

Interpreting threshing machines in rural life museums

Drums Roll...



Threshing

Much rides on the success of the Harvest. It is a reward for a year's hard work; a guarantor of security; a celebration of the glorious days of high summer; a reason to be thankful, as epitomised in Henry Alford's hymn 'Come, Ye Thankful People, Come'. A failed harvest means hardship and loss. In many places on the planet the outcome of the harvest still means the difference between life and death.

Threshing machines have a similar ambivalence. To Captain Swing's rioters they were hated destroyers of jobs and breakers of limbs. To agricultural improvers they made farming profitable and helped put bread on tables.

Mechanically complex and visually impenetrable, to rural life museums threshing machines are awkward to display and difficult to interpret. Their large size can make demands on limited storage space, and as such the Rural Museums Network has studied them for the Agricultural Heritage Distributed National Collection. But their story is a fascinating one, a tale of social change and technological improvement. They offer an insight into a particular period of agricultural history. In this resource we look for ideas on how to interpret them and consider examples from current practice.

David Walker
RMN Chair

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First Principles

What is threshing?

Threshing is the separation of a crop into its component parts. It separates the grain from the straw and the chaff.

Parts of a barley plant

Golden brown when ripe and ready for harvest

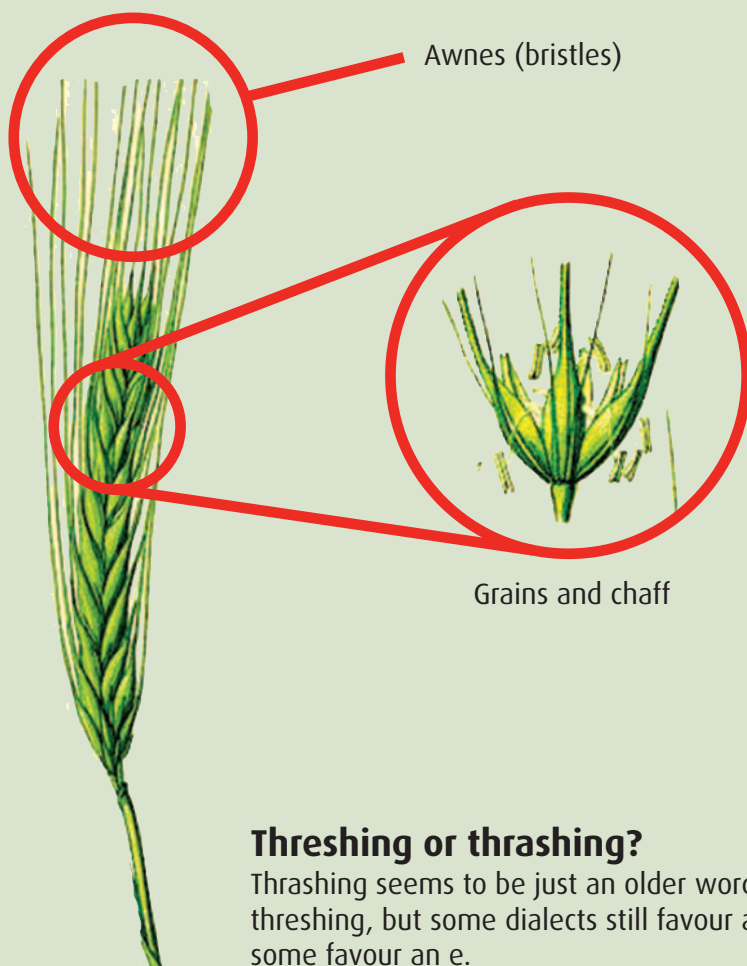
Stem and leaves
(which make straw and chaff)

Ear



For millennia, threshing was done by hand, using simple wooden implements – flails. This work was carried out by agricultural workers during the winter, or for as much as six months of the year.

But, in 1786 a reliable machine was invented which could carry out the job of threshing at least 12 times as fast as by hand. By 1800 they were in common use in many areas of the UK, and by 1840 they were widespread – normally powered by water or by steam.



Threshing or thrashing?

Thrashing seems to be just an older word for threshing, but some dialects still favour a and some favour an e.

How does a threshing machine work?

It all starts here.

