

Summer 2012

TOUCHPAPER

The Newsletter of the Royal Gunpowder Mills Friends Association
Registered Charity No. 1115237

Autofrettage and the Duck Pond

Blast Attenuation of Noisy 'Explosions'

Mills Water Ways

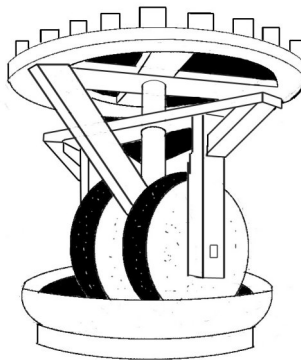
Building R634

60 Years a Queen

2012 AGM/Social

Letters: Canals

Obituaries



WARGMFA

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Deadline for the next issue is 3th August 2012

Chairman's Chat

I am writing this a few days after the Annual Get Together held in the café on 25th May. It was a successful day and everyone seemed to enjoy themselves. A full land train tour of the north end of the site was guided by Dave Sims who kept the intrepid passengers amused. Catering was by a company new to us and they produced some very nice food. Maybe they will be seen on site again in the future.

A few weeks ago Brian Harvey decided to retire on 1st June although this has now been extended by another week. As far as I know nobody has yet been appointed to replace him. It will be very difficult to find a replacement. If it weren't for him the site would be in a parlous state. His skill, knowledge and hard work have been outstanding in keeping the place going and providing a lot of assistance to the Friends. We all hope that he will come back and see us frequently and maybe even sometimes join the Friends working party so that we won't lose his expertise entirely.

We have been fortunate this half term to have a German Enigma coding machine from the 2nd World War on display for our Spy Week which is evoking considerable interest.

The reconstruction phase of rebuilding the cordite drying truck is now almost complete which just leaves painting to be done and deciding where to exhibit it. And then on to something else!

With my very best wishes to you all for the summer and I hope that we have some good weather but also a good deal of rain, (but only at night!).

John Wright

Editorial

A report on the 2012 AGM/Social event appears on page 21. The group photograph was taken on the new site for our model waterwheel.

The original waterwheel was built by the Friends when the site first opened as a visitor attraction. Norman Paul did the brickwork and in 2008 we added a plaque to commemorate Norman. This year the company wanted the waterwheel dismantled in order to use the space for other purposes.

We now intend to rebuild it on the new site and make some improvements.

I shall continue to produce Touchpaper for now as no one has volunteered to take over. The job is not difficult provided I receive suitable copy. In this issue I have put a small item from Les Tucker into the letters as I had received no others. Once more this is a request for articles or letters for publication. For those of you on e-mail letters are quick and easy to send at no cost. Anything is welcome, including complaints, but hopefully items on the work we used to do or the reasons you joined the Friends and what you would like to see in the magazine.

I hope there is something in this issue of interest to you all.

Brian Clements

Autofrettage and the Village Duck Pond

There is nothing new under the sun we are told and the design of high pressure strand burners is a case in point.

A cylindrical vessel to contain high pressure gas could be a simple shell made from high grade steel but an improvement is to encase the cylinder with an outer shell. By shrinking this outer shell with a residual inward tension an initial force provided by internal gas pressure is met by the outer shell.

Two methods of making this compound vessel are possible, either by heating the outer shell to expand it over the inner sleeve or by cooling the inner sleeve until it can be slid into the outer one.

Both methods require smooth, accurately machined surfaces. Solid carbon dioxide (Cardice) has been used to cool the inner sleeve with the worrying possibility of getting stuck half-way!

In the past the village blacksmith or cartwright would heat an iron tyre for a wooden wagon wheel, fit it while hot and plunge the wheel into the duck pond to shrink the tyre on to the wheel. The inward pressure by the iron tyre gave a strong wheel; so there's nothing new under the sun! (cooling the wooden wheel was not an option).

High pressure strand burners and closed vessels working up to 700MPa or 40 tons/sq in were made using this method. Some of the Friends have reminded me that steel tyres on locomotive wheels are shrunk on by heating the tyre, fitting it on the wheel and then cooling it, but without the help of a duck pond.

Bryan Howard.

Blast Attenuation of Noisy ‘Explosions’

Normally a gun goes ‘bang’ and a rocket goes ‘whoosh’; any schoolboy knows that.

However, in the case of the Light Armour Weapon (LAW) the burning time of the rocket propellant was only 7 milliseconds, resulting in an impressive bang.

Since the proof stand firing these rocket motors was close to the glassblowing and instrumentation sections we were asked to try and reduce the noise of these firings.

One effective way to silence explosions is by using a blanket of water based soap bubbles. Accordingly the next LAW motor to be fired was surrounded by a polythene bag of foam contained in a 4ft concrete drain pipe (the foam was provided by the ERDE fire brigade).

