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Thomas Telford (see page 11)

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### Membership

We are very pleased to welcome as corporate members:

Severn Probus Club of Shrewsbury; and McPhillips (Wellington) Ltd of Telford and as individual and family members:

Terry & Ira Davies of Telford; Martyn Parker & Family of Dudley; Alan & Kathy Clarke-Ceilidh of Newport; Kenneth Brown of London; David & Joan Yates of Blaenau Ffestiniog, Gwynedd; Mr G Woolrich of Lichfield, Staffs; John & Samantha Myers of Stafford; Pauline & David Berridge of Newport; Alan & Anne Chetwyn of Stoke-on-Trent; Andrew & Carol Pillow & Family of Upton Magna, Shrewsbury; Barry Bennion of Upton Magna, Shrewsbury; Mr D R Webb of Telford; Michael & Geraldine Jocelyn of Market Drayton; Mr G R Ingram of Peterborough, Hants; Douglas & Sylvia Topping of Market Drayton; Graham Sockett & Julia Eaton of Broseley; Paul & Brenda White of Stalybridge, Cheshire; Geoff, Linda & Michael Black of Shrewsbury; Judith Burton of Newport; Ian & Peggy Chilcott & Family of Forton, Newport; Chris & Karen Jones & Family of Shawbury, Shrewsbury; Colin & Ann Dewhurst of Madeley, Shropshire; Philip & Patricia Fairclough of Shawbirch, Telford; Dennis & Maureen Oates of Newport; Steve Holsgrove of Stafford; and Roger & Elizabeth Connors of Hereford.

Dates for Your Diary

Sunday 12<sup>th</sup> September 2004 – 10.30a.m. Canal Walk from Shrewsbury (see page 5)

Thursday 16<sup>th</sup> September 2004 - 7.30p.m. Trustee's meeting\*, Guildhall, Newport

**Thursday 18<sup>th</sup> November 2004** – 7.30p.m. Trustee's meeting, Shrewsbury (venue to be confirmed)

\*Trustee's meetings are open to members - it is suggested you confirm with a Trustee before travelling in case of a change.

#### After the Jubilee .....

All the hard work put in by Tam Hazan to ensure that we were able to maximise the loan period of 'Jubilee' paid off, and with the support of Trust members having the boat up on the Shroppie, at Norbury Junction, proved to be a really useful exercise, one to be repeated next year I hope.

One of the nice things about events like this is the fact that as Trustees we are able to get to meet members and supporters of the Trust that we may not happen to come into contact with otherwise during the year. One of the most telling things that I heard from talking to members was the fact that nearly everyone was asking how they could help with the Trust on a regular basis, other than just paying their subscriptions. This is something that maybe we have overlooked in the past; usually a project like ours would have regular working parties and rallies to attend. Certainly in the early days of the Montgomery all my social life centred on spending weekends up to my eyes in mud, and other things, and then down the pub in the evenings. It brought like minded people together, and kept us going when everyone was telling us it couldn't happen.

The fact remains that we all need to be more involved in a practical way, and of course as things progress we will be having working parties and more social evenings. However we do need to open up more of a dialogue with all our supporters, and give everyone the opportunity not only do things, but importantly to *feel* involved. Over the next few weeks we hope to be able launch a *skills audit*, a sort of 'tell us what you can do, where your experience lies, and what time do you have' exercise, in order that we can truly involve everyone. At this moment in time, Dennis is continuing with the surveying, there is the possibility of a working party in the very near future, we are hoping to set up some interpretation in Shrewsbury Castlefields; just three areas where we need practical help. Without the newsletter or attending Trust Board meetings it may be quite difficult to feel 'in the know', so hopefully this will address this issue. Watch this space!

Chris Chambers

#### News in Brief

Trustee meetings have always been held in Newport, but in future it has been decided that they will rotate between Newport, Shrewsbury and Wellington which will provide more members with the opportunity to attend.

On Sunday 27 June the Trust hosted a meeting of the Northern Canals Association in Newport. Around 25 representatives of canals from as far as Lincolnshire, Yorkshire and Lancashire met to hear talks by a number of Trustees

on our restoration and to visit Wappenshall Junction, where B J Waters Transport kindly arranged for the two warehouses to be opened up, and Newport lock, roving bridge and warehouse.

