Autumn 2012

TOUCHPAPER

The Newsletter of the Royal Gunpowder Mills Friends Association

Minnie on TV

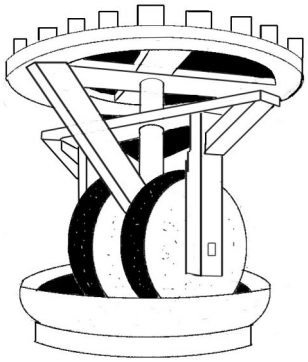
Early Rocketry

Spruce Goose

Letters:

Rockets

Queen Victoria's Jubilee



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Deadline for the next issue is 2th Novenber 2012

Chairman's Chat

Another summer well under way.

Unfortunately having the Olympic white water kayaking next to us has not led to any increase in numbers visiting the Mills. People travelling by car are recommended to go to Hatfield or North Weald and use the shuttle buses from there to the site. If travelling by train the recommended station is Cheshunt from where there is a very pleasant walk along the Lea Navigation through an area of wood sculptures to the White Water Centre. Having walked past the Centre while in use there seemed to be very few empty seats in the specially erected stands. However neither we nor any of the local shops seem to have gained any extra custom as a result of the extra people.

There are some interesting new exhibits in the Mad Lab this year, hired as last year from the Science Museum. You don't need to be a scientist to be intrigued by them. Particularly good for grandchildren! Of course there are plenty of other exhibits to see and there are the land train tour round the site and the army truck ride (the latter not recommended for elderly grandparents!).

Enjoy this edition of Touchpaper.

John Wright

Editorial

Just for a change I'm not begging for articles. Instead I'm celebrating the fact that we have two letters to publish, even better one of them proves that at least one person does read Touchpaper.

This issue is smaller than recent issues but is still larger than we were managing last year, so thanks to all those who have submitted material. I've even included a few jokes as I'm often asked why they were missing.

We have the first part of an introduction to rockets by Les Tucker, I hope to have the second part for the next issue.

Please write in if there is anything you would like to see in Touchpaper and we'll do our best to satisfy the demand.

Finally below is a photo of John Wilson's 7 1/4" railway having an early test, This has proven popular and John hopes to extend it, finance permitting.

Brian Clements

Minnie on TV

I wonder how many of the Friends saw fellow Friend and Volunteer Minnie Fenton visiting her old home in London's East End on BBC2's programme "The History of our Streets", shown on 11 July.

Minnie is one of our longest serving Visitor Services volunteers and is always ready to help our visitors at her regular spot at the Island site which is often the first point of contact for them.

The programme opened with Minnie turning the key in the door of her old home in Arnold Circus, E2. She expressed her surprise at the luxury accommodation although she spoke of many happy memories of her time there as a youngster.

Built in 1898. Arnold Circus was the first inner city council estate after the clearing of slum dwellings. The rent was 10/- (50p) per week which was four times greater than was charged for the old slum houses. There was no bath and only a cold water tap but some flats, including Minnie's did have their own flushing WC.

A photograph of a very smart couple (Minnie's grandparents) who were the very first tenants of the buildings, the husband being a tailor . A second photo showed a pretty young girl, it was our Minnie! Later on her father took over the tenancy and she reminisced of fond memories including the milk arriving at 4 am in churns. It was a close knit community but there were strict rules requiring tenants to keep stair wells clean (no lifts) and to wash all windows every week.

The buildings suffered no war damage and have since been upgraded regarding facilities. It is now a very popular and desirable area and over 1,500 people of a cultural mix live and work there. In 1980 the GLC gave tenants the right to buy and now almost half of the flats are owner occupied. Other previous tenants who took part also agreed that it was a very caring community. How many areas of London are there today where this spirit of togetherness occurs? Many thanks to Minnie for her part in this informative and enjoyable programme.

Suzanne Leeson.

Early Rocketry and Rocket Propellant

This note was originally written as a quick reference to early rocketry for the Archive researchers
The focus of exhibition work on the site is shifting to rocketry and readers of Touchpaper might find the summary of some use as a reminder of what went before the exhibits in L168.
The second part will deal with Germany, the USA and Britain.

