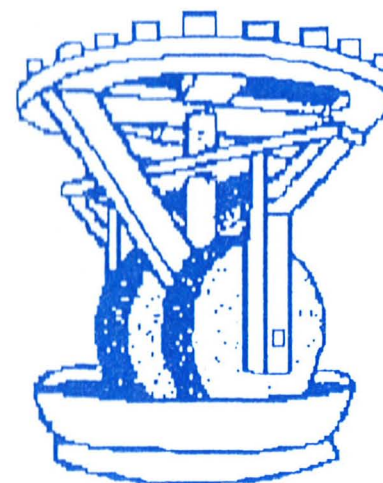


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# Touchpaper

The Newsletter of the  
WALTHAM ABBEY ROYAL GUNPOWDER MILLS  
FRIENDS ASSOCIATION



**MARCH  
2000**



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PLEASE NOTE: Deadline date for submissions for  
the next issue is 15th May 2000



## EDITORIAL

Welcome to the first Touchpaper of this new year and a special welcome to those new members who have joined us in the last few months. We now have a membership of 436 which includes 6 overseas members who, though unable to give much assistance, wish to be kept in touch with the development of the site.

This issue is somewhat larger than usual as I had so much to report and a good number of articles. Because of the format the addition of an extra sheet means an additional four pages. An alternative is to reduce the size of print and cram more on each page. I must confess to using this tactic in the past but on this occasion there was no alternative but to increase the number of sheets.

We are sorry to report the deaths of a number of members and old colleagues over the past few months details of which are recorded together with some extended obituaries.

Final planning permission for the Phase I development has now been given and the main contractors should shortly be starting work. This has been a long involved process and has meant some slippage in the timetable. Nevertheless, it is expected that the works will be completed in time for the projected opening next year.

Because of the extensive capital works any activities on the site will be severely curtailed and there is little chance for public or private visits. We will also have to find an alternative venue for our AGM in October and will give more information on this in future issues.

As always I will try to keep you fully informed of developments and hope that members will continue to support this newsletter with their comments and articles.



**Norman Paul**

## ASSOCIATION ACTIVITIES

### SITE WORKING PARTIES

Numbers at the regular Friday working parties has increased of late with many new members joining us on a regular basis. Currently we are preparing for the arrival of the main building contractors which will mean relocation of archives and equipment from the A 203 Library building to, either the Director's Lodge or temporary porta-cabin accommodation - we don't yet know which!

A number of the larger artefacts will also be relocated to secure buildings at the north end of the site in preparation for remedial work on L168 and L176, the main artefact stores. The good news is that one of these buildings will be done first giving us an opportunity to move smaller, and more delicate artefacts, over the road to the first one to be done up, whilst the second building is being worked on. We had earlier anticipated this by moving about 200 boxes of catalogued items from L168 to L176, only to be told that L176 was being done first - we then moved them back again!

Those members who worked at the site, especially our older members, have been giving assistance to the Event organisers in checking some of the more recent history of the site, filling in some details not recorded elsewhere, and in identifying some of the better preserved artefacts for exhibition display.

### TALKS

One of the important activities that we undertake is the giving of talks to various groups and societies and we have a fairly full calendar for the first half of this year. Talks will be given at Adult evening classes, groups from the Inland Waterways, historical societies and 'friends of museums' in the locality.

These are a very important way to raise the profile of the project, especially leading up to our opening next year.

Do you know of any groups that would like a talk that we can add to our list? If so, please contact the Editor.

We have a standard talk, illustrated with slides, which gives the history of gunpowder and traces the history of the site from its beginnings, through the various stages up to closure and our intended development. This can be tailored somewhat for special interest groups if necessary.

## A SPECIAL 'FRIENDS PROJECT'



When taking groups of people around the site it is noticeable that everyone stops and admires the view along the canal at the Loop Road Bridge. It's a place where everyone wants to take a picture.

The area shows an old cordite store, which was serviced by barge, and, in the background, a picturesque loop iron bridge.

