



Gloucestershire Society for Industrial Archaeology

Cotswold Canals Restoration

Phase 1b. Saul Junction to The Ocean, Stonehouse

Project S18

GSIA Journal Articles Relating to the Stroudwater Canal

April 2007 Issue 1

A number of articles have been published in recent years in the GSIA Annual Journal which relate to the Stroudwater Canal. Copies of these articles are provided here and electronic versions are available on the GSIA website. The Articles are:-

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Coal Pen At Ryeford Stonehouse, Gloucestershire, by Joan Tucker, [2001] pp.30-33

Coal And Steam - The Arrival of Steam Power in Stroud's Woollen Mills, by Stephen Mills,
[2004] pp.42-52

Restoration of The Cotswold Canals, by Theo Stening, [2001] pp.22-29

The Cotswold Canals Restoration: An Update in July 2003, by Theo Stening, [2002]
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The Restoration of the Cotswold Canals: August 2004 Update, by Theo Stening, [2003]
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STROUDWATER CANAL CRANES (PART ONE)

Ray Wilson

Introduction

The crane at Dudbridge Wharf is the sole remaining Stroudwater crane still in position (Figure 1 S083470481). Such cranes were essential for loading or unloading heavy and bulky cargoes like stone and engineering equipment. The Dudbridge crane lies just 200 metres to the west of the busy dual carriageway between Cainscross and Dudbridge and the top of the jib is in fact visible from that road. However, it is apparent that today its existence is largely unknown by local people. The crane has a cast iron base and frame about two and a half metres high and a wooden jib of about seven metres in length. The two castings that make up the sides of the frame are marked JOHN STEVENSON CANAL FOUNDRY PRESTON. It is known from records of the company of Proprietors of the Stroudwater Canal that in 1854 Stevenson was the supplier of a crane erected at Dudbridge Wharf.(1) The description of this crane closely resembles that of the present one. Since no reference has been found to any later crane at Dudbridge or to any other crane supplied by Stevenson it can be safely assumed that this refers to the present one. It was not the first crane to be installed at Dudbridge and the Canal company had problems with its predecessors. In all there seem to have been at least four cranes at Dudbridge at different periods and at least three at Wallbridge. This includes one crane that was erected at both locations at different times.

A brief history of the cranes is given here. It is based mainly on the Company's records. A detailed description of the surviving structure at Dudbridge will be given in the 1995 Journal.

The Cranes

The First Two Wallbridge Cranes (1780 - 1848)

The Stroudwater Canal was constructed between 1775 and 1779 from Framilode on the River Severn to Wallbridge Stroud, a distance of 12 miles.(2) It appears that initially a crane for handling cargoes was installed at Wallbridge but not Dudbridge. In April 1780 the company set the rates for using the crane at Wallbridge at 3d (1.2p) for every wagon and 2d (0.8p) for every cart loaded or unloaded. They also appointed John Kind to collect the charges.(3) Together these two items suggest that the crane was just coming into operation.

In November 1781 it was noted that Ben Pashley had valued the timberwork of "the old crane" at £3 and it was agreed that it

was not to be sold for under 10 guineas (£10.50) including the wheel and if it was not sold it was to be brought up to Wallbridge and preserved.(3) This crane may have been used in the construction of the canal but no other reference to it has been found so far. The following year, in August 1782, it was ordered that the Wallbridge crane "be altered and made capable of lifting greater weights with safety". (3) In May 1784 charges were set at 3d (1.2p) per ton for all weights under 2 tons and 6d (2.5p) per ton for any greater weight. (4)

The Company noted in April 1836 that the crane at Wallbridge wharf was "insufficient" and Mr John Holbrow, one of the members of the Committee undertook to make inquiries at Gloucester as to the price of a crane "competent to raise about 5 Tons".(5) Mr Holbrow reported in May 1836 that Mr Southam of Gloucester had a crane to dispose of that was capable of raising 7 tons at a price of £100. At the same meeting Mr Holbrow was instructed to purchase the crane. (5)

The First Two Dudbridge Cranes (1823 - 1846)

In April 1823, some 44 years after the opening of the canal, the company agreed to "procure estimates for a crane at Dudbridge Wharf and cause one to be set up there". At the same time they specified that the charges for using it would be as in the previous section.(6) No reference has been found to the erection of the crane but in August 1837 the crane at Dudbridge is described as being out of repair and an inspection by a competent engineer ordered. The committee wished to know whether the crane at Dudbridge could be repaired, or adapted to raise at least 5 tons or whether it was "most desirable to have a new one, and also the price for a new one or second hand iron crane can be procured".(5) By December that year the Committee had received an estimate from Joseph Small for supplying and setting up a new crane at Dudbridge. (5) This was described as being of the plan and strength of that of Messrs Price and Co. The price was £125 using the cog wheels of the present crane and was later increased to £130 to include the masonry work.(5)

It is clear that Joseph Small was intending getting the castings for the crane from the firm of Isaac Marshall and Co. of Birmingham as they applied to the canal company to guarantee Small's order. (5) Small appeared at the next meeting of the committee where it was agreed to guarantee Small's order with Marshall's and Charles Hawker the Clerk to the Canal company was instructed to write to Marshall's to enquire the probable price of the castings. Hawker reported to the next meeting that it would be more desirable for Messrs Marshall to put up the whole crane. Joseph Small also attended and quite remarkably he agreed to be released from the contract he had with the company but wished to be employed to put up the crane.(5) An enquiry was placed with Messrs Marshall for the complete crane delivered to Dudbridge ready to be put up. The

timber work was to be of the best seasoned oak and Marshall's were in possession of models of the intended frame. A special meeting of the Committee was convened to consider Messrs Marshall's reply and they accepted a price of £155, some £25 more than their original contract with Joseph Small! (5) A payment of £4. 2s. (£4.10) was subsequently made to Small for expenses arising from a visit to Birmingham. (5)

The Later Cranes at Dudbridge and Wallbridge (1846 Onwards)

In September 1846 the Committee learnt that the Wallbridge crane was worn out and enquiries were to be made concerning a replacement.(5) In December that year it was reported that Mr Waring of Gloucester had offered a good eight ton crane the principal part being made of oak for the sum of £105. It was also suggested at this meeting that the present crane at Dudbridge might be moved to Wallbridge and the new crane erected at Dudbridge. (1) A week later a sub-committee inspected both the cranes at Wallbridge and Dudbridge with Mr Waring in attendance. (1) It was concluded that the jib of the Dudbridge crane was not long enough and Mr Waring was asked to add to his estimate the cost of placing the new crane 18 inches (0.46m) nearer the canal and 4 feet (1.22m) to the east of the existing one. (1)

The revised estimates in January 1847 were £112 for the crane plus £53 for moving the old crane to Wallbridge.(1) The jib of the new crane was also to be 2.5 feet (0.76m) longer than the old one. The order was placed but in July of that year the Committee was not satisfied that the crane would meet its specifications and they held a site meeting with Mr Waring. No conclusions were reached and Mr Waring agreed to test it with a six ton load when called upon. (1) In August Waring wrote asking for payment for the crane. The Committee agreed that they would conduct a trial as soon as the time for the contract was completed.(1) Captain William Clegram, the Engineer to the Gloucester and Berkeley Canal Co was engaged to carry out the test in the presence of the Warings and members of the Committee. This took place on 20 September 1847 and a test piece weighing 7 tons 18 cwt (7.9 tonnes) was used. However, "the crane had not raised the load from the ground when one of the main wheels broke and the shaft had bent."(1) The Company then entered into a legal agreement with the Warings for Clegram to act as the arbitrator in the dispute. (1,7) Clegram found in favour of the Company and it was agreed they should only pay £135 for the crane which after allowing for Clegram's expenses and other costs meant that only £126.50 was actually paid to Warings. In January 1848 the crane was strengthened with iron bands and a notice fixed to it limiting loads to 5 tons, specifying that it should not be worked by less than 3 men or use the crane for material lying more than 20 feet (6m) from the base of the crane.(1) It is interesting to note that at the same meeting the Company "ordered that our clerk do keep

his watch by Railway time for regulating the meeting of the committee in future."

All seemed well at Dudbridge until six years later when Mr Driver the Company's surveyor reported that the crane at Dudbridge had broken down again. He was instructed to make inquiries about a new one and at the next meeting in May 1854 six tenders were read. The committee selected one from Mr Stevenson of Preston as the most eligible. Two members of the Committee, Thomas Croome and George Beard were deputed to correspond with Mr Stevenson and proceed with the order if the replies were satisfactory.(1) They were also empowered to fall back on the estimate of Messrs Stothart and Co if necessary. Clearly the Committee was in no mood to delay the procurement of a new crane for Dudbridge.

One month later Croome and Beard reported placing an order with Stevenson with delivery in one month. It was also ordered that the ground around the crane be paved with "Bristol stone".(1) By August the new crane had been erected and found to work satisfactorily. (1) However, things did not go completely smoothly. The minutes show that Stevenson presented his bill for £211. 14s. 6d. (£211.72) and this was authorised for payment subject to Stevenson "disposing of the claim for carriage sent in by Messrs Holmes and Co". (1) One can only assume that he did not as the accounts show that only £200. 18s. 2d. (£200.91) was paid to Stevenson.