The Trust will have a stand at the IWA National Waterways Festival & Inland Boat Show to be held at Shobnall Fields, Burton-on-Trent from Saturday  $28^{th}$  -Bank Holiday Monday  $30^{th}$  August. Please call in and say hello if you are attending.

Full details of the festival are available at www.waterways.org.uk/festivals.

## Feasibility Study

Copies of the full Feasibility Study carried out by W S Atkins have now been obtained and a limited number are available to members who would like one. Extending to over 170 pages, copies are available at a price of £10.00 + £2.00 postage and packing. If you would like a copy, please send a cheque for £12 (payable to Shrewsbury & Newport Canals Trust) to 4 Arscott, Pontesbury, Shrewsbury, SY5 0XP. First come, first served!

# A Walk Along The Shrewsbury & Newport Canal

In association with Shrewsbury's "Heritage Month" A guided walk is being organised along the Shrewsbury-Uffington length of the canal on Sunday 12 September.

It will follow the line of the canal through historic parts of the town centre with unique heritage features such as the world renowned Ditherington Flax Mill (see article elsewhere) and quickly out into rural Shropshire following parallel to the river Severn and through to the charming village of Uffington.

Walkers are asked to meet in front of the Railway Station in Shrewsbury at 10.30 a.m. Most of the walk to Uffington is very level and well surfaced. Walkers are invited to bring a picnic lunch and climb up to the top of Haughmond Hill to enjoy the delightful views over the canal line and beyond. An alternative is to have a riverside pub lunch in Uffington itself. After lunch you can take the return walk back to town or utilise the free transport which will take you back to the start point. Further details from Brian Nelson on 01743 761447.

# Developments at the Ditherington Flax Mill, Shrewsbury

The building of the Shrewsbury & Newport Canals prompted the development of many commercial ventures intended to exploit the advantages of new transport opportunities. Thus it was that the Flax Mill came into being in Ditherington as one of the most advanced factory developments of its time back in 1796, utilising the canal to bring in the thousands of tons of coal which fired its steam engines and for transporting its other raw materials and finished goods. The building is designated a Grade 1 listed structure, not just because of the elegance of many of its features but significantly as the first iron-framed multi-story building, which makes it the prototype for skyscraper buildings the world over.

After around a hundred successful years operating as a flax mill it was converted for use as a maltings and remained in this role for close to another hundred years before its closure in 1987. Since that time there has been much discussion about potential uses and ways of conserving its most significant structures and developing the whole site for use in the future. Various initiatives have been proposed but our Trust members in the Shrewsbury area will have read of their failure with some dismay and also heard of the increasing decay and vandalism which is putting the buildings at increasing risk of irretrievable loss.

As a result of this a study was recently commissioned by English Heritage in partnership with Shrewsbury & Atcham Borough Council and Advantage West Midlands. The first phase of this researched the history of the buildings and carried out an assessment of the site and its buildings. It then produced a conservation statement, appraised the property market and did an assessment of the funding opportunities. The project then moved into a second phase of option appraisal, looking at the choices for the future of the whole site including design options, alternative cost profiles, a feasibility study and the identification of next steps.

The partnership is now in the process of consulting with the public and other interested parties, including the S&N Canal Trust, in order to seek the most appropriate way forward. As a part of this process two of our Trustees went to a meeting in May to hear of a "Masterplan Vision" arising from the Study which seeks to provide:

- "A mix of uses on the site, including retail, interpretation, employment and some residential development,
- Improved public access and interpretation of the site and buildings,
- A new public garden, including interpretation of the former canal,
- An attractive opportunity for public and private investment."

The Trust felt that many local members who would know the site and had perhaps been following this debate in the local press might wish to express a view on this matter and hence all Trust members were sent details of the proposals and invited to pass on their comments. A number have done so and have put forward some very salient points regarding the benefits of combining the work of restoring both canal and Flax Mill in a co-ordinated venture. These efforts by members are much appreciated and highlights the importance of the part that members can play in supporting our restoration work even before the first turf is cut.



