

## Swings and roundabouts

**Victorian Gallopers.** Travelling fairs have traditionally relied on a bright and distinctive decorative style to attract public attention. The motifs used by showmen on their rides have usually mirrored contemporary events and fashions - heroes of the Boer War, racing cars at Brooklands and Teddy Boy haircuts will all have had their turn on the fascias of roundabouts and, later, dodgem car tracks. But perhaps because of the nomadic nature of showmen's lives, few historians have been able to get to grips with aspects of fairground life which lie behind the brightly painted wagons. The Fairground Society has existed for many years as a meeting point for enthusiasts, and many showmen's steam traction engines have passed into preservation when replaced by motor tractors. Sadly many historic rides have been abandoned when extensive repairs become necessary and in recent years dealers have responded to the appetite among collectors for carved fairground animals by breaking up rides and selling off individual components to different buyers.

Yet the archaeology of fairgrounds deserves more serious study than this. The engineering embodied in rides was highly specialised, evolving to meet rigorous requirements of simplicity, reliability and portability. Although in recent years showmen have tended to respond to competition by increasing the thrill factor in their rides, the safety record of travelling fairs has generally been good. Dismantling and reassembly at each change of venue gave opportunities for regular checks on wear of components, and the accidents that did happen were usually in fixed fairs like London's Battersea or Copenhagen's

Tivoli where rides worked for long periods on the same site.

There have been various invitations to establish a museum of the travelling fair some of which foundered on the prejudice that the subject was somewhat frivolous or beneath serious study. One such scheme was developed in some detail about ten years ago by London architect David Braithwaite, author on the subject and historian of the Burton on Trent firm of Orton and Spooner whose artists supplied some of the finest decorated panels and figures. Sadly the passage of time has seen many more rides broken up or sold overseas. Earlier this year the Fairground Heritage Trust was formed to create a permanent national collection of historic roundabouts, amusements and transport. The Trust's first major acquisition is a remarkable Victorian galloping horse roundabout with its original Tidman centre engine, Verbeek organ and road train. The ride was built by Savage of Kings Lynn, with a set of finely carved horses by Arthur Anderson of

Bristol, who was Britain's most distinctive and most famous fairground carver. The packing truck was built on a sub-structure taken from a farm cart, and the 1917 FWD lorry imported into this country from the USA during World War I survives on its solid rubber tyres.

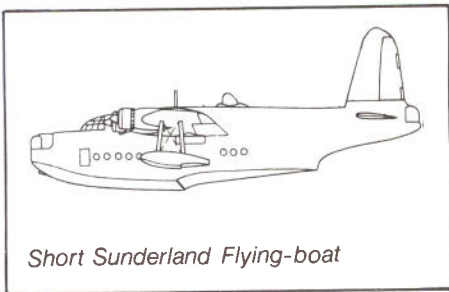
The ride was travelled by the Edwards family of showmen, and was looked after by Mrs Edwards while her sons and daughters managed other rides. When Mrs Edwards died some fifty years ago the ride was put into store in Swindon, and only recently have her heirs decided to part with it for restoration and preservation. The survival of such a roundabout without any alterations or serious deterioration since 1930s is remarkable. Recognising the determination of the Fairground Heritage Trust to preserve this ride permanently (it is not intended to operate it other than very occasionally, to minimise wear and damage) the National Heritage Memorial Fund has contributed generously towards its purchase and other major contributions have come from the Manifold Trust, the



Material World Charitable Foundation and the Science Museum Preservation Fund. The Edwards Gallopers are stored temporarily at the Science Museum outstation at Wroughton where restoration will begin shortly. Viewing will be possible on advertised Open Days during 1987. The ride and other items in the Trust's collection will be displayed in the proposed National Fairground Museum, for which a site is currently being sought.