We have agreement to develop this area into a small 'showcase' spot and recreate a view that would have been typical in the late 1800's. Part of the Phase I development will involve the renovation of the cordite store on the right bank and we have plans to tidy up the area and hope to be able to recreate a typical Powder Barge on the canal.

This is a long term project and cannot start until renovation work is complete but we believe it will be an added attraction to visitors.

## CHRISTMAS CARDS

As reported in the December issue we piloted an 'Association' Christmas Card and found it to be very successful giving us a modest profit. Since there is obviously a good market for this venture we intend to repeat the exercise again this coming year and promise to give full details in our September issue so that members can order in plenty of time.

Last year the card showed a picture of the 'Lady of the Lea' sailing barge used to take explosives from the site to main arsenals at Woolwich and Purfleet.



We have yet to decide whether to repeat this card or to find another suitable picture. The September issue will include whatever picture is to be used (although this will not be in colour!).

Our thanks to the Secretary, Richard Penfold, for masterminding this venture and carrying it through to a successful completion.

## ORAL HISTORY PROJECT

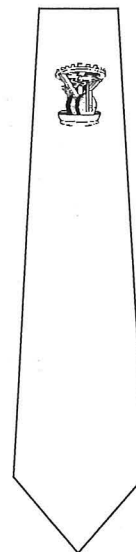


**The Oral History project, aimed at recording on tape, for posterity, the experiences and recollections of past workers at the Site, is an on-going programme run by Ron Treadgold.**

The importance and usefulness of this project has been highlighted recently in that the 'script writers' for the Event exhibition team have been able to make good use of the information and hope to use many of the 'quotes' in the exhibition text.

The telephone recording procedure, reported in the last issue, has been a great success and we hope to gain many more 'stories' in this way.

If you have a story to tell, however small or large, and would like to add it to our growing collection please contact Ron at 9, Mark Avenue, Chingford, E4 7NR (tel: 0181 529 5673).



## ASSOCIATION TIES

We still have a good stock of "Friends Ties". These are mainly in blue but with a limited number of green. Each bears the Association logo in gold.

We sold the main bulk of the order at the AGM and Reunion in October and it will be some months before you have a similar opportunity.

If you would like a tie we do have a 'mail order' service at a cost of £6-50 inc. post and packing per tie. Cheques, with order and made payable to 'WARGM Friends Association' should be sent to the Editor at the address shown on the inside cover of Touchpaper.

## APPOINTMENT OF NEW SITE DIRECTOR

The Company is currently in the process of interviewing for a new post of Site Director to replace Robert Saunders, the current Chief Executive.

The phase of development for which Robert was engaged has reached the point where the role is changing and he will now be handing over to a new Director post who will implement the project plan which has been finalised.

Robert's contribution was principally devoted to preparing and launching the company's fund-raising campaign which, we are delighted to say, has begun to bear fruit. The most significant grant to date being that from the Garfield Weston Foundation of £110,000 which will go towards the fit-out of Walton House as a state-of-the-art archive and study centre.

Working closely with the Chairman, he has also developed the operational business plan which, we are pleased to say, has been accepted by the HLF, thus securing their grant of £6.5M for the first stage of capital works.

Robert is moving on to another major project which is in the first 'start-up' stage of development and we wish him well in his new challenge. He will still maintain an interest in the project and has joined the Friends Association.

The new post was advertised last December and attracted over 50 applicants. These were narrowed down, on a paper sift, to 18 promising candidates for a first interview. From these, a short list of 5 were chosen to attend a second interview and to give a presentation on their views and ideas for the project. At the time of writing the interview panel has identified some excellent candidates and made recommendations for the full Board's approval at their next meeting.

In our next issue we will have more information and hope to give you a profile of the new director.

## PHASE I DESIGN PLANS

Work will shortly commence on the major conversion of the old library building (A203) to the major interpretative Exhibition Hall and the H7 magazine into the Visitor Centre.

The specialist exhibition contractor involved is 'Event' and a copy of the proposed layouts are reproduced over the next 3 pages. Some of the text is a bit on the small side but the plans do show the general theme and layout of both buildings. These designs have been approved although some minor changes may become necessary.