In common with most other technological discoveries, the story of rocketry is one of a progression from the failures and successes of early visionaries working in isolation through gradual improvement and recognition to full scale commercial and where appropriate Governmental involvement.

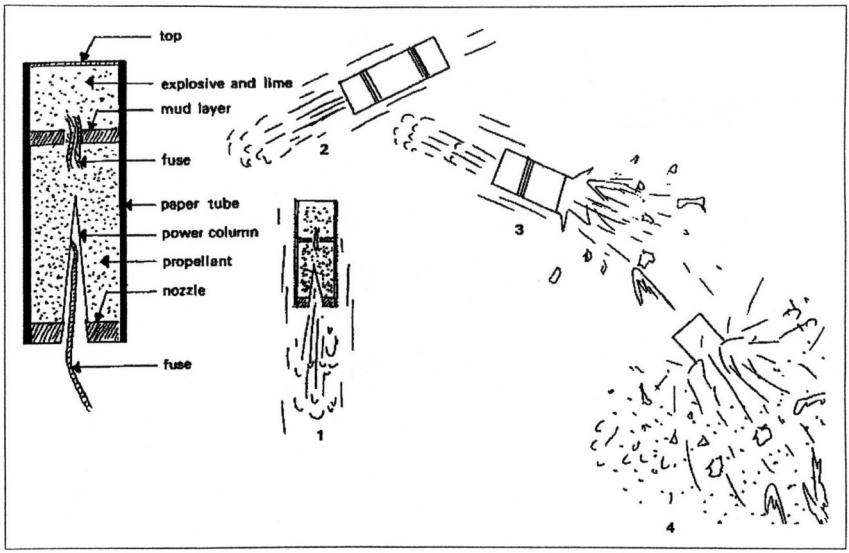
This skeleton summary briefly traces the development of rocketry and rocket propellant up to around the early 1950's in the form of the careers of some of the early pioneers.

Part 1

1. China

China is generally acknowledged as the place of origin of gunpowder, in the 10th Century AD, arising from the experiments of alchemists seeking to find an elixir of immortality or more prosaically how to make gold.

Military interest in its explosive properties led to the first guns and rudimentary military rockets.



WAI 482 / 2 Earliest reliable reference to use of rockets. P'i - li – p'ao thunderbolt missiles used by Admiral Yu – Yun – wen in Battle of Ts'ai-shih 1161. Describes paper tube filled with gunpowder exploding with a noise like thunder propelling a bomb upwards then dropping down.

2. India

Possibly arising from the Chinese connection via Mongol invaders, Indian states adopted the military rocket. The East India Company's army came up against them in conflicts in the 18th.century. In one battle their opponents had as many as 5000 rocketeers.

Not surprisingly the weapon made a strong impression and reports of its existence were sent to England.

3. Britain

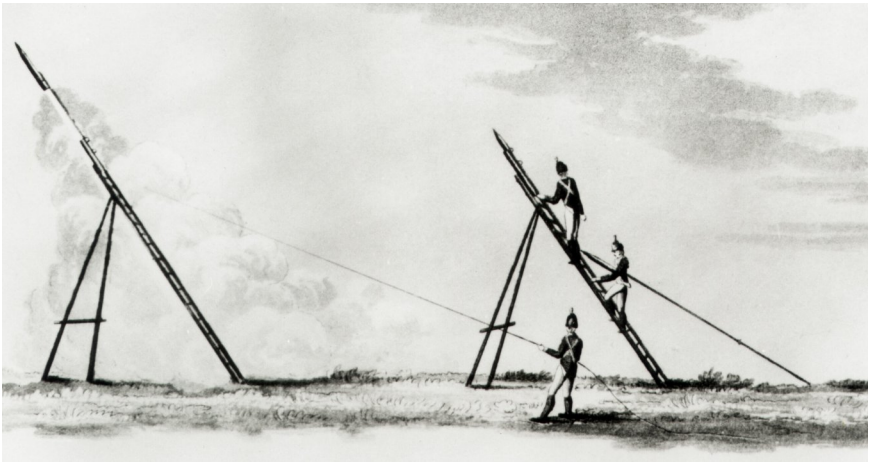
First Phase 18th / beginning 19th. Century - William Congreve

These reports impelled the military technicians to commence rocket experiments which were continued by Major, later Lt. General, William Congreve, Deputy and later Comptroller of the Royal Laboratory at Woolwich Arsenal, the centre for the study of all aspects of Army equipment and materiel.