Nothing relating to cranes has been found in the minute books for the next 34 years until February 1889 when it was reported that the chain broke when a boiler was being lifted for Sir William Marling and Co. The Committee considered a claim from Marling for £8. 15s. 0d. (£8.75) and after taking legal advice they most reluctantly agreed to pay.(8) They ordered a five ton restriction be placed on the crane and also considered testing the chain.(8) Later they ordered "a form be prepared as a protection from traders who lift in excess of five tons".(8)

In February 1905 the crane chain at Wallbridge was ordered to be removed as it was felt not to be reliable. (9) In November 1908 the Dudbridge chain was forwarded to Messrs Connop Bros at Cradley Heath for annealing and testing and any repair found necessary. The report said that the chain was 70 feet (21.4m) long, links 15/16 inches (23.8mm), weight 5 cwt 3 qtrs (288kg) and was tested to about 9 tonnes. (9)

Unfortunately in March 1913 it was reported that an employee of Abdella and Mitchell, the Brimscombe boat builders (9) had suffered an accident when the Canal Company lent the crane to the firm to lift a boiler. Correspondence then ensued regarding the fencing of the cogwheels and the clerk was ordered to implement recommendations if possible. The crane

today has rudimentary guards on these parts and they may date from this time.

It is clear that Abdella and Mitchell were making use of the Dudbridge crane after World War 1 as they contributed £5 (almost half) to the bill from Joseph Bloomer and Sons for testing and partly renewing the chain. (10)

Concluding Remarks

In 1954 the Stroud water Canal was officially abandoned. The base of the Wallbridge crane was visible about 15 years ago,(11) but this is no longer the case. Happily, the Dudbridge crane survives in near working order and a detailed description will be given in next year's Journal.

At present the Dudbridge crane is secure in the transport yard but only the top of the jib is visible from the tow path. The suggestion has recently been made by the Chairman of the Company of Proprietors of the Stroudwater Canal that the existing wall could be re-sited near the crane such that the crane would be again visible from the canal towpath. (12) It would of course be necessary to provide stout railings to protect the crane and any interpretation panel from vandalism. It would be expensive to display and at the same time safeguard the crane but it is an idea that is well worth exploring.

Acknowledgements

The author wishes to thank:

Mr C.H.A. Townley, Mr J.R. Simmons, Mr B Wiggall, Mr D Ashley,
The Company of the Proprietors of the Stroudwater Canal,
Gloucestershire Record Office.

References

- 1 Gloucestershire Record Office (GRO) D1180 1/5
- 2 Handford, M.A., 1979, The Stroudwater Canal, Alan Sutton.
- 3 GRO D1180 1/1.
- 4 GRO D1180 1/2.
- 5 GRO D1180 1/4.
- 6 GRO D1180 1/3.
- 7 GRO D1180 8/4.
- 8 GRO D1180 1/7.

9 GRO D1180 1/8.

10 GRO D1180 1/9.

11 Handford, M.A. and Viner, D.J., 1984, Stroudwater and Thames and Severn Canals Towpath Guide, Alan Sutton.

12 D. Ashley, 1993 Private Communication.



Figure 1: The Canal Crane at Dudbridge.

STROUDWATER CANAL CRANES (PART TWO)

THE DUDBRIDGE CRANE

Ray Wilson

Introduction

The first part of this article dealt with the history of the cranes erected by the Company of Proprietors of the Stroudwater Canal at their wharves at Wallbridge and Dudbridge between 1780 and 1854. [1] Today, the sole remaining crane is the one installed in 1854 at Dudbridge Wharf (grid reference S083470481). The crane lies within the yard of a firm of road transport contractors (H Wiggall & son) and is now separated from the canal towpath by a concrete block wall. It was manufactured by John Stevenson of Preston.

This final part of the article gives a description of the crane in its present state and considers briefly how it might be conserved and made more visible to the public in future.

Basic Description

The crane (Figure 1) is mainly of cast and wrought iron construction with a wooden jib. It is hand operated, non-luffing (fixed jib angle), but can be slewed (rotated). The

KEY

- | | | | |
|---|------------------------------|---|--------------|
| w | Winding handle | g | Guide roller |
| b | Brake lever | c | Chain |
| f | Cast iron frame | y | Pulley |
| p | Central pillar (not visible) | s | Shackle |
| j | Jib | h | Hook |
| t | Tie bars (2) | z | Weight |

Winding Gear (not visible)

- | | | |
|---|-------------------|-----------------------|
| A | First pinion | 160mm dia. 11 teeth |
| B | First gear wheel | 1220mm dia. 87 teeth |
| C | Second pinion | 200mm dia. 11 teeth |
| D | Second gear wheel | 1520mm dia. 85 teeth |
| E | Winding drum | 330mm dia. 810mm wide |

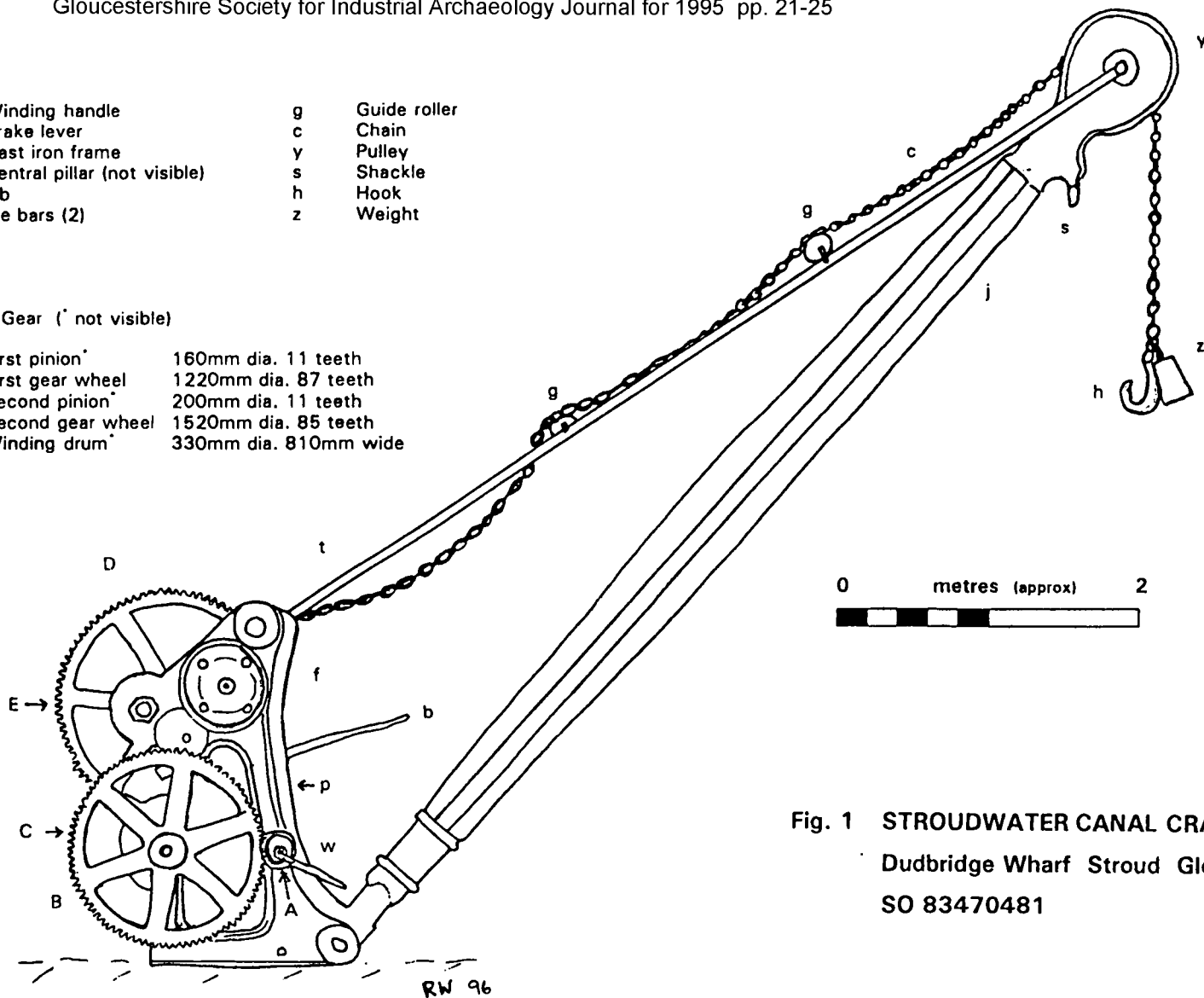


Fig. 1 STROUDWATER CANAL CRANE
 Dudbridge Wharf Stroud Glos.
 SO 83470481

load is carried on a 25mm wrought iron chain (i.e. links made from 25mm diameter bar). The safe working load was set by the Company at five tons. However, loads exceeding weight could be lifted if the user gave the Company the required indemnity. [1]

The crane has a fixed vertical central pillar attached to some form of base plate which is set in the ground. At present a thick layer of mud over the base plate prevents examination of the nature of this fixing. It is believed it must rest on a substantial buried foundation. The central pillar is tapered and has a maximum diameter of 530mm decreasing to 355mm at the top. The frame carrying the jib consists of a pair of side plates connected by cross members. The overall dimensions of the frame are approximately 2.4m in height by 1.5m by 1.5m. A number of wheels or rollers are fitted to the frame and run on suitable tracks on the central pillar and baseplate. These support the crane and resist the tendency for it to tilt when loaded and yet still permit the crane to be rotated.