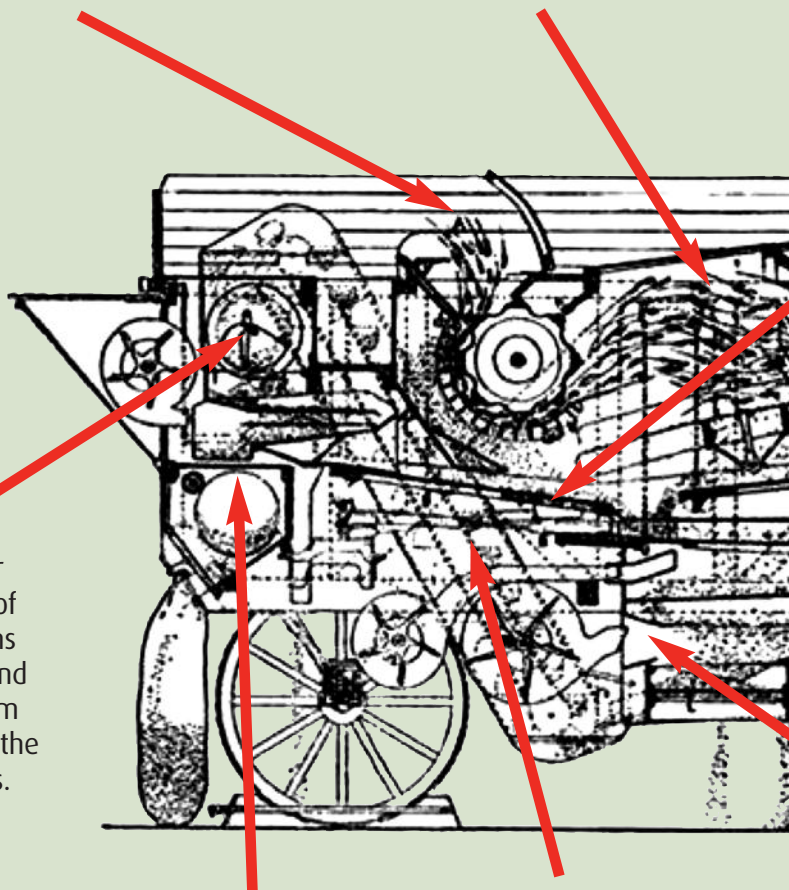
1 Crop (whole plants) fed in. Spinning drum and concave screen break plants into their constituent parts.

2 Straw, chaff and grain fed over straw-walkers. Grain, short straw and chaff fall through.

10 De-awner removes last of chaff and awns (bristles). Second fan blows them from the top of the second sieves.

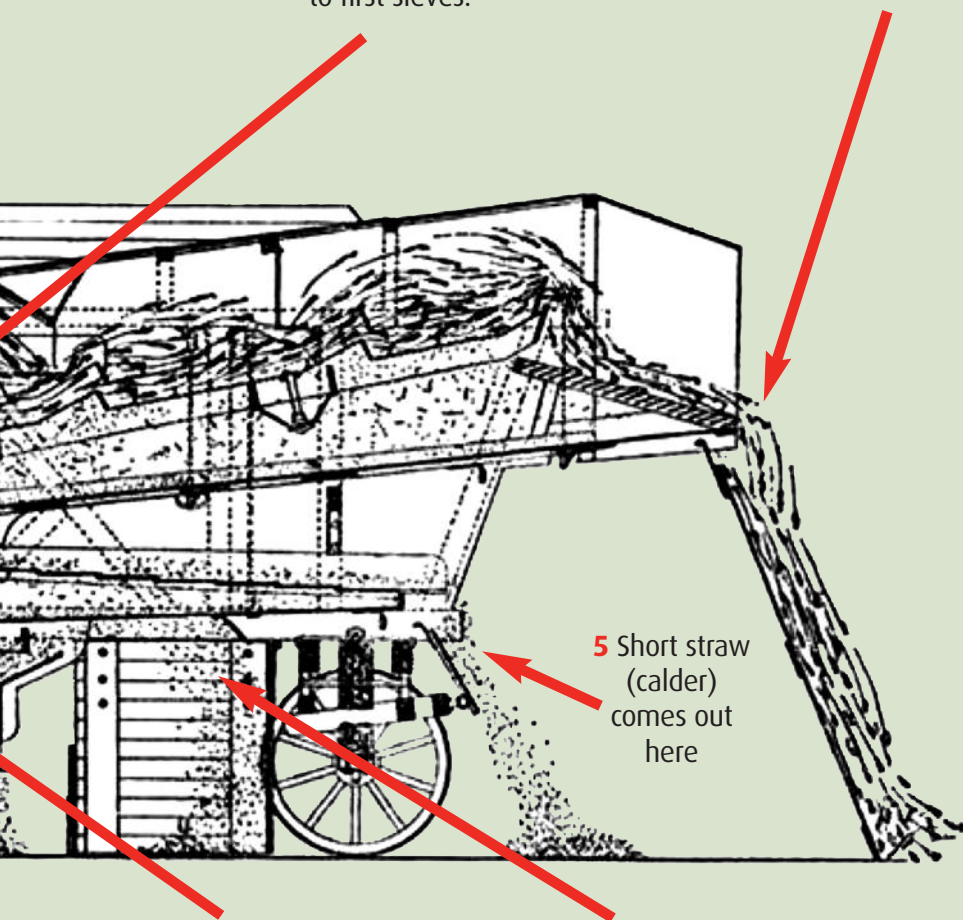
9 Grain moved to final screen. This separates whole from broken grains and puts them in separate sacks below.

