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Article on WARGM

Once upon a time, ammunition for the Napoleonic Wars, the Dambuster bombs and the shells that killed millions on the Western Front came out of the Royal Gunpowder Mills. Now the secret site – earmarked to be opened to the public – has been rediscovered as a Garden of Eden. By **Byron Rogers**. Photographs by **Tom Hunter**

THERE is a movement in the reeds, so slight it might have been the wind, then a head in water, a head as sleek and small as any which sat between the shoulders of a member of the Drones' Club. And so it is that just before three o'clock on a November afternoon, I see my first otter in the wild of the British Isles.

I think I must have said: 'Blimey!', for at such moments a man takes refuge in the expletives of childhood. Then suddenly something is creaking into the air, not 20 yards from me, something large and grey and unhurried. A heron is rising like an old turbo-prop airliner.

Fifteen minutes later, in woods now, a dead branch snaps underfoot, and there is a small shape dappled by the last sunlight. The fawn stares and in just three springs is gone. And I know exactly where I am. I am in the Garden of Eden.

I have signed the visitors' book at the security gate, I am wearing the hard hat with which I have been equipped, and I have read the 'Safety Instructions' leaflet over and over, lingering, like an examinee, on the rubric: 'Thoughtlessness may endanger your life, and the lives of others. Read and keep this document, it is issued to you for reasons of safety and security...' I am in the Garden of Eden, where nitro-glycerine was made. I am in Britain's old Royal Gunpowder Mills.

In 1991, as part of its 'Options for Change' programme, the Ministry of Defence was preparing to sell off some of its many assorted properties. It was an extraordinary moment, for once the British military acquires anything, it very rarely lets it go, and change, as usual, had been forced upon it, in this case by Mikhail Gorbachev who had declared, 'I am going to do something terrible to you, I am taking away your enemy.' He was also, indirectly, taking away Waltham Abbey.

Some of the MoD's remoter sites would tax the efforts of the country's most imaginative estate agents to shift. But Waltham Abbey was the sort of property that developers conjure up on sleepless nights, 200 acres of it on the edge of London, within walking distance of the M25, within cycling distance of the M11. It breathed light industrial potential, houses as far as the eye can see, golf courses. The MoD called in the London development planners, CIVIX.

On maps the site offered the even more heady prospect of a single development. Almost entirely surrounded by water, by the River Lea and by four miles of canals, it would be the perfect open prison,



The gunpowd



er plot

A small covered barge, which carried vital ingredients to the Royal Gunpowder Mills, now rests in the canal at the Waltham Abbey site. The thick brick wall once stood between two buildings used to store explosives and was designed to contain the damage in the event of a blast

with middle-class conmen angling away the long summer afternoons. There was all that greenery: why not a conference centre? But all that was before the planners actually visited the site.

'I'd been in tropical jungles, it was just that I never expected to find myself in one in England,' said Dan Bone, a director of CIVIX. 'All it lacked was parakeets. We had to go away and buy machetes, just to hack our way in, for we couldn't see more than 20 feet in front of us. It was a year before I dared leave the tracks, I was that frightened of getting lost in Waltham Abbey.'

It wasn't just the undergrowth, it was what they kept finding in this place. 'I'm an architect by training, but I'd never seen buildings like these, all thrown about in what seemed to be gay abandon in the woods.' There were huge curving walls hung about with ivy, tunnels leading into darkness, and great fortifications, some of which were completely round in shape.

Added to this was the crashing in the bushes which greeted their approach, the fluttering of large wings and weird cries. All that was needed was the odd arrow thwacking into a tree, and some rhythmic subterranean chanting to have convinced them that they were in a lost world. Which in a sense they were.

It is not known for certain how long gunpowder was made in Waltham. The first recorded date is 1665, by which time a former fulling-mill had been converted for gunpowder production, but there is a tradition, perhaps fuelled by the irresistible combination of monks and gunpowder, that it goes back to Crecy in 1346, the first time gunpowder was used by an English army. Guy Fawkes is said to have got his supply there.

The site was ideal. There were the alder trees to provide the wood for charcoal, one of the ingredients of gunpowder. There was the water power from the River Lea to turn the mills and mix the ingredients, also the fact that from prehistoric times the river had been navigable (no one in his right mind would move gunpowder by road). The result was that this became the biggest gunpowder works in the country, so important that the government took it into public ownership on the eve of war with revolutionary France, some 200 years ago, and in public ownership it remained until 1991.

Canals were dug, but the barges floating in and out were like no other, being lined in leather and poled by men, for horses bolted and men did not. Steam power came, and a narrow-gauge railway, the trains running on rails made of copper, and, in places, wood, to eliminate the possibility of sparks.

By the late 19th century, they were making nitro-glycerine there and gun cotton for the new high-explosive shells. It was then that the strange buildings went up, deep in woods already coppiced for alder, the thickness of them acting as a blast shield. Each building, for obvious reasons, was as far as possible from the others, which was why, when the first developers went in, they thought there had been no plan.

But there was a plan, there always had been a plan. Huge mounds were thrown up, the earth lined with brick, passageways disappearing into the ground itself. The most spectacular of these was the Grand Nitrator, 140ft high, in the depths of which a man sat on a one-legged stool, in case his attention wandered for a second, overseeing the nitration process. Below him was an oval pit of water, into which the nitro-glycerine could be plunged if the Grand Nitrator threatened to overheat. Names like this, and the goblin on the one-legged stool, are out of



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All it lacked was parakeets. We had to buy machetes,**

fantasy, except all this was real, and just half a mile from the town centre.