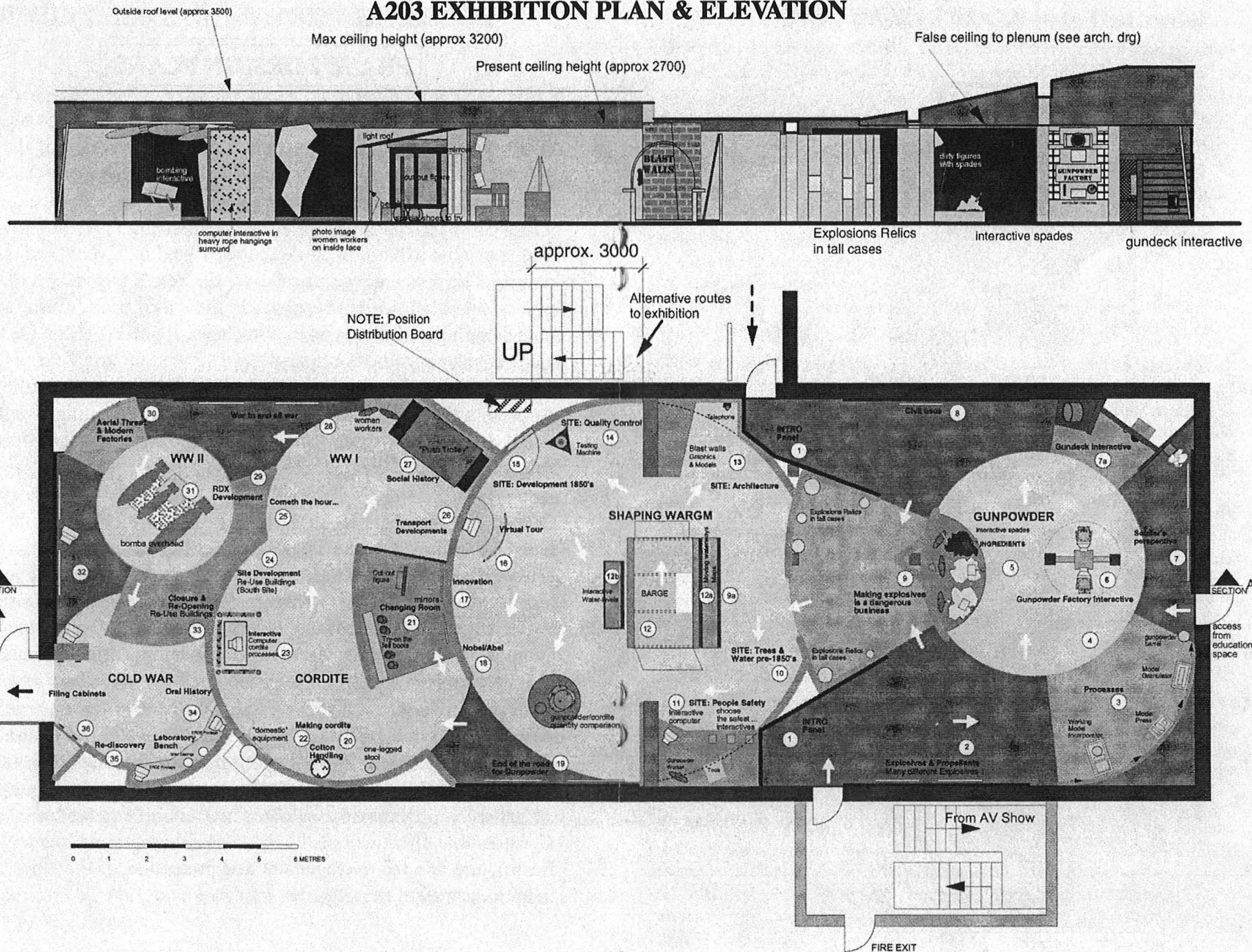
At present the Friends are actively involved in assisting Event with additional details on the more recent history and with the identification of suitable artefacts for the exhibition.