The two main castings of the frame (the sides) bear the makers name JOHN STEVENSON CANAL FOUNDRY PRESTON. They are joined (from the top downwards) by the chain guide, the casting containing the "cap" that sits on the central pillar and takes the vertical load, the winding drum assembly for the chain and two drive shafts. A cross casting at the base carries one of the supporting wheels and three rollers. The other support roller is fixed to the winding drum assembly and runs on the central pillar near the top of the pillar which has a special profile to accommodate it. All the nuts are hexagonal and the thread forms may be Whitworth.

The jib is 7.3m in length and is inclined at an angle of 47° to the horizontal giving a top hook height of 5.4m and a working radius of 4.9m. It is probably made of pine and is an irregular octagon in section. The maximum diameter of the jib is about 0.44m and it tapers towards each end. Each end of the jib fits into a cast iron socket. The lower socket is fixed to the frame by pin joints and the upper socket casting is extended to carry the top pulley. The latter is unusual in that it is not an open pulley, but closed in across the flanges for the most part with two slots to accommodate the chain. A shackle is fitted to the head of the jib. An iron weight about 20kg is attached to the chain above the hook to pull the hook down against the resistance of the chain.

A pair of wrought iron bars connect the axle of the pulley to the top of the frame and are each about 50mm in diameter. They support two cast iron guide rollers for the chain. Loads are lifted by rotating the square ended shaft which projects from both sides of the frame. A pinion (A) on this shaft engages in the large gear wheel (B) which is mounted on the same shaft as the second pinion (C). The latter drives the largest gear wheel (D) which is attached to the winding drum (E). The

velocity ratio of the system is estimated to be about 175:1. The pinion (A) can be disengaged by lifting a retaining latch and sliding the shaft 100mm axially. The unloaded crane could be wound much more quickly using the handle on the square ended shaft of (B) rather than that of (A). In principle, it should not have been necessary to disengage pinion (A) to perform the faster winding but it is understood that it was common practice on winding gear of this type to do so. Indeed, if this was not done (A) would rotate quite fast and might be dangerous. Guards are in fact fitted where (A) engages the gear wheel (B) and between (C/D) but they appear to have been added later.

The brake wheel is 600mm in diameter and 90mm wide with a 25mm flange. Wooden brake blocks 25 x 76mm are each attached to the wrought iron brake band by a pair of nails. The brake lever can be latched to secure the brake in the off position. It appears it would need to be held on in use. The brake could then be released slowly to give good control when lowering the load. There is no apparent handle or lever for slewing the crane which was probably done by pushing on the jib.

Conservation Matters

The crane has obviously not been painted for some years and there are small flakes of rust on all iron components. However, there does not appear to be any significant loss of metal section. There are a few places, for example on the drum, where some pockmarks have occurred. It is presumed that this is a result of water ingress in minor casting faults such as blowholes. It is likely that the frame was originally painted but it is not obvious that any paint now remains from then or any subsequent re-painting. Clearly it would require a large amount of wire brushing and rust treatment to prepare properly the ironwork for painting. Some parts are very inaccessible and some dismantling would be required.

One part of the inside of the frame shows more rusting and is bright orange colour. This region should be investigated and given appropriate treatment. Advice will be sought on conservation of the ironwork as a whole, but the most appropriate treatment would appear to be to leave it in its present state apart from the small area mentioned above.

The timber of the jib appears reasonably sound although the upper side of the jib shows some flaking. The underside shows the remains of a now matt black paint or tar treatment. It is understood that it has been treated with some form of timber preservative over the years. It would seem appropriate to apply a modern timber preservative paying particular attention to the upper side. If the jib is to be painted in the future the flaking timber would have to be removed or the cavities

filled, as it would not be sensible to paint over it. At present it would appear that the colour should be black. Old photographs might show an earlier colour scheme. Alternate black and white on the eight sides might have been used.

Most at risk are the baseplate and lower part of the frame which are submerged in the silt. It is intended to clear the silt so that these parts can be examined and recorded. At present, yard water runs into the base of the crane depositing silt and this water will need to be diverted. The winding gear and other moving parts will be greased and it is hoped that the crane will be movable again.

Concluding Remarks

At the present time the crane is relatively secure in the transport yard but only the top of the jib is visible from the tow path. It has been suggested that the wall could be re-sited behind the crane (as seen from the towpath) and suitable railings erected to fence off the crane from the towpath. [2] An interpretation panel giving the history of the crane and wharf could be provided inside the enclosure. There would inevitably be some risk of vandalism but this might be reduced by the use of secure railings at the rear of the crane instead of the wall so that the crane would still be visible from the transport yard.

In many respects the 140 year old crane is in very good condition and appears to be in need of only minor conservation work at present. It is intended that the society will complete the investigation of what conservation work is needed during the summer of 1996 and then carry that out forthwith. The matter of making the crane more visible to the many walkers who use the towpath will take longer to resolve. However, the structure is the last surviving crane on both the Stroudwater and Thames and Severn canals so it is an option that is well worth exploring.

References

- 1 Wilson, R., Stroudwater Canal Cranes (Part One) GSIA Journal for 1994 pages 57-62.
- 2 Ashley, D., 1993, Private Communication.

COAL PEN AT RYEFORD STONEHOUSE, GLOUCESTERSHIRE.

Joan Tucker

The coal pen beside the Stroudwater Canal at Ryeford is located in the Stroud Industrial Heritage Conservation Area, and once formed part of the estate of the Marling family, who owned Stanley Mill and Ebley Mill. Adjacent buildings which are also listed Grade II include Ryeford Canal Bridge, Ryeford House and warehouse, and the former Anchor Inn (now Tankard House) all of which go to form the Ryeford Wharf complex, of which the coal pen forms part.

The canal was built by the Company of Proprietors of the Stroudwater Navigation and opened in 1779. The main reason for its construction was to provide cheaper coal to the mills which were close to it in the Frome valley, and for domestic use in Stroud. As prosperity increased in the 19th century, the Company gained the greater part of its income from the carriage and sale of coal. The business was conducted by the Company itself, from its own coal wharves at Ryeford (on the north side of the canal, west of the bridge), Dudbridge and Wallbridge, and agents were appointed to safeguard their interests.

Some of the more prosperous mill owners were able to store their own coal near to their own premises. The Stonehouse Tithe map of 1842 shows a substantial coal yard adjoining Ryeford Mill, just to the east of Ryeford canal bridge, and behind the present site of Spring Cottages. The coal yard was owned by the Company and leased to Messrs Marling & Co. from whence they supplied their Stanley Mill which must have needed a large amount of coal. The mill had been lit by gas, generated on site since at least 1833, besides steam engines and two high pressure boilers. In 1863 Ryeford Mill was occupied by Messrs. Ford Bros. flour millers and mealmen. They also held Millbottom Mill (Ruskin Mill) in Nailsworth. Their business was expanding, they even had a fleet of trows, including a steam vessel 'Queen Esther', which at that time were bringing wheat from Lechlade and Newport and carrying back flour to Newport and Bristol. Other trows, among them 'George' and 'Florence' delivered coal from Lydney and Newport. In fact Messrs. Ford was the Canal Company's main customer, and more space was needed. They asked the Company if Marlings would vacate their coal pen,¹ but Mr. Marling refused.

The next year Messrs. Ford renewed the application made to the Company to be allowed to take over the lease of the coal yard from the Marlings because they wanted to build a warehouse on the site.² The Company set up a sub-committee to deal with the matter and Mr. S. S. Marling was summoned to a meeting on February 24th 1864. Mr. Marling agreed to give up the lease on condition that the Canal Company would erect for him another coal pen on his own land below the bridge and making it accessible by a good road and diverting the present road into his land beyond that point. It was resolved that Messrs. Ford's request be acceded to and a sixty years lease be granted at a nominal rent of 10/- on condition they put in a dock wall in continuation of the present one up to the bridge. Also they were to pay a moiety of making the new pen and road for Mr. Marling.

The Fords agreed to the arrangements with provisos:- they would pay half of the cost of building the coal pen if they could have rebate from the Company if their own annual account exceeded £600 or they would build the pen and road themselves. The Company affixed their seal to the agreement with the first of the propositions, and it was arranged for Messrs.

Marling to do the work.

When the pen was completed in September 1864 the Company resolved that ‘Marling & Co be allowed the right of road for horses carts and carriages at all reasonable times over the towing path from the turnpike road (Ryeford Lane) to the new pen situate on the west side of the bridge over the canal and to a piece of land on the west side of the pen at the east corner thereof, paying annually to the Company rent of 1/- and keeping the said path in good repair. Such right of road nevertheless to cease when and so soon as the new coal pen shall not be used as a place of deposit or landing for coal or merchandise carried on the canal.’³ This resolution was enclosed in a letter to Marling & Co. 21st September 1864.