It was another world in there, down in the woods. The workers wore special uniforms made of calico, with no buttons or pockets, the fastenings made of string. Every day a section of the safety rules was read out to them, and once a month the complete set. At the peak of the Great War, 5,000 people were employed there, half of them women, and it is a remarkable comment on the safety procedures that in all the 300 years of the mills, only 200 deaths were recorded. In most of these cases there was very little left to bury.

By the Second World War, with Waltham Abbey in reach of enemy bombers, its importance had declined, and in 1945 it closed as a factory, only to open again the next day as a research establishment, specialising in every form of non-nuclear propellant. The fuel for the Blue Streak rocket was developed here, the explosive bolts on jet-ejector seats, even

Giant Viper, that enormous ribbon of explosives shot into minefields which was used in the Gulf War.

The last years were weird and wonderful, with many changes of name. ERDE - Explosive Research and Development Establishment. RARDE - Royal Armaments Research and Development Establishment. PERME - Propellant Experimental Rocket Motor Establishment. Most of these had no use for the bizarre buildings in the woods, so the green crept back and over these. And not just the green.

Hérons, attracted by the coppiced alder, flew over the wire and made their nests. Time passed, and it became the biggest heronry in Essex, with the result that in the Seventies a secret government research establishment was, irony of ironies, classified as a Site of Special Scientific Interest, its explosions synchronised so as not to interfere with nesting habits. And somehow, under the wire, up the canals, came



Clockwise from far left, one of the site's 19th-century gunpowder presses; a cast-iron aqueduct – rare in Britain, yet one of four uncovered in the old mills; a hydraulic gunpowder press with a central blast wall to protect it from explosions; a steel footbridge over the canal; a bridge leading to a gunpowder house



to find myself in one in England. just to hack our way in, for we couldn't see 20 feet in front of us'



otter and deer and muntjak and rabbits, all of them safe within the security perimeter.

It was into this wonderland that the men with the machetes came, followed by men from English Heritage and the Royal Commission for Ancient Monuments. And then Whitehall's troubles *really* began. 'The men from English Heritage and the Royal Commission couldn't understand what they were seeing down in the woods. They'd never known anything like it,' said Steve Chaddock, later appointed the archaeologist-on-site. 'They said they needed to do an evaluation, but even before this, English Heritage decided to make it a Scheduled Ancient Monument, listing 21 buildings, one of them of Grade I, the same as Westminster Abbey.'

So it was goodbye the houses as far as the eye could see, goodbye the light industrial use and the golf courses. At the MoD, civil servants peered into the unknown, fearful of what might turn up next.

There was the little matter of the waste from hundreds of years, all tipped into the canals, for you don't get the binmen calling when you run a nitroglycerine factory. With English Nature, English Heritage and the Royal Commission peering over their shoulders, the MoD could not just send in the bulldozers, and the bill for decontamination alone came to £16 million in the end. All they got in return was £5 million for a tiny fringe of the site, some 10 per cent of it, where houses did get built. Powder Mill Lane. Powder Mill Mews.

But what were they going to do with the rest? The MoD turned *in extremis*, like most of the nation does, to the National Lottery, and this year the Heritage Lottery Fund announced that it was making a grant of £6.5 million towards the setting up of an Interpretative Site. For having finally worked



A water-powered tower (left) linked by the canal to the nearby storehouse, which has a loading porch to receive boats

out exactly what they did have in the woods, they thought they might let the public loose on the mystery. With a final grant of £5 million towards this, the MoD was shot of the whole thing.

The Environmental Health people have given it the all-clear, and now only trifling little details need to be worked out, such as where the public will be allowed to go, or whether they will go alone or be guided, and where the entrance will be. In spite of this uncertainty, it is set to open at Easter in the year 2000, and will require 75,000 visitors a year. Work has not yet started.

So you see it now as the archaeologists saw it, once the men with the machetes had been. The archaeologists made some strange discoveries. One of them, a man who had spent his life studying cast-iron aqueducts, of which just 11 survive in the whole country, found an additional four within a few

yards of each other in the woods. You come on huge rusted pieces of machinery in the most elegant of buildings (for when they built most of this place, they would have found it impossible to build anything inelegant). You look down on the ghostly outline of a huge barge, just under the surface of a canal where it could be the boat which carried Arthur into Avalon.

Some of it is on a huge scale, like the stone wheels six feet in diameter, each one weighing three tons, which were used to grind the sulphur, saltpetre and charcoal into gunpowder, and when their day was done were just left lying around as though some giant child had abandoned them. Nothing was ever thrown away.

You find old wharfs, towers, waterwheels, and then, as you penetrate deeper and deeper into the sort of jungle into which explorers disappear, you find Aztec temples, the walls thicker than anything in a medieval castle. Then there are the dark places, the tunnels running into the earth. If you can remember the comics you read in childhood, there is a remarkable familiarity about the whole place.

Only these were more terrible than Aztec temples. These were the Mills of Death. Some 95 per cent of the propellant for the shells on the Western Front was made here, the Dambuster bombs, and every other form of explosive and propellant before the atom bomb. What came out of this place killed millions, but all that was in another country. It is very weird that after all that, after these mills had stopped turning, that a man should think of this place as the Garden of Eden.

But it is so, as just before three o'clock on a November afternoon, I see my first otter in the wild in the British Isles.

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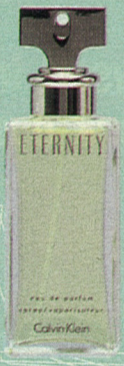
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