Once the problem of damp firing and instrument leads was overcome we were ready to test the noiseless system. Pressing the ‘fire’ button resulted in a resounding silence which was, at first, thought to be a misfire but the instrumentation showed a normal pressure-time curve.

Unfortunately on entering the firing pit it was obvious that a new method of bisecting concrete drain pipes had been devised. That was a good idea while it lasted!

Footnote: Some years later just as South Site was about to close I witnessed blast attenuation using ‘vermiculite’ which was also successful but for LAW it would have taken some time to sweep up the bits!

Got a Blocked Sink?



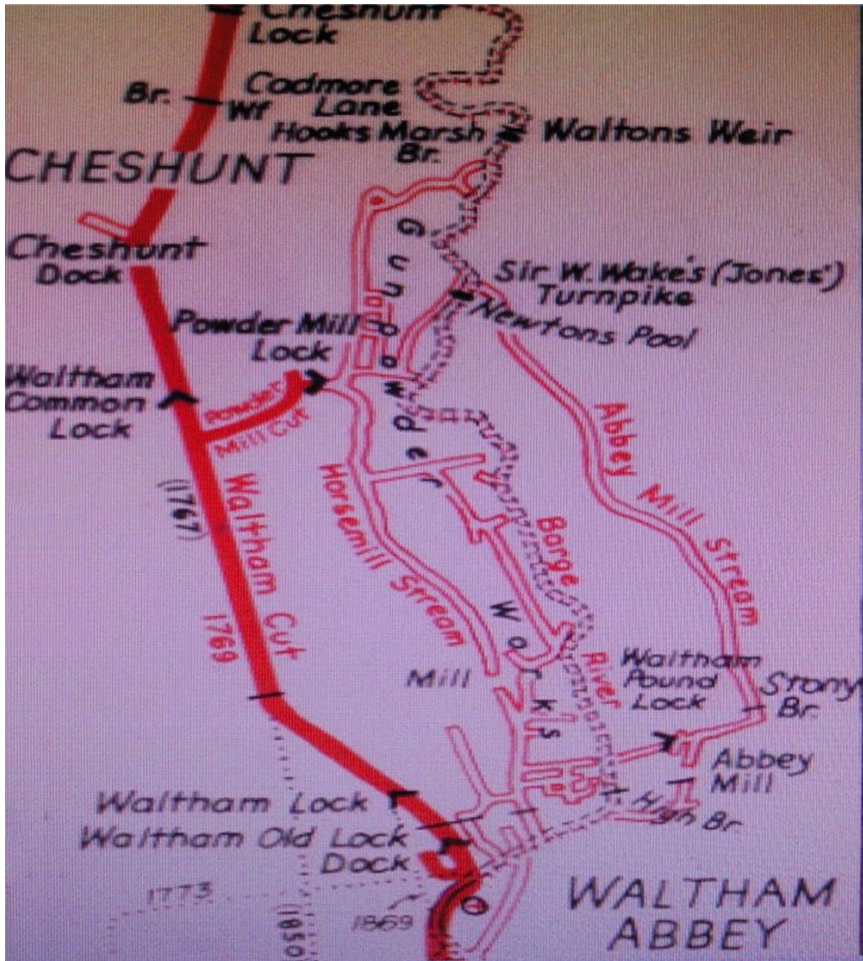
Try the Ron Treadgold method devised many years ago on a narrow boat holiday. The foghorn blasted a plug of solid fat out of the sink overflow and all was well. Fortunately no one was on the towpath at the time!

Bryan Howard.

For those of you with Internet access here is a link to a book on EOD by Peter J Hubbard OBE, well worth a read.

http://ccgi.racheldavid.plus.com/~racheldavid/images/stories/various/The_Exploding_Kind.pdf

A GUNPOWDER WORKS MAP



On the map 'Barge River' is the Old River Lea which is fed from Kings Weir. The Source of the River Lea (Lee) is Leagrave, Luton. At Kings Weir the water level of Barge River is raised to divert the river water into the River Lee Navigation Cuts of Aqueduct, Cheshunt, Waltham Common and Waltham Lock.

Horsemill Stream today is also known as the Flood Relief Channel or Walton's Walk (Izaak). Millhead Stream or 'The Old Establishment' is between Horsemill Stream and Barge River. The Mill is powered by water from Waltons Weir on Barge River. Abbey Mill Stream (now, Cornmill Stream) flows from Barge River to Stony Bridge, then onto Waltham Abbey (no 'Red House' or Turnpike en route). The Powdermill cut was built in 1806 to circumvent Barge River.

At Waltons Weir (map) or Fishers Green (today), Hooks Marsh (Lane) is accessed from the Crooked Mile (Crykettlane in 1516) and joins Cadmore Lane which leads to High Street Cheshunt (nearest P.H., Old English Gentleman, Cheshunt).