Following consultation amongst Trustees an official response was submitted, which also highlighted the benefits of a mutual approach to both restoration projects drawing attention to the following points:

- The whole history of the canal and Flax Mill are inextricably linked
- Each project will attract funding which could be mutually supportive
- The Flax Mill scheme already includes provision of public space this would be so much more significant if it featured a living canal presence
- Including a canal opens up many potential uses of the Flax Mill buildings in association with the canal's presence
- As demonstrated in many parts of the country the presence of the canal will significantly increase the value of the Flax Mill site and surrounding area and hence be more attractive to investors
- The proximity of the canal will extend the opportunity for visitors to the site to walk or take a boat trip as a part of their visit to the Flax Mill
- The canal will provide a significant link between the Flax Mill and other historic buildings within the Town's conservation area

- The canal offers to make the site more inclusive through its links through the suburban housing estates heading out of town and into Shrewsbury's urban areas.
- The canal also provides links from the Flax Mill out to the Town's rural hinterland
- The canal line passes close to significant brown-field areas across the road from the Flax Mill which are on the verge of redevelopment. A project which embraces, and perhaps extends, the presence of the canal could result in a more imaginative and harmonious overall regeneration of a wide section of this locality which could prove far more beneficial to each project than if they were carried out in isolation

The Trust will continue in its dialogue with the Flax Mill partnership and will report on developments as matters progress.

# Engineering Solutions - A442 & Bratton Lane Crossings

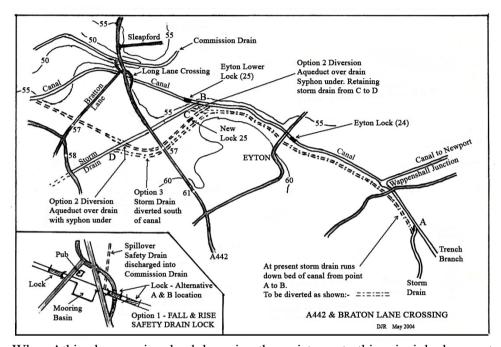
Those of you who are familiar with the area around Long Lane will know that the surrounding terrain, unlike that at the A41 crossing, is very flat and a similar solution to the A442 crossing is more difficult to find. At the location of the original crossing of the A442 the present road level is only 1.4 meters above the canal water level requiring the road to be ramped up by 1.85 metres in order to gain clearance under. Because of the near by incoming roads and the flat straight nature of the A442 at this location it was considered that ramping would introduce a potential safety hazard and was dismissed as a solution.

Studying the contours on the map revealed that the road level gradually rises towards the south. A levels survey was undertaken along the road which revealed that clearance could be achieved at a location 750 meters south of the original crossing. Unfortunately the Hurley Brook Storm Drain forms a barrier, crossing at a location some 200 meters north of this location. To divert the canal to run parallel on the north side of the drain would need the road to be ramped up 1.6 meters for clearance under at this location. This was also dismissed on safety grounds. To take advantage of the higher ground meant crossing the drain in two places with aqueducts over. With this in mind the level of the water in the drain, under normal flow conditions, was established relative to the canal water level, the results of which revealed that the drain water is only 950mm below the canal water. The implication of this is that the normal flow level of the drain would be 750mm above the underside of the aqueduct and during flash flood conditions, when the drain has been observed to rise very quickly approaching up to 1.5 meters, the water would be over the top of the aqueduct and the back pounding

effect would result in flooding of the surrounding fields.

Faced with these problems the only practical solution appeared to be to lower the level of the canal water to obtain the necessary clearance under the road, but as there are no locks beyond this point, as is the case at the A41 crossing, this appeared to be a none starter. It was realised that in order to achieve this it would be necessary to lower the water level to get under the road and then raise it back up again to its original level after passing under. The problem was how to achieve this with safety of operation in mind. After much thought the concept of the Semiautomatic Fall & Rise Lock was established and a design and model was duly completed to demonstrate the principal. It was realised that the length of the lower level channel was not critical and due to the close proximity of the Bratton Lane it could be extended to also give access under that road as well. Filled with euphoria that a feasible solution had been found, hopes were somewhat dashed when those in the know pointed out (unbeknown to me and apparently the only one in existence) that a similar lock referred to as a Drop Lock built on the Forth & Clyde Canal at Dumbarton had run into lots of trouble on safety grounds and the principal should be avoided like the plague. The main problem being that if an out of control boat rams and damages the gates when a boat is under the bridge it could be trapped and flooded as water rushes into the lower channel, the result being that the lock is only allowed to be operated by a trained lock attendant and boats are not allowed to approach the lock until given the all clear by the attendant.

