

STOW MARIES WW1 AERODROME

Nr Maldon, Essex

Stow Maries Aerodrome is the most complete surviving military airfield of the Great War. It was one of a large number built in England in response to the increasing threat from aerial bombing. German aviation technology had developed rapidly; Zeppelins were replaced by the *Gotha* and *Giant* bombers, which were less cumbersome and vulnerable, and carried a heavier payload, although the British fighter aircraft that faced them had improved too.

The standardised buildings were designed and built by the Royal Engineers. Other examples have been identified elsewhere. Some original drawings and early photographs have also been found, which have proved invaluable in the repairs.

The buildings are basic and insubstantial, although it is unclear whether this reflected the need for rapid construction, or the expectation that hostilities would not be prolonged and that durability was unnecessary.

Walls were single skin brickwork reinforced with horizontal mild steel bands in the cement mortar joints, and rather widely spaced 9" buttresses internally. The external faces were coated in a fine cement slurry with an additive of *Ironite*; a natural mineral that caused the initial grey finish of the slurry to assume a light brown tone after the corrosion of its iron particles. The walls were carried on thin concrete raft foundations with hardcore substrates. Those of you who are familiar with building construction will already sense ominous portents in all this.

Windows were variously timber or steel, as were the roof structures. Most were roofed with Welsh slates, while corrugated asbestos was used for those of wider span. The internal ceiling linings of buildings used by personnel were lined with asbestos panels. Rainwater goods, where provided, were cast iron.

Internally, walls were plastered and colourwashed. We shall be returning to the colours later.

The airfield became operation in 1917, but the tendency of the ground to become waterlogged proved a serious disadvantage, resulting in the site being de-commissioned at the end of the war and the land released back to farming.

Some of the buildings remained in use; for example, as accommodation for farm workers, and storage of equipment or grain, which was mechanically blown in, causing "grain blasting" damage to areas of the brickwork (which we are regarding as an historical feature and retaining as part of the story of the buildings). Where it has proved difficult to distinguish whether features such as electrical fittings are military or post-military, all have been retained.

Buildings that had no further use were left to decay and collapse; about half of the original total have been lost.

In the 1990s, the site was acquired by a business partnership of engineering and aviation enthusiasts, who fully appreciated the significance of the aerodrome, and were steadily joined by like-minded volunteers. The flying field was returned to use for private aircraft, a modern hangar built for these and

some historical replicas, and a number of buildings were repaired and converted for use as workshops, a museum, and facilities for visitors on open days or special events. Although the building work was more akin to “restoration” than conservation as we know it, much of it was sensitively done and with the best intentions. It undoubtedly saved the buildings in question.

The site soon became more widely recognised for its historical significance. A survey by the Royal Commission on Historical Monuments resulted in all the surviving buildings being listed Grade II*, and the entire site being designated as a Conservation Area.

However, the termination of the business partnership and the need for the site to be sold raised immediate risks that included the prospect of residential or industrial development. In a response to this, a “rescue package” was formulated whereby a consortium of funders, principally the National Heritage Memorial Fund, allowed the site to be bought and vested in a new Charitable Trust.

Despite this, the long-term risks to the fabric of the vacant buildings continued, illustrated by the collapse of two more, only weeks before grant funding for repairs could be made available from English Heritage (now Historic England). Since then, we have been engaged in a rolling programme of repairs, with grants principally from ourselves, but with other partners where possible.

The project began with the procurement by competitive tendering of a professional project team comprising Conservation Architects, Engineers, and Quantity Surveyors to carry out a condition survey of all the buildings, write and tender specifications for the priority repairs, and manage the works on site, all with our guidance and involvement. The first phase comprised the prevention of further collapses, and holding repairs to the roofs, followed by more thorough work such as complete re-roofing and durable structural repairs where needed.

At the same time, a programme of recording was carried out by the Trust’s volunteers, who have proved to be an invaluable asset to the project, as they comprise builders, painters and decorators, photographers, and other capable individuals of exceptional commitment; for example, the Museum and shop, and the temporary hangars are entirely their own work. We have helped them with demonstrations and practical guidance to develop their skills in the use of conservation materials such as lime mortars, to ensure that future maintenance is carried out appropriately.

