SHREWSBURY STEAM TRUST
NEWSLETTER FEBRUARY 2016

Welcome to the first Newsletter for 2016. Over the winter months, we have had an excellent turnout of working members, with as many as 14 people on some Tuesdays, as well as some support for the occasional Sunday working. It is particularly good to be able to report that Pauline Hanson is a major contributor on working days, which has helped to raise the standard of behaviour! As a result of this support, we have made great progress on a variety of projects, which are described below, and the Pumping Station is looking better than ever.

Thanks to Mike Glover, who produced the recent issues of the Newsletter, but has had to give up for personal reasons. Mike (yet another one!) Evans is producing the Newsletter temporarily: we are looking for a volunteer to take on the job for a year or so.

Boiler House roof damaged, but work carries on…..

Ron Targett

During the storms before Christmas, two skylights in the clerestory roof of the boiler house blew out, and slid down the slates, smashing the cast iron guttering. Repair of the building structures is the Council's responsibility, and there is normally a slow reaction to requests for repair. On this occasion, we had a very quick response, and within a week or so the skylights have been repaired and the guttering has been replaced with correct period profile. But we are still waiting, after 10 months, for the broken tile-catchers to be replaced!
Safety netting was installed in the boiler house by the contractors, which enabled me and the team to continue working underneath, dismantling the brick work flue on the left-hand side of the boiler. There are three courses of brick in the flue: the two outer courses are sound but the inner one is wasted and the bricks can be lifted out by hand.
The old mortar has turned to dust. I started rebuilding the brick work about twenty years ago, and in 2015 I repaired the brickwork in the right-hand side flue. This is the biggest job taken on in one go as I can now work Tuesdays, having retired. All of the work is done using sulphur-resistant cement, which did not exist when the flue was built 115 years ago.
Mike Boyd, a new member, has done some interesting research on the flue and its construction: see article on page 3.

Basement project

Ian Payne

Over the past few months we have been progressing with a project to open up the basement area of the pumping station for conducted tours. We envisage the first public access to be in 2017 but that is subject to our finding funds to complete the project.

So far the jobs have been to:-

- Obtain permission from Shropshire Council.
- Agree the materials and specification of the works.
- Install a path through the existing flower bed.
- Remove the brickwork that replaced the access door in the 1970's.
- Install a new door.

Physical work started after the final open day of 2015 with the removal of excess soil from the garden area. We estimate that there have been over 100 wheelbarrow loads taken to the rear of the site for use on other projects. (Each round trip was 175 yards!). Once the garden had been levelled we excavated further to install the foundations for the path. Steps were widened to make them

safer. During this work we managed to obtain financial support from a local company to allow the project to continue. This was followed by donations of materials and equipment.

Early January saw us break down the brickwork to allow daylight into the basement for the first time in at least 50 years. This was followed up with the installation of the security door.

The stage we are at now is that we have access to allow us to start removing years of dirt and dust. This will be a long laborious job but a relatively cheap one!.

We now need to obtain funding for the electrical installation for lighting. We have yet to find sponsors to support this part.

A few of pictures of the progress so far:



The back yard men — Dave Paddock

While the rest them have been inside in the warm(ish) and dry, Frank Marsh and myself have been busy outside. With some help from Ron and his Land Rover, we have moved the skips (used to store wood for fuel), and have used an an old garden shed, donated by Ron's sister, to clad the skips After cutting the shed sides to size, we treated them with preservative and so far have used two sides to clad the base of the first skip which we had previously turned on it's side. Work is now in progress to clad the end of the same skip.

The second skip will receive the same treatment in the spring. We are hoping to have a local artist to paint murals on all the cladding, to enhance their appearance.

The work carried out on the skips will add a positive appearance to the gardens created around the skip area and the crane. Tons of monumental masonry blocks have been moved to create a raised flower bed, and a surround for the railway crane, which was moved 20 metres by brute force (and a Land Rover!)

The Tuesday weather has been very kind to us so far, allowing us to make good progress.

