

WASC 169 ●

Article on WARM  
Canals

'Newsies' Aug / Sep 2000



WASC 169

# Navvies

Volunteers restoring waterways  
No 182 August-September 2000



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**The Waltham Abbey Canals**  
**Camps: Elsecar, Droitwich, Over**

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# Feature

A little-known canal system within a few yards of this year's 'National'

## Waltham Abbey Royal Gunpowder Mills Canal System

If anyone working in August on the National Waterways Festival site at Waltham Abbey looked eastwards they would see beyond the Lee Navigation and the flood relief channel a high security fence with fine mesh screens in sections, and behind this the roofs of buildings scattered through woodland.

The screens were dust filters erected during decontamination of what was virtually an unknown Government establishment - originally Waltham Abbey Royal Gunpowder Mills, under Crown ownership from 1787 and latterly after WWII a research facility for rocket fuels, propellants etc.

The Mills produced gunpowder based on natural products - saltpetre, sulphur and charcoal - the woodlands mentioned above were plantations of alder, willow and dogwood for charcoal making. From around 1880 production switched to chemically based product but gunpowder continued to be produced for specialised fuse purposes until 1943. The Establishment closed in 1991.



The later of the two interchange locks between levels, built 1878. (Les Tucker)

The Mills set high quality standards and discoveries made there and processes devised strongly influenced not only military applications but also the huge demands of the 19<sup>th</sup> Century for gunpowder for civil use - mines, harbours, railways, construction etc.

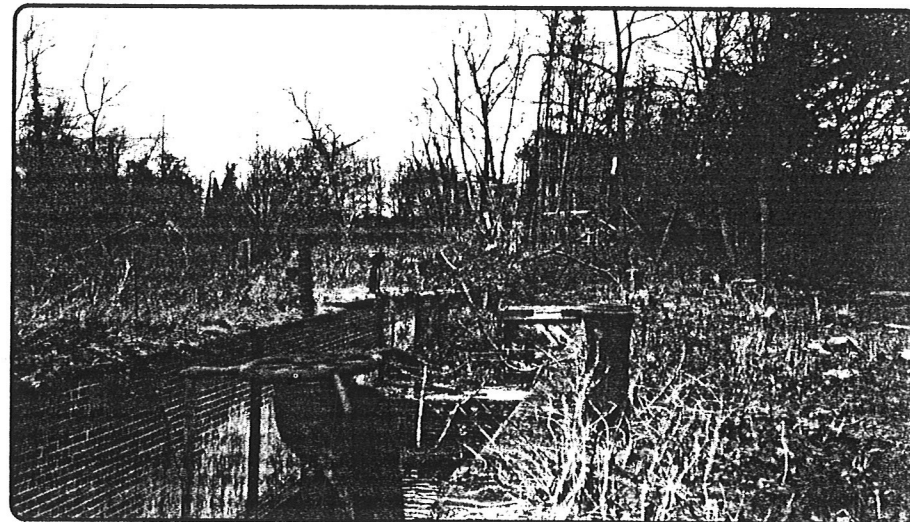
Explosives production for safety reasons is in small separated buildings and the site is extensive - 170 acres - and contains no less than 300 buildings, 20 of which are Grade II\* or Grade II listed and one Grade I.

A refurbishment programme is under way at present and WARGM will open as a major industrial archaeological interpretive centre in 2001.

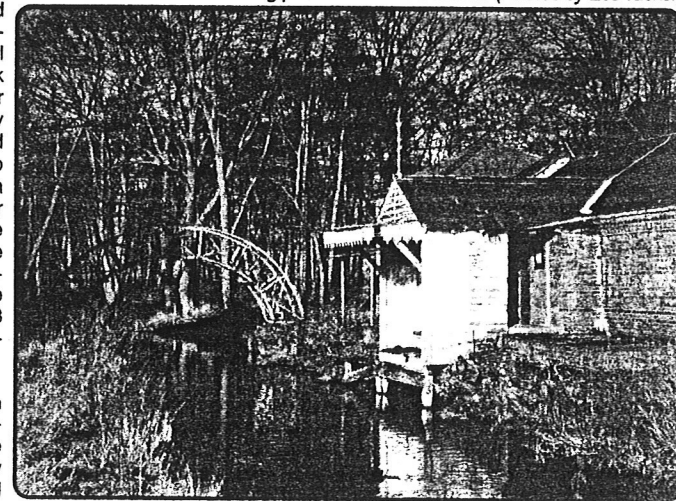
Why write about this in a journal devoted to waterway restoration? The answer lies in the crucial role water played in the operation of the Mills. Firstly as a basic and vital power source until superseded by steam, for grinding, mixing pressing etc. But beyond this water was particularly appropriate to the special transportation needs of gunpowder. It needed a secure smooth-running transport mode both for import of raw material and for finished product - the link from the Mills via the Lee Navigation to the Thames for the Docks for imports and for finished supply to the Woolwich Arsenal and the magazine at Purfleet and to the canal system for supply to the military depot at Weedon was ideal.

However it was the production process which created the third application of most interest to the canal enthusiast. The need for separated production meant that there was a continual movement

of material between the buildings - fuel, basic intermediate and final product, general stores. Much of this involved some hazard - spark, sudden shock etc. The transport medium had therefore to be as smooth and controllable as possible. What better than water? So within the Mills was created an internal canal system between the facilities, each with its own canopied loading wharf and connecting with the Lee Navigation via the Powdermill Cut. There were two watermen to control the water flows, one living on site.



The system was complex and interlinking with a total length of about 3 miles and was on two levels with 2 internal locks and one on the Cut and included 4 aqueducts: all still exist except the lock to the Cut. In the latter part of the 19<sup>th</sup> Century the Mills had 15 covered boats ranging from 20 to 30ft. in length, 16 open boats and 4 barges for transportation on the Lee and Thames. 4 boats are at present preserved under water, pending future developments, a further 3 on land and the last sailing barge is still sailing.



Over the years with changing production requirements parts of the system were filled in, new sections opened and sometimes filled sections were reopened. However basically the structure, the locks and the aqueducts have survived, in what is in the wooded sections virtually a wilderness - overall a unique example of a highly specialised industrial water transportation system for a unique purpose.

Perhaps a future Waltham Abbey camp will be on the other side of that fence?

Les Tucker

To find out more about the Waltham Abbey mills and their canals, contact **Waltham Abbey Royal Gunpowder Mills, Powdermill Lane, Waltham Abbey EN9 1BN.** E-mail [info@royalgunpowder.demon.co.uk](mailto:info@royalgunpowder.demon.co.uk), web site <http://www.wargm.co.uk>