John Robinson

As regular readers of the *AIA Bulletin* will know, the Southampton University IA Group have been interested for some considerable time in the fate of Short Sunderland/Sandringham flying boats in general and G-BJHS *Sir Arthur Gouge* in particular. *Bulletins* 10/1 (Autumn 1982) and 12/3 (Summer 1985) give earlier news, and the January 1987 edition of *Focus on IA*, the Southampton Group's newsletter continues the story ...



Short Sunderland Flying-boat

**Sunderland flies again ... well,** for about 50 minutes, anyway! On July 18th I was on board the escort boat on the lower reaches of the Medway for G-BJHSs test flight. It had taken an hour to taxi from its Chatham Dockyard mooring to Long Reach, where it took off in a westerly direction over the coal jetty at Kingsnorth Power Station. We anchored near the shore for a 2 to 3 hour wait while the flying boat was to fly around the south-east carrying out various tests to all its systems. Therefore, it was with some surprise that, with my teeth clamped round an apple, I saw this vaguely familiar shape in the distance less than an hour later.

"It's coming back", I informed the others, who didn't believe me for a while until the shape came closer and the Sunderland flew overhead with No.4 engine (Starboard outer) shut down. On the previous test flight in October 1985, No.1 engine had to be shut down after 25 minutes. Captain Ken Emmott made an excellent 3-engine landing and we went back to the dockyard, the faulty engine being fired up for the last mile to aid manoeuvring in the winding channel.

Knowing the cause of the port outer's failure, the engineer set to work on the engine and half an hour later had taken out the oil filter from the master rod bearing ... filled with shavings of white metal. With two engines suffering the same problem, doubts were expressed about the other two. A phone call to the USA revealed that the other engine was being stripped down, but the reason for the failure had not been found. Many suggestions were put forward, but even now the cause of the bearings' failures has not been discovered. The one spare had replaced No.1 engine and another was purchased to replace No.4 in August, but there were no further flights and the plane was beached and eventually returned to No.7 Covered Slip for the winter. Two further reconditioned engines have been acquired to replace Nos. 2 and 3 before the spring.

Whilst on a visit to the dockyard in early December I was able to talk to owner Edward Hulton about the Sunderland's future. The Australian airline QUANTAS has offered to sponsor it flying in their own country and want it to fly out there as soon as it is airworthy in the spring. Their representative is due to visit Chatham during January. As we have dubbed 1987 as "The Year of the Sunderland" - the first one flew in October 1937 - it would be preferable if it could stay in Britain at least this year to fly at air shows, but if the Australian offer is refused there still appears nowhere for it to go temporarily in this country. A final effort is being directed at Calshot, but the chances of returning there are virtually nil. Part of a building on the old Supermarine site at Woolston has been offered at an astronomical price, but this is thought to be unsuitable anyway. A deal with Chatham Council may be the only solution if they are still willing to help and Mr Hulton would agree to leave it there for at least five years. By the next newsletter we should know its fate - and if it has finally obtained its Certificate of Airworthiness.

Angela Smith

**First Funding Pledge received for Montgomery Canal Restoration.** Sir Leslie Young, Chairman of British Waterways Board, has welcomed the decision taken by Montgomeryshire District Council in November 1986 to back the restoration of the Montgomery Canal and to allocate £1 million over five years to the project.

Sir Leslie continued, "This lead taken by Montgomeryshire District Council is most encouraging. I am looking forward to hearing from other local authorities who are

involved with us and who have already expressed their support to this imaginative project. It would bring the equivalent of 360 new full time jobs and an extra income of about £7.7 million to the area each year".

Sir Leslie confirmed that the Board were on course to lodge the Private Bill in Parliament, which is necessary to provide the vehicle for restoration of the canal.