This ambience of military experimentation would have strongly influenced Congreve's son, also William, and also later Comptroller of the Royal Laboratory. Possibly arising first from an interest in fireworks, which were a significant element in public and Royal displays at the time, Congreve developed a concept of rockets as a complete artillery system. These contained Waltham Abbey gunpowder, both as propellant and as the filling for the warhead.

Congreve proved the exception to the rule of obscurity. He was a dedicated self publicist and his work captured the imagination of the general public. Enjoying the patronage of the Prince Regent, Congreve obtained his sanction for the formation of a Rocket Brigade within the Royal Artillery. Similar units were formed in other European armies.

Within the limitations of the technology and materials of the time



WAI 40 / 14 Congreve Rockets being fired
Details of the Rocket System Wm. Congreve 1814

Congreve took the gunpowder filled war rocket as far as it could go. They had a few successes – against Napoleon at the Battle of Leipzig and various bombardments and in America in the War of 1812 a barrage of Congreve rockets at Bladensburg in Maryland caused American regiments to 'break and flee in wild disorder'. However overall in artillery use they did not achieve the success Congreve hoped for, with aspects such as unpredictability of path of flight causing particular problems. The Royal Artillery Establishment viewed them and Congreve with less than enthusiasm, favouring the gun. Hale later took the concept forward and achieved a stickless rocket which entered European service. The last instance of the use of the Congreve type war rocket was by Russia in Turkestan in 1881.

Nevertheless Congreve had immense vision and his idea of a complete artillery system might yet come to pass. Perhaps he should be called the grandfather of rocketry.

Second Phase 20th. century up to 1930's - The theorists, the rocket societies and the beginning of success

The idea of rocketry and what it might do continued to attract lone theorists working in isolation and obscurity. Explosives have always played a dual role in society – military and civil and similarly rockets could either be applied to bombardment or to civil applications. One of the latter which particularly appealed to the dreamers was the possibility of space travel, particularly to the moon.

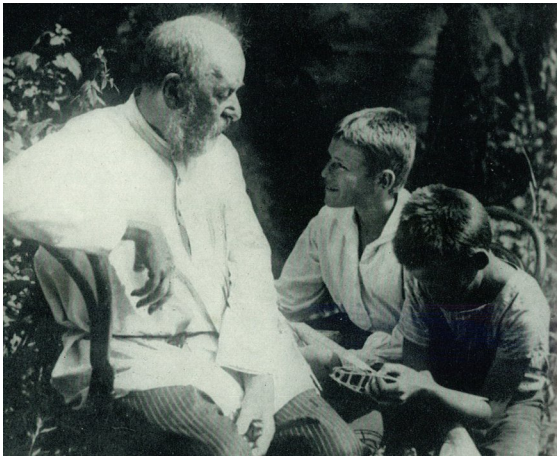
The conclusion they all reached was that the only vehicle which could achieve their objective was the rocket – a reaction motor utilising the Newtonian principle expressed in the Third Law of Motion – for every action there is an equal and opposite reaction. Put simply by pushing against the thrust of its expelled exhaust gases the motor propels the rocket forward.

4. **Russia** - Konstantin Eduardovitch Ziolkovsky

Of the early theorists none was more isolated or obscure than Konstantin Ziolkovsky, buried in a lowly teaching position in the Russian educational system. Yet astonishingly working from first principles in physics, chemistry and astronomy he worked out a plan for a space travelling rocket and vitally was the first man to conclude that this would only be possible with liquid fuel. At that time referring to the fuels available in Russia, simple kerosene.