The treasurer J. C. Hallewell paid a cheque to Messrs. Marling for £158.11s.4d. on 30th November 1864. The Ford’s half, £79.5s.8d. had been paid in cash on October 1st to the Company.⁴ This was the total cost of making the pen which amounted to £143.11s.5d. as per estimate, plus the cost of making the road and the floor of the pen.⁵

The pen is enclosed by a very fine limestone wall, mostly coursed and dressed work and some ashlar and is in good condition. It was built by Marling and Co. to a high standard, probably using stone from their own quarry on Selsley Common nearby. A consignment of 26 tons of stone was brought to Ryeford pen on 24th June 1864⁶ from Chalford, free of conveyance charge and this was probably used for the flooring of the pen. The height is approximately 6 feet (1.8 m), 65 ft along tow path, 65 ft x 60 ft (19.8 m x 18.3 m) (see map). The corners are curved to allow for easy access for carts, and two chutes in the wall alongside the towpath once had hinged timber boards which let down to allow planks to be put across to the ledge. Wheelbarrows were wheeled along the planks, and the coal then tipped over into the pen. The chamfered gateway is set at an angle, with an iron gate, possibly not the original one. This coal pen is the only survivor on the Stroudwater Canal, although some others have survived in the West Midlands, but ‘they are all brick built, lacking the distinctive appearance of these ashlar walls and associated gates, and do not have the direct historical associations and context of this example’.

Can we count the fact that ‘somebody else was paying’ has meant that this minor building survives today? It awaits a survey. Shall we discover if the floor is intact?

References

These all refer to the Company’s archives in Gloucestershire Record Office.

- 1 D1180/1/5 Minute Book 5 p 367. Letter Book D1180/9/2 17 June 1863.
- 2 D1180/1/5 Minute Book 5 p 370a. 24 Feb 1864.
- 3 D1180/1/5 Minute Book 5 p 382b. 20 Sept. 1864.
- 4 D1180/2/48 Journal pp 1, 4 - 5 Oct./Nov. 1864.
- 5 D1180/1/5 Minute Book 5 p 373 26 Mar. 1864.
- 6 D1180/4/29 Tonnage Book 1864.

Postscript

On May 15th 2002, the Secretary of State for the Department for Culture, Media and Sport authorised the listing of the coal pen (Grid Ref: SO 813046) beside the Stroudwater Canal at Ryeford as of special historical or architectural interest, Grade II.



Figure 1 View of the Coal Pen Looking West Taken by Harry Townley in 1966



Figure 2 View of the Entrance to the Coal Pen in 2002, Looking South-west. (Author)

RESTORATION OF THE COTSWOLD CANALS

Theo Stening

Introduction

For centuries from the Middle Ages onwards, Britain's rivers were used for the transport of goods, due to the poor state of the roads. They played a leading role in providing supply routes during the Industrial Revolution. It was not surprising, therefore, that a waterway linking the Severn and Thames was proposed as early as 1610. It was the late 1700s before one was completed, an outstanding engineering achievement for its time. Restored in some sections, and rich in industrial archaeological interests, it remains largely abandoned, partly lost and completely blocked in many places.

Soon that may well change. Comprehensive, if not complete restoration within the next decade or two now seems probable. It was announced on 19th March 2002 that the Cotswold Canals (the Stroudwater Navigation and Thames and Severn) would be in the next group of national waterways to be restored.

This time a reversion to the sight of men towing trows carrying coal from Shropshire, Staffordshire and the Forest of Dean is highly unlikely in the different world of today! The driving force and economic case depends mainly upon the likely recreational and leisure benefits of the restored waterway and its adjacent footpath, together with the jobs which will result. This will be enhanced by the benefits brought by other businesses moving into the area because of the canal. Some freight traffic for niche markets may also develop. It is thought that the restored waterway will be busier at its western end!

What are the changes in interest and attitude which will bring this about? The main factors and issues likely to affect the restoration are described in this paper. This may then make the progress of subsequent restoration plans and achievements easier to follow.

Background

The history of the Cotswold Canals is well documented elsewhere^{1,2}. However, a summary may help to explain their present state. The Stroudwater Navigation was established by the Stroudwater Canal Act 1730. After several unsuccessful attempts, the present canal was a replacement for the Kemmett Canal of 1759. The first stone of the entrance lock from the Severn at Framilode was laid on 30th May 1775, and the canal reached Wallbridge on 21st July 1779. Subsequent construction of the Thames and Severn Canal enabled vessels to reach Chalford by 31st January 1785 and Cirencester by 22nd April 1789. The through route to the Thames at Inglesham was completed on 19th November 1789.

Eventually, both canals suffered competition. This came initially from the Kennet and Avon Canal completed in December 1810, then more seriously from the Great Western Railway which arrived at Stroud in 1845. Declining trade, silting, water leakage and general deterioration progressively took their toll, not helped by some poor management. These led to frequent closures. Control of the section between Chalford and Inglesham passed discreetly to the GWR on 11th May 1882, at a time when almost everything about the canal was in lower water than it had ever been. This section was closed on 28th December 1893 at short notice by the managing committee (not at the behest of the GWR). Ownership passed for an unsatisfactory interim period to a Canal Trust, then eventually to Gloucestershire County

Council in 1901. The canal reopened in 1904. The last loaded boat passed over the summit in 1911. Thereafter, use of the waterway decreased even more. Notice of abandonment was given by the Gloucestershire County Council on 7th November 1924. The eastern end from Whitehall Bridge in the Golden Valley to Lechlade was abandoned in 1927. The western end of the Thames and Severn to Wallbridge was abandoned in 1933. It soon became derelict. Much of the canal east of Chalford was sold to adjoining landowners.

The Stroudwater Navigation was abandoned in 1954, after several decades of poor maintenance. Fortunately most of it is still owned by the Company of Proprietors of the Stroudwater Navigation.

Changing Interests

Much has been done to protect and restore parts of the Cotswold Canals by a society formed in 1972. This is now known as the Cotswold Canals Trust (CCT), and has well over 3,000 members. Volunteers have reopened short lengths of the waterway and undertaken frequent maintenance programmes. Feasibility and engineering studies initiated by the Trust concluded the canals could be restored to full navigation, and benefits were identified.

But very significant impetus was added when timely Government support also arrived. A White Paper in 1998 on the future of transport³, which described the Government's plans for developing an integrated and sustainable transport system, was followed by a second document in 2000⁴. This contained the Government's proposals for the inland waterways. These stated clearly its desire to protect and conserve this vital part of Britain's heritage, as well as to promote its use for a range of activities. These included leisure and recreation, urban and rural regeneration.

Three more organisations involved in promotional waterway restoration must now be mentioned because of their increasing involvement.

The first is British Waterways (BW). This public corporation is responsible for managing over 2000 miles of navigable canals and rivers across the United Kingdom. It has already played a critical role in the promotion, restoration and conservation of many of the country's waterways in recent years.

The Environment Agency (EA) manages its waterways as an integral part of other water management functions, and is primarily a regulatory body. Both are overseen by the Department of the Environment Food & Rural Affairs (Defra) , which sets grant levels according to planned expenditure.

The Waterways Trust (TWT) is a national charity established in 1999 to ensure that the waterways of the UK are supported, valued and enjoyed by all sections of the community, whatever their interests and circumstances. Its UK-wide remit includes the conservation and promotion of waterways for navigation, economic benefit and recreation. The Waterways Trust has the endorsement of Government. All three organisations are already much involved in the local restoration programme.

Feasibility

The feasibility of restoring the Cotswold Canals has been set out recently in the report prepared by British Waterways on behalf of The Waterways Trust, published in July 2001. It was concluded that it is feasible to restore these canals at a cost of about .82 million. (cf. original: construction costs of .240,000!) A phased approach was recommended. This would involve two stages:

1. Full restoration of the Stroudwater Navigation and the canal link between the River Thames and Siddington, along with the restoration of a continuous walking route between Saul junction and the River Thames.
2. Full restoration of both navigation and towpath links between Saul junction and the River Thames.

It was suggested that work in the first phase could be started very quickly, subject to funding (40m), and completed within 5-7 years. Completion of the link through the Cotswolds would be more difficult to fund unless water transfer were to be involved too. This could drive Phase II, enabling it to be completed within 5-10 years after the completion of Phase I.

One major attraction is to provide a navigational route from the Thames to the Cotswold Water Park. This now seems likely to be the revised primary objective of Phase I, reducing estimated costs to .35 m. It is not foreseen that the canal would pass through the lakes, in which the water levels are at different heights, and also for other environmental reasons.

Physical Obstructions

Over fifty blockages have been identified. These range from infills of civic waste and silage to housing, factories, bridges and roads. This means that precise restoration is unlikely to be possible, even if it were desirable. However, in the majority of cases, there will be no need to change the historic route, but some local changes will be inevitable.

Some 80% of the original canal line of 37 miles (59km) remains intact, and 15% is in water. It is envisaged at this stage that the original total of 57 locks will remain the same, with new locks on realigned sections.

The five main blockages are associated with the M5/A38 roadway systems, Ebley Mill, Brimscombe Port, Sapperton Tunnel and the village of Kempsford. Circumventing some of these may involve diverting the canal along nearby river courses where appropriate, making new cuts for the canal and rivers as necessary. These would be the subject of consultation and detailed engineering assessments in due course. However, it was announced in July 2002 that British Waterways had purchased the greater part of the former Brimscombe Port area. This will greatly facilitate the construction of the canal through the area in the future.

Sapperton tunnel, perhaps the most ambitious engineering feat of its day, needs major repair. This is likely to be expensive rather than difficult, and would include the reopening of some construction shafts for ventilation. Legging is hardly likely to be acceptable these days!

Provisional costs of .12 million have been included in the initial estimates to cover this work, which could well be the last to be done.