A Heritage Partnership Agreement was also drawn up between ourselves, the Local Authority, and the Trust. This allowed a wide range of agreed types of repair and alteration to be carried out without repetitive listed building consent applications, and has made life easier for everyone involved.

The atmosphere on the site and in the abandoned buildings is extraordinary; tranquil, melancholic, even haunting. The aim is to retain these qualities where possible by conserving some spaces and buildings “as found”, but the extent of this has to be limited when buildings have to be used to make the site sustainable. The option of keeping everything in its ruinous state is not open to us, and to be fair, this was a decision taken long before our involvement, with a number of buildings being taken back into use, or in the case of the other Ranks’ Mess, in continued use for its original purpose.

The repairs have raised challenging questions around the core principles of “conserve as found”, “minimum intervention”, and “like for like repair”. In any repair project, these should *always* be the starting points in a decision-making process that may lead to more invasive measures for the sake of practicality

and durability. In some examples at Stow Maries, those decisions may even seem inconsistent, but in each case, they follow a logic.

For example:

- As the original cement mortar has caused the erosion of brickwork, its continued use is no longer an option, even though at several points in the project, this suggestion was put to us. Lime-based materials are now the standard for repairs and slurry coats.
- The rusting of the steel bands has “jacked up” the brickwork, but the complete removal of the bands from single skin brickwork has been impractical, so the corroded bands have been stabilised and pointed over, meaning that the maintenance of the pointing is an unusually high priority in the maintenance regime. The rather obvious intervention may ultimately be toned down by the re-application of the protective slurry.
- Dealing with the windows has been difficult. Although desirable, “piecing in” repairs to timber windows have rarely been possible due to their decayed state. We are currently addressing the problems of repairing or sourcing replacements for the metal windows, which were originally assumed to be cast iron. The earlier restorations of the functioning buildings used cast aluminium replicas which perform well. Subsequently, cast iron replicas were used on one building with less success. However, the grant-aided survey of the surviving originals has established that they are *not* cast iron, but early pressed steel fabrications by Crittalls, and are capable of repair by replacing the corroded sections.

However, using cast iron for the new sections may be the most cost-effective approach to repairs, and would be legible as a 21st Century intervention. Cost has to be a factor in the repairs when over 100 windows are involved.

- The later pebbledash applied to some of the buildings is failing. We have decided generally not to conserve it as the material accelerates the decay of the brickwork. Even so, careful treatment is needed, because forcibly removing it causes further damage. Gentle encouragement and experiment will be needed. The newly exposed brickwork will be re-slurried, although not with the Ironite additive, which is toxic and now illegal. Colour samples have recently been approved based on a grey tone, “as new”, rather than light brown “as weathered” with the Ironite. As we are not adding Ironite, our decision is arguably “honest”, but is it correct? Another colour could be used in for redecoration in the future if a different view is taken then.
- However, the exterior of one building (the Pilot’s Ready Room) is a splendid palimpsest of successive treatments, and we intend to preserve this as an historical narrative rather than lose it. Part of this building also retained some of its original paint finish until recently, when an impromptu decision was made without our involvement to repaint it for a royal visit. However, the military mind would have understood this, so perhaps the decision has some historical precedent.
- In repairing the Motor Transport Shed, we have identified that the corrugated iron covering is an agricultural replacement of the original sheet asbestos. But the iron will be replaced with iron, because the roof structure was also changed, and will not accommodate anything else. An

original photograph taken on the cessation of hostilities shows that the brickwork was once limewashed; should we replicate this, or was this only done for the event depicted?

- To help the buildings survive, rainwater goods will be fitted to those that never had them, although this will be signified by the use of steel goods of tradition section. Otherwise, cast iron will be used for those buildings that originally had that material. Does this distinction matter? We think so, as it will still identify the buildings that never had rainwater goods.
- As for the two recently collapsed buildings, they will be rebuilt using their bricks, slates, and repaired trusses which have been salvaged and stored. The exercise will obviously be partly repair and largely “restoration”, but is justified under conservation principles because the collapse was not the result of an historically significant event (such as bombing) and the work will be based on clear evidence. The buildings will also have greater value in their complete and usable form than as ruins.
- To deal with walls that have become curved in section and in danger of failure, we have decided that additional steel bracing is essential in the most minimal form we can devise. It will be located internally to preserve the external character. These additions are easily absorbed visually within large open interiors, but less so in smaller spaces where they will have to be read as a necessity of repair; as part of the story. In one case, we have decided to add the bracing externally for a room that is to be conserved “as found”, although the bracing will be concealed within a second skin of brickwork that also has to be added.

