

Autumn 2015

TOUCHPAPER

The Newsletter of the Royal Gunpowder Mills Friends Association

A Small Tale of Amateur Explosives

Early Rocketry - Part 5, Herman Oberth

Pitsea Hall Farm Explosives Factory

Words of Wisdom

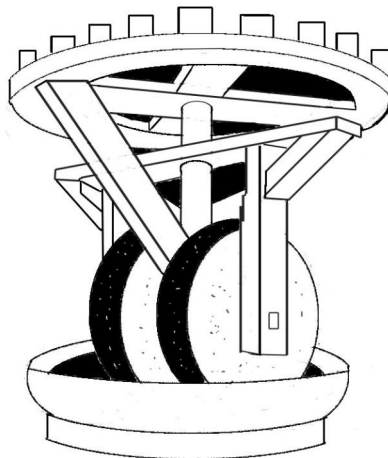
No Pardon

Julie's Nature Column

Letters:

**Touchpaper
Contributions**

Birthday Thanks



Autumn 2015

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Deadline for the next issue is 20th November 2015

Chairman's Chat

At the end of August visitor numbers appear to be about the same as last year in spite of the rather variable and slightly cooler weather.

It is still not clear whether PGL will be taking over a significant part of the site for the children's holiday camp. The planning application goes to the council in September/October and we await the result with concern for what will be available as a Mills visitor attraction next and subsequent years. In the meantime we look after our exhibits and have pleasure in showing them to our visitors.

Owing to the uncertainty about next and subsequent years we have only done limited planning for the future. Once we know the council's decision more effort will be needed for new exhibits. We are hoping to finish the powder boat restoration shortly and will then be able to start on some of our other outstanding jobs.

We need to get agreement on the detailed composition of the wall panels in L157, the grade 1 listed mill building, for replacing the current unsatisfactory 'felt simulation' panels which have been badly attacked by birds. The original panels were thin wood or felt which would blow out if an event were to occur inside the building. Additionally the mill area would have been flooded with water from a tank in the roof. If similar wood were used now in panels it would have to be good quality to replace the originals and therefore be expensive. Tongue and grooved boards may be an acceptable modern equivalent. Discussions continue.

John Wright

Editorial

Welcome to the Autumn issue. I am pleased to have contributions from some new authors, I hope you will find something of interest, possible a few more of you will be stimulated to contribute.

The Friends Association was originally set up to keep members, who in the beginning were mainly ex-employees, in touch. We now have members who did not work at the site but do have an interest in the site and our activities. Perhaps some of these newer members would like to write a short piece on why they joined and how they would like Touchpaper to develop.

As our Chairman has reported there is still uncertainty about the future. We had intended to publish this issue after a public meeting to be held on site on 16th September to report on developments. This meeting has been postponed, see the notice on page 18. If you have internet access do please visit the <http://www.save-rgm.org/> web site to see information on developments.

Unfortunately every year we lose members, ideally we would like to replace our losses with some new, hopefully younger, members. Especially if they would take an active interest in contributing articles for Touchpaper or coming into the Mills as volunteers to help with conservation/restoration or stewarding during the open season.

Brian Clements

We are sad to report that Brian Harvey who worked at the Mills since it opened as a visitor attraction died on the 21st of September. Brian was for many years the manager and recently, after his retirement, was elected to the operating company board.

The funeral is at Enfield Crematorium, 2PM 9th October.

A Small Tale of Amateur Explosives

Back in 1993 when we at Epping Forest Pistol Club were building our new indoor range, it became necessary to remove part of the reinforced concrete traverse around the armoury. The armoury had been a WW2 bomb store and had survived a direct hit from a Stuka dive bomber, or so local history tells us.

Traverse



We hired a large pneumatic drill for the job, but the wall proved to be impervious to our efforts. One of our number suggested we blow it up, and after due discussion it was decided to give it a try.

Six vertical holes were drilled at a cost of around fifteen masonry drills, tubes of greaseproof paper were fashioned, into which were poured several tins of best quality Swiss Black Powder, the fuses were pieces of string (long) soaked in petrol.