Although it was considered that our design was safe enough to be user operated, it was felt that this problem should be addressed and the Safety Drain Fall & Rise Lock design was conceived. The basic problem with this design however is that it can only function if the terrain is such that there is a suitable water course near by, which allows sufficient fall from the water level of the lower chamber of the lock. to the water level of the water course. Fortunately levels taken at the near by Commission Drain at Sleapford proved that this is possible. The first thoughts with this design was to have a dedicated side chamber into which the water dropped from the locks is spilled into and from there it is pumped back into the down side pound of the canal. Within this chamber another spill over sill, set at a slightly higher level, drains water off into the safety drain in the event of pump failure, thus preventing the lower chamber of the lock from flooding dangerously. The water drained off in this way would be lost from the canal which is a disadvantage if quick action is not taken by the maintenance department, who would have automatic warning of pump failure from monitoring equipment included in the design. It was realised that this design was more flexible and that the dedicated side chamber was not really necessary, if the distance between the two locks was long enough to have little effect on the water level in the lower pound, between the two locks, when a lock was dropped. Also in these circumstances the locks can be to a conventional standard design and user operated. The length between the A442 and Bratton Lane, including a mooring basin in between, would give both the facility for visits to the adjacent pub and the required capacity, one lock drop only raising the level by approximately one inch, (Option 1 on the map).



When Atkins became involved, knowing the resistance to this principle, born out of the criticism of the Dumbarton lock they were keen to promote the diversionary route in favour of following the original route through Long Lane. When the problem of comparative water levels was pointed out it was suggested that a siphon drains under the aqueducts would suffice (Option 2 on map). Our view was that this would introduce a maintenance problem for the future as this type of drain is notorious for blockage and silting up. Also for it to work effectively and draw water through at a greater rate than normal flow, it requires a pressure head of water, i.e. a higher level on the incoming side than the outgoing side. During flash flooding a difference in head would be created but by this time the water would more than likely have flooded over into the adjacent fields unless a balancing reservoir was also provided. As Atkins were reticent to move away from this as an alternative we suggested that the only answer was to divert both the canal and the drain to the higher ground to the south, (Option 3 on the map). Although this is a feasible alternative it does have the disadvantage of being set down in a two meter cutting for most of its length and will loose the historic advantages of the original route, i.e. the canal side tavern and the unusual wharf, the narrow entrance to which the towpath passed over via a metal swing bridge, all situated at Long Lane. In addition the historic Eyton Lower Lock would become redundant. In addition the whole scheme is reliant upon the Environment Agency giving permission to divert this portion of the drain B to D on the map. The fact that the drain from A to B runs down the original route and needs to be separated is a different issue and the Environment Agency is less likely to be resistant to this because of the historic inference. All in all my preference is for Option 1 as it will have more tourist interest and will bring economic benefits to Long Lane and Sleapford which will be denied by taking the diversionary route across open fields.

Two positions of the west lock are shown on the map. The one positioned near to the A442 would involve demolishing the original bridge which still survives there and blocking the southern access to the cottages located in the area north of the canal. The second location of the lock will retain both, but as the water level will be a lot lower, special arrangements will have to be made to secure the stability of the bridge foundations. The latter of these two options will be the more expensive but on balance I think it is the more desirable.

Dennis.J. Rogers

Thomas Telford, Engineer of the Shrewsbury & Newport Canals

Thomas Telford was born in August 1757, the son of a shepherd in the Lowlands of Scotland. Three months later his father died at the age of just 33 and it was left to Thomas' mother to raise him in a single cottage room. Thomas was however able to attend school through the generosity of his uncle who paid the fees.

On leaving school Telford was apprenticed to a master stonemason, Andrew Thomson of Langholm, and subsequently became journeyman assistant to Thomson. Together they did much work for the Duke of Buccleuch involving buildings, roads and bridges.