8 Bucket elevator lifts grain to de-awner and second sieves.



3 Most of the grain and some short straw and chaff pass to calder riddle. Grain and chaff fall through to first sieves.

4 Long straw comes out here.



5 Short straw (calder) comes out here

7 Fan blows most chaff from the top of the first sieves. Grain falls through.

6 Chaff comes out here.

How to display and use threshing machines

Restoration

Avoncroft Museum of Historic Buildings



Demonstrations

▼ Across the country there are examples of museums demonstrating their threshing machines, generally at weekend events. Most can only do this by working in partnership with others, be it groups of volunteers, or working with other museums or other owners of equipment. Also, the striking size and power of the machines is being used to add value to other projects and events:

Museum of East Anglian Life



◀ Our Wednesday maintenance crew (7 volunteers) are starting to work on re-building a threshing machine...

So far it's mainly been re-making bits of wooden frame in our workshop... It was a way to rescue a machine that was otherwise going to be scrapped... but we hope to re-home it in a re-constructed water mill as part of a major capital project. In the meantime we intend to rebuild it within our existing cruck framed threshing barn or nearby under a modern shed structure and have it working as a way of raising awareness about our planned watermill project.

Simon Carter,
Avoncroft Museum

– ideas from current practice

Charles Burrell Museum



We use our locally made Ransomes threshing machine for demonstrations powered by our Burrell traction engine or another visiting engine. We tend to do these on a Sunday as they require volunteers who work in the week but who have the experience required to run the machines. We tie the activity in with one of our Steam Sundays but for the last two years have incorporated it into our Countryside at War event – weather depending!

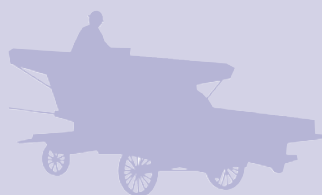
Lisa Harris, Museum of East Anglian Life

An important part of what we do is work with private collectors. We have a number of threshing machines in our collection, but none of them are in good enough condition to run. Luckily we know a very helpful collector who attends our events and threshes for us. The sights, sound and smell of the threshing machine really bring it alive for visitors.

Consequently our collections are no longer large things cluttering up our limited space but the visitors can see that they are living, breathing parts of our rural heritage.

My personal favourite part of threshing days is when they cook an egg on the shovel!!

Megan Dennis,
Gressenhall Farm
and Workhouse



Static displays

Many museums own threshing machines but are not able to run them even on an occasional basis. Outside space and sufficient skilled people are sometimes in short supply, and of course the older the machines get the more important it is to consider issues with regard to their survival! So, static displays have an important role to play.

During the 1980s and 1990s we used to run our unique W.H.Pool and Sons barn thresher as a demonstration, but we decided to stop, following concerns that it would lose its originality if we maintained it as a working machine.