Turnpikes (as above), of which there was one at Waltham, were built specifically to assist the navigation, and by custom a toll was payable by every barge that passed through them. Turnpikes were built in such a way that they could act as temporary dams. When barges came downstream the bargemen may request the Flash Lock (Turnpike) boards be inserted. This meant that water was penned back behind the Flash Lock (Turnpike) and when the panel/s was removed a torrent of water would runoff carrying a barge downstream.

The Wake Baronetcy of Clevedon in the County of Somerset is a title in the Baronetage of England. It was created in 1621 for Sir Baldwin Wake. The only Wake with a hyphenated name was the sixth Baronet, Sir Charles Wake-Jones who was Lord of the Manor at Waltham and died in 1755. "Sir W Wake's (Jones') Turnpike", (map) must refer to the 7th, 8th or 9th Wake (life span from 1755 to 1846) all named Sir William Wake without the double-barreled Jones.

It should be said that flash lock/turnpike/weir/dam are synonymous on the River. So, it begs the question who helped/hindered the mill race at Abbey Mill, Waltham Abbey! Turnpike or Weir?

Waltham Pound Lock was built in 1577 on a cut made between the Abbey Mill Stream (Cornmill Stream) and the Barge River (map) and was the first pound lock built and lined with timber and have ‘mitre gates’ at each end of the Chamber. The lock was completely destroyed in 1592 and navigation returned to Barge River.

Mitre Gates at Waltham Town Lock, NOT Waltham Pound Lock



Snapshot maps of the ‘Gunpowder Works’ do differ in detail, sometimes they even ‘disappear’ from maps! Perhaps due to being a ‘Secret Island’.

Ray Stelzner.

Ray also wrote a letter published in the April 2011 issue on the subject. In the same issue is a reference to The Waterways of the Royal Gunpowder Mills by Richard Thomas. Richard's letter on the subject of the waterways appeared in the June/September 2011 issue.

More on canals in the Letters.

Ed.

GRANDPARENTS ANSWERING MACHINE

Good morning ... At present we are not at home but please Leave your message after you hear the beep. beeeeeppp...

If you are one of our children, press 1 and then select the option from 1 to 5 in order of "arrival" so we know who it is.

If you need us to stay with the children, press 2.

If you want to borrow the car, press 3.

If you want us to wash your clothes and ironing, press 4.

If you want the grandchildren to sleep here tonight, press 5.

If you want us to pick up the kids at school, press 6.

If you want us to prepare a meal for Sunday or to have it delivered to your home, press 7.

If you want to come to eat here, press 8.

If you need money, press 9.

If you are going to invite us to dinner, or, taking us to the theatre , start talking we are listening !!!!!!!

Building R634 South Site



R634 left Office R638 right



Inside R634 when used by police_10-7-95

The building was originally built as a cold store and rough handling facility.

The interior of the building was divided into two halves connected by a gantry supporting a travelling crane. One half contained a low temperature (-40 °C) chamber with an opening at the top; the other half contained a mock-up of the back end of a drop sided lorry. The 'lorry' consisted of flooring supported by a girder which was pivoted at one end and supported by a wheel at the other. The wheel rested on an uneven drum set in the floor so that when the drum rotated the 'lorry' was caused to bounce up and down simulating a ride on a rough road.

Explosive stores conditioned in the low temperature chamber were transferred by the crane to the back of the 'lorry' for the test ride.

X-rays were taken afterwards to see if any damage had occurred.

Around 1979/80 the building was converted to a Fragment and Bullet Attack Facility and used until the site was sold, around 1988.

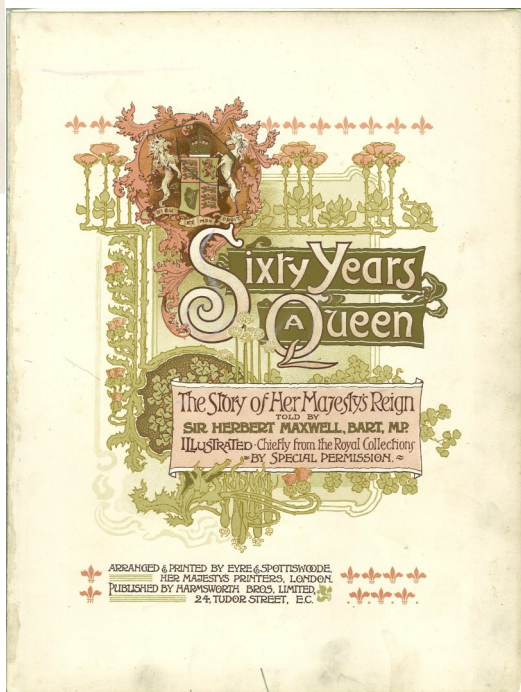
For a short while before the building was pulled down it was used inside by the Metropolitan Police for shooting practice.

Dave Manners, 20/4/2012.

Extract from the Archive - 60 YEARS A QUEEN

No, not Queen Elizabeth II

A lot has been and will be written about the present Diamond Jubilee so for a change this article harks back to the first Diamond Jubilee.