Visit by Meole Brace Cubs — Al Ingle

A group of 26 cubs visited the Pumping Station on the evening of 19th January, accompanied by their leaders. John Maclean (Chief Engineer) gave an introductory talk about the history, engineering and functioning of the Station, after which small groups were conducted round the facility by PS volunteers.

The cubs were surprised at the ingenuity of the Victorian engineers, and were particularly impressed by the 2 pence coins balanced on the levelling gear. Like many other visitors, they

thought that the coins were stuck down, but had some had difficulty re-positioning the coins!

Afterwards soft drinks and (lots of!) biscuits were served before the cubs left at 2000 hours. We counted them in, and we counted them back out!

A good time had by all.

“Up where the smoke is all billow’d and curled…..”

Mike Boyd

Or in this case, *down* where the smoke is all billow’d and curled……..because the boiler flues at the Pumping Station actually pass underneath the boilers before reaching the base of the chimney, and it is down here that work has been going on recently to repair some of the brickwork.
The two boilers in the Station are installed alongside each other, with a double-thickness brick wall between them. The top of this dividing wall is slightly below the top of the boilers. Using more bricks, passages are formed so that the flue gasses pass out of the rear of the boiler, underneath it towards the front and then back along both sides to the rear. At this point dampers are fitted into the passages. The damper is a steel plate about half an inch in thickness, a foot wide and six feet in height. This is raised and lowered vertically by chains, to control the airflow (and thus the fire) through the boiler. Once past the damper, the four flues (two from each boiler) then merge and enter the base of the chimney.
Normally, the only parts that can be seen are the dampers; the brickwork is covered with stone and fireclay so as to form sealed passages. The labyrinthine route taken by the smoke is to ensure that the maximum heat transfer takes place into the water jacket of the boilers to improve efficiency and reduce the amount of coal burnt. There are inspection hatches in the flue at various points.


Photograph 1

It is likely that this part of the building has not been exposed for a long time, and when the brickwork was inspected, it was apparent that some repairs were required. It appeared that the ‘lining’ of the flue had moved away from the dividing wall and some bricks were falling out. This was not entirely unexpected, as the flue lining on the other side of the same boiler had been repaired some years ago. Work by volunteers, led by Ron Targett, began by removing the stone slabs that cover the passageway alongside the boiler. This exposed the top of the dividing wall and the curved firebrick ‘roof’ of the flue. These can be seen Photograph 1. These curved firebricks are not mortared into place. Their base is resting on the top of the flue lining bricks, and their top edge simply leans against the side of the boiler. Also visible in the photo is the partly-removed dividing wall: the red plastic bucket (not the one on top of the boiler) is sitting on the top of the intact wall for the other boiler. These two walls are separated by a small gap of one to two inches, and they do not seem to be tied together at all. They are made of hard red bricks and good-quality mortar, and apart from the area which has been removed in photo 1, seem to be sound. The walls are double width, with headers protruding into the flue passage: these support the lining bricks and can be seen in photo 1 where the lining has been removed. (See below for more about the bricks).

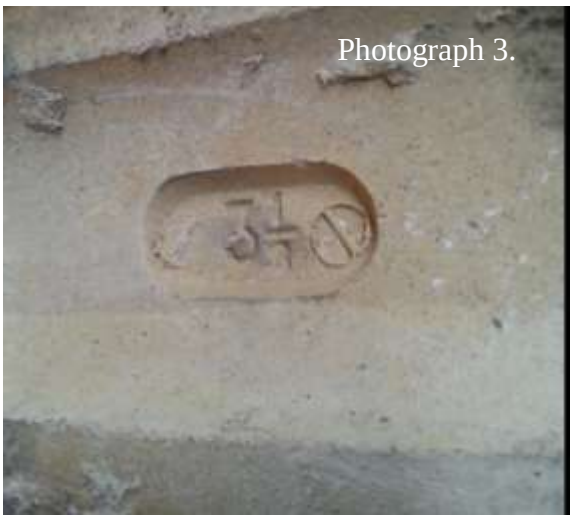
The flue lining is in poor condition. The bricks are again hard, and are of a more yellow colour than the walls, but generally sound. It is the mortar which has failed, and is little more than sand. The bricks were recovered by simply picking them out by hand and dusting the mortar off. It is possible that the effects of the heat and chemical action of the smoke and gasses has caused the mortar to perish, but it may be that a poor quality mortar mix was used in construction. The new mortar will be specifically chosen to reduce the effects of smoke in future.