Other obvious obstructions include the railway bridge at the Ocean where the original bridge structure is thought to be intact; restrictions and buildings in the Chalford area; and the drive to Thames Head House, which follows the original line of the canal. A house sits on the site of the Siddington Lower Lock, and the Smerrill viaduct across the Cirencester to Kemble road no longer exists, nor could readily be replaced.

Fortunately, with commendable foresight, a box culvert has been provided under the new A419 at Latton. New cuts and a new lock will be required to link with this. All the relevant local planning authorities have protected the original line in their plans in recent years.

Land Requirements

The land needed to restore the waterway is in multiple ownership at present. Over 90 landowners are involved, mainly along the former Thames and Severn Canal. Three own nearly half of the former line of this canal. Most of the Stroudwater Navigation still belongs to the Company of Proprietors of the Stroudwater Navigation, making restoration more straightforward.

Understandably, some of the present landowners may not wish to sell their land, so negotiation will be necessary. As in similar restoration programmes elsewhere, it is hoped that recourse to any compulsory purchase powers which might become available will not be necessary.

Water Resources

The original water supply system is no longer acceptable.

Rivers, streams and springs were the main supply sources, coupled with land run-off and essential top-ups at the summit from the Thames Head pumping station. However, the continuing decline in water levels of both the underlying aquifer and associated water courses means that significant abstraction from these and the upper reaches of the Thames seems unlikely east of the summit, except during some of the winter.

West of the summit, the River Frome shares its channel with the canal at some locations, but once again, falling water levels make permanent extractions increasingly unlikely. Whereas potential supplies from the Cotswold Water Park complex are a possibility on the eastern side, there are no other sources of water supply available on the west side of the summit.

Thus one of the problems of the original waterway has not gone away. At first sight it seems to have got worse. Certainly the basic geology of the line has not changed. The original water supply proved to be inconsistent and inadequate, repeatedly exacerbated by the lock spacing and depths incorporated in the design. Prodigious leaking didn't help. Leakage in any restoration must be kept low by adequate lining of the canal.

None of this sounds particularly encouraging for a restored waterway. It is recognised that there is a comprehensive water demand factor to be managed.

Two options have been suggested so far:

1. Back pumping from the east and west to meet all demands.

2. Back pumping from the west only to meet all demands.

However, there are serious environmental concerns about transferring water from the Severn to the Thames catchment areas. These are associated with the differences between the water from the two catchment areas which could lead to problems. Because of this, the cheapest option of pumping water from the Gloucester and Sharpness Canal or from on-line storage at Slimbridge to supply the canal, without the need for any storage on the eastern side, is not necessarily going to be the favoured option. The alternative of pumping from the east as far as the summit, perhaps from the Cotswold Water Park, but from the west only as far as Whitehall Lock, is another option likely to be considered. Local flood alleviation and other water control issues also need to be taken into account.

The restoration project is not free-standing in this respect. Further water resources are required in the Upper Thames catchment area to cope with population growth in particular. Use of this canal to transfer water from west to east could well be a significant benefit, provided environmental concerns can be resolved. This would give added financial justification and drive to its restoration.

Environmental Assessment

The original canal constructors did not have to face the plethora of environmental considerations (nor, indeed, Health and Safety Regulations) which have to be satisfied today!

Most of the length is protected on ecological grounds under various local and structure plan policies, although no part has any specific legal environmental protection.

Recent Cotswold Water Park and Gloucestershire biodiversity action plans (BAP) refer specifically to canals as habitats for wild life. Several sites of specific scientific interest (SSSI) adjoin the Thames and Severn.

Protected and important species are known to occur along the canal. Full assessment of all the main environmental issues will be part of a comprehensive Environmental Impact Assessment for the whole canal. The conclusions and recommendations should be available by mid 2003. In turn, this should enable the restoration programme to proceed carefully and sensitively, by taking into account any biodiversity aspirations, together with other environmental, conservation and enhancement recommendations. The recommendations should also help to reduce any adverse impacts of the construction works.

Economic Benefits

The expected benefits are based mainly on the increased leisure opportunities and tourism arising from the scheme. It has been estimated⁵ that 1.8 million new visitor days to the canals (including locals going to school, walking dogs etc.) could bring in new revenue of .8.5 million annually to the local economy, supporting local shops and businesses. According to this report, up to 500 new permanent jobs could be created, and 1400 temporary construction jobs. Added to this is the attraction for new businesses to move into a canal-related environment. These could catalyse other developments, creating permanent employment and potential revenue.

There is also potential for water transfer already described. Less easily assessed are the benefits of creating sustainable heritage and wildlife habitats to attract walkers and cyclists, perhaps linked to other footpaths and bridle ways.

Funding

The results of an application submitted to the Heritage Lottery Fund in April 2002 for Phase 1 of the restoration should be known in January 2003. Other sources, as yet undefined in detail, are likely to include public, private and charitable funds (perhaps through The Waterways Trust), and also European funding. The Cotswold Canals Trust has already launched its own appeal, which has raised over 150,000 so far⁶.

The South West Regional Development Agency (SWRDA) has agreed to fund half the cost of three key studies to move the project beyond the feasibility stage, enabling the Environmental Impact Assessment (150,000), M5/A38 Obstacle Design Assessment (50,000) and Commercial Opportunity Study at Brimscombe (7,000) to be started. Matched funding is coming from BW (in kind), the EA (cash and kind), the local authorities, and the CCT.

The quality of estimates for further work will be improved as the results of initial assessments and the investigations of possible alternatives become available. Much benefit is expected to be drawn from comparable experience resulting from work on the restoration of the Kennet & Avon canal.

Implementation

Many organisations will be involved in the successful implementation of the restoration programme. These include those organisations already mentioned, together with the Wiltshire County Council and local District Councils, the Inland Waterways Association, the South West Tourist Board, the Gloucestershire Wildlife Trust, Country Landowners Business Association and the Cotswold Water Park Society.

The project is being led by professionals. British Waterways appointed a Regeneration Programme Manager (Mr. Andrew Stumpf) to take charge of the Cotswold Canals restoration scheme, at the beginning of this year. Experienced in restoring canals in Scotland, his expertise is already proving beneficial, helping consultation and partnership with all the relevant parties. A project manager (Mr. John Laverick) has joined the team full time from the Kennet & Avon Canal, so a management structure and key appointments are in place.

Overall control is with a formal partnership (The Cotswold Canals Partnership) between The Waterways Trust, British Waterways, Cotswold Canals Trust, South West Rural Development Agency, Country Landowners Business Association, Gloucestershire Wildlife Trust, Company of Proprietors of the Stroudwater Navigation, Gloucestershire County Council, Wiltshire County Council and Stroud, Cotswold and North Wiltshire District Councils. This was launched in July 2001, to build on the work carried out so far and drive restoration plans forward⁷. Initial consultations are well advanced.

Conclusion

The opening words of the British Waterways Press Release (7) were "Historic Waterways in the Cotswolds, abandoned for half a century, will be restored back to full use". In addition to the local economic and leisure benefits, it will complete a major waterways ring through the River Thames, Oxford Canal, Grand Union Canal, North Stratford Canal, Worcester and Birmingham Canal and the River Severn. What a diversity of industrial archaeological interests this will open up for boating enthusiasts! On the other hand, perhaps sadly, the

popular and peaceful walk from Chalford through the Golden Valley to Daneway will never be the same! But new popular and peaceful walks will be opened up for people to enjoy all the way to Lechlade. To quote Andrew Stumpf: "It's going to happen!" When it does it will be the largest and most far reaching restoration likely to be seen in Gloucestershire for decades.