In 1897 the by then diminutive Victoria celebrated the Diamond Jubilee of her reign. In the Mills Archive there is an impressive tome, profusely illustrated, written by Sir Herbert Maxwell, Bart, MP, chronicling the events of the 60 years from the accession in 1837.

In his preface Sir Herbert summarises his view of the main changes in society over the period. There is quite a lot of useful comment and although one would expect him, bearing in mind his status, to steer round less desirable aspects his comment is not slavishly respectful and he makes very reasonable assertions, supported in some cases by statistics.

For example, everything is relative and he makes the point, whilst admitting that average living conditions, sanitation, health etc. were appalling at the beginning of the period, that by 1897 - 'artisans dwellings far exceeded in comfort, in solidity and in sanitation anything that our forefathers may have dreamt of.'

On earnings, whilst admitting the difficulty of producing figures, he cites a recent study which, based on national income and tax figures etc., demonstrated that over the last 30 years whilst the wage-earning class had increased from 26 million to 30 million – an increase of 16%, the wages paid to them had increased by nearly 100%. Also, it was a time of reducing prices, increasing purchasing power.

Again citing the study, he demonstrates, based on income figures, the meteoric rise of the middle classes, which by diffusing economic power 'among a multitude of owners' created stability in society.

He is worried about the 'depletion of the rural districts' by the 'excessive aggregation of the people in centres of industry', which he charmingly ascribes partly to 'increased facilities of locomotion'.

So what has any of this to do with the Mills, apart from general background? For this we have to turn to the chapter on the momentous years 1854–1857.

The middle of the century brought with it a military crisis in 1854 with the onset of the Crimean War which revealed the operational deficiencies of the Army, which had atrophied after Waterloo. The crisis was not only operational, it permeated through all branches of the system, including the Mills. It tainted the reputation of the ancient Board of Ordnance, who amongst other things were accused of supplying the wrong size cannon balls!

Somehow in the end the Forces prevailed in the Crimea but had hardly had time to congratulate themselves when the news of the Indian Mutiny burst on them in 1857.

In the meantime positive steps had been taken at the Mills to remedy their side with the institution of steam driven production in 1857.

Amongst the illustrations in the section on the Indian Mutiny are two doubtless included to reflect the munitions production supporting the Forces, both of the Mills. However, they are not dated and, in conjunction with the Indian Mutiny title of the chapter lead to the misleading impression to an outside reader, if they did not pause to remember that journalistic photography did not exist in 1857, that they reflected activities going on at the time of the Mutiny.

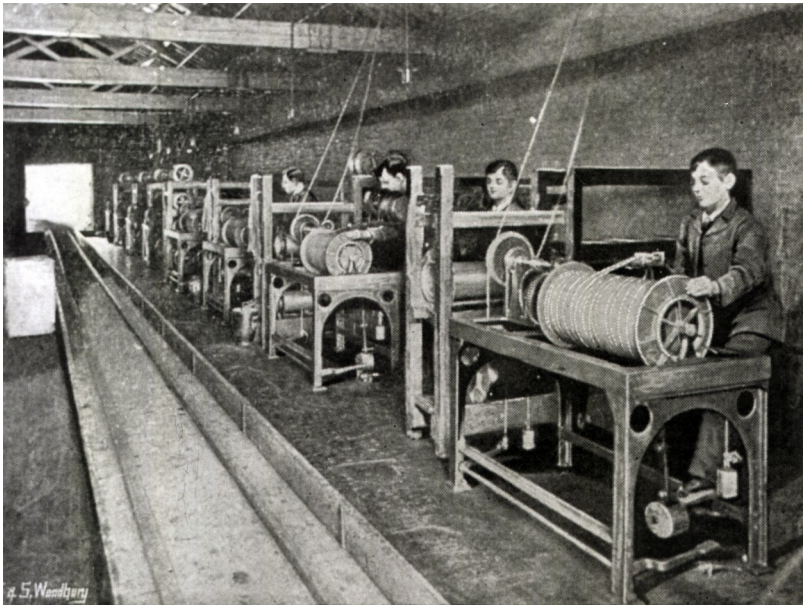
The two titles are:

Interior of the Guncotton Factory at Waltham Abbey

Winding Cordite in the Government Factory



Guncotton Factory WASC 1059 / 1



Winding Cordite WASC 1059 / 2

They were therefore taken at least 30 years after the Mutiny and strictly speaking were not relevant to that event since chemical explosive production only started in 1888 with guncotton, followed by cordite in 1891.