On leaving the M5 motorway just before Exeter at the Tiverton junction, one can very conveniently and rapidly make one's way to **Coldharbour Mill** at Uffculme, near Cullompton. The mill is sub-titled 'Working Wool Museum' and fully lives up to its description. Set on a corn and papermilling site going back to Domesday times, the present mill was bought in 1790 by Thomas Fox, a Quaker woollen manufacturer from Wellington in Somerset. The woollen mill was added two years later, and at the height of its prosperity, it employed 150 people directly and probably as many again



as "outworkers". By 1981 the labour force was down to 40, and it was decided to stop production and sell the mill. Local people established the Coldharbour Mill Trust and with help by way of mortgages from the Parish, District and County councils - and a contribution from the Development Commission and with active support of the Science Museum and other institutions - the buildings and machinery were purchased from Fox Brothers. Only 6 months later the first members of the public were admitted, and by the end of 1982 over 6,000 people had visited the mill. A visitor is able to follow each of the stages in the manufacturing process, from the raw wool to the finished product in the atmosphere of a Victorian factory. Many of the machines are working. The visitors tour commences with an audio-visual presentation, and the artifacts include an 18ft diameter breast shot waterwheel and a 300 horse power Pollit & Wigzell stationary steam engine fired by two Lancashire boilers - in use until 1981. The engine is believed to be the last drop valve horizontal cross compound of its type in existence.

The *AIA Bulletin* 13/3 (Summer 1986) carried a report by John Powell on the sad demise of the Jackfield 'free bridge', which has since been topped by a temporary structure to enable road traffic to continue across the River Severn. In an accompanying comment we expressed surprise that a Mouchel-Hennebique structure had suffered such a fate and wondered if perhaps, it had been consistently maltreated.

John has since sent us a copy of an article which appeared in *Concrete*, volume 7 number 12 (December 1973), written by Anthony Blackwell, Chief Bridge Engineer with the Shropshire County Council. It gives a brief chronological review of the life of the 'free bridge' up to date and confirms that constant flouting of weight and speed restrictions has continuously taken place. It also places on record the extremely responsible attitude of the County Council towards one of its more recent ancient monuments and we feel it is worthwhile reproducing in full.

**The Extensive** industrial development which covered both sides of the Severn Valley in the Ironbridge-Broseley-Madeley area of Shropshire was entirely dependent on the famous Iron Bridge for the all important river crossing.

When Councillor B Maddox, the Mayor, announced his intention in the early 1900s of raising funds to build a toll-free bridge over the River Severn at Jackfield, he was supported with enthusiasm by all sections of the community.

L G Mouchel and Partners prepared a design for a reinforced concrete open spandrel bridge comprising a centre span of 87ft with two side spans of 66ft. It appears from surviving drawings that the structure was originally designed as three open spandrel arches, but was amended to a central arch and two half-arches which merge into horizontal beams supported at their outer ends on the abutments. The two piers each consist of four precast piles capped well above normal waterlevel.

The bridge was designed to carry a UD live load of 140lb per sq.ft and a train of 5-ton axles. Work was carried out by the Liverpool Hennebique Company and the bridge was opened on 26 June, 1909.

By 1937 deterioration mainly in the form of exposure of the reinforcement was causing concern.

Live load tests with extensometers on the exposed steel then showed compressive stresses in excess of 15,000lb per sq.in in the steel near the springing of the main span ribs which was considered critical. It is interesting to

note that this assessment treated the whole structure as a continuous beam of varying section rather than a series of arches.

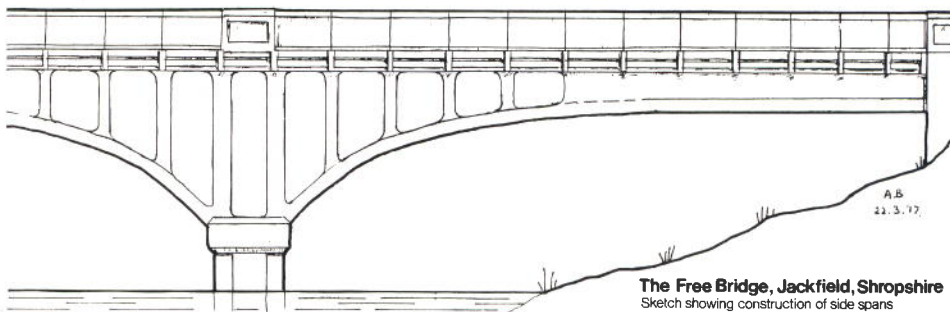
Ultimately, the gross vehicle limit was settled at 12 tons at 5 mph. At the same time the road became classified, and the bridge was taken over by the Salop County Council. A programme of remedial work was put in hand involving mainly the ribs and spandrel supports consisting of cleaning off spalled and crumbling concrete and flakes of rust from reinforcement. Where large areas of concrete were affected, new mesh reinforcement was hooked onto existing parts to act as anchorage for the new concrete.