David Walker,
Somerset Rural Life
Museum



Somerset Heritage Service

▲ In operation in the 1960s



Somerset Heritage Service

▲ In operation at the museum in 1992



Somerset Heritage Service

▲ Now on static display

Some examples of how people are interpreting static machines:

Panels

▶ On permanent static display is our Meikle threshing mill – probably the world's oldest, dating to 1804. It has two information panels with it. One is written by children, the other by me including a plan of its original site. Elaine Edwards, National Museum of Rural Life, East Kilbride



All photos: National Museum Scotland www.nms.ac.uk/our_museums/museum_of_rural_life/whats_on.aspx



People

Museum of English Rural Life, University of Reading



Working models

▼ Our one-eighth scale model of the late 19th/early 20th century steam engine, travelling threshing mill and square baler is used on a daily basis – It is very popular (but sometimes the belt snaps with the amount of use it gets).

Elaine Edwards, National Museum of Rural Life,
East Kilbride

National Museum Scotland



▲ If anyone is thinking of commissioning a similar type of model, Elaine suggests that you go for one with a one-piece belt, as the join in the belt on this one is the one weak spot in terms of it being regularly used.

◀ The threshing machine is indoors, and it is not ever run, but here are two of the family tour guides demonstrating hand threshing with 'flails', to compare this with the threshing machine – which is behind the person taking the photograph!

The planned developments to tours will cover the Swing Riots in relation to the threshing machine.

This idea has developed out of the family tours, but will actually be a specific tour aimed at older visitors (teenagers and adults). Our threshing machine is actually a little too 'young' for the Swing Riots, but it will be taken as a starting point to introduce some of the issues.

Felicity Ann
McWilliams,
Museum of English
Rural Life

Physical theatre

So how does a steam engine work? And how does it drive a threshing machine? That was the interpretation challenge facing both the Charles Burrell museum, the home of the Burrell traction engine, and Ancient House Museum, Thetford who both wanted to help local audiences to understand more about their town's part in the industrial revolution.

A piece of physical theatre was the result.

How Steam Works at the Charles Burrell Museum

Melissa Hawker, Ancient House Learning Officer and David Blackburn, Charles Burrell Museum volunteer were keen to help visitors access and understand the usefulness of the traction engines on display at Charles Burrell Museum.

David was very comfortable with the technical side but “blind terrified of being let loose on a bunch of primary age kids essentially on my own and in front of their teachers”. Melissa had no knowledge of steam engines but experience of working with school groups. She was also happy to ask very obvious questions. Together they came up with a session called *How Steam Works*.

The session consists of three parts, (of which the first is adjustable to suit the audience):

a slideshow of various types of steam engine to establish the subject, e.g. portable, traction, roller, showman's, etc. (generally showing them at work), a physical theatre exercise and a demonstration of a



▲ Demonstrating the fire burning

mini traction engine. The first section includes explanations of the significance of the arrival of the steam engine as a portable source of power, for example in thrashing corn, to replace manual or animal power.



Then, a physical theatre section, where children, or adults learn how the steam engine works.

The boiler and firebox of a steam engine are marked out in tape on the floor.

Participants then act out different roles: two to be stokers (miming shovelling coal), two or three to represent fire (blowing and crackling) and everyone else and a museum volunteer standing in the boiler section to represent water.

As the fire burns the participants representing water molecules are encouraged to move about within the confines of the boiler as the water heats up. Eventually the museum volunteer is pushed out of the boiler.

The session leader explains that this water molecule has turned into steam which can be used to push a piston (represented by a piece of drain pipe and home made piston). The museum volunteer pushes the piston and then walks 'up the chimney' to the side. This process is repeated with almost all the water participants becoming steam. For the final section the session leader demonstrates a small model traction engine on a table with clear plastic sides. The session leader is able to show which parts of the model relate to the parts they have just played in the physical theatre exercise.

From this starting point we moved on to looking at the machines which can be run from a traction engine, including threshing machines and fairground rides.

One teacher commented:

I have been teaching the industrial revolution for over twenty years and this is the first time I have understood how a steam engine actually works. Brilliant!

► Relating it back to the model

Since devising this session we have run it for over seventy groups ranging from Reception and Nursery aged children through to teenagers who are not in education, employment or training and adult groups.

Melissa Hawker,
Ancient House
Museum



Ancient House Museum, Thetford, Norfolk Museums and Archaeology Service

Film

If there is scope for a screen near to a static threshing machine then there are plenty of clips of film available of working threshing machines. YouTube provides plenty of examples.