References

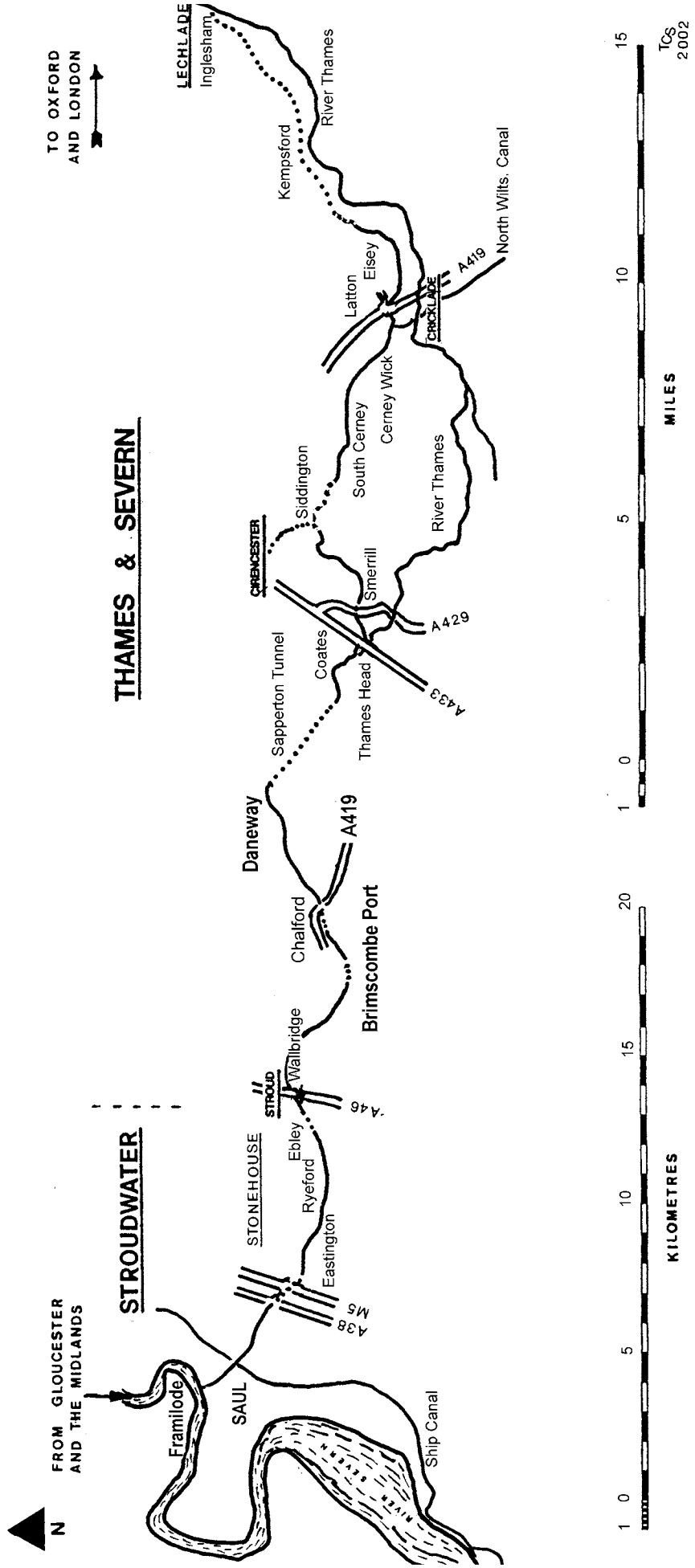
1. Household, H., 1987, *The Thames and Severn Canal* Alan Sutton and GCC.
2. Handford, M. and Viner, D., 1984, *Stroudwater and Thames and Severn Canals Towpath Guide*, Alan Sutton 1984.
3. *A New Deal for Transport: Better for Everyone* (HMSO July 1998).
4. *Waterways for Tomorrow* (DETR June 2000).
5. Report into the Feasibility of Restoring the Cotswold Canal, prepared for the Waterways Trust, (British Waterways July 2001).
6. Stumpf, A., *The Trow*, No. 117, Summer 2002, p. 3, (CCT).
7. British Waterways Press Release, 3 July 2001.

Acknowledgements

The author gratefully acknowledges frequent use of information contained in the publications referred to above, and also other material made available to the public by British Waterways through reports and talks. A special word of thanks is due to the Cotswold Canals Trust for its help with specific information.

Postscript

This compilation represents the situation as currently understood by the author in mid-2002. Changes and advances will certainly occur over the coming years.



Route of the Cotswold Canals

THE COTSWOLD CANALS RESTORATION: AN UPDATE IN JULY 2003

Theo Stening

One aspect of the proposed restoration of the Cotswold Canals (1) of particular interest to the Society is the detailed heritage survey completed in June 2003 by Cotswold Archaeology (2). This is an assessment of the significance of the canals from a historical perspective. Architectural historians and archaeologists have studied structures such as the Sapperton Tunnel, the roundhouses, and less distinctive relics such as locks, wharves, bridges and boundary markers to assess their heritage value (3). Archival and other records have also been examined in the study, which included information from Society members.

This, together with assessments, proposed management procedures and other surveys covering all aspects of the restoration, formed part of the application to the Heritage Lottery Fund (HLF) in June 2003 for a major grant of £22 million to cover about half the cost of the first phase of the complete restoration of the Cotswold Canals. Matched funding is in place. This phase is planned to include the restoration of the Stroudwater Navigation (12km.) and 4km. of the Thames and Severn from Stroud to Brimscombe Port (now owned by British Waterways), together with the establishment of a walking trail along the entire 58km. (36 mile) length. It is expected to cost £40 million and take up to five years to complete. The result of the HLF bid will be known by the end of February 2004. Much of the timing and extent of the restoration projects planned will depend upon the outcome of the bid.

Four further phases are envisaged. These will be the restoration of the canal from the Thames to the Cotswold Water Park; its connection to Swindon through the North Wilts. Canal; the restoration of the Thames and Severn from Brimscombe Port to the west portal of Sapperton Tunnel and from the east portal to Lechlade; and the restoration of the tunnel (4).

Meanwhile, other development and strategy surveys continue. A comprehensive restoration plan and programme will have been completed by the end of December 2003, and an Environmental Impact Assessment Study for the whole canal is being made.

Significant progress can also be seen on the ground. British Waterways has gained operational access to the canal and a gateway to the River Thames by completing the purchase of the Grade II- listed Inglesham roundhouse, canal, lock, bridge and three acres of land in December 2002 (5). British Waterways and The Waterways Trust are the lead partners of the Cotswold Canals Partnership, with a major role being played by the Cotswold Canals Trust and others (1).

Work currently underway on a new raised Western Spine Road Bridge (near South Cerney) is due for completion in October 2003.

Excavation of 640 metres of the Ebley infill between Oil Mills Bridge and Frome Gardens by the Stroudwater Redevelopment Partnership is well advanced. Part of the regeneration of the Ebley Wharf area, an imaginative complex of housing, commercial and light industrial units, is proposed. Part of the canal westwards from Bowbridge has also been dredged as part of a local construction scheme, and the main restoration project of the Cotswold Canals Trust at Valley Lock, Chalford, has continued.

Design work on the Walk Bridge replacement lift bridge is complete. Its construction awaits sufficient funding. Designs for the next section of the Stroudwater, including Whitminster Lock and its connection to the River Frome, have also been undertaken, and the canal route to

Eastington under the A38 and M5 is being defined up to design stage. Comprehensive engineering feasibility studies are progressing.

Currently, it seems likely that the preferred option will be to stay with the line of the old canal route now blocked by the roundabout on the A38, then through the field system to the M5. Here it could pass under the M5 through box culverts drawn into place through cuttings, and on to Eastington (6). These and other options are now being reviewed with the Highways and Environment Agencies, but decisions are not imminent.

Further east, it seems from initial discussions with Network Rail about passing through Ocean Railway Bridge that the preferred option may be to divert the canal route slightly to the north, on cost and railway operational grounds. There are unlikely to be any problems in re-routing the canal under the railway viaduct near Waitrose on the Stroud by-pass (6).

Support for the restoration programme grows steadily, but not without opposition. Concerns and doubts continue to be expressed by individuals in the local press, and by organisations such as the Canal Owners and Neighbours Conservation and Protection Trust (CONCEPT). Key concerns are that the expenditure will not be justified because the capital cost will be significantly higher than estimated so far and operating costs will not be covered by the estimated income; potential benefits have been overstated; the resourcing of water will not be possible without a negative impact on the natural watercourse system; inappropriate compulsory purchases may be inevitable; and there will be unacceptable blight and disturbance to existing properties and their residents' quality of life (7). The fact that a satisfactory water supply system had not been defined and agreed before public financial support for the restoration was sought has also led to criticism (8), although it has been reported that reasonable proposals have been received from leading water consultants (5).

Proposals in the final plan may well mitigate some of these concerns. Time will tell how justified they prove to be. However, they exemplify some of the sensitive issues involved, and which have to be addressed and considered fully, in what is currently the leading national waterways restoration scheme.

References

- (1) GSIA Journal 2001, p.22.
- (2) Cotswold Canals Restoration Project, Heritage Survey, Cotswold Archaeology Report CA 03055, June 2003.
- (3) T. Eaton, Regeneration News, No. 2, Summer 2003.
- (4) Cotswold Canals Partnership Press Release: 23 June 2003.
- (5) A Stumpf, The Trow, No. 120, Spring 2003, p. 4.
- (6) J. Laverick, Talk to Cotswold Canals Trust following AGM, July 26, 2003.
- (7) CONCEPT leaflet: The Downside to Canal Reconstruction, April 2003.
- (8) I. Swallow, Wilts. and Gloucestershire Standard, July 17 2003, p. 16.

THE RESTORATION OF THE COTSWOLD CANALS: AUGUST 2004 UPDATE

Theo Stening

Recent Progress

Money is a great enabler. The decision of the trustees of the Heritage Lottery Fund (HLF) on 20 July 2004 to make available an £11.3 million grant, provided it is supported by similar funding from other sources, should make it possible to reopen a significant length of the Cotswold Canals to navigation in the foreseeable future.

This first phase will consist of the six-mile stretch from The Ocean on the Stroudwater Navigation west of Stonehouse to Brimscombe Port on the Thames and Severn Canal east of Stroud. It is also planned to include in this phase the acquisition of the remaining four miles of the route from The Ocean back to Saul Junction on the Gloucester and Sharpness Canal, together with the creation of a cycle trail and footpath, subject to negotiation with the relevant landowners. This will open up a ten-mile multi-user trail and prepare the way to connect the restored Phase One section with the Gloucester and Sharpness Canal in the future.

The total cost of this phase is estimated to be £25 million. However, the award is subject to the Cotswold Canals Partnership demonstrating within a year that it can secure formal commitments to complete the matching funding for this first phase (1). The HLF has also asked to see how the Cotswold Canals Partnership proposes to complete the Navigation to Saul.