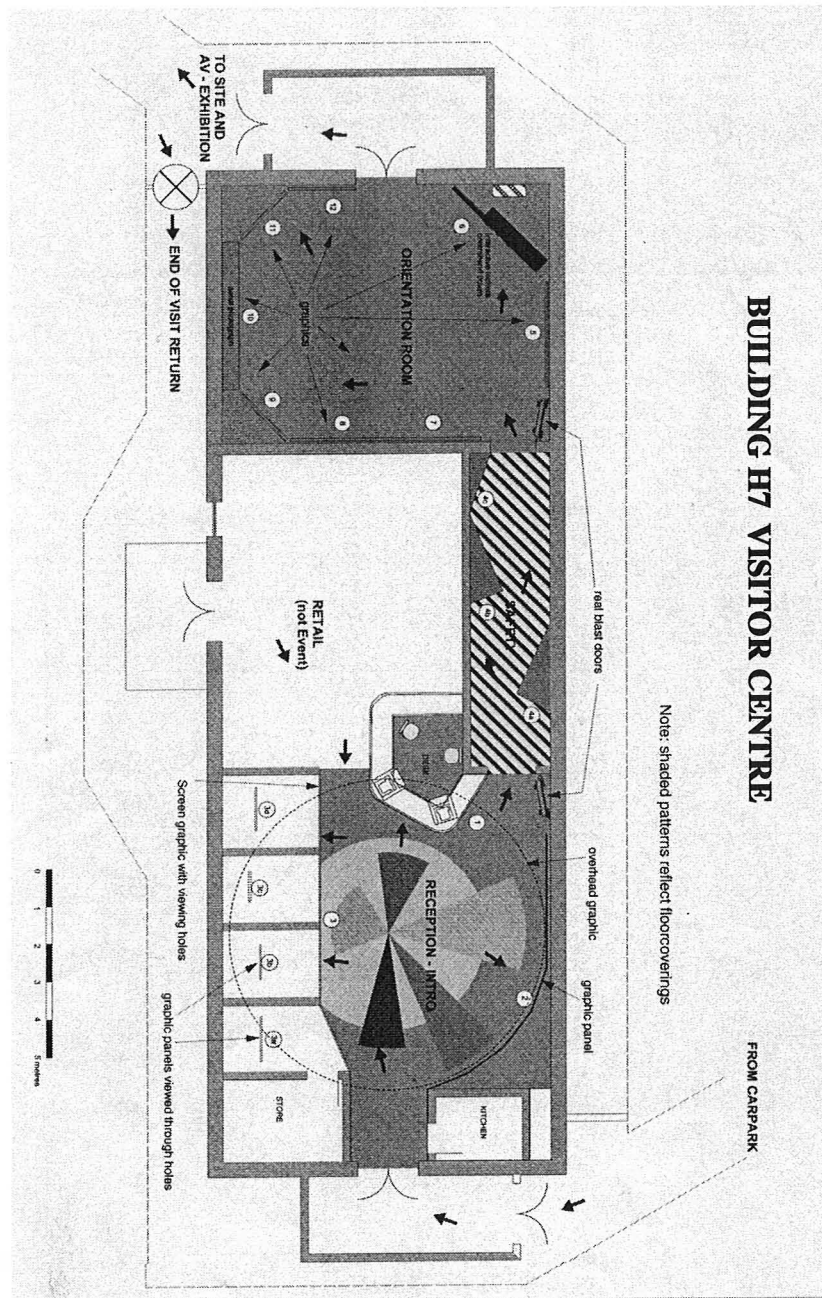
One of our members, John Wright, is also a member of the Lea Valley University Branch of the Third Age (U3A) Industrial Heritage Group 1. Through his good offices this group have contracted with Event to supply models at a nominal cost to cover materials. The models to be provided are: Water wheel and Gunpowder Incorporating Mill, Gunpowder Press and Gunpowder Granulating Machine. This generous offer has meant considerable cost savings which can be put to good use elsewhere on the site.