The fuses were lit and we beat a very hasty retreat into the farthest corner of the armoury behind four steel doors, quickly followed by what we considered a huge explosion, which would probably have been considered by The Friends no more than a bang. We waited a safe time then finally ventured out to see the results of our handiwork.

Our wall was still standing, however it had split vertically top to bottom allowing access for the pneumatic drill and after another two day's hard graft it was no more. Building work continued and we eventually had a superb indoor facility to complement our outdoor range, we had barely finished congratulating ourselves when along came the pistol ban.

To explain the references to Bomb Stores and Dive Bombers I should add that we are situated on North Weald Airfield.

Russell Orchard

Gems from the Accident Book

1. "Banged head on Safety Notice."
2. "Bruised leg after tripping on safety mat."
3. "Cut knee after slipping on icy path leading to outside toilet while answering the call of Queen & country."

This next one was told to me, probably apocryphal, no credence but good for a laugh:

4. "Cut finger on First Aid box.."

Tony Whittaker

Does anyone have other examples? If so please share them. Ed.

Early Rocketry Part 5

Germany - 1922-1932

Hermann Oberth -The Rocket Prophet

The Woman in the Moon, Days of Innocence

Early German rocketry followed a similar pattern to the Americans – an enthusiastic amateur group, eager to put their dreams into practice, and in parallel an influential theorist – in America Robert Goddard (Touchpaper Winter 2012) and in Germany Hermann Oberth – with a major difference - Goddard enjoyed success in practical rocketry, Oberth remained a theorist.

The phraseology Days of Innocence reflects the untarnished enthusiasm of the early band of amateurs up to around 1932, before early German rocketry took a markedly sinister turn.

Hermann Oberth and the beginning



Hermann Oberth
Leading theorist of European
rocketry

Hermann Oberth was born in 1894 in Transylvania - at that time, Austro-Hungarian territory but later after WW1 Romanian. Some parts of Transylvania had been settled by Saxons and Oberth and his parents were German speaking. Their circumstances were comfortable, Oberth's father, a doctor, having founded a private sanatorium.

Following his father's wishes Oberth went to Munich University to study medicine. However he had been gripped from an early age by stories of space travel and the additional optional subjects he chose – mathematics, astronomy and physics, reflected this. WW1 intervened. After service in the Austro-Hungarian Army Oberth went to the University of Heidelberg, but the war had enabled him to free himself from his father's influence and he devoted all his energies to developing a theory of space travel, the supposedly subsidiary subjects now occupying all of his time.

So much so that by 1922 after prodigious study he had developed an astonishingly sophisticated theory in considerable detail to back up the idea of a projectile leaving the earth's atmosphere and travelling into outer space – the projectile being a rocket, the only kind of power that could operate in the oxygen-free space beyond the earth's air. This was done without any knowledge that others might be working along the same lines, so Oberth was startled to hear of the publication of Goddard's book 'A Method of Reaching Extreme Altitudes'. However he was encouraged to see that Goddard envisaged only the carrying of a sufficient quantity of flash powder to be seen from earth on impact whereas Oberth had progressed to postulating, with appropriate scientific argument, that actual passengers could be carried to the moon.

The fuel to be employed was of course critical and here Goddard had equalled Oberth in concluding that the fuel would have to be liquid - solid propellant being inadequate for the exhaust velocity demanded. Oberth envisaged a petrol fuel and liquid oxygen oxidant.

The young researcher, who in the meantime had married and

qualified as a teacher in order to provide an income, then set about the thankless task of persuading sceptical publishers that his book 'The Rocket into Interplanetary Space' was worth publishing. Not surprisingly with scant success until he found one who reluctantly agreed to bring it out if Oberth paid the printing bill. To the complete astonishment of both publisher and author the book was, bearing in mind the content which made little concession to the reader, a quiet sensation. The first print was snatched up and the second was all sold by advance order before it was even printed.