He managed to get his treatise published in a Russian scientific journal, Science Survey, in 1903, where it was met with a deafening silence from the Russian scientific establishment.

Undeterred Ziolkovsky continued his writing and gradually achieved some degree of recognition. After the Revolution he was



Konstantin Ziolkovsky and his grandchildren

supported by the authorities and when a rocket study group was formed under Professor Rynin in the 1930's their indebtedness to the pioneer was acknowledged.

Ziolkovsky died in 1935, by that time regarded in Russia as a scientific hero.

5. **France** - Robert Esnault - Pelterie

Although less well known as a rocket pioneer, Esnault-Pelterie deserves recognition as an important figure in the early days of European rocketry.

Like Congreve breaching the rule of obscurity, he was a prominent industrialist and also highly influential theorist.

Esnault-Pelterie was a successful aviation innovator and manufacturer and in World War 1 was an important supplier of aircraft to the French Forces. Among other aircraft devices he had invented the control stick – 'the joy stick', which greatly

simplified flight control. Combined with his industrial success he was an influential writer on aviation matters, including his book 'L'Astronatique' which gave the science of astronautics its name.

When therefore he turned his attention to rocketry he brought to it a solid record of industrial and scientific achievement. He was responsible for impressive mathematical calculations of rocket efficiency and complex navigational data for inter-planetary flight.

As well as providing other rocketeers with this important theoretical backing his importance lay in the way he used his influence to promote rocketry amongst the Establishment and support the rocket societies which were becoming established in Europe and the USA. For example, he persuaded the wealthy French banker Andre Hirsch to join forces with him to offer an international prize for achievements in astronautics. At a time when rocketry and space travel were still often regarded as the province of dreamers and the deluded the fact of the prize and the willingness of some of the most prominent scientists in France to act as judges was an enormous boost to the credibility of rocket studies. This was further enhanced when the first award went to Hermann Oberth, the pioneer in Germany, see later.

To be continued.

Les Tucker

A Few Jokes

The Engineer

An engineer dies and reports to the pearly gates. St. Peter checks his dossier and says, "Ah, you're an engineer- you're in the wrong place.

So, the engineer reports to the gates of hell and is let in. Pretty soon, the engineer gets dissatisfied with the level of comfort in hell, and starts designing and building improvements. After a while, they've got air conditioning and flush toilets and escalators, and the engineer is a pretty popular guy.

One day, God calls Satan up on the telephone and says with a sneer, "So, how's it going down there in hell?"

Satan replies, "Hey, things are going great. We've got air conditioning and flush toilets and escalators, and there's no telling what this engineer is going to come up with next."

God replies, "What??? You've got an engineer? That's a mistake- he should never have gotten down there; send him up here." Satan says, "No way. I like having an engineer on the staff, and I'm keeping him."

God says, "Send him back up here or I'll sue."

Satan laughs uproariously and answers, "Yeah, right. And just where are YOU going to get a lawyer?"

Church Ladies With typewriters. They're Back!

Those wonderful Church Bulletins! Thank Goodness for church ladies with typewriters. These sentences (with all the BLOOPERS) actually appeared in church bulletins.

The Fasting & Prayer Conference includes meals...

The sermon this morning: Jesus Walks on the Water.
The sermon tonight: Searching for Jesus.

Ladies, don't forget the rummage sale. It's a chance to get rid of those things not worth keeping around the house.
Bring your husbands.

Remember in prayer the many who are sick of our community.
Smile at someone who is hard to love. Say 'Hell'
to someone who doesn't care much about you...

Don't let worry kill you off - let the Church help.

Miss Charlene Mason sang ‘I will not pass this way again,’ giving obvious pleasure to the congregation.

Next Thursday there will be tryouts for the choir. They need all the help they can get.

Irving Benson and Jessie Carter were married on October 24 in the church. So ends a friendship that began in their school days.

At the evening service tonight, the sermon topic will be ‘What Is Hell?’ Come early and listen to our choir practice.