Also included in the Phase I works is the renovation of a number of listed buildings on the site. Although many of these will only come into actual use in further development phases their preservation is of vital importance.

Considerable effort will also have to go into restoring much of the site infrastructure and the management and protection of the landscape and the unique ecology of the site.

# A203 EXHIBITION PLAN & ELEVATION





## SONIC BANG TRIALS (a la Concorde)

One of the more unusual jobs that fell to Detonation Section in the days when Concorde was still a designer's dream was the development of an explosive simulant for the sonic bang that supersonic aircraft were known to produce. At that time Britain had just one supersonic aircraft type (the English Electric Lightning) and supersonic flights over land were rarely permitted. As a result, there was a clear need to investigate the effects of sonic bangs, but no opportunities to do it.

**CHE Warren** of Structures Department at RAE Farnborough visited ERDE and asked whether we might be able to produce some sort of explosive device which would have an airblast signature sufficiently like a sonic bang for it to be useful in studies of the effects of sonic bangs and had a seminal meeting with George Whitbread, John Hicks and myself. We were to aim at producing an 'N' shaped wave with a duration of about 100ms and a peak amplitude of a few Pascals a waveform far removed from anything known to airblast experts.

A few experiments with long linear charges (formed from detonating cord) gave us some waveforms to consider, and from these John Hicks (then Section Leader, Detonation Section) with a remarkable piece of insight, showed us how an N-wave might be synthesized. Subsequent rapid development confirmed the basic soundness of John's concept, and we soon had a respectable simulant for the bang generated by a Lightning. A considerably larger version followed soon afterwards, intended to simulate the Concorde bang.

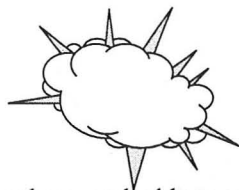
**RAE** themselves were also developing a device to produce simulated sonic bangs. Their aim was more limited in spatial terms, as their concern was to test comparatively small objects. The device they came up with was externally like a very large version of an "His Master's Voice" horn. It was called 'Blunderbuss'. A famous Welsh wit in the RAE team, one D Webb, used to delight in explaining to visitors that this was really an acronym, standing for 'Bloody Loud Ultra-Noisy Device Emitting Realistic Bangs Using Simple Systems'!

There followed many trials at a variety of establishments to test and make use of our simulants, and if the Editor sees fit, some stories from these might be of interest in future issues. Many E Branch personnel became involved in this work as well as those already mentioned, notably Tony Burton, Roy Livermore, Bert Dunwoody and especially Jeff Munns.

This is an appropriate place to explain my failure to record the names of personnel involved in the other stories. I would dearly like to have named all participants, but a failing memory means I could never be sure to have included all, so to avoid offending anyone, I omitted all. If anyone cares to add their own more complete recollections, as Eric Kendrew so entertainingly did in the last issue, I hope the Editor will find space to publish them.

Jim Hawkins

## DAMAGE LIMITATION



E Branch maintained three large experimental firing chambers, each able to withstand the detonation of several kilos of high explosives. The noise from these firings could be heard for distances up to several miles around Waltham Abbey, although the intensities depended markedly on the weather conditions at the time of firing. Air blast studies such as those of the sonic bang simulation programme had to be done in the open air on New Hill, and these too contributed to the far field noise.

There were, not unnaturally, fairly frequent complaints received from the public about the noise and alleged damage from these firings. The Lea Valley nurseries were particularly vociferous complainants, and we went to considerable lengths to minimise the sound pressure levels in their particular directions. Some of these nurseries were well maintained structures, while others were close to what Loss Adjusters know as “dilapidation awaiting an insured catastrophe”. Whilst many nursery owners complaints were deserving of serious concern, of some, one could only say that they well merited some cynicism. The owners of these were always submitting claims for replacement of shattered glazing panels. One of Bert Dunwoody’s regular jobs was to drive out to one or other of the nurseries and make sound level measurements when firings occurred. I don’t think Bert ever witnessed a panel breaking!