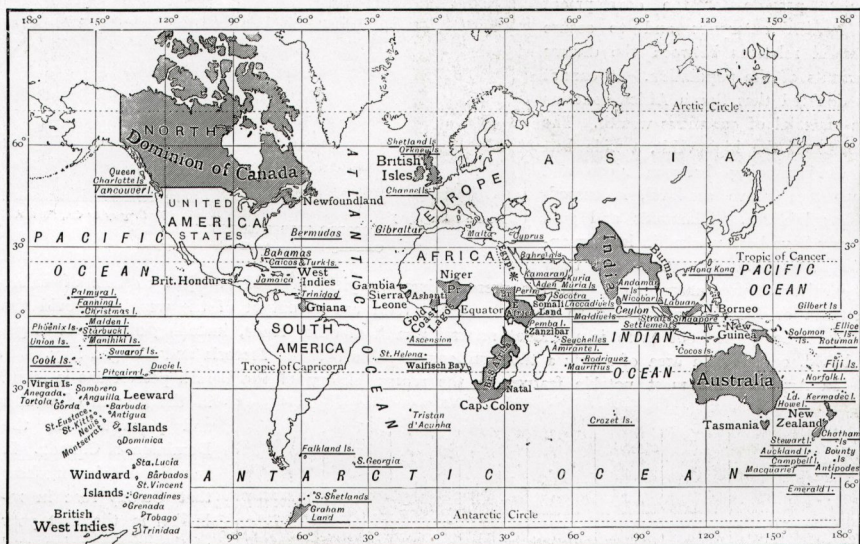
We can speculate as to how this occurred. At the time there was a prodigious output of illustrated journals read by a relatively literate audience, e.g. the Illustrated London News. By this time photographs were beginning to replace engravings and various photographic agencies sprang up. One of these was Thiele, Chancery Lane and somehow either speculatively or under commission they must have gained permission to enter the Mills and take photographs. The above two are attributed to them and were presumably purchased by the publishers of the book.

Photographs inside a Government explosives works would be very rare indeed and it can be imagined the nuances of the timing of introduction of chemical explosives would have been lost to a sub editor seeking images and with little inside knowledge.

The printers, Eyre and Spottiswoode, compounded the issue by including two of their photographs of the interior of The Royal Small Arms Factory, again almost certainly taken in the late 1890's.

There are images from other agencies and journals in the Archive but not unfortunately as far as can be determined any more from Thiele.

Not surprisingly the Empire occupied a large part of the celebrations. In 1897 Britain was a rich self confident global power without equal, occupying what Winston Churchill described as 'the summit of the civilised world'. On the whole people took great pride in the Imperial role, untroubled by later doubts. Indian cavalry units in glittering uniforms figured largely in the Jubilee procession and Victoria took a particular interest in



THE BRITISH EMPIRE, 1897.

British possessions shaded or under lined: Views of the principal Colonial towns are given on subsequent pages. * Egypt under British occupation since 1882.

her Indian possession and people. The word possession is used advisedly – following the Mutiny the British Government took control of India from the East India Company and Victoria became Queen and Empress of India. The schools taught appreciation of the Empire and every child's school atlas had great swathes of red across the world. We can now only look at the statistics in awe – 1.8 million square miles, 300 million people, nearly two thirds Indian (some of her Indian subjects had extra cause to celebrate the Jubilee. Amongst the largesse in Calcutta 5000 beggars were given an elaborate free meal and Victoria pardoned 10,000 Indian convicts). All with a ridiculously small standing Army. The Navy however was a different animal – at the naval review the Queen's battleships stretched for 15 closely packed miles (to give an example of the contrast with today, the complement of the Hong Kong station alone exceeded the whole of the present Royal Navy).

Sir Herbert had little doubt as to the glory and rightness of the Empire and the benefits it had brought to the Queen's subjects. He was worried about the Boers in South Africa, but said:

'It is not unreasonable to hope that even there just laws, wise administration, and the prestige of a mighty empire will prevail to dispel suspicion and establish a lasting harmony'. Two years later the Boer War broke out.

Was the Empire a good thing or a bad thing? Whatever it was more than half a century after it was dismantled it continues to haunt us. In the media the BBC recently devoted a whole series of prime television time with top presenter Jeremy Paxman to examining it and hardly a week passes without some personality, known or unknown, travelling out to India to look at its railways or have conversations with Indian academics on the rights or wrongs of the Raj. Books continue to be written ranging through on the one extreme those emanating from obscure universities with anguished hand wringing apologies for everything to on the other side reasoned defences, citing the rule of law, infrastructure improvement, elimination of banditry and corruption, dedicated administration etc. but steering round other more controversial aspects.

The Empire seems to have stamped itself indelibly on foreign perceptions of us. Time after time in a diplomatic exchange or other controversy in a seeming belief that it's a winning debating point a foreign critic squeezes in a reference, relevant or otherwise, involving the words imperialism or Empire. To cite a random recent example – the Italian Government was very irritated when in the Nigerian hostage debacle although a Italian national was amongst those involved the British Government unilaterally authorised an attempted rescue operation. The official Italian complaint closed by saying that Britain had been motivated by 'nostalgia for its imperial glory'.