In fact most readers probably skipped the first two sections of the book, containing abstruse calculations, but almost by accident Oberth captured them with his third section- the concept of a space ship.

In 1925 Oberth took up a mathematics teaching post in Transylvania to support an already growing family. However, although not obvious at the time events were moving towards the start of the Age of Rocketry. Oberth's book had gripped the imagination of two gifted scientific writers – Willy Ley and Max Valier. The latter offered to put Oberth's book, using his journalistic skills, into a palatable form and the result 'A Dash into Space' sold steadily. Then Ley similarly produced a volume aimed at the general reader and arguably superior to Valier.

Insidiously rocketry was beginning to seep into the public consciousness. However it was one thing to capture the imagination of the public with a vision of man voyaging into space but a completely different matter to persuade any hard headed businessman to put his money into actual physical construction of a rocket.

Oberth and The Woman in the Moon - 1929

In the meantime Oberth laboured on, producing the first volume of a more readable version of his first book. Then out of the blue in 1928 came an astonishing offer. He received an offer to go to Berlin to act as technical advisor to the famous film director Fritz Lang who was embarking on the first film ever made to describe the voyage of a

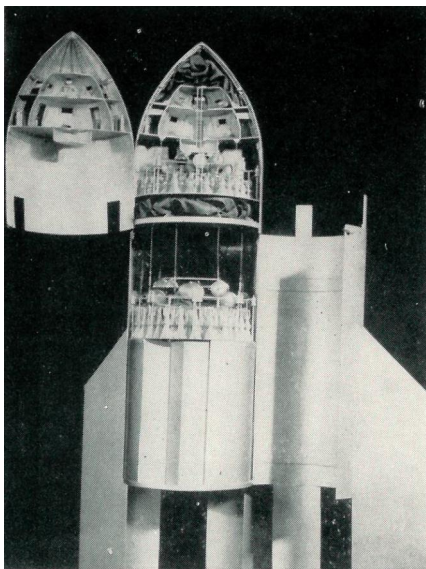
rocket through space. Lang was a shrewd judge of public taste and realised that rocketry should have a glamorous aspect and so the film was entitled 'The Woman in the Moon' (when shown in the UK).



Oberth accepted with alacrity, obtained leave of absence from teaching and set off for Berlin. Lang had already been developing his ideas. He was genuinely interested in rocketry and approached the film's makers UFA with a proposal that they should finance the building of an actual operational rocket. Admittedly the intention was publicity but behind that Lang was well aware that it would considerably enhance more serious research.

UFA agreed to back the idea, but what initially seemed to be a dream situation in fact turned into a nightmare.

Oberth was given an impossibly tight dead line, the opening night of the film, and did not have the physical or staff resources to carry out the project. In spite of feverish effort without any knowledge of Berlin he could not find in time the skilled metalworkers necessary to carry out manufacture of his 6 foot torpedo shaped rocket. Part of the exercise was parachute recovery of the rocket. Much valuable time was expended in wrestling with design and manufacture of the release mechanism. The upshot was that he ended up feverishly trying to construct a kind of alternative hybrid with a carbon stick fuel. Even this was not completed in time and Oberth, practically suffering a nervous breakdown, fled the pressures of Berlin, returning exhausted to Transylvania.



Cutaway model of the
'space ship' designed by
Oberth for the film



Taken during filming – Oberth first
left, Willy Ley last on right

With hindsight all was not lost. Lang correctly portrayed Oberth's theories, 'The Woman in the Moon', premiered in 1929, was a great success and it remains as a lasting landmark in the public history of early European rocketry.

Oberth must have been chastened by his experience in Berlin. However in the same year his reputation received a substantial boost. The French aviation manufacturer and rocket enthusiast Esnault-Pelterie and a wealthy banker Andre Hirsch had instituted an international prize for achievement in the new science of astronautics (Touchpaper Autumn 2012) and Oberth was the recipient of the first award, for the publication of the second edition of his book.

In practical terms Oberth had failed. However his effort to design and manufacture a functioning rocket played a major part in presenting rocketry to a mass audience and stimulated the efforts of a growing group of enthusiasts, later to become the VfR.