AV is useful for showing static machinery in operation or it can be used in a different context. The Museum of Somerset at Taunton uses film of threshing from South West Film and Television Archive as a metaphor in the 'Gathering' gallery at the museum.

David Walker,
Somerset Rural Life Museum

Fine art
Threshing machines inspired several 19th century artists. Their paintings give so much context and detail that they can significantly enhance a threshing machine display, or be used to generate ideas for live interpretation, events or activities.

► Albert Gabriel Rigolot, *The Threshing Machine, Loiret, 1896*

► Edmond Charles Yon, *The Threshing Machine*



▲ Camille Pissarro, *The Threshing Machine*, 1876



Stories threshing machines can support

Some of these themes are obvious, and some not-so. They may spark off an idea ...

Harvest

Harvest is a great subject for the museum. We now have related activities like corn-dolly making to coincide with peak visitors in the summer, and also a session for schools with two-third sized flails and winnowing baskets.

David Walker,
Somerset Rural
Life Museum



Somerset Heritage Service

Development of agriculture

Threshing machines are arguably one of the most important machines in the history of agriculture in terms of their impact – “the immense saving arising from the invention will at once be seen.”

(1881 *Household Cyclopaedia*)

In 1790 the Belford parish registers record that several threshing machines ‘have been erected in this and neighbouring parishes. The contrivance is very ingenious, but threatens to hurt the poor; three or four men, or women, in this way being able to thresh as much corn as twelve in the common way.’

“In harvesting and threshing wheat, machinery saved about 70 percent of labour”

(Mark Overton, *Agricultural Revolution in England – The transformation of the agrarian economy 1500-1850* – p125.)

But perhaps their impact is more in the reaction they sparked off in the agricultural community?

Revolt, unemployment and the Swing Riots

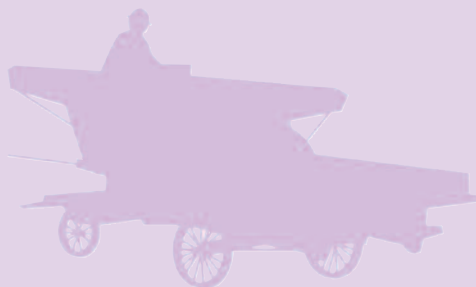
‘In early 19th-century Dorset, once the harvest was in, one of the main autumn and winter jobs for farm workers was threshing. By the late 1820s, landowners and farmers had begun to introduce threshing machines to do this work. Large numbers of labourers found themselves out of a job, without the money to buy food, clothes or other goods for the winter months. Unemployment, poverty and the fear of starvation led agricultural workers to violent attacks, including on threshing machines as part of the Swing Riots.’

(www.dorsetlife.co.uk/2010/11/captain-swing-was-here/)

Many threshing machines were smashed in this "rural war" on Saturday nights after the inns had closed: about one hundred threshers were smashed in east Kent between 28 August and the end of October, by gangs of between twenty and fifty breakers.

(Dr M. Bloy, www.historyhome.co.uk/peel/ruralife/swing.htm)

In turn, the Swing Riots were a large part of the reason for the re-appraisal of the poor laws and the 1834 Poor Law amendment Act, with its increased harshness in the treatment of the poorest in society.





AN ORIGINAL PORTRAIT
OF
CAPTAIN SWING

Pub^d by O. Hodgson 10 Cloth Fair.
London.

Death and injury

Farmers, and farm workers did not always understand the dangers of the mechanism of the threshing machines and accidents were frequent, bloody and often fatal.

▼ A few of the many examples of threshing machine accidents from local newspapers. (www.foxearth.org.uk/Threshingmachines.html)

"On Saturday last as a poor woman named Ashman was attempting to step over the spindle of a threshing machine at Aldersfield Hall, Wickhambrook, her garments became entangled and in attempting to save herself, her right thumb was drawn in by the wheels in front of the machine and so much injured as to render amputation necessary."
(*The Bury & Norwich Post* – April 19th 1854)

"There was a fatal accident on the premises of Mr Thomas Green at Acton Hall on Friday afternoon. A man named Neave aged about 68 years from some cause slipped and his foot became entangled in the steam threshing machine. Medical aid was summoned and was quickly on hand, Mr Jones the surgeon thought it necessary to amputate the foot but the shock was too much for the poor fellow and he died. Accidental death."
(*Suffolk Free Press* – September 24th 1868)