The astonishing events of the Falklands conflict resparked these views. Its background and characteristics could well have come from 100 years earlier and reputedly caused the Russian General Staff to throw away its entire analysis of the aims and capabilities of the British Forces.

Ominously, bearing in mind China's potential as the next global super power, the fateful words 'Opium War' (in which the Navy made very successful use of Congreve rockets) are beginning to creep into official Chinese pronouncements. The Chinese have long memories, we are very vulnerable on this one and it could come back to haunt us.

One has the uneasy feeling that in another 50 years time they will still be accusing us of imperial nostalgia and Argentina will still be trying to get the Falklands back.

Perhaps we should end reading with mixed feelings the good Sir Herbert's rousing final conclusion.

"What might have been the result of the enormous development of popular power if the Monarch had been one whose character had attracted no affection or respect, it is idle to speculate. It is enough that every true Briton is able to say with heartfelt gratitude:

'Thank Heaven that throughout this critical period of change we have remained the subjects of Victoria the Great and Good!'. "

One aspect had remained unchanged throughout the 60 years and for half centuries before and after. In their isolated confines and largely unremarked the Waltham Abbey Mills continued throughout to produce the gunpowder and later propellant and explosives which the Forces needed to protect the imperial role and for national survival in two global wars.

Les Tucker.

Why should England tremble?



The picture shows the rocket motor firing panel in H67 complete with pressure transducer outputs as analogue signals, elaborate timers, paper outputs etc. And all this apparatus is to follow the Pressure v. Time for the firing of a micro motor, even smaller than a K round at about 100mm long with a diameter of about 30mm. Hence the

comment by the late Bill Smith “Why should England tremble” (at the thought of such a powerful ‘weapon’ defending us!).

Bryan Howard.

2012 AGM/Social Event

The weather was amazing, a bright blue sky, sunshine and a gentle breeze to keep us comfortable.

The AGM was held with all of the officers and committee members agreeing to stand again. Dave Hewkin has agreed to audit the accounts again next year. Roy Atkins, our auditor from the beginning of the Friends, has decided to retire. We are very grateful for his years of auditing. We now need a new auditor, if anyone would like to take on this task please contact John Wright.

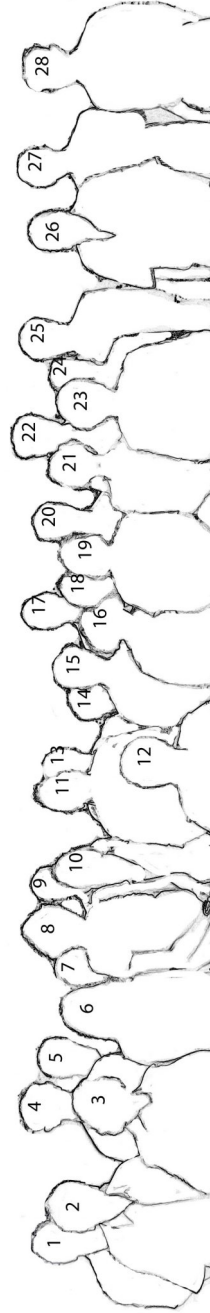
Thirty seven members assembled for the reunion and enjoyed the lunch provided by the caterers.

A full land train was run at 2pm with John Alcock driving and Dave Sims as guide. It was a chance for members to see parts of the site that some had not seen for a long time. We were also able to visit the rocket exhibition and Mad Lab and see the cordite drying truck the Friends are rebuilding.

One of the regular visitors at WARGMFA reunions, Gordon Bromberger, was unable to attend. He told me that he has been fitted with a new hip which is working well but his doctor had forbidden him to drive until mid June. Gordon sends his best wishes to us all and promises to be back next year. Les Bates heard the news about a road closure on the M25 near the M11 junction and decided not to attempt the journey; hopefully he also will make it next year.



Photo on the new site for model water wheel by Ian MacFarlane

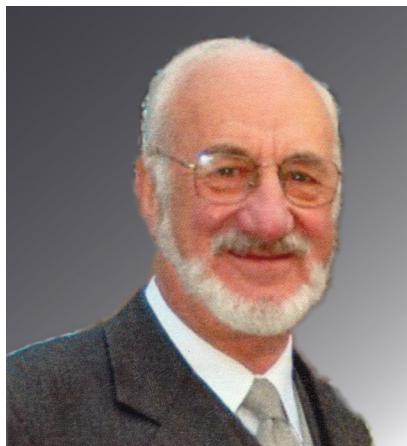


It was nice to see so many of the ‘old’ Friends talking, maybe we can encourage a few ‘new’ ones to join in next year.

Daphne Clements.