Ideally, it had been hoped to include restoration of the whole ten-mile length from Saul to Brimscombe Port in this initial phase. This would have been better from many points of view, but was not possible because of limited fund availability from the HLF due to other demands. Nevertheless, this is a major step forward, and a big psychological boost for those who have worked so hard to achieve it. All being well, the first phase should be completed with three years of the start date.

The stretch of canal selected passes through the most populated areas along its length, and has the benefit, particularly in view of the GSIA's interests, of including most of the more historic structures. These will be protected. So the way has been paved for a start to what could become the largest and most far reaching restoration likely to be seen in Gloucestershire for decades.

Determined efforts are also continuing to secure funding for the restoration of the waterway between Saul and The Ocean as the next priority, and the remaining sections of the Thames and Severn Canal in due course. Residents in the eastern section area were invited to a public meeting on 26 February 2004 when the latest progress and plans were shared with them.

Preparatory work for the HLF funding bid and subsequent restoration work has included the production of two documents of direct interest to the Society. The first is the Heritage Survey undertaken by the consultants Cotswold Archaeology and referred to briefly in the previous update (2). In this, 270 existing structures, sites and remains along both canals are listed. Each of these was rated by assessing its local, regional and national heritage importance and its significance to local and national canal interests. Many were considered to be of high local heritage importance, some of high regional importance but few of high national importance. The last named category included the Sapperton Tunnel, Brimscombe Port, the round houses

at Coates, Cerney Wick, Marston Maisey and Inglesham and the coal pen at Ryeford. Even the most ardent Cotswold Canals enthusiast might not be reluctant to admit that there are few remaining features along these canals to compare with the Anderton Boat Lift Bridge or Pontcysyllte Aqueduct.

Other features, such as Saul Junction, Bridge House at Ebley, Dudbridge Wharf, the Stroudwater Company Offices at Wallbridge and the wharf houses at Cricklade and Kempsford were considered to be of high importance to national canal history.

The second document is a comprehensive Conservation Management Plan being prepared for the restoration and subsequent management of the full 36 mile length of the Cotswold Canals. When complete, it will provide the background and framework necessary to protect the unrestored sections of the waterway, guide the restoration and set policies, practices and actions for the future management and maintenance of the canals (3).

A first draft of the section entitled 'Built Heritage and Archaeology' has been published on the British Waterways website as a consultative document (4). Over 550 individual canal features have been defined along the line of both canals during recent survey work.. Half of these are readily recognisable above ground, most having been recorded in the Heritage Survey. The remainder have been defined by the analysis of maps, archives, national records and knowledge of local people including several of our members.

It is interesting to note from this draft that over 30 bridges over the Thames and Severn Canal were 'lost' during the twentieth century. Their former locations can be established from documentary evidence, and in many cases, earthworks. In at least one case, the Spine Road Bridge at South Cerney, an earlier structure was replaced by a newer bridge and subsequently replaced in turn by the stronger version, just completed, with greater headroom above the waterway surface.

It is also recorded that there are 142 listed buildings and structures within one kilometre of the canal (excluding those within a dense urban area of Stroud). At least 35 of these are directly associated with the canals, 32 of them being on the waterway itself.

There is still much heritage to be explored along the canals. British Waterways would like to see more people in the local community taking part in this. At the time of writing GSIA was considering how it might become more involved in the project.

Further Considerations

It is already clear that the term 'restoration' might be misconstrued when possible target and likely achievements are considered. What is primarily in mind is a reopening of the waterway to navigation. Times are very different today from those 200 years ago in which the canals passed through mainly rural country and linked settlements. The historical settlement character has gone and cannot be recreated. Buildings and other facilities associated with the canal resulted in the formation of a canal corridor which itself changed significantly over the past 100 years. Indeed, building survival on both canals is poor.

In view of this critics, or purists may decry the current restoration plans as being likely to result in a modern mock-up. Perhaps this is inevitable, for in any restoration something is gained and something lost. Should attempts be made to replace innovations such as the world's first load-bearing polymer composite bridge at Bond's Mill, installed in 1994, with an iron replica of the original bridge? Surely not. Indeed, the innovation itself is a potential

industrial archaeological artefact! Nor are replacement humped back bridges likely to be appropriate. There are many issues such as these which need to be considered, providing interesting food for thought.

New developments such as waterside dwellings are already creating a new canal character more appropriate to the twenty-first century. Typical are those near completion at Stonehouse wharf, where the newly excavated waterway sections will allow boats to moor and gain access to Stonehouse town centre, and those close to Ebley House, now exposed again for all to see.

Building usage has changed too over the years. Newtown was known for its public houses in the early days, not the children's nursery of today. This is a sure sign that times have changed. Indeed so they did during the working life of the canals when the needs of the day necessitated changes insofar as they were possible. A towpath became necessary when donkeys and horses replaced manpower, and now cycle trails are planned. What will be achieved with the reopened waterway is likely to be a continuation of what has been an evolutionary process so far.

However, perhaps a note of caution might be timely. Many will envisage and hope for a quiet and predominately rural waterway. Perhaps this will be possible in its extreme western section and east of Chalford. However, it is likely that the canal will be a magnet for developers, especially between Saul and Chalford. This could result in ribbon canalside development of housing, marinas and visitor centres, leading to overcrowding with too many users.

Clearly there is an urgent need to ensure that the relevant planners will require designers of future housing, commercial and industrial developments along the canal corridor to provide an environmentally sympathetic and attractive aspect for their buildings when seen from the canal, and also that a good balance of practical and visual amenities is achieved. Canal users, whether afloat or walking alongside, will need some respite from burgeoning housing and superstore developments and to have the opportunity to enjoy the surrounding countryside away from creeping suburbanisation!

Despite such worries, support for the revival of the waterway continues to grow. However, members of the Canal Owners and Neighbours Conservation and Environmental Protection Trust (CONCEPT), whose concerns are mainly related to the eastern end of the former Thames and Severn Canal, continue to oppose the restoration.

Meanwhile much water still needs to flow under the canal bridges before restoration plans are finalised and achieved. Where will that water come from? The relative merits of several proposals are still being considered to ensure that adequate supplies of this vital resource will be available when the reopening of the waterways is completed.

References

- (1) British Waterways, Press Release, 21 July 2004
- (2) GSIA *Journal* for 2002 pp 44-45.
- (3) Andrew Stumpf, *The Trow* No. 125, Summer 2004, page 8 (Cotswold Canals Trust).
- (4) www.britishwaterways.co.uk/cotswolds

THE RESTORATION OF THE COTSWOLD CANALS: OCTOBER 2005 UPDATE

Theo Stening

Introduction

The progress which has been achieved by the Cotswold Canals Partnership, led vigorously by British Waterways, was hard to envisage four years ago when the first article in this series appeared (1). Developments since then have been summarised in previous updates (2,3); further advances are now reported here.

Recent Progress

By the end of January 2006, all being well, the Heritage Lottery Fund's (HLF) provisional grant of £11.3 million is expected to be confirmed. Much effort since the last update has been concentrated on the preparation of the HLF Stage 2 and South West of England Regional Development Agency (SWERDA) applications submitted in October 2005. These included detailed proposals and designs for restoring the six mile section of the waterway between The Ocean at Stonehouse and Brimscombe Port and for overcoming the known obstructions or realigning the canal to circumvent them. It was necessary to show that solutions will be possible.

Part of the anticipated grant will be apportioned to repurchasing land between Saul and Eastington to enable a continuous path to be created as far as Brimscombe Port. Confirmation of the HLF grant will depend mainly on the conservation-led restoration proposals and the availability of matched funding. The substantial grant being sought from SWERDA as part funding will depend on the prospect of a significant number of commercial developments and boosting local employment. It is hoped to achieve this largely through the regeneration of brownfield sites and the creation of new tourism, recreational and leisure jobs. This, in turn, depends very much on Stroud's development plans.

In anticipation that site work can be started in 2006, Morrison Construction Services Limited have been appointed management contractor. They will implement the first phase of the restoration project. Having worked successfully with British Waterways on many previous canal restoration projects they will be responsible for selecting the most appropriate way of undertaking each piece of work and arranging for it to be done.

Visible signs of opportunistic work continue to be seen elsewhere. Near South Cerney the Spine Road Bridge (approximate cost £500,000), with distinctive stainless steel balustrades in the form of bulrushes mounted on its parapets, was formally opened on 30th April 2005 and renamed the 'Gateway Bridge'. Most of the work had been completed in 2004.

The parapets of the newly completed Pike Bridge (£350,000) reflect the design of the elegant 1924 version. They are thicker and not completely penetrated by the decorative cross-shaped features, to better withstand possible vehicle impacts. This project was made possible by a grant covering nearly half the cost from the Aggregate Levy Sustainability fund of the Countryside Agency which had also contributed generously to the Gateway Bridge. Further financial support for Pike Bridge was given by Gloucestershire County Council, the Inland Waterways Association, the Cotswold Canals Trust and others.

It is interesting to record that the new Pike Bridge is in effect two bridges. The western half with its curved outer arch but flat underside was cast in-situ on the abutments of the 1770s bridge and its 1924 extension. The new foundations of the eastern carriageway are cast behind the original brick walls of the 1770s bridge. These walls will be seen from the towpath which will be lowered to provide adequate headroom (2.0m, 6ft 6in) for its users (4).