Fritz von Opel's rocket experiments – undesirable diversion or useful publicity ?

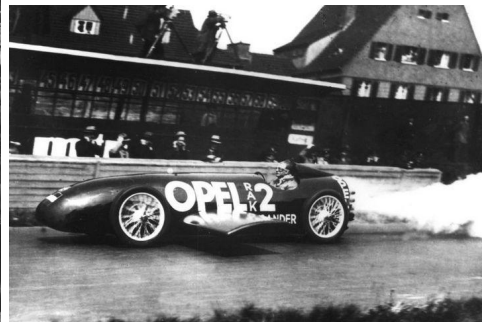
Whilst Oberth was enduring his experience in the film world a very different essay in rocketry was taking place in Germany. Solid propellant rockets had in fact been in use for some time mainly to aid ship to shore rescues by projecting cable and in signal use. The main manufacturer was Friedrich Sander and in 1928 he and Fritz von Opel, the car manufacturer, attracted by the publicity value, undertook trials of a car powered by Sander rockets. Max Valier, the author of the more readable version of Oberth's book, had instituted the connection with Sander. He had become a member of the VfR and incurred some hostility within the organisation because of what were regarded as frivolous experiments. The first car, with 6 rockets, RAK 1 successfully ran at 47mph. The rocket clusters were progressively increased to 24 in RAK 2, containing 265lbs. of propellant, achieving 143 mph on 23rd. May 1928.

Whilst successful in terms of sheer speed the rocket cars had little practical value and Opel, having achieved his publicity aims, abandoned them.

The VfR frowned on Opel's efforts, regarding them as cheap publicity stunts and vulgarisation of the purity of their aim to put a man into space.

Opel however did later succeed in putting a rocket plane into flight and there are grounds for arguing that he could have made a contribution. However the 1929 stock market crash and the rise of Nazism ended his dreams and he later went to live in Switzerland.

Valier continued with the rocket car and also rail experiments and early in 1930 successfully tested RAK 7, a liquid fuelled – liquid oxygen and petrol, rocket car, the first in the world. Sadly later in the year he died when one of his liquid fuel rockets exploded.



RAK 2 Rocket car

Apart from publicity value to von Opel, rocket cars were in terms of technological development a dead end, capable of running only in a straight line, although again at this stage any heightening of general awareness had some value.

The Society for Space Travel VfR – Verein für Raumschiffart

In 1927, inspired by Oberth's book, a group of enthusiasts founded the Society for Space Travel – VfR.

Their aim was to put Oberth's theories into practice and actually build a functioning rocket which would test his theories and promote their development.

Johannes Winkler was their first president. Several others were invited to join by mail and accepted – Oberth himself, Willy Ley, Max Valier, Walter Hohmann, who like Ley and Valier had written a book on space travel. Even more momentous although unknown at the time, in the same year an eager young student joined – his name Wernher von Braun.

They published a journal, 'The Rocket' and like Oberth hoped that by raising general consciousness they might find some businessman or foundation to finance their efforts.

The rocket becomes reality

An ex WW1 aviator, Rudolf Nebel had assisted Oberth in his struggle with the film company rocket and he put forward the idea that they should start with a small liquid fuel rocket.

This was partly based on some encouragement they had received from the German Post Office who were interested in the possibility of rocket carried mail.

Mirak

Aided by a new recruit Klaus Riedel, Nebel constructed his rocket – the Mirak, based on the abbreviation of the words for very small. Mirak harked back to Congreve in that it was a cylinder with a guide stick. The stick was an aluminium tube which carried petrol fuel. The cylinder formed the oxygen tank into which liquid oxygen was poured. On the bottom of the cylinder was a small copper combustion chamber which was almost surrounded by oxygen. The rudimentary rocket therefore incorporated two principles which would be carried forward in later development – oxygen pressure raised by motor's heat to force liquid oxygen into combustion chamber and oxygen absorbing some of the motor's heat, thus keeping the motor at a safe temperature.