Spruce Goose

In 1942 two Americans, Howard Hughes of the Hughes Corporation and Henry Kaiser a steel magnate, decided there was a need to be able to transport troops rapidly to Europe. They agreed, in conjunction with the US Government, that Hughes would design and build a large flying boat capable of carrying 750 troops across the Atlantic to Europe. Limitations on steel and aluminium meant that the aircraft would have to be made of wood. Originally three, but later just one, prototype would be built. The result became known as Spruce Goose although it was built mainly of birch. Hughes himself objected strongly to the nickname.

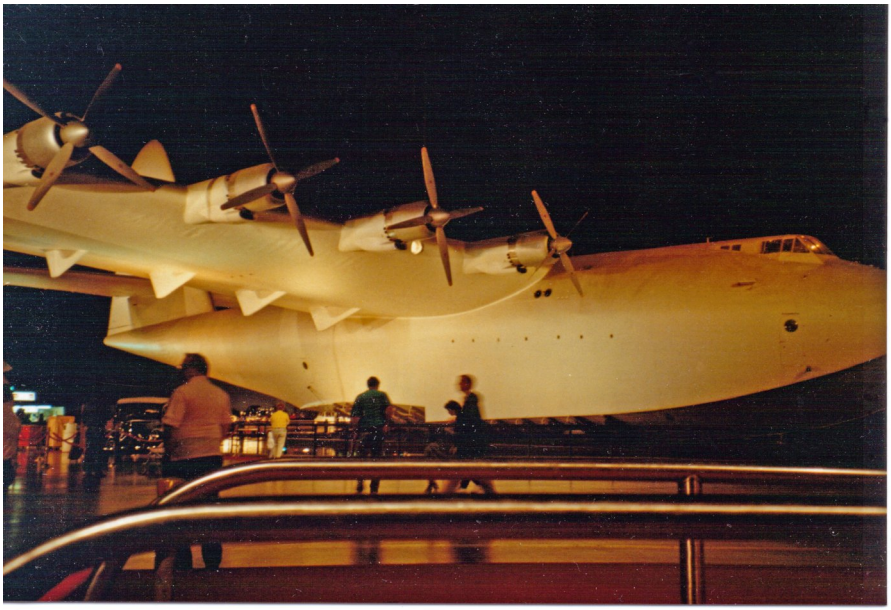
Following many difficulties, including Kaiser's withdrawal from the project, the aircraft was not completed until after the War and had its first, and only, flight on 2nd November 1947 with Howard Hughes at the controls. Hughes refused to say why no more flights were made and had the plane stored in a specially built climate controlled hangar until he died in 1976.

In 1988 the plane was bought by Disney and exhibited at Long Beach California next to the Queen Mary, also owned by Disney.

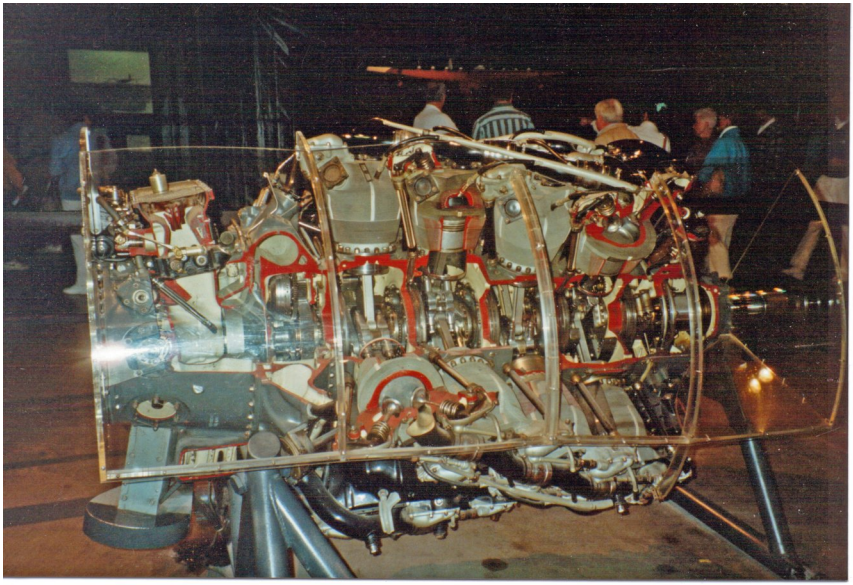
In 1981 I left Waltham Abbey to work at the Ordnance Board in London. This resulted in my attending a lot of UK/US and NATO meetings over the next 16 years. One of these, in about 1990, was held in China Lake California and we had a