The bridge gave good service, and no trouble was experienced during the war, but by 1961 further areas of steel were becoming exposed. The situation was, however, not as serious as in 1939.

The structure seems remarkably resilient in coping with loads which must result in stresses far in excess of those considered

ings, suggests that a number of oversize vehicles do manage to make their way across. The pilasters at the north end of the bridge take the brunt of these encounters and have been replaced with short lengths of precast block wall, which transmit no impact to the rest of the structure and are fairly easily rebuilt.

In 1969 a spandrel support developed a 45-degree crack, about midway between top and bottom, representing the classic shear of failure of a strut in compression. Taking the thrust on dead-shores each side, the column was opened up and it was found that a somewhat inadequate stirrup system, further weakened by corrosion had permitted the main reinforcement to bow outwards. The stirrups were renewed, providing adequate section, and the concrete made good, with Certite polyester resin-bonded concrete, requiring a minimum period of road closure. At the same time, a number of isolated cases of spalling were filled with Certite. All these repairs remain



The Free Bridge, Jackfield, Shropshire  
Sketch showing construction of side spans

critical by Mouchel and Partners and the Ministry of Transport in their assessment of 1938. Nevertheless, in a busy industrial district occasional over-loading must be a source of worry to the maintenance engineer. The general impression of slenderness is perhaps the secret of the inherent flexibility which must result in a distribution and dissipation of stress.

Following revision in the 1960s, of the Motor Vehicles (Construction and Use) Regulations pressure was brought to bear on the Salop County Council to revise the weight restriction to 14 tons. After a very close look at figures and influence lines this was turned down. Overloading and subsequent prosecutions continue.

As the bridge connects roads running along each bank the approach at each end consists of a right-angled turn. Demands to improve these conditions cannot be met beyond a certain point as the restriction constitutes a fairly positive deterrent to attempts by the larger articulated lorries to make the crossing. A fairly steady run of work for the welder, straightening and repairing the wrought iron, vertical infill and parapet rail-

in sound condition.

At five-yearly intervals the river bed, round the piles forming the piers, is inspected by a diver and, when necessary, any scour depression which may have formed is filled with rocks. Tree trunks and other debris, washed down at flood time, have to be removed quickly from the piers to avoid undue lateral pressure. The addition of dolphins, however has never been seriously considered.

Particular attention is paid to the maintenance of a smooth running surface on the bridge deck, as constant flouting of the 5 mph speed limit makes the impact element of the live loading one of considerable relevance.

There is naturally constant pressure for the bridge to be widened and strengthened or replaced. The structure hardly lends itself to modification, leaving replacement as the only solution. The problem would then become one of siting the new structure in a gorge which comprises a complex geological situation with earth movement evident everywhere, the site of the bridge being the only apparent stable spot.

It is to be hoped, however,

that this historically-important reinforced concrete structure may be preserved, as in the case of its older neighbour, Iron Bridge, when the plans for a new bridge finally come to fruition.

I am indebted to Mr R J Mare, MC, BSc, FICE, FIMunE, County Surveyor of the County of Salop for permission to produce this article.

Chatting to colleagues it really is surprising to find how many people relate industrial archaeology to those districts which have...or used to have... heavy metallurgical, chemical or ship-building industries. It is interesting to comment that anyone wearing a traditional lever movement wrist-watch, particularly one which needs winding every day, is carrying industrial archaeology around with them, and this remark is not usually challenged, just received in a thoughtful manner. But the inference is still there that IA and visible factory remains are invariably connected with kinds of places pictured in such TV programmes as 'Where we used to work'.