Mirak was tested, tethered on the ground in a farm field and it worked. It later blew up but the valuable evidence had already been gained of its practicability.

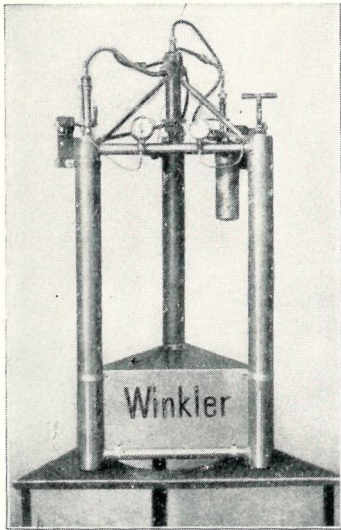
The Rocket Airdrome - Raketenflugplatz 1930

Riedel wrote a report for the Society bulletin and jubilation ensued when two businessmen came forward with donations and offers of further financial assistance.

Nebel immediately began a search for a more suitable testing ground and chanced across a deserted WW1 ammunition storage area, complete with traverses suitable for test chambers. The local authority owned the area and raised no objection to the Society's leasing it. So was born what was to be christened the Rocket Airdrome – a magnet for enthusiasts, many of whom took up residence, being out of work and homeless in the economic depression.

Mirak II

Nebel and Riedel lost no time in pressing on with Mirak II. They were helped by a successful effort to persuade manufacturers to send any surplus material, tools etc. to the Airdrome, which had resulted in a



Johannes Winkler and his rocket

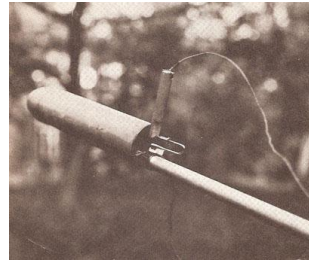
valuable resource. Tests continued unabated in an increasingly heady atmosphere. Mirak II blew up in 1931, but the eager experimenters merely pressed on with redoubled vigour.

First successful liquid fuelled rocket launch – 14th. March 1931

In the meantime Johannes Winkler had been working independently and on 14th. March 1931 achieved the first successful liquid fuelled rocket launch in Europe.

Winkler's achievement spurred the main VfR group to fresh effort – Mirak III..

Mirak III – 10th. May 1931



Mirak

Mirak III was fuelled by petrol and liquid oxygen, with the petrol being driven into the combustion chamber by compressed nitrogen. To solve the problem of the intense heat generated by the burning fuels the motor had double walls built of heat conducting aluminium with the space between filled with continuously running cooling water – the test was static and this solution proved to be effective. The motor was suspended between two legs which acted as fuel tanks.

In Riedel's words 'the beast flew' – not very far, but far enough.

Repulsor I – 14th. May 1931

Four short days later the enthusiasts had a repaired rocket ready. It was called Repulsor after the power system used by space travelling Martians in a novel which had influenced them in boyhood.

Some idea of the general level of control at this time is given by the fact that the switch controls were fastened to broom sticks which were pushed past protective sand bags.

After some wild wild careering Repulsor I reached two hundred feet.

Repulsor II – 21st. May 1931

A week later Repulsor II was ready – with improved valves, aluminium hoops surrounding its legs and four base fins. The petrol supply was driven into the combustion chamber by compressed nitrogen, oxygen was fed in by its own gas pressure.

Repulsor II rose two hundred feet then went on to a horizontal course, towards a residential area, to the horror of the enthusiasts. However it smashed into a tree, having travelled one third of a mile.

The success of Repulsor IV - the ‘One-Stick’ Repulsor – late 1931

Repulsor III crashed. But the Group were convinced they were on the right track and continued development of the Repulsor in an atmosphere of almost frenzied enthusiasm.

Demonstrating how history can repeat itself, following the principle established by Congreve 2 in the early 19th. century (Touchpaper June 2008) the new model had a centre line guide stick with all the parts grouped along a central axis.

