

THE SOMERSET COAL CANAL

a Cartographical Survey

Mike Chapman

'There is an odd remoteness about the countryside south of Bath. It is a region of steep hills, small streams and narrow valleys; the hedges are tall and the roads narrow and winding. It is easy to lose your sense of direction and easy, too, to lose track of the Somerset Coal Canal....'

Ronald Russell

'The Lost Canals & Waterways of Britain'

Introduction

Officially opened in 1805, the last voyage on this canal took place in 1889 and eighty years have now passed since the Main (northern) Line was replaced by the Camerton and Limpley Stoke Railway. The Radstock (southern) Line operated in part as a canal for a few years only before being replaced totally as a Tramroad in 1815 and built over by the Somerset and Dorset Railway 57 years later. During the last 30 years both railways have in turn been demolished and the property broken up and alienated.

It is therefore surprising how much of the original structure remains, if somewhat disjointed, so a detail survey of the whole of the canal has been undertaken by the Avon Industrial Buildings Trust to place these back into context. My particular task was to locate and examine as many early maps as would be useful. The following report is compiled from data obtained during the survey.

Method

The survey was based on three main large scale maps :-

1) First Edition O.S. 1/2500 Scale Map Sheets c.1884 ; particularly useful on the Main Line of the canal which was then still in use.

2) Parish Tithe Maps ; particularly useful on the Radstock Line of the canal with the tramway along the towpath in operation, and this is shown clearly over most of its course on the Wellow map. It was unusual to include such detail on a Tithe map and it is possible that

the surveyor in this instance used it as a base line to chain out to intermediate features. Even the passing loops are accurately represented. In the seven miles between the Radstock Terminus and Midford Wharf there were 23 loops, mostly 60 or 70 yards long.