The local Vicar also began to wonder about the effects of our explosions on his Abbey, and it was deemed politic to assess the effects as best we could. Ground vibration rather than air blast was the predominant concern here. Fortunately Detonation Section had acquired a Willmore Seismometer in connection with other studies, and this instrument provided the perfect tool with which to study the ground shocks associated with the test firings. It was mounted on one of the massive interior stone walls, and its output was monitored on an oscilloscope equipped with a Polaroid camera.

We made many measurements, and were easily able to identify and measure the structural vibrations induced by the ERDE firings. To put the measurements into some sort of everyday perspective, we also made some measurements as heavy lorries were passing by the Abbey, and were relieved to observe that these were considerably larger than those caused by ERDE firings.

But the really big surprise came when someone (I don’t remember who) suggested that we measure the effect of ringing the Abbey bells. The results of this were staggering. The structural vibrations induced by the bells were so very much larger than anything else we had found that we were able to inform the Vicar that if he wanted his Abbey to last another few hundred years the best thing he could do was to stop ringing the bells!

Jim Hawkins

[12]

## A Correction and an Explanation

When the Chemical Inspectorate was bombed out of Woolwich Arsenal it was transferred to Waltham Abbey and ensconced in the ‘RDX Labs’ and there was much rivalry (not always friendly) between the two staffs. Contrary to the Editor’s footnote in the recent Touchpaper the incident referred to concerned RDX/TNT when, after breaking a thermometer in the water bath, one of the Chemical Inspectorate staff solemnly reported the presence of globules of mercury in the sample under examination. We, therefore, cooked him up a ‘special’ which tested our ingenuity somewhat as our experience of coating dead bluebottles with TNT was rather limited.

On the subject of RDX/TNT, I recall the first batch that was made when I was working in the RDX lab in the water tower on South Site. If the TNT got too hot the viscosity fell dramatically and would not support the RDX giving rise to some segregation during cooling. This happened in the first batch. The chemist in charge (who shall be nameless) brought me a sample and observed that “it would be nice to know how much TNT there was at the bottom and how much RDX at the top”. Saying “That’s easy” I picked up a hacksaw, sliced through the middle and was just about to say to said chemist “Come back in half an hour for the results” when I discovered that he was halfway down the stairs on his way out. I never did tell him that the hacksaw had a special phosphor-bronze blade!

Jim Jeacocke

and

## The Day the Lea Turned Green!

During experimental work on flashless propellant it was decided to dye the different compositions in order to make it easier to identify them when making up bag charges. The first composition was dyed green and in the Main Lab we made up an alcohol solution of Malachite Green dye in aliquots sufficient for a batch. Subsequent compositions were dyed pink etc.

Unfortunately we were not told that the experiments had concluded and a number of aliquots accumulated on a shelf in the ‘extraction room’. In the interim between closing of the RGPF and the opening of CRDD we busied ourselves clearing out a lot of redundant material - among which were the solutions of green dye which were disposed of in the time honoured manner.

It was some time later that we heard reports of a mysterious green stretch of the Lea which had been seen moving down towards the Thames. We never owned up!

Jim Jeacocke

*Jim is one of our most prolific contributors, along with Jim Hawkins. Is it something in the name? We’d love to hear from more of you, whatever your christian name. Ed.*

[13]

**GEORGE WHITBREAD**

George Whitbread died on 27th January. He attended the Edmonton Latymer School and joined the Establishment Laboratory in 1937, rising to become the Superintendent of E Branch; which was a considerable achievement in those earlier days. He oversaw the race for more powerful explosives, being instrumental in the development of Poly-X and took on the challenge of evaluating Hydrazine Diperchlorate. This very sensitive material necessitated remote handling and George masterminded the construction of a remote handling facility with a miniature 5 inch gauge railway. In the event the material proved to be too sensitive, which George had recognised, but the work gave the Establishment a good reputation and allowed entry to US research programmes. He left the Establishment around 1969 to become HM Chief Inspector of Explosives, a post in which he gained great respect.. He was a hard task master but always very fair and loyal to his staff.