The first Repulsor IV was a resounding success. soaring to 3300 feet. It was successfully recovered by parachute.

Later larger models reached altitudes over half a mile.

Invaluable publicity

The fame of Repulsor grew rapidly, to the extent that the film company UFA, which had abandoned Oberth a few years previously, made a film of its exploits, sparking roars of excitement in the cinemas – rocketry was well and truly in the public consciousness.

End of the Days of Innocence 1932 - 1933

The enthusiasts of the Rakettenflugplatz could not escape the relentless rise in the outside world of the Nazi Party.

As the party extended its grip on German society the VfR crumbled, part allying itself with the new regime and many of the others taking jobs in Governmental organisations or in private industry which had begun to receive substantial Governmental orders. A further segment, among them Von Braun, were recruited by engineering officer Walter Dornberger, then Captain, newly appointed head of rocket development in the Army's weapons department, leading ultimately to the V2.

Oberth

Oberth did not have a good war.

He was regarded with suspicion as he did not have German citizenship (a situation which was later remedied when the Gestapo gave him the choice of taking German citizenship or the concentration camp).

He was taken into Dornberger's organisation at Peenemunde but fell victim to professional jealousies and was side lined, to the extent that he was not included in the group of rocket scientists taken to America at the war's end.

In the late 1950's Oberth travelled independently to America where he continued to take a benign interest in interplanetary space travel.

Hermann Oberth was the greatest theorist and visionary of early European rocketry and was instrumental in bringing rocketry into official and public consciousness.

His writing demonstrated a prodigious intellect and was an inspiration to those who actually sent the first rudimentary rockets on their erratic course into the sky, dreaming of travel into space, and remained a bible for subsequent developers.

Les Tucker

Statement from the Operating Company Board

8th September 2015

The Board have been informed by Andrew Coates that the proposed public consultation meeting that had been planned for Wednesday 16th September here at the Mills has been postponed.

A new date has yet to be fixed but we can confirm that it will not take place this month, we hope to have more information towards the end of this week.

Our apologies for the rather short notice but will keep you up to date with any information as soon we have it to hand.

(New date is 6th October 2 to 8 PM in the lecture theatre)

Pitsea Hall Farm Explosives Factory

I don't know how many of you, who get the Touchpaper have read/looked through Wayne Cocroft's book Dangerous Energy, but on page 147 there is a brief reference to Pitsea Hall Farm explosives factory.

I have often wondered where it was and by chance came across a reference to it on one of the Essex places to visit web sites and, lo and behold, I had visited it on a number of occasions without realising it.

So on Saturday the 8th August 2015, I went off to re-acquaint myself with the site, but why had I not recognised the site for what it was originally? Well for starters it had been renamed by Basildon council who run the site as Wat Tyler country park and since my last visit which had to have been around 10 years ago, they had put in information panels about the explosives factory. So on all previous visits there had been no clues as to its past.

The History

British Explosives Company built the plant at Pitsea Hall Farm in 1891 to produce Dynamite and Gelignite for mining and quarrying and in 1902 started producing Cordite as well. Around this time Nobel Dynamite Trust Co. bought a controlling share in British Explosives. I can't find any reference to when the company closed, but presume it would have been after WWII given the Pill Boxes and Tank Traps.

A push along railway was used for moving materials around the site, though there are no traces of this now.

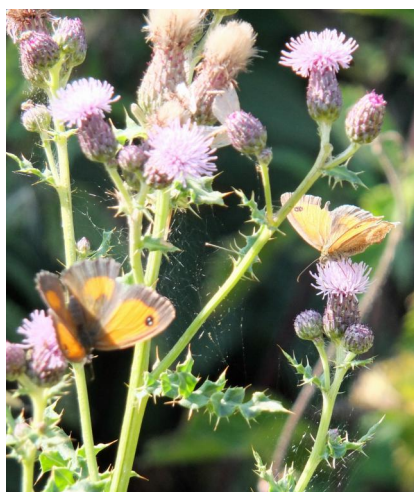
The Factory was built about 2 miles from the Thames on Vange Creek, with two wharfs, the upstream being for goods and materials in and possibly containing an original hand cranked crane, and a downstream wharf to send out the finished explosives. The downstream wharf, which is a just rusting pilings, is about 1/2 mile from the main factory and upstream wharf, as a safety precaution.