In January 1782 Telford left the Lowlands for London to seek his fortune. Falling on his feet he soon found employment as a mason with a great architect of the day, Sir William Chambers, working on Somerset House. From 1783, through various contacts, other works were obtained including at Portsmouth Dockyard, Penrhyn Castle and Hurstmonceux Place in Sussex.

In 1786 Telford's work brought him to Shrewsbury to superintend renovation of Shrewsbury Castle as a home for William Pulteney, the town's M.P.; but other work soon arose including construction of a new infirmary and county gaol. He also carried out extensive excavations of the Roman remains at Wroxeter and built churches, including a replacement St Chads in Shrewsbury, and bridges. In

September 1793 his first association with canals arose as 'general agent, engineer and architect' to the Ellesmere Canal Company, whose canal was planned to connect the rivers Mersey & Dee with the Severn at Shrewsbury.

Three months prior to Telford's employment by the Ellesmere Canal Company, the Shrewsbury Canal had been authorised to extend the tub-boat canals of the Wrekin district to the county town. This canal was to be engineered by William Reynolds and Josiah Clowes. However, Clowes was to die long before the project was complete and in early 1795 Telford was appointed in his stead. He was soon to make his mark. Clowes had planned, and was constructing, a masonry aqueduct to cross the River Tern at Longdon but before it was complete a flood destroyed much of the work. Telford reconstructed it using a cast-iron trough between Clowes' original stone abutments. This was not only a solution to the crossing but very likely a trial for the far larger iron aqueduct at Pontcysyllte on the Ellesmere Canal for which Telford had produced plans in 1794. Although the Shrewsbury Canal opened in 1797 it was not until 1805 that the Ellesmere Canal, using a revised route since the Shrewsbury Canal had taken away its need to reach Shrewsbury, was opened.

In 1801 Telford's talents took him back to Scotland when he started surveying the line for the Caledonian Canal. Although building and construction work started in 1804, it took no less than 18 years to complete, finally opening in 1822. His spreading fame also took him to Sweden in 1808 to survey the Gotha Canal.

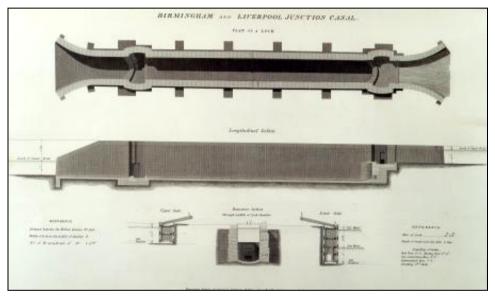
It was in 1820 that Telford was asked to propose ways of improving the Birmingham canals. He was reportedly shocked by "the appalling state of the waterways", and he was also clearly unimpressed by Birmingham itself, saying it is "...famous for buttons, buckles and locks and ignorance and barbarism. Its prosperity increases upon the corruption of taste and morals." By 1822 he was working on the second Harecastle Tunnel, as a relief to Brindley's original, on the Trent & Mersey Canal.

The modifications on the BCN took until 1827 to complete and by this time Telford was involved with the building of the Birmingham and Liverpool Junction Canal, including its Newport branch to connect with the Shrewsbury Canal. It was to be his last major work. The canal used a similar method to that he had used to shorten the canals in Birmingham, the route being almost straight, utilising cuttings and embankments to overcome the undulations of hills and valleys. Locks were installed only at permanent rise and fall points in ground levels. This included his longest ever flight of locks, the Norbury Flight on the Newport Branch.

Although this article has concentrated on Telford's canal projects, his work included many other schemes on which he was called on to advise and engineer. These included notable roads and bridges, such as the road from London to

Holyhead and others through the Scottish highlands and the Menai and Conwy suspension bridges in North Wales. In addition, the economic slump after the Napoleonic wars led the Government to offer cheap loans to encourage public works and Telford became the engineering advisor to the Exchequer Loans Commission in 1817. This entailed touring the country surveying and inspecting the proposed sites and plans for those projects seeking a loan. It meant that for a time he saw nearly every civil engineering project in the country.