"A shocking accident occurred at Hole Farm, Finchingfield. Harry Coote, 26, a Toppesfield man was feeding the threshing machine with beans, he left the feeder to get a fork from E. Cook who was on the fore part of the machine, upon returning Coote slipped and stepped on to the revolving drum, he was immediately drawn in by the left leg and his lower body was torn away and smashed to pulp, he died without speaking."
(*Suffolk Free Press* – June 17th 1908)

"A girl named Eliza Stocks, aged 16... had been cutting bands upon the stage, and when they had just finished a smart shower of rain drove the men to take shelter, and some loose straw was thrown over the drum hole and the steam partly shut off. The girl had forgotten her knife, and on returning for it appears that she put her foot through the straw... her foot was caught by the drum, which dragged in her leg, smashing it to

atoms, and the machine was not stopped until it reached her thigh, then it brought the works to a stand...it was more than 10 minutes before the poor suffering creature could be extricated... Every attention was shown to her by neighbours, and the messengers posted off for medical assistance, and the limb was amputated... the poor sufferer died at 3 o'clock the following morning... "

(*Stamford Mercury* – 6th September 1867)

Women at work

Examples of women working on threshing machines are evident in accident reports, illustrations and even in Thomas Hardy's *Tess of the D'Urbervilles*.

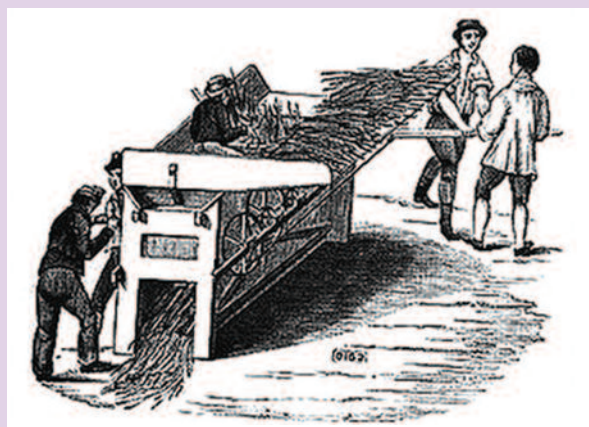
▼ *Tess of the D'Urbervilles* by Thomas Hardy

Tess is one of the workers on the threshing machine giving us a vivid contemporary picture of the workers during harvest time.

"Dinner-time came, and the whirling ceased; whereupon Tess left her post, her knees trembling so wretchedly with the shaking of the machine that she could scarcely walk..."

"Then the threshing-machine started afresh; and amid the renewed rustle of the straw Tess resumed her position by the buzzing drum as one in a dream, untying sheaf after sheaf in endless succession."

(from chapter 47)



◀ A woman can be seen sitting up on the machine feeding the straw through the blades in this illustration of an early threshing machine c.1830

Resources and Bibliography

Books

Richard Jefferies's essay: Notes On Landscape Painting – from *The Life of the Fields* (London: Chatto & Windus, 1884)

History of the Separator Thrashing Machine, Reaper and Harvester, R. Pripps & A. Morland (Motorbooks International Publishers, Osceola WI, USA, 1992)

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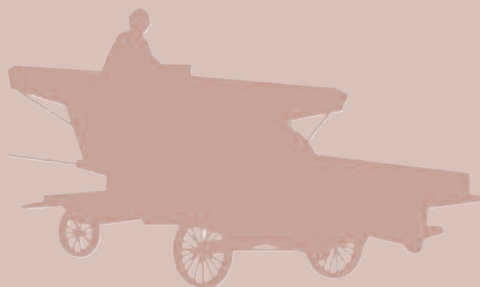
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www.dorsetlife.co.uk/2010/11/captain-swing-was-here/



Thank You

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Ancient House Museum

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Charles Burrell Museum

Gressenhall Farm and Workhouse

Highland Folk Museum

Museum of East Anglian Life

Museum of English Rural Life

Museum of Lincolnshire Life

National Museum of Rural Life

North Lincolnshire Museum Service

Rutland County Museum

Somerset Rural Life Museum

Stockwood Discovery Centre

Vale & Downland Museum

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