There are not many structures to see other than the science block where quality checks were made, which now contains a Poodle parlour and (appropriately) a kids science room.

There is a row of buildings, now used for small businesses down at the Vange Creek end of the site and a series of information boards at various points around the site. There are a number of pill boxes, and there are supposed to be tank traps, but the body of the site is very overgrown, so there isn't that much to see and the Council's main interest is wildlife and nature, so the chances that they will cut some of the bramble, weeds and thickets seems unlikely.





Never the less, it is a lovely place to visit and apart from the train ride (yes they have a 10" gauge ride on railway) there are no entry or parking fees.

To find it, I come down the A130 from Chelmsford heading for Basildon. Join the A13 heading west for about a mile or so, watch out for the brown 'Wat Tyler Country Park' sign and follow it taking the slip road off the A13 and bearing left onto a back road, over the Pitsea Station level crossing and into the park. The Park is about 1 1/2 miles from the Basildon Junction.

John Wilson

Words of Wisdom

I recall Dermott Cummings from “B” Division Westcott having a notice in his office: “Youth and skill will always be beaten by old age and treachery”.

A number of gems were to be found pinned up in our labs. It seems that one of the Westcott managers was intrigued by a Latin motto in P2 which when translated was “Nothing is impossible to him who hasn’t got to do it”. This was not well received.

Another motto was “Blessed are they who think in circles for they shall become big wheels”.

An enigmatic one is “Don't do it in our canal”.

On our weighing scales I feel we should have the following: “You're never overweight only under height”.

Dave Hewkin tells me “You can't win, you can only break even, and you can only break even at 0°K, which is unobtainable - so you can't win”.

Then there are the three ages of man, “Young, middle age, and you do look well!”

In the days when we were at work there was the saying that if a hazardous experiment was planned then the boss would say “I’ll be in my office if you want me and for the very dangerous ventures I’ll be on leave when you do that”.

Sauce: “Good food doesn't need it and bad food doesn't deserve it!”

There are many more like those above, perhaps you can add some of your own.

Bryan Howard

No Pardon

While at Waltham did you attend a Services Attachment Course (SAC)? They were meant to give us researchers an insight into in-service problems with equipment and involved spending a few days with one of the Armed Services on the Front Line. So you could be attached to the RAF visiting bomb dumps etc., or to the British Army of the Rhine (BAOR) in Germany, or on board one of Her Majesty's warships.

My SAC was with the Fleet Air Arm (FAA) at Yeovilton for 5 days in November 1982. The other member of the course was an engineer from MQAD. I was fortunate to be attached to the FAA as I have been an aircraft enthusiast since childhood. The date was significant as many of the personnel encountered had recently returned to the UK having fought in the Falkland's war. This generated many interesting stories giving an insight into what had been experienced.

The Course programme involved understanding how the FAA operated, maintenance and repair of aircraft and their equipment, visiting the Sea Harrier simulator and having a go in the Whirlwind helicopter simulator. All very interesting but for me the highlight was a 40 minute flight in a two seat jet trainer, the Hawker Hunter T8.

The preparation for the flight was very thorough. Ejector seat procedures were rehearsed as was sorting out your dinghy if you landed in the water. By the time we'd finished the preparations we were beginning to wonder if we really wanted to go ahead!

The flight was part of the training for the operators of ship borne radar. Two T8s were used, taking turns to be the pursued aircraft and the pursuer. The aim was for the pursuer to be guided by the trainee radar operator on the ground to achieve interception of the other aircraft. The pilot had to manoeuvre the aircraft as directed unless this endangered the aircraft.