In this context it is interesting to receive a copy of the **Suffolk Industrial Archaeology Society Newsletter** and read the following piece.

**Suffolk does not really have an industry** - you have to go to the Black Country for industrial archaeology. How often has that been said by people who have not really stopped to think about the matter.

Members who were taken on a tour of Glemsford by local historian Richard Deeks on a Sunday morning in October will have realised that there was in fact a good deal of industry in that village, which became a silk manufacturing centre when the silk manufacturers sought to cut their costs by moving out into the rural areas from the traditional silk-weaving centre at Spitalfields, in the 18th Century a hamlet near London. It lies just to the east of Liverpool Street station and still contains some of the houses occupied by the Huguenot silk weavers.

As Richard Deeks explained, the parish authorities sought to solve a local unemployment problem in the 1820s by building a small factory and inviting manufacturers to move to Glemsford to occupy it. Most people would consider the provision of light industrial units by local authorities to be a 20th Century phenomenon, but obviously some people had the idea long ago.

Perhaps it was the presence of the silk manufacturers that persuaded a local firm in Glemsford to adopt the production of machinery for the textile industry and thus to add to the industrialisation of

this once thriving village, which in the 19th Century was by no means the typical East Anglian agricultural settlement.

It is not difficult to think of other places in Suffolk which, though they might have started out as no more than farming villages or market towns, became in the 19th Century industrial towns more typical of other areas than of East Anglia. Leiston was an unremarkable and tiny village when in 1779 Richard Garrett began the production of edge tools there, but in the course of the following century it grew up into a small town surrounding the Richard Garrett engineering works, an enterprise which grew to employ more than 100 people and in its heyday made Leiston a prosperous community.

Its prosperity seems to be largely in the past and Leiston is now an unemployment black spot, but Garrett's Town Works, or a small part of it, has a bright future as an industrial museum which will almost certainly bring a stream of visitors to the town in years to come.

Another industrial town in the heart of Suffolk's farmlands is Stowmarket, which was once a thriving centre of the malting trade and with a brewery which exported India pale ale across the seas. The rise of the fertiliser industry brought further employment in the 19th Century and that led quite naturally to the setting up of the guncotton works which suffered such a disastrous explosion in 1876 - the current ICI cellulose paints plant is a descendant of the same industry.

It is by no means inappropriate that the Museum of East Anglian Life at Stowmarket should be turning its attention to the region's industrial past as well as endeavouring to tell the story of rural life as people generally imagine it.

**Old Ordnance Survey Maps, Alan Godfrey, Gateshead.** A Series of over a hundred titles, many of North of England towns which comprise the sheet itself on a scale approximately 15ins to the mile, a background note and extracts from the directories for certain streets. Two recent examples are those for *Salford Docks* (1905) and *Old Trafford* (1905). The former will be of particular interest because of the proposed closure of the upper end of the Ship Canal and the Salford Quays Development Scheme which is transforming the dock area into a Leisure and Recreation complex. As Chris Makepeace who contributes the historical notes has explained, the rise of the port began at the turn of the century with the formation of Manchester liners, the Ordsall and Weaste areas experienced mushroom growth and all this encouraged the De Traffords to sell their land for Industrial Development. The design of the docks and associated facilities is discussed but it is a pity not more is said about the dock buildings which apart from the steel and concrete storage warehouses in No.9 have largely been destroyed.

The Old Trafford map/folder is of less interest to the Industrial Archaeologist since only part of the Trafford Park Industrial Estate is shown and many of the factories are not identified. What the map does show is urban development in Trafford and Stretford and the considerable number of open spaces that survived at that date including the Royal Botanical Gardens (replaced by White City - itself now closed) and several cricket grounds in addition to Old Trafford (Lancs CCC), one of which became MUFC and another the grounds of the new Stretford Town Hall.

A D George