spare day in Los Angeles beforehand to recover from jet lag. So we went to see Spruce Goose.

Spruce Goose is the most amazing aircraft I have ever seen. Its wingspan is greater than any other aircraft before or since, including modern super-jumbos.



Sourcing of engines had been a major problem. The aircraft used the largest available in the US, Pratt and Whitney Wasp Major 28 cylinder radial engines generating 4000 hp. Eight of these were needed, four on each wing.



Controls were mostly by rod and cable although some hydraulics were also used.

We were able to tour most of the aircraft and I retain images of it in my mind to this day.

In 1992 US aviation enthusiasts were expressing concern over deterioration of the plane and it was dismantled and moved on barges and trucks to the Evergreen Aviation and Space Museum at McMinnville Oregon, 40 miles from Portland. Overhaul and reassembly was completed in 2001 and it is now the centrepiece of the museum. If you ever get a chance do go and see it.

The pictures show the aircraft and one of its engines.

John Wright

Letters to Touchpaper

I reckon the Gunpowder Mills has got some stiff competition! The report below from The Times May 17 2012.

“Lutterorth Schools launched model rockets each carrying a raw egg in Leicestershire yesterday in a competition to see which went the highest, for longest.

Those taking part included Royal Wootton Bassett Academy, Victoria College Belfast, and Worksop College. The top prize was £1000 and a trip to NASA which went to The Perse School, Cambridge. Its rocket returned its cargo unbroken from 803 ft after 39 seconds in the air.”

Nothing like a raw egg as the test cargo. Was it hard boiled when it came down?

Chris Evans.

Two photos from The Times article

We have height restrictions at the Mills. Here is a photo of a 2 litre fizzy drink bottle propelled by an Estes D motor on John Wilson's monorail track. The bottles are normally water/air pressure propelled.

Ed.

Queen Victoria's Jubilee

I’ve just got around to reading the article in Touchpaper about Queen Victoria's Jubilee and read with interest your comments on the two photographs taken at the Mills.

It struck me that both were taken INDOORS and at that time, the only artificial lighting for photography would have been provided by flash POWDER = magnesium powder.

I guess that the authorities would NOT have been enthusiastic about burning magnesium in the vicinity of any explosives or propellants, implying that the photographs must have required a long exposure time - difficult where there are people in frame as they would need to remain perfectly still for, perhaps, a couple of minutes or more.

With kind regards

MC Black

A Few More Jokes - Children Are Quick

TEACHER: Why are you late?

STUDENT: Class started before I got here.

TEACHER: John, why are you doing your math multiplication on the floor?

JOHN: You told me to do it without using tables.

TEACHER: Glenn, how do you spell 'crocodile?'

GLENN: K-R-O-K-0-D-I-A-L'

TEACHER: No, that's wrong

GLENN: Maybe it is wrong, but you asked me how I spell it.

TEACHER: Donald, what is the chemical formula for water?

DONALD: H I J K L M NO.

TEACHER: What are you talking about?

DONALD: Yesterday you said it's H to O.

TEACHER: Winnie, name one important thing we have today that we didn't have ten years ago.

WINNIE: Me!

TEACHER: Glen, why do you always get so dirty?

GLEN: Well, I'm a lot closer to the ground than you are.

Obituaries

Eric Leonard Kendrew
16th May 1931 – 7th July 2012.

Eric passed away at his home after suffering from prostate cancer.