So I carefully climbed into the cockpit to occupy the right hand seat, making sure I didn't touch anything critical, especially the ejector seat controls. The pilot welcomed me on board with following statement. "During the flight, if the engine fails these aircraft can glide very well. However if the engine fails before the undercarriage has retracted there's no option but to eject. If this happens I shall shout EJECT and you should pull the levers and go. Don't say PARDON because I won't be here!"

So I held my breath during take-off and until I felt the undercarriage doors had closed. Once airborne the flight was amazing. It was almost silent as the engine was behind the cockpit and I was wearing a flying helmet. On the intercom I could hear the directions given by the radar operator on the ground but they were a bit garbled and I was not prepared for the first tight turn and felt the blood draining from my head. I must have muttered something as the pilot asked if I was OK. His reply to my comment about the tight turn was, "It was only 3G!" I was now able to discern what the ground controller was saying and was able to brace myself accordingly.

I thoroughly enjoyed the flight, 40 minutes dashing around the sky over the Bristol Channel area. I felt privileged as not many civilians would have this experience.

Ray East

This article was written on 3rd of August before the accident at Shoreham on the 22nd of August. Ed.

Julie's Nature Column

The summer months at the Mills have been full of wildlife activity as usual. We had several large honey bee swarms over a period of a few weeks and we kept a close eye on their locations as they were near the areas where our visitors arrive. The honey bees have had a hive in one of our buildings for some years, but I noticed the other day that it has become a wasp nest, so this will mean that every bee has vacated which would explain the amount of swarms this year. This photo is one of the swarms gathered outside Walton House.



Other wildlife activity around the site included a pair of Robins that nested twice on a shelf where we keep tools and materials and they seemed to work around the general disturbance of being in a busy part of the site. I got my first ever photo of a Cuckoo recently. They look a bit similar to a kestrel, in colouring, once you see the face you realise they are not a bird of prey. This photo was taken at New Hill and I believe it is a youngster. I expect it will migrate at the end of the summer to Africa.



The fallow deer are looking very good at the moment, velvet antlers and spotty coat and rather large bellies from eating grass all summer long. Soon the males will become very muscular around the neck as the rutting season approaches, but for now they are content to relax and even give rides if necessary. 😊



Julie Matthews
Nature conservationist
Royal Gunpowder Mills

Letters to Touchpaper

Contributions to Touchpaper

The Editor's remarks on contributions to Touchpaper prompted me to look back to the time in 2001 when as an offshoot to myself and Richard Thomas embarking on extending the Archive and creating an image and other collections - maps and plans etc., I made a resolve to if possible make a contribution or more to each Touchpaper. Totally arbitrarily fixing a target of seventy, at which point 'retirement' might be indicated.

I find that at the conclusion of the Early Rocketry series and WW1 pieces in the next three issues the target will have been reached.

Also, the Archive, including the image and other collections, is now complete and digitized and there is a range of Archive publications and historic reprints available for sale either from the Mills website or Amazon.

I did think of retiring but there is some material still waiting so I will continue hoping to interest for a little while longer, via Touchpaper, at least a few of the people some of the time.

Do please join me in supporting your Editor and Touchpaper by regularly sending in articles.

Les Tucker

Birthday Thanks

Being on duty on the weekend of Sunday 30th August I observed an additional item printed on the worksheet schedule! On the information section there was mention of a volunteer's Birthday, well it was mine, and to prove it there in bold letters read “Happy Birthday Minnie”!

A lovely gesture indeed. But that wasn't the end of the matter. I was also handed a most beautiful card, and inside were individual good wishes written as personal expressions of the volunteers sentiments, offering kind thoughts and companionship at the Royal Gunpowder Mills.

I thank Liz Went, our thoughtful manager for making this gesture possible.

In appreciation,

Minnie Fenton

Visit to Droitwich March 2015



Dave Sims manning the RGM stand

On the 21st March Dave Sims and I manned a stand at the Droitwich Air and Space show held in their library. Other stands included astronomy, space, rocketry and miniature aircraft. We took several exhibits from the Waltham Abbey Rocket Vault which were well received by show visitors. The show was good advertising for RGPM and we enjoyed it.

John Wright