**Some Recollections of George Whitbread**

George was the Superintendent of E Branch when I joined ERDE in late 1967. From a junior's perspective, George seemed a terrifying figure. He had an imperious and incisive manner and did not mince his words. I remember him at his desk with the legend "Death to Research" suspended on the wall behind him. It seemed strange for such a sentiment to be expressed by a superintendent in a research establishment, but George, having come up the hard way saw it, I think, his duty to deflate new, know-it-all, Graduates.

I recall an occasion when George was outside the Establishment and wished to contact one of the senior scientists whom he believed to be in the New Hill area. An EW1, with a very literal turn of mind answered the phone. "Is X there?" enquired George. "Yeah" replied the EW, and promptly replaced the receiver. Efforts had to be made to turn the wrath of George from the unfortunate EW, and success was achieved in the end. Some time later, George did see the funny side.

There was, however, another side to George. He was profoundly loyal to his staff. I recall having had a run-in with a particularly pedantic member of the admin over the collection of an urgent item. George received a complaint about my actions. I was summoned to his office and, in my presence, he phoned the admin person in question and told him that he, George, had every confidence in his staff and that I had acted with the best intentions. After he had put the phone down, he tore me off a hell of a strip! George always wanted action and was pleased if he felt work was progressing as quickly as possible. I remember approaching him with great trepidation after having fired a charge in No 2 Firing Point on New Hill. There wasn't a very loud bang but I was dismayed at the scene of devastation that greeted me on entering the firing chamber. The armour plates surrounding the viewing window had been twisted and ripped from the bolts fixing them to the wall and three sets of laminated glass had been destroyed. George's response was, "Never mind. You can't make an omelette without breaking eggs and you've learnt something. Did you get some decent results?"

Although George presented a formidable figure and frequently put the fear of God into his staff, he conferred a sense of stability throughout his Department. I recall approaching him with a worrying problem for which I felt some responsibility but was outside my remit to solve. "Don't worry about it" he said. "I'll deal with it. It's what I'm paid for". In conclusion, despite his sharp tongue and uncompromising attitude, George always had the good of the Establishment and his staff at heart and fought battles on their behalf. On a personal level, he was a very shy and private man and was capable of showing great kindness and understanding which on numerous occasions he did. His honesty and forthrightness gained the respect of all. He will always remain an outstanding character of the old ERDE. He is a Legend. Jim Burgess February 2000

**JOHN LITTLEFAIR**

John (Jack) Littlefair died peacefully in Harlow Hospital on Sunday 16th January 2000. John, who was a long serving member of the Establishment, was always friendly and was well liked and respected by his colleagues. The funeral took place on 8th February.

**Jack's Funeral:**

On arrival at Waltham abbey Church we were greeted by a Jazz band consisting of trumpet, trombone, percussion and sousaphone playing "Just a Closer Walk with Thee".

Inside the church there was quite a good congregation of friends and relatives reflecting Jack's interests in history, photography and politics, as well as neighbours and ex-workmates.

A somewhat unconventional service opened with the vicar's welcoming address in which it was suggested that if Jack could have surveyed those present he would have said "Bloody 'Ell".

The service proceeded with a hymn and readings by his grandsons, Matthew and Christopher.

Stan Newens gave an excellent potted history of Jack's life, then, after prayers and blessing, the coffin was carried out to the strains of "When the Saints Go Marching In". There was even an appropriate downpour of rain as we left the church.

The committal was at Enfield Crematorium followed by open house at 23 Thaxted Way. This was a fitting climax to the occasion as his son John and daughter Anne proved to be excellent hosts while we reminisced over happy times in Jack's life. Around the walls was a selection of drawings and photographs. The one I particularly liked was a photo of Jack operating the H67 K-Round Rocket Firing Facility with the caption "Why England Should Tremble!"

We'll smile as we remember the many anecdotes about Jack and always regard him with great affection.