List of attendees:	20	Dave Manners
	21	Sheila Cook
Suzanne Leeson and Tony	22	David Steel
Madison for the AGM only.	23	Beatrice Hide
	24	Anne Steel
In photo:	25	Richard Penfold
	26	Roy Atkins
1 Geoff Colley	27	Michael Seymour
2 Jock McDougal	28	John Wright
3 Sheila Higgins		
4 Len Stuart		
5 Malcolm Bergh		
6 Margaret Lee		
7 Terry Stemman	Not in Photo:	
8 Chris Needham		
9 Derek Back		Eric Baker
10 Daphne Clements		Dave Sims
11 Bryan Howard		Peter Hart
12 Pam Colley		Harry Edwards
13 Diane Howse		Geoff Hooper
14 Pauline Back		David Cole
15 Dave Hewkin		Edna Cole
16 Minnie Fenton		John Vernon
17 John Cook		Les Tucker
18 Liz Went		Brian Clements
19 Jean Church		

Obituaries



Dennis Mansell 6th August 1927 –
29th February 2012

A full Waltham Abbey church for the funeral of Dennis Mansell testified to the popularity of a well known local resident. The last three weeks of his life were spent in a sheltered home in Cheltenham near his daughter.

Dennis was a stalwart of the instrumentation section and for many years second in command to Dennis Eldridge who then had to be referred to as Arthur (his second name) to avoid confusion.

Eventually Dennis was privatised and as section leader moved with the section to South Site. On his retirement in the 1980s Alan Short, an old church friend and associate, took over.

Dennis's retirement was dogged by ill health and meeting him could be described as an 'organ recital'. He bore his aches and pains with good humour and he was always pleasant to meet.

ERDE was represented by Jock McDougal, Diane Howse, Jean Richards, Mark and Mary Phillips, Brian and Daphne Clements, Geoff and Pam Colley and John Vernon.

Bryan Howard.



Ronald Percy (Ron) Ayerst.

Old colleagues will be sad to learn of the passing of Ron Ayerst who died on March 10th at the age of 90. Following a fall in December he spent some seven weeks in hospital undergoing three bouts of surgery on a broken hip. He died peacefully in a care home near Horsham following a further stay in hospital recovering from a chest

infection.

Prior to his fall he was living a very independent life, still driving, shopping, and looking after himself. (Sadly his wife Eileen died in 1995). Never one to give in easily, he actually drove himself home after his fall, the broken hip only coming to light the next day!

Ron was raised and educated in Leytonstone. Come the war, as a budding chemist, he found himself drafted into munitions work, first at Woolwich and later at R.O.F Chorley, where he was involved in surveillance of explosives stores held in various depots around the country. After the war he completed his studies, on a part time basis, at King's College, London, where he gained a degree in chemical engineering. It was around this time that he moved to ERDE, not long after its establishment at Waltham Abbey, where he remained until his retirement. He undertook diverse work in the chemical engineering branch where he developed a particular expertise in nitration, an area where a "safe pair of hands" was greatly valued. He later moved into work on double base propellants where he

worked in close cooperation with B.A.J., R.O.F. Bishopton and the Spanish.

With a lively curiosity he seems to have had an urge from an early age “to see how things worked”, and it does appear that in the family the distinction between “take apart” and “repair” became a little blurred. His early DIY efforts also apparently extended to his garden shed where a neighbour still recalls the strange smells which arose from within!

This curiosity again showed itself in his love of new places. He was a party leader for the Ramblers Association from the early post war years, and this played a significant part in his life—not least because a chance encounter between two Ramblers parties, on a Paris station platform, brought their two leaders, Ron and Eileen, to each other’s notice, and, in due course led to a long and fulfilling marriage.

Ron and Eileen were widely travelled (Peru, China, Europe and North America) and in retirement Ron turned this experience to good advantage when he joined the board of Ramblers Holidays, becoming chairman (voluntary and unpaid!), a position he held for many years.

Ron was great company, ever cheerful, with a ready smile, and always up for a spirited discussion on any contentious topic, from science to art (he was a keen amateur painter and a Friend of the Royal Academy), climate change to politics (a member of Broxbourne Conservative Club), and anything in between. Truly ‘a man of many parts’.

Ron was a devoted family man and leaves two sons, Richard and Philip, and five grandchildren. Along with his many friends they will long cherish his memory.