The survey of the metal windows shows the importance of understanding what one is dealing with. An obvious example was the need to identify the extent of asbestos in the buildings and, where its disturbance was necessary, have it moved by specialist contractors. In some buildings, where the material does not need to be disturbed, it has been left.

- Understanding how the structure of a building works is also important. In all historic buildings, age and alterations can cause their structural systems to function in ways that were not originally intended. The Motor Transport Shed at Stow Maries acquired a post-war addition that was removed early in the project without our knowledge, although we too might not have realised that it was buttressing the main building against the strong winds that occur on the site. The impending collapse of the wall necessitated the addition of internal wind and roof bracing at extra cost.
- In the same theme of understanding, we come to the most revelatory aspect of the project. Early on, the surviving paint fragments in the Officer’s Mess attracted our interest, especially as there were similar colours in another interior of the period (Coalhouse Fort, East Tilbury, Essex). We assumed that some, like the ultramarine blue, were later treatments associated with post-war use. Paint analysis at Stow Maries confirmed that *all* these were original. It seems that in some rooms, the Officers were being provided with, or perhaps even asking for, the kind of colour schemes that they were familiar with at home, and in other rooms, sober colours were *not* the order of the day, unless you were in the other ranks.
- In another building, we had originally assumed that similar colours dated from later inter-war occupation. These too proved to be original; in fact, it turned out that this building had served as

the temporary Officers' Mess while the other was being completed. We realised that our first assumptions were wrong and we were dealing with unaltered fabric. The type of structural intervention was changed to be less invasive, albeit at greater expense.

- The paint on external windows and joinery was also tested, revealing that the pastel green used in recent repairs, and shown in the artist's modern impression of the site "as built", was a faded version of the dark blue-green original, and that the Officers' Mess had rather a smart two-tone scheme, confirmed by a rare original photograph. This scheme is now being replicated, and the new rainwater goods will also be painted in the same blue-green, as testing shows that this was also the original colour. Black may be a standard for rainwater goods now, but was not so in the past.

In some cases, repairs were the best we could devise at the time. Historians will know that repairs have often been based on experiment, which is not always successful. There is no shame in this; it is part of the learning process. At Stow Maries, for example, the first detail to stabilise the roof trusses of the Royal Engineers' Workshop failed, and has informed a better solution (which is not the propping that you see in this view).

In planning repairs, both buildings and their inhabitants need care and thought. Those of the Generator Building will be particularly demanding; they are a family of Owls; and stars of two recent television series, no less. Repairs will have to be timed around their annual life cycle, and suitable alternative accommodation found for them. In fact, the entire site is a diverse wildlife habitat in its own right, which adds to its value and significance. Some wildlife activity has caused more immediate problems; as freshly applied linseed oil glazing putty has been welcomed as a delicacy by the resident bird population. We are experimenting with temporary protective mesh screens until the putty dries and can be painted, or by using a synthetic putty, provided that this does not poison the wildlife that we also need to preserve: Conservation is multi-faceted.

So the work at Stow Maries remains a challenge and there is much still to do. We are currently asking for a cost appraisal, a timescale of completing the repair programme, and a plan for wider partnership funding. Inevitably, the longer the timescale, the greater the cost will be. While completion of the repairs will be reached at some point, given the nature of the buildings, we have to accept that we or others will be asked to help again with some of them in the future.

For now, the site will remain on our Heritage at Risk Register until a number of things have happened:

- An acceptable scheme has been completed for any new buildings on the site.
- Sympathetic uses for existing buildings are established. How would a new use affect the interiors of the Officers' Mess, for example? Are they compatible with retaining the historical paintwork, and the Stewards' Pantries as we see them now, unchanged since desertion in 1919?
- And lastly, all the buildings are durably repaired – our temporary repairs of four years ago may have prevented them collapsing but already are being overtaken by new repair needs.

But in truth, a place like Stow Maries Aerodrome may always be a work in progress.

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