As they say in computer circles 'WYSIWYG' - with Jack - What You Saw Was What You Got!

Bryan Howard

**GRAHAM HARRIS**

Graham, who was the Establishment Chief Engineer, sadly died in November last year. He will be remembered for his keen sense of humour, his dedication to work and his concern for and loyalty to his workforce. When he retired he was able to concentrate on his home and family and his lifelong passion for sailing. Even after being diagnosed with incurable cancer he lived life to the full, learning to play golf and bowls in addition to the tennis, badminton and sailing he already did. He was also a keen gardener and kept up all these activities until near the end. He never lost his sense of humour and was an example to all on how to fight the cruelties of life and still come out on top.

Les Dingle

**MAURICE NICHOLSON**

We have been told that Maurice Nicholson passed away in early January after a long illness.

## TOUCH BYTES

### More on Congreve Rockets ...

Reading an historical novel by Cynthia Harrod-Eagles, who does her novel research very thoroughly, I was interested to note the reference to the use of Congreve Rockets in 1807. It transpires that Napoleon Bonaparte intended to march into Denmark and confiscate the Danish Navy at Copenhagen for use in a planned invasion of Britain. Hearing of this the British sent troops and a fleet under Lord Gambier to forestall him. After offering the Danes a chance to surrender, Gambier opened fire on the city with Congreve Rockets while the army pounded it with shells. Three days later the Danes surrendered and the Danish fleet was sailed safely back to England, just days before Napoleon's army arrived. The action was so well thought of that one newsheet of the time read in true Churchillian style "There never was an expedition of such magnitude so quickly got up, so secretly sent off and which was conducted from beginning to end with greater ability or success".

Les Dingle

### and More on Pebble Powder ...

Further to the letters regarding this I have to say that, in response to an interested party I have unearthed an article from the Strand Magazine of 1895 headed "How Explosives are Made" by W G Fitzgerald. In it there is a clear reference to Pebble Powder and a note that it was supplied for 11 inch guns (360lb charge) to give a muzzle velocity of about 2000 ft/sec. I feel a bit shamefaced having given 2 lectures on gunpowder but, nowadays, I do tend to forget so much.

John Gooding

### History of the Green Hut...

This wooden building is sited next to the Robertson Laboratory on the Long Walk. It was purchased in the fall of 1939 from Messrs Thorn of Bexleyheath, delivered to Swansea and erected in the NW corner of the university campus. I do not know exactly when it was relocated to Waltham Abbey.

The double doors led into two rooms; the left hand was a laboratory with benches accommodating heating baths for the Abel Heat Test. The right hand room was for preparation of samples for testing and preparation of special test papers for surveillance testing of boxed explosive stores.

It's last scientific use was when it housed Dr Uri's research team. When they moved to more prestigious accommodation in L157, with removal of most of the laboratory benches, it was later used for First Aid practice and lunchtime TableTennis.

Bill Love

### REMINDER

PLEASE KEEP YOUR  
ARTICLES AND NEWS  
COMING

THE DEADLINE DATE  
FOR THE JUNE ISSUE

**15th MAY 2000**

## DOUBLE ANSWER QUIZ

*Each answer is a 'double repeat' For example: Child's Father = PaPa*

1. Child's Toy
2. Ferry
3. Pop Group
4. Hire Purchase
5. Ballroom Dance
6. Top Secret
7. An American Prison
8. Type of Bullet
9. A Ballet Skirt
10. Stage Dance
11. Style of Painting
12. Disease from lack of Vitamin B
13. Kenyan Terrorist
14. A drum
15. A Sweet Dessert
16. A Sunken Wall
17. Pour Scorn On
18. Anti-Aircraft Gun or Woollen Ball
19. Tasty dish from the 'Mikado'
20. An Extinct Bird
21. Tropical Fruit
22. Species of African Antelope
23. Thor Heyerdahl Book
24. North African Granulated Flour

*Blame Bryan Howard for this one. Answers in our next issue.*

WE WELCOME ALL SIMILAR CONTRIBUTIONS FROM ANYBODY!