Dimensions

Likely dimensions of the restored canal are of interest too. The intention in the first place is to get as close as possible to those originally achieved. This implies a navigation with at least a 2.44m (8ft) headroom, 1.5m (5ft) depth and a minimum width of 4.8m (15ft 9in) at the water level. The channel dimensions will be those of the original canals as far as possible, although there may have been some encroachment in some cases which will preclude complete restoration. (5). It is already known that some of the locks on the Thames and Severn sections are not as consistent in size as originally thought. (6).

Water Supplies

The completed and positive study on the feasibility of resourcing and maintaining an adequate water supply is now being reviewed with the Environment Agency. This was prepared by MWH, an international company which is one of the world's leading experts on water and other environmental services. Inevitably a combination of backpumping and new reserves of water will be necessary, as will be the lining with concrete of the summit section from Coates eastwards to conserve water in the canal.

Other Developments.

It has been discovered that lesser horseshoe bats are living in the Sapperton Tunnel. The implications are not yet clear. The bats have their conservation rights too!

In addition to specific problems reported in previous updates it is now clear that significant engineering work will be required in the former Capel's Mill area. This is on the far side of Dr Newton's Way near Waitrose in Stroud. Extensive land filling here over many years has raised the level of the ground 8m above the former canal bed level.

At the western end of Brimscombe Port, existing roads and the need to retain access to business premises currently makes it seem likely that the canal will need to be re-routed along the River Frome for a short way at this point. The river would be re-routed along the old canal line.

Numerous studies on engineering matters, conservation management, ecology and archive research continue. Consultative meetings are held regularly to progress the restoration project on a broad front. Some are directly involved in the HLF and SWERDA submissions, whereas others are vital to longer term restoration.

The Eastern Section

Progress in the eastern section of the Thames and Severn is steady but much slower, largely because of the current need to concentrate efforts further west. Initial steps have been taken to increase public awareness and involvement and to conserve current towpaths and access points. It is hoped to work with supportive landowners to develop permissive paths and circular routes in conjunction with existing towpaths. Others remain ambivalent about or are opposed to the proposed restoration.

Increasing co-operation with the Joint Management Committee of the Cotswold Water Park is being explored because of mutual interests. They see a restored canal as another way into the Water Park and their existing relationships with local authorities and landowners could benefit its restoration. The water levels in the lakes vary considerably according to season but there is some potential to develop canal reservoir facilities within the Park.

Administration

A major step forward was taken on the 13 April 2005, when the Company of Proprietors of the Stroudwater Navigation leased the Navigation to British Waterways for 999 years. This will facilitate its restoration in many ways. British Waterways can manage it in a way consistent with the statutory approval processes, consultative systems and operational procedures already in place on its other waterways.

Conclusion

Much continues to be achieved, and the Cotswold Canals are a significant part of the Government's plans for Britain's waterways over the next twenty years (7). Adequate funding permitting, there seems little reason to doubt that a direct waterway between Saul and Brimscombe will be re-established in the foreseeable future. British Waterways believe that the complete restoration of the Cotswold Canals, like that of seventeen others, will be completed within a 20 year horizon.

One of the others is the Wiltshire and Berkshire Canal between the River Thames at Abingdon and the Kennet and Avon near Melksham via Swindon. This will include its reconnection with the Thames and Severn at Latton via the North Wilts. Canal, although reopening of the whole canal by 2025 is thought to be unlikely because of the complexity of the scheme.

However, concerns remain that the physical regeneration of brownfield sites through which the waterways pass remains at risk from poor design and a piecemeal approach. Selected development of individual sites reduces the opportunities for more attractive coherent schemes. As always, much depends on the planners.

- 1 T. C. Stening, GSIA Journal 2001, p.22.
- 2 T. C. Stening, GSIA Journal 2002, p.44.
- 3 T. C. Stening, GSIA Journal 2003, p.59.
- 4 K. N. Burgin, The Trow (Cotswold Canals Trust) No 129, p.10.
- 5 A. Stumpf, The Trow (Cotswold Canals Trust) No 129, p.22.
- 6 K. N. Burgin, The Trow (Cotswold Canals Trust) No 129, p.22.
- 7 Waterways 2025, British Waterways, June 2004.

Note: On 25th January 2006 it was announced that the HLF had awarded the project a grant of £11.9 million and that SWERDA had offered match funding of £6 million.



(T Stening)

Fig. 1 The new Gateway Bridge as seen from the towpath leading to Cerney Wick



(T Stening)

Fig. 2 The rebuilt Pike Bridge as seen from the west looking through to Pike Lock

THE RESTORATION OF THE COTSWOLD CANALS SEPTEMBER 2006 UPDATE

Theo Stening

Introduction

A six-mile stretch of the canal between Brimscombe Port and The Ocean at Stonehouse fully restored and a multi-user trail onwards for four miles to Saul, all completed by the end of 2008. That's the target, and a sure sign of progress in reopening the Cotswold Canals. Ten locks will have been restored and nineteen bridges updated or replaced, as well as several natural habitats created or conserved.

This £24 million first phase will have been possible because of the £11.9 million grant confirmed on 25 January 2006 by the Heritage Lottery Fund, coupled with an offer of £6 match funding from the South West of England Regional Development Agency, both reported previously. (1) Added to this will be further funding from other public bodies and other organisations. By far the biggest proportion comes from national, regional and local public resources, but voluntary organisations such as the Cotswold Canals Trust continue to make significant contributions in many other ways too.

The restoration programme

What will happen, when and where? Plans may change, but subject to satisfactory planning approvals being obtained, removal of the infill at Ebley and the section to Ryeford Lock should be completed by the end of 2006. Trees obstructing the first year's restoration route will also be removed. This will enable the waterway between Ryeford Lock and Hilly Orchard to be reopened. Less obvious work will be the renovation of the large pond in The Lawns the public open space now owned by the Stroud Community Land Trust. This was once the garden of The Lawn mansion demolished to make way for the Cainscross roundabout.

New road bridges are planned at Oil Mills, Upper Mills and The Ocean between January and May 2007. Ryeford Double Lock should be restored and work undertaken to canalise flood relief channels associated with the River Frome near the A46.

All being well, a start should be made in April 2007 to restoring the waterway through the Capel's Mill area on the far side of Dr Newton's Way from the Waitrose supermarket. Dudbridge Lock should be renovated, and work initiated on the A46 bridge and basin.

The development of a "Stroud Waterfront" between Wallbridge and Capel's Mill is a key element of the restoration programme. This has been facilitated by Gloucestershire County Council's agreement at the end of 2005 to transfer Wallbridge, Capel's Mill and associated land holdings to British Waterways.

By mid-2007 renovation of the locks, by-weirs and landings between Wallbridge and Brimscombe should also have started. More on this in a later update perhaps. Suffice it to say that the excavation of much of Brimscombe Port (but not all) will be completed by the end of 2008. Another section of the missing canal route here was secured on 31 March 2006 when British Waterways acquired the Port Mill Industrial Estate at the western end, adjacent to the port area they already own.

When the restoration starts in earnest there will be concerns about its initial impact on the local environment. Some disturbance is inevitable, but experience elsewhere shows that in time it will all blend harmoniously again with the surrounding landscape.

Much care is being taken throughout the planning stage to ensure that all the relevant factors, including built heritage, archaeology and social history, are considered in detail. British Waterways has formed the Cotswold Canals Heritage Consultation Group. Its members include representatives from British Waterways, Stroud District Council, English Heritage, the Cotswold Canals Trust, Gloucestershire County Council Archaeology Services and GSIA. Stroud District Council is actively preparing a Cotswold Canals Area Action Plan. This seeks to ensure development of an appropriate scale, mix and quality for key areas of change and conservation.

The revised Stroud Industrial Heritage Conservation Area Statement, now in preparation, will provide guidance and interpretation of conservation area policies to be set out in development plan documents. Much is happening. The new Cotswold Canals Partnership website is nearing completion. This will be a comprehensive source of information on all aspects of the canals project.

The Eastern Section

Volunteers at the eastern end of the waterway continue to clear maintain and progressively improve the towpath from Siddington to Latton Basin. They have also cleared Ruck's Bridge, a large brick-built accommodation bridge at Alex Farm near Marston Meysey, and the canal on either side with a view to restoration work being started on it later in the year.

The increasing interest in restoring the North Wilts Canal from Swindon, which previously joined the Thames and Severn at Latton Basin, is helpful in supporting the restoration of the Thames and Severn from the Cotswold Water Park to Inglesham at as early a date as possible.

However, it is now clear that the preferred route for the North Wilts will be through a new cut to the eastern side of Cricklade to join the Thames and Severn west of Eisey, and not at Latton Basin as before.

Future Plans

An application was submitted to the Big Lottery Fund (Living Landmarks Programme) in January 2006 for £15.95 million to complete the restoration of the waterway from The Ocean to Saul. This led to a review visit to the site of the proposed restoration at the end of May 2006 and the award of a development grant of £250,000 in August to enable further work on this project to be undertaken. The project was one of only 23 out of over 700 applicants selected for development funding. Successful applicants at this first stage have until the end of May 2007 to submit a second stage application. A final decision about who will receive further funding will be made by the end of August 2007.

If all goes well, such funding could see the full restoration of the canal between Saul and Brimscombe Port being completed by the end of 2010. Shall we see boat trips restored between Brimscombe Port and Gloucester?

1. Stening, T. C., GSIA Journal for 2004, p. 61.