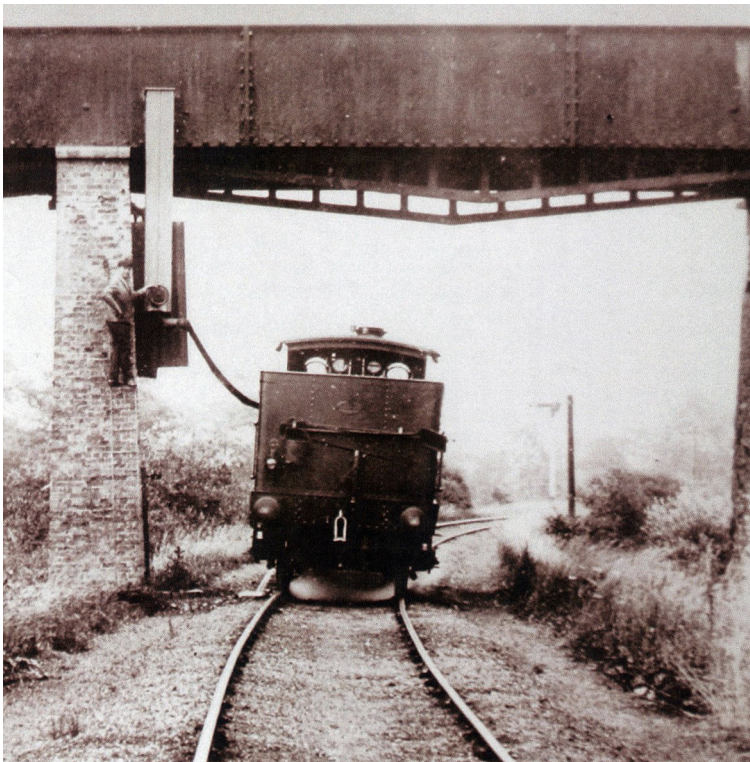
Ron Campbell.

Letters to Touchpaper

Canal Snippets - retrospective

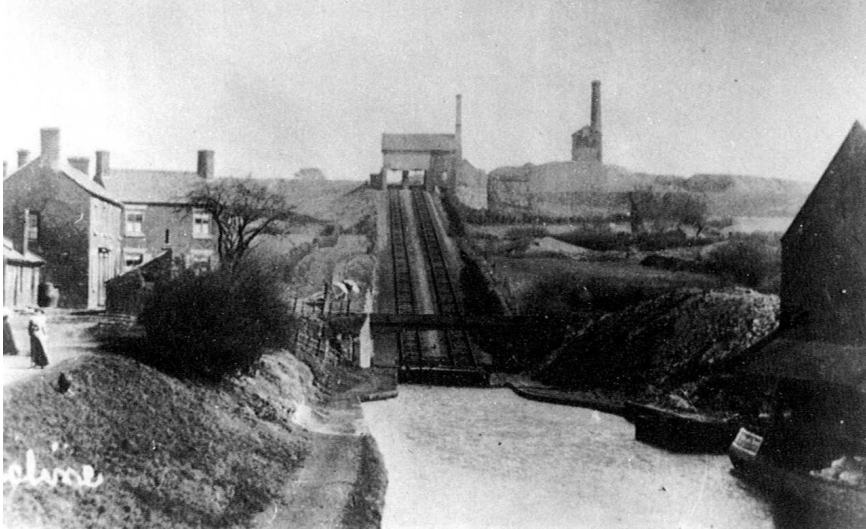
Railway use of canal water

In the Canal Snippets in the June/September 2011 Touchpaper the image showing the tapping of water from the Edstone aqueduct on the Stratford-upon-Avon Canal by the GWR was indistinct. (The 1920's car was a Lanchester). This gives a clearer idea.



Trench inclined plane

On P.9 of the October 2010 Touchpaper there is an image of the Trench inclined plane (reproduced below).



In a recent canal journal there was a reference to 'Trench Inclined Plane (now dual carriageway !)' . Can this be true, the exclamation mark indicates the writer's surprise. If it is true it must have involved the removal of a formidable amount of earth.

Les Tucker.

Guidelines for submission of copy

As a guide approximately 400 words fit a single A5 page without illustrations, it generally helps to include a separate image to break up the text, so if you have an image(s) please include it(them) although we may be able to find something.

Text may be sent as emails or attached to emails as plain text or Word documents. Pictures should be sent as separate images, either jpg or png although other formats may be useable. If images are included in Word documents more effort is required to separate them and there is a reduction in quality so please send images separately if possible. Paper originals should be scanned at 300dpi, digital photos can be resized to 1200 x 900 or larger, full size pictures from modern cameras are bigger than necessary and waste time uploading and downloading.

Pictures should be in colour if possible, they may only appear as grey scale in print but this is to keep costs down, normally they will be in colour in the electronic version.

We are happy to receive paper copies of text and pictures but cannot guarantee their return, if you cannot send items by email consider bringing them into the Mills or passing them to someone who does come in or can email them

Finally please be sensitive to copyright rules.

Useful free software.

I prepare Touchpaper using Scribus, this may be downloaded and used free of charge from:

<http://wiki.scribus.net/canvas/Download>

Events at the Royal Gunpowder Mills

For information visit the Web Site:

<http://www.royalgunpowdermills.com/whats-on-and-events/>

Brian Clements.

Booklet Clearance



Listed Buildings - 50p

Beam Engines - 50p

Woodland Trees - 50p

Trials, Tribulations and Pranks - 75p

Order from the Treasurer - *address inside*. Cheques should be payable to WARGM Friends Association.