Photograph 2.

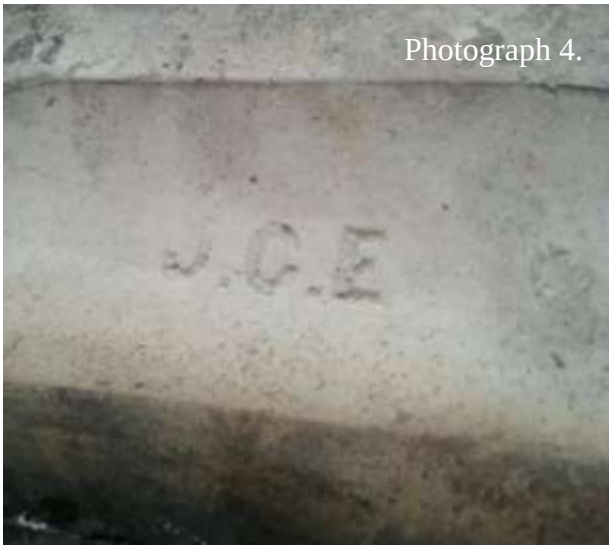
Photograph 2 shows one of the dampers in a partly-raised position. Again, the headers used to support the lining bricks can be seen. There is some evidence of previous repairs in the area around the damper. The brickwork here is generally sound and the mortar is good. In particular, the brickwork between the end of the boiler and the damper has clearly been re-made at some time.
The work needs to be completed in time for the first of 2016's Open Days on 10th April, and therefore only the part so far exposed will be replaced at this time. Further work may be required in the future.

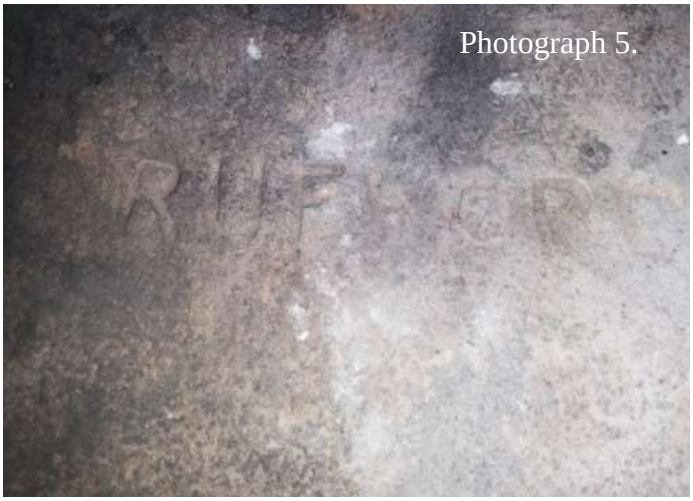
The Bricks.

There are a mixture of bricks used in the construction of the flue, but they mainly fall into the two types mentioned above: red, and a beige/yellow brick.
The lining bricks are generally a sharper shaped, engineering brick and both double-frogged and frogless types are used. Photograph 3 shows such a brick, stamped "3⅛" on one side, and "J.C.E." on the other.


Photograph 3.

Research suggests that these bricks are supplied by James Coater Edwards from Ruabon, north Wales. He followed his father into the brick-making business and at one stage had three factories. Buff coloured bricks generally came from The Albert Works at Rhosllannerchrugog. Edwards bricks were also used in the construction of the Panama Canal (opened 1914), and for some of the supporting structures of Blackpool Tower (opened 1894) and Ibrox Stadium in Glasgow.
The dividing/supporting walls are constructed from bricks made by Ruffords of Stourbridge. Photograph 5 shows their mark on a frogless brick.