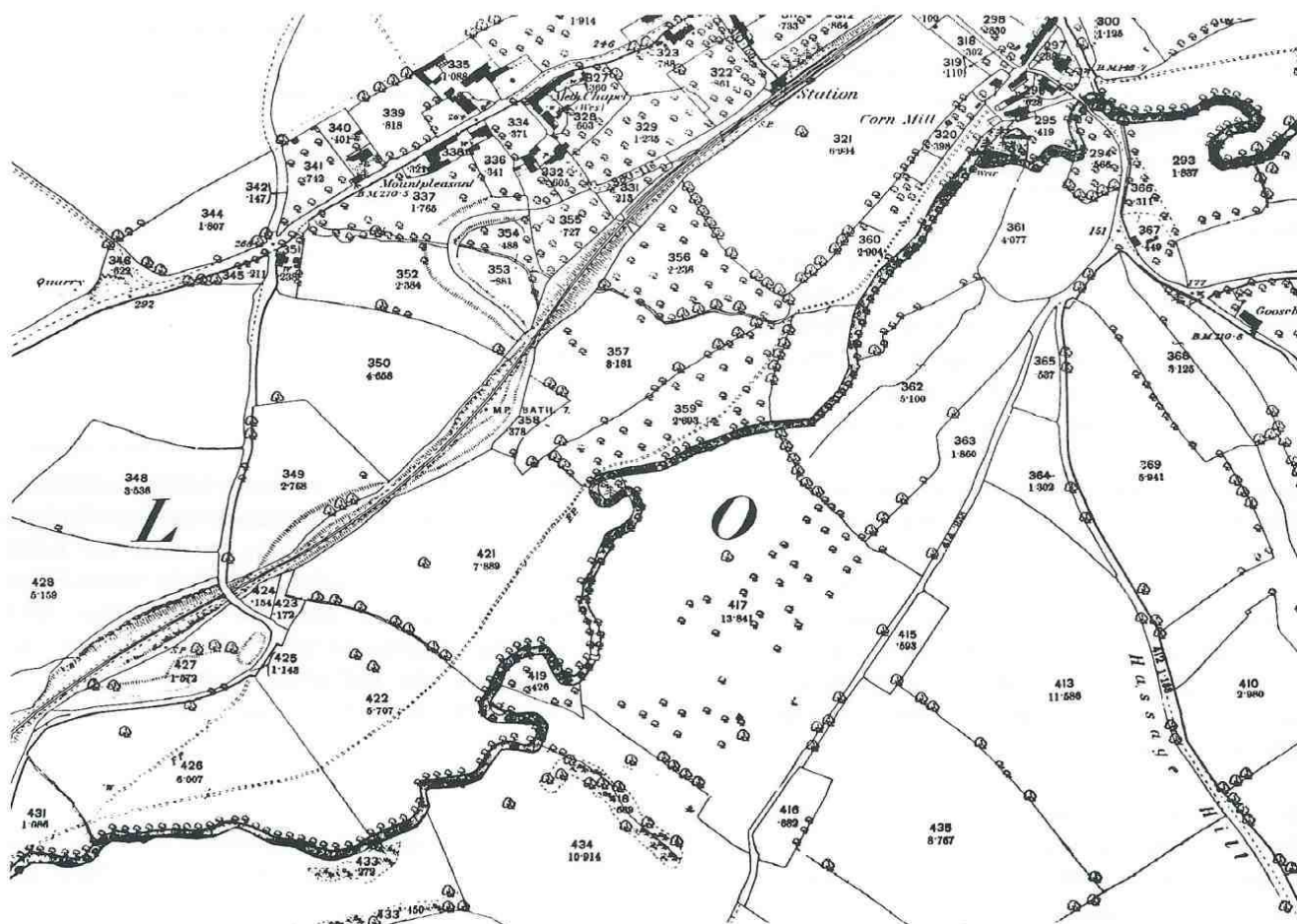
3) The Somerset Coal Canal Map, in the Moore Room of the Bath City Reference Library. This wall-map (6'3" by 12'10") at approx. 1/4500 scale is thought to have been surveyed circa 1812 by Jeremiah Cruse, a business partner of William Smith, 'Strata Smith, Father of English Geology', and was presumably commissioned by the Canal Company. It shows the Combe Hay Flight of Locks and Pumping Station, both completed by 1805-6, and the Radstock Line "in water" before the tramroad construction of 1815, but does not include William Smith's mill or quarry tramroad at Tucking Mill. Recent research shows that the mill was built between 1808-9 (Eyles 1974) and the tramway between 1811-12 (Pollard 1982). It seems unlikely that these features would have been overlooked, so a date of between 1806-10 is more probable. Whatever the case, this map is the most important source of information on the canal as it was originally constructed and used.

Besides these three maps, valuable information was also derived from the Canal Deposited Plan of 1793, with the Deviations of 1795 and 1801, the Deposited Plan of the Somerset & Dorset Railway of 1871, and various smaller scale town and county maps.

Details of the canal, including adjacent features within a few hundred yards of either side, were transferred from the 1884 O.S. sheets onto current O.S. 1/2500 base maps by photocopying and simple back-light tracing, making due adjustment for paper stretch and other factors. By using a photocopier with digital enlarger the same technique was used for the Tithe maps and despite an expected loss of accuracy a tolerable fit could still be obtained with a degree of error acceptable for the purposes of this survey. Even the Radstock Line could be represented by interpolating the banks of the canal between the towpath tramway and the canal boundaries.



Wellow Parish Tithe Map, 1840.



Same area - O.S. Map 1/2500 Scale, First Edition, Surveyed 1884.

In this way several radical and unsuspected alterations to the landscape came to light, and information shown on the earliest maps could be easily identified and transferred to the base map by eye. The base map was also annotated with useful data derived from early photographs and documentary sources. From hereon the survey was carried on in the field to compare the base map with findings on the ground.

General Findings

To assess the condition and extent of the remains, a threefold classification was employed;

- i) Parts of the canal still mainly intact, complete with bed, banks and towpath.
- ii) Parts of the canal partially altered by superficial infilling etc. but otherwise easily traceable
- iii) Parts of the canal completely destroyed or so radically altered that no obvious signs remain of its course. This includes deep burial under colliery spoil-heaps as at Camerton New Pit and Lower Writhlington Colliery.

This provided an opportunity for an overall statistical analysis of the remains which produced some curious results. Contrary to the general opinion that most of the canal had been destroyed by the railway, it appears that on the Main Line, for example, only 22% of its total length of 11 miles had been affected.

There are several reasons for this. The Camerton Branch Railway, built from Hallatrow to Camerton in 1878-80, ran parallel to, but did not physically affect, the canal from its Timsbury terminal basin to Camerton New Pit, a distance of some 2 miles most of which is still in good condition and can be followed along the towpath.

Whereas the Canal was constructed on two levels connected by the Lock flight, the Railway from Camerton to Limpley Stoke, built on it in 1905, was laid to a steady gradient so that between Tucking Mill and the Lock flight summit it was too high above the canal to follow the same course. Most of this section, about 2½ miles, has therefore also survived and the towpath similarly provides a public footpath.

As for the remaining 6½ miles, the sinuous course of the canal along the contours did not always coincide with the straighter course of the railway, and was merely chopped into sections. Many of these sections were very

short, some rather less than 100 yards long, and have reblended into the rural surroundings.

Because the Radstock Line stands at one level, the coincidence between canal and railway was proportionately higher, and more than one third of its 6 mile length was destroyed.

After the 'railway mania' there was little change until the arrival of the 'intensive farming mania' which in the last 20 years has destroyed a further 10% of the canal, bringing the total overall to 42% destroyed. Although those parts left intact account for 31% of the original course, and a further 27% left partially altered, these figures mask their dispersion and inaccessibility. Much of the remains lie in private ground or dense undergrowth. It can be seen that any restoration of the canal would face serious difficulties, and it is likely that the 600 yard section brought back into use for private moorings between the Entrance Lock at Dundas and the Limpley Stoke Viaduct will remain an exception

Water Supply

At an enquiry into the abandonment of the Canal Main Line in 1903 three water sources were cited;

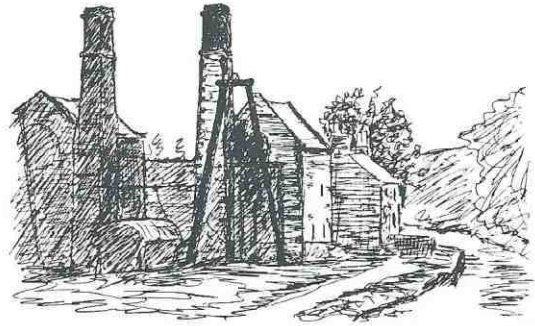
- (a) A pumping station from the Cam Brook to the Summit level.
- (b) Cuts from the Cam Brook into the canal at the terminal basin and also at the lower level.
- (c) A "not unimportant spring called Dunkerton Spring" on the summit level, and various springs on the lower level.

(a)Pumps

The Pumping Station at Withy Ditch, Dunkerton, was demolished by the railway and the site is now buried under a tip. It obtained its water from the pound of Dunkerton Mill a few hundred yards beyond on the Cam Brook. The Mill buildings, purchased in 1802, are shown on the Cruse map, but had disappeared by the time of the 1840 Tithe map. The Pound can still be seen, although recent diversions of the brook have left it isolated as a small pond in a meadow.

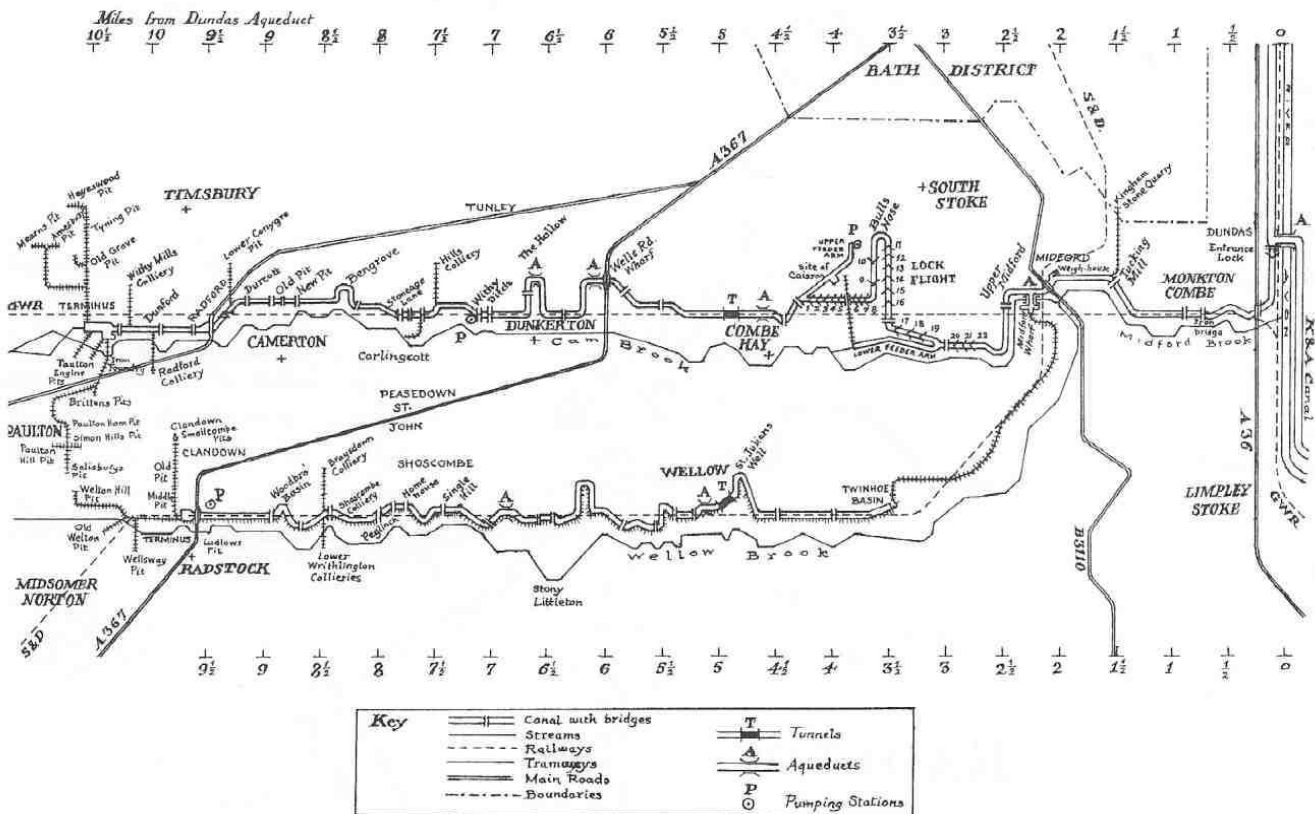
One of the engines was transferred from the other pumping station at the summit of the Combe Hay Lock Flight, where the Feeder Arm and the foundations of the pump-house can still be seen.

These foundations were the subject of an exploratory excavation by BIAS members in 1968 in searching for the site of the original Caisson Lock (BIAS Journal Vol 2). There the engine only pumped-back water that had passed through the locks (Clew p62), presumably from the pound below lock 10, and does not seem to have had an independant supply. The date of the transfer is uncertain (Clew p120). The Tithe map shows the Dunkerton Station covering a small area marked 'Pumping Engine' (singular), whereas an 1845 entry in the Dunkerton Poor Rate Book charges the Canal Company for 'Engines and Land' (plural). It may be no coincidence that a pump-engineer, Mr C.W. Bampfylde, was newly appointed in 1844.

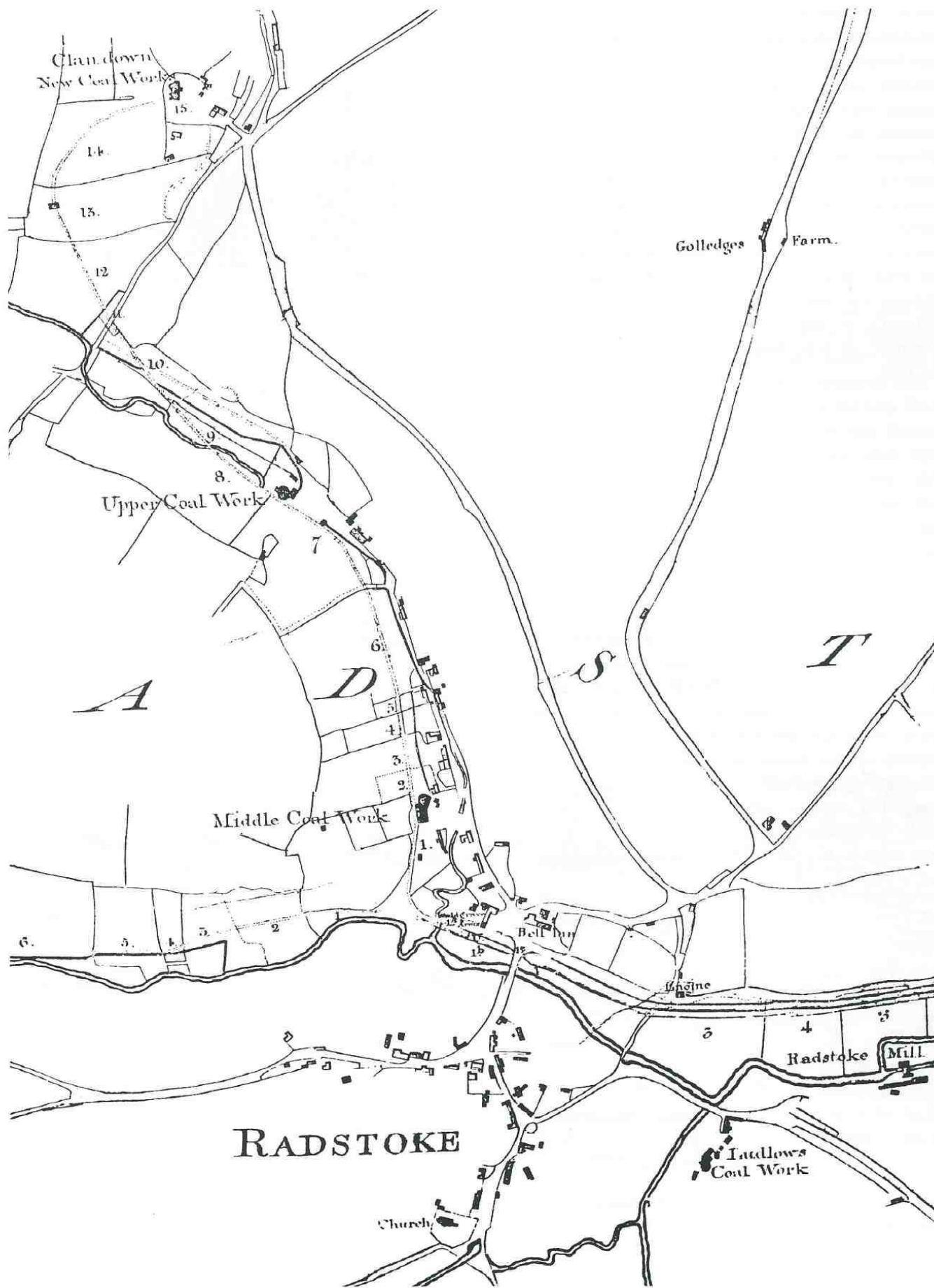


Dunkerton Pumps - shortly after closure.

SOMERSET COAL CANAL - COMPOSITE PLAN



Somerset Coal Canal - Composite Plan.