Telford died in London on 2nd September 1834 at the age of 77. This was a year before the final opening of what is regarded by many as one of his finest achievements.



Telford's Design for Locks on the Birmingham & Liverpool Junction Canal

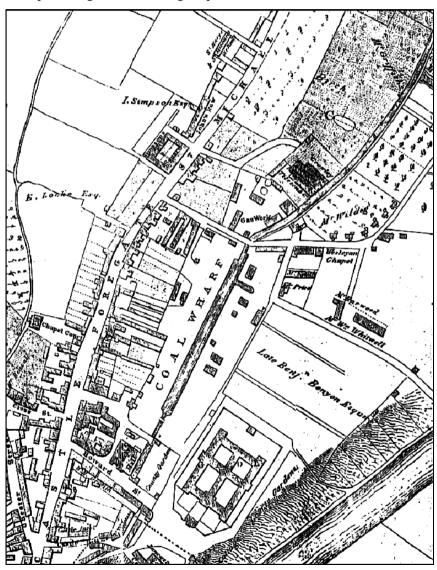
Telford was buried in Westminster Abbey, as a mark of his unrivalled reputation. When Thomas Telford entered the stonemason's trade, there was no such thing as a civil engineering profession. By the time he died it was well-established, and from 1820 he was the first president of the fledgling Institution of Civil Engineers. Those that followed clearly respected the mark he had made for twenty-five years after Telford's death Robert Stephenson's wish that his body should be laid to rest near that of Telford was carried out.

For more detail about Telford's work and life I would recommend *Thomas Telford* by L.T.C. Rolt.

Steve Bean

### Shrewsbury Wharves

The map below dates from shortly after the opening of the Newport Branch Canal when the Shrewsbury Canal was at last connected to the national canal network. At this time the Buttermarket (in Howard St) was built and the Shrewsbury Canal extended up to it. The railway (which would today dominate the bottom left hand corner of this area) had still to reach Shrewsbury. The area of these terminal wharves is now the railway station car park and Morris' Oils. Thanks to Alan Baker for providing this interesting map.



# SHREWSBURY & NEWPORT CANALS TRUST

IVICIII	bership Application	
The annual membership fees are:	Individual Membership Family Membership*	£8.50 £10.00
(please circle category)	Life Membership Youth Membership (under 18) Group / Corporate Membership	£100.00 £3.50 £20.00
Supplement on all annual rates: for EU £2, for a *Family membership is for people living at the sent per family membership. Only the person i	rest of the world: £4. e same address: only one copy of newsletters	and other material is
I/We wish to join the membership of indicated above. I/We also wish to m enclose a payment of £ (che Canals Trust").	ake an additional donation of £	I/We
I/We hereby agree, if elected, to be bo Articles of Association of the Trust (c		emorandum and
I/We further agree to my/our member the Trust's organisational purposes.	ship details being recorded on com	puter, solely for
Signed:	Date:	
Gift Aid Declaration – please sign if I want all donations (includes member declaration to be treated as Gift Aid E capital gains tax equal to the tax recla cease to pay tax.	rship subscriptions) I make from the conations (you must pay an amount	of income tax or
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<u>Forename</u>	<u>Surname</u> <u>Do</u>	B (if under 18)
Applicant:		
Others: (family membership)		
Address:		
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The Shrewsbury & Newport Canals T		

### Wappenshall

One of the boats preserved at the Boat Museum, Ellesmere Port is the ice-breaker *Wappenshall*. Named after the junction of the Shrewsbury and the Newport Branch canals, she operated on these canals to keep the waterway open in severe winter weather.

Built of iron *Wappenshall* is 35ft 6in (10.8m) long with a breadth of 6ft 1in (1.87m) and a draught of just 11in (0.37m). She would have been towed by up to 10 horses and rocked by a number of men holding a horizontal bar (the mounting for one of the vertical supports can be seen in the photograph below) in order to break the ice.

If you are thinking of visiting the Boat Museum, the Trust still has a limited number of tickets entitling the holder to a 25% discount on admission. This also covers The Canal Museum, Stoke Bruerne near Towcester and The National Waterways Museum at Gloucester. If you would like one please contact Steve Bean (details inside front cover).