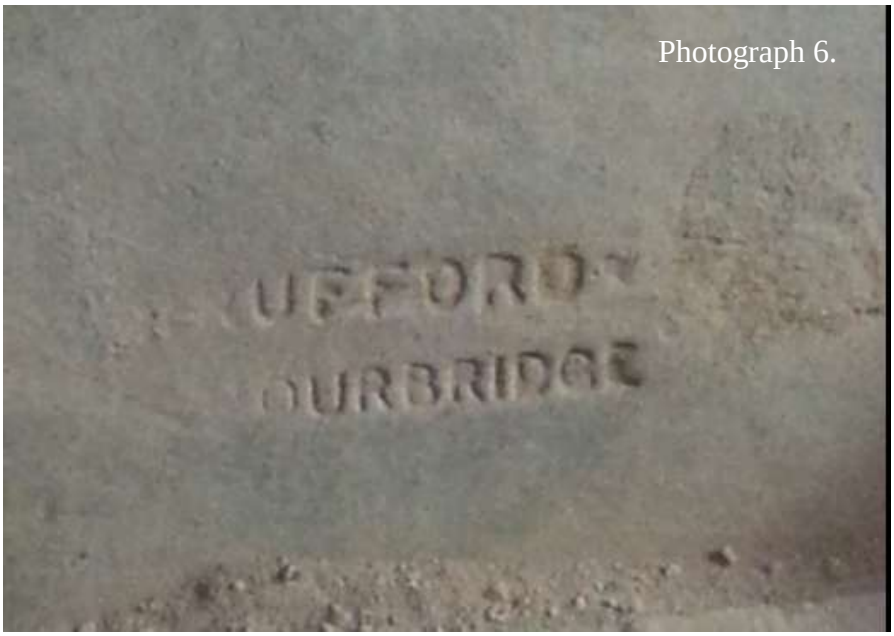

Photograph 4.



Photograph 5.

The curved firebricks used to form the ‘roof” on the flue are also Ruffords products.
See Photograph 6

Ruffords were based in Hungary Hill, Stourbridge, and were famous for the manufacture of firebricks and glazed utility ware. They had a reputation for superb quality and their fire-clay products were known to withstand high temperatures.



Photograph 6.

Stationary Engines — Keith Rees

As most of you are aware, we have six 'small' engines that, at some time in the past, have been donated, given 'on loan' or purchased by the Trust. For those that have only just recently joined our merry band, I will give you a few more details.
The petrol engines were built to assist farmers and landowners with tasks on their properties as not many rural properties back then had access to electricity.
Currently we have three engines running on our open days.

The 2 Lister D-types are water-cooled, petrol engines producing about 1.5 bhp.
The Petter A-type, an air-cooled petrol engine, also produces about 1.5 bhp.

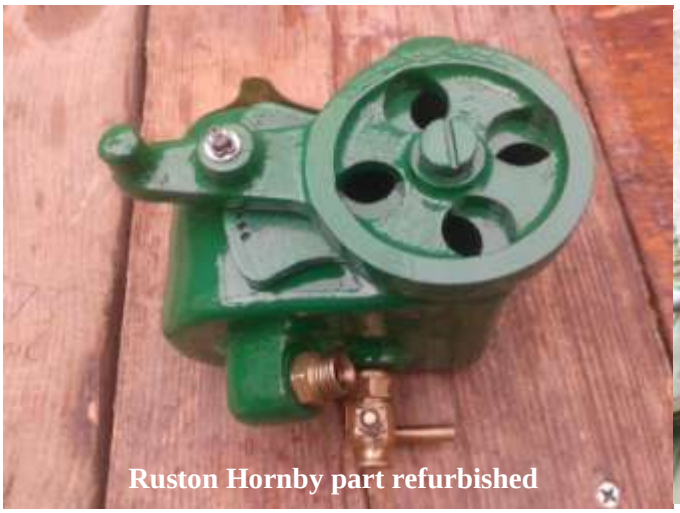
A fourth engine, owned by Gordon Woodruff, is an air-cooled, petrol driven, Wisconsin AHH, believed to have been brought over to this country during WW11 by the American forces. It produces about 9 bhp. Currently undergoing a protracted renovation, the main problem we are facing at the moment is a malfunctioning carburettor.

