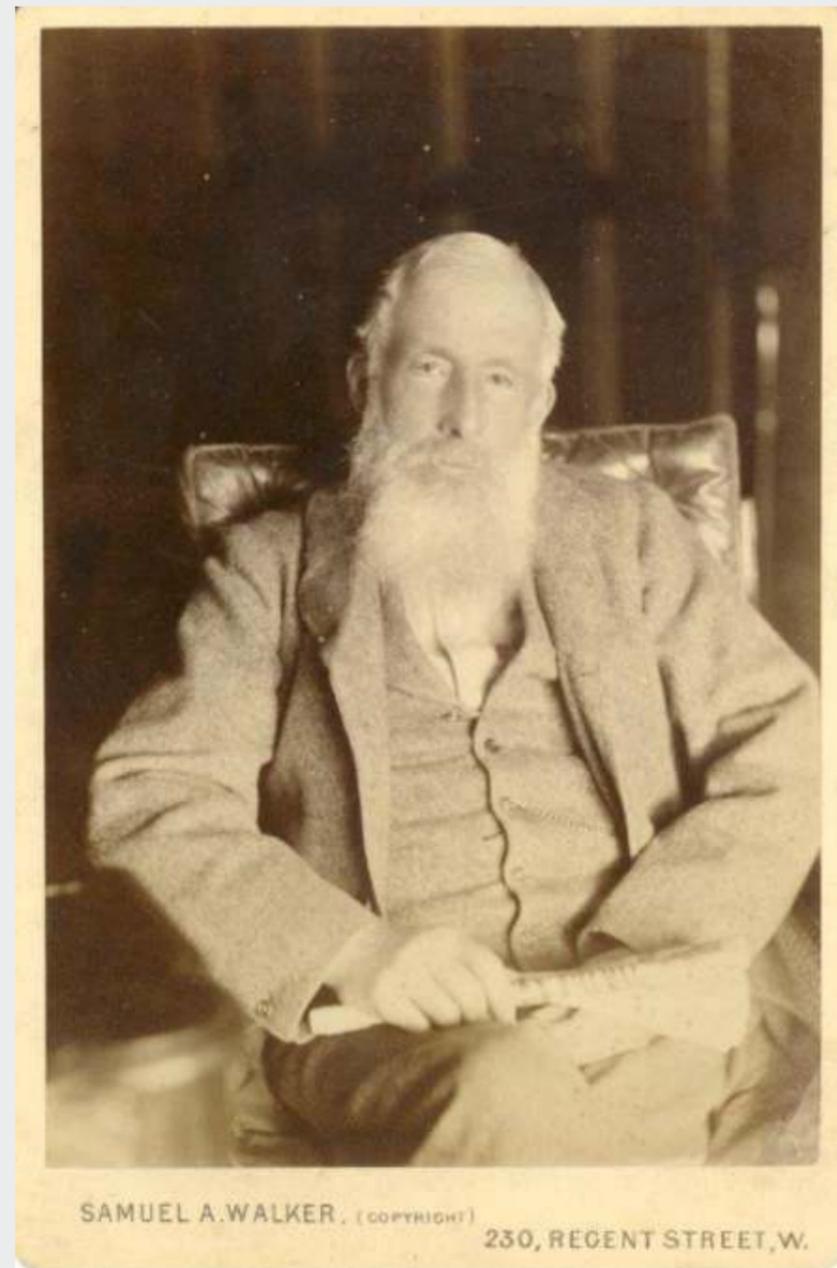


Sir John Bennet Lawes died at Rothamsted on the 31st of August 1900, in his 86th year, and was buried at Harpenden.

Sir Charles ^{Donnell} Lawes was granted permission by Royal Licence dated 18th of April 1902 to take the surname of Wittewronge in addition to and after that of Lawes and to bear the arms of Wittewronge quarterly with those of Lawes and that such surname and arms may in like manner be taken and borne and used by his issue.

John Bennet Lawes-Wittewronge married Helena Ramsay, daughter of Henry Ramsay, Esq of Folkestone Co Kent at St Andrew Walkerville South Australia on the 10th of July 1897.

Sir Charles Bennet Lawes-Wittewronge died at Rothamsted on the 6th of October 1911, aged 68, and was cremated at Golders Green on October the 10th 1911.



He was interred in the churchyard of St. Nicholas, Harpenden. At probate, his estate was valued at £565,242.