I attended a moving funeral service at Holy Trinity Church, Takeley on Wednesday 18th July. He was buried in the church yard. He was a much loved husband, father and grandfather, gentle and kind.

He was born and brought up in Hackney and married in Wood Green, London, to Frances towards the end of 1958.

A humorous tale was related at the funeral; after he and Frances had moved from Sawbridgeworth to Takeley he had a visit from the police concerning a strange evil smelling box marked ‘explosives’ which the subsequent owners of the house in Sawbridgeworth had dug up in the garden. It turned out that Eric’s cat had died and he had buried it in a box he had found.

After national Service in the RAF Eric joined Mr Whitbread’s section at Waltham Abbey in about 1949/50. He was involved in a number of activities involving explosives including use of the bomb chamber at New Hill and underwater explosives research at Newton’s Pool. He was an acknowledged expert with the high speed ciné camera (Beckman and Whitman).

In 1974 Eric left the North Site and went to work in ISRG until his retirement. What he did is shrouded in mystery but he travelled the World doing it!

He also travelled the World after retirement enjoying many cruises with Frances.

Eric was a regular attendee at the Last of the Summer Wine monthly meetings in the Crown Inn at Waltham Abbey where we last saw him in January this year before he went on his last cruise in March.

He will be sadly missed.

David Manners, 26/7/2012.

Wilfrid Dukes 1919 - 2012

Wilf was born on 22nd December 1919. After prep school he went to St John's Hurstpierpoint College in Sussex and then to University College London. At school he had passed exams early in French, Latin and Greek but made a quick change to chemistry at UCL. When he graduated (during the war) the Scientific Civil Service, rather than the army, claimed him and he worked in St Helens on developing defences against mustard gas.

In 1944 Wilfred married Ruby and they moved to London until the mid fifties when they transferred to Waltham Abbey where he spent the rest of his career. While there he developed, among

other things, an adhesive sealant for protecting ordnance properly called Mark 9 Luting but commonly known as "the gubbins". It had wide usage both official and unofficial.

Sailing was a major interest of his and his two sons. Following a near collision with a ship while sailing in the Channel, he, Steve Bell and another friend developed a passive radar reflector for sailing boats. In order to concentrate on this he retired early from the Civil Service and it became very successful.

On retirement he and Ruby moved to Suffolk and around this time he joined the Humanist Society but not, it would appear as a very active member. He always greatly enjoyed classical music.

In 2006 he suffered two strokes, the first of which deprived him of his sight.

Wilfred is survived by his two sons, two granddaughters and a great-grandson. He died on 27th June, just missing the birth of his first great-granddaughter who arrived on 14th August.

John Wright

There will be a celebration of the life of Wilf Dukes in October in Suffolk (village of Westleton). Contact Steve Bell for details.

Steve's email:

511sb.pightle@gmail.com

Iris Bailey

We were saddened to hear of the death of Iris Bailey.

For more than 30 years Iris was a librarian at what is now the King Harold Business and Enterprise Academy and supported and encouraged the pupils throughout.

She was a Mills volunteer and made two notable contributions.

The first was the splendidly evocative 1940's shop exhibit which along with her husband Mark she organised, maintained and augmented. It has been an unexpected bonus for visitors and has attracted much interest.

The second, albeit less visible, was as an Archive volunteer. Drawing on her librarian skills she volunteered for the daunting task of indexing the Royal Commission Survey of the Mills and the Centenary Memorial of the Royal Gunpowder Factory by W. Winters.

A proper index is a vital element of technical books and requires much application. In some cases it has been said the index and acknowledgments took the author almost as much time to write as the book.

Both publications contained a mass of valuable information, but the mode of presentation in the Winters book almost defied comprehension.

Undaunted Iris doggedly attacked the material. The Archive has much cause to be grateful for the two indexes which she ultimately produced. Her name is permanently recorded as the compiler and we hope this will serve as an expression of thanks for her work.

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.

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Events at the Royal Gunpowder Mills

For information visit the Web Site:

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

Brian Clements.

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Beam Engines - 50p

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Trials, Tribulations and Pranks - 75p

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