Our fifth engine, purchased last year, is a twin cylinder, steam driven water pump built by a company called Worthington. This engine/pump was installed in a large estate and used to circulate heating water around the main house. The majority of it has been dismantled, cleaned and painted in primer. The major castings are still to be cleaned and repaired before it can be rebuilt. The main setback here is that the water pump casting has been subjected to a lot of corrosion over the years and will have to be 'built up' before reassembly. Also there is a serious crack in one of the pump liners.

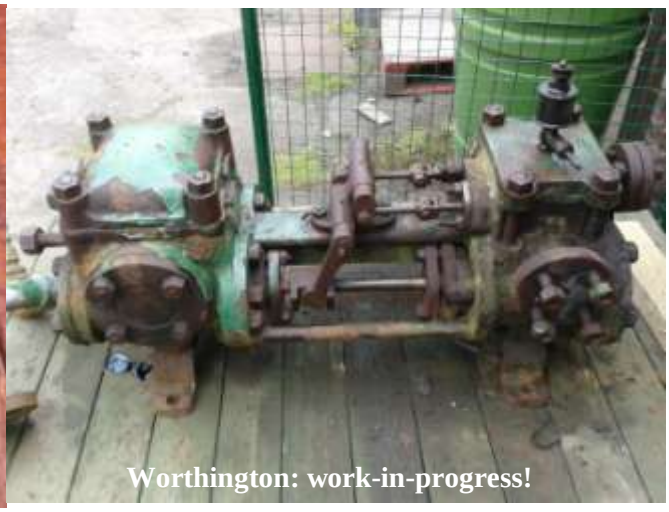
As yet, no decision has been made on how we are to remedy these problems. The two brass piston rods need to be replaced. They are worn where they pass through the glands or stuffing boxes. In order to keep costs down, we could replace them in stainless steel: this project is on hold for the time being.

The final engine we are currently working on is a Ruston Hornsby type PB, again water-cooled and petrol driven, producing about 3 bhp. This engine is slightly different in that it has two flywheels. Some of the peripheral parts have already been removed and renovated but we have noticed that the magneto that produces the spark to 'fire' the engine, is not the correct one. This will need to be replaced.

If anyone is interested in helping with the renovation and maintenance of these engines, I would be very happy with your assistance as there is becoming far more work with these engines than I can cope with on my own.



Ruston Hornby part refurbished



Worthington: work-in-progress!

And finally: financial storms ahead — Mike Evans

Steam Trust members living in the Shrewsbury area are probably aware that Shropshire Council, which runs the Museum Services, has announced the intention to reduce funding for the Museums to **ZERO** over the next two years. This is in response to the government's decision to reduce amounts paid by central government to local bodies. Many other non-essential services will be affected by these decisions.

Coleham Pumping Station is “grant-funded” by the Shropshire Council, and it is likely that we will be badly affected. At present, the Council picks up the standing and running costs for the building: rates (if any), repair and maintenance, electricity, coal, some insurance costs, etc.

Shrewsbury Steam Trust actually performs very well for such a small organisation, in that we are very largely self-funding as far as the actual engineering is concerned: we cover our own costs, and are able to fund projects such as the flue rebuilding, opening up the lower floor, refurbishing parts, etc. What we don't do is cover the building costs: we are not big enough to cover potential major building repair costs, particularly as there has been so little planned maintenance by the various Councils for the last 60 years.

We will have to wait and see what happens, but are already giving some thought to our survival plan. On the positive side, we have recently sorted out our organisation and official status, by re-validating our Constitution and formalising our relationship with the Council. We are now in a position to actively seek charity status, and to put forward applications for grants and donations. We will keep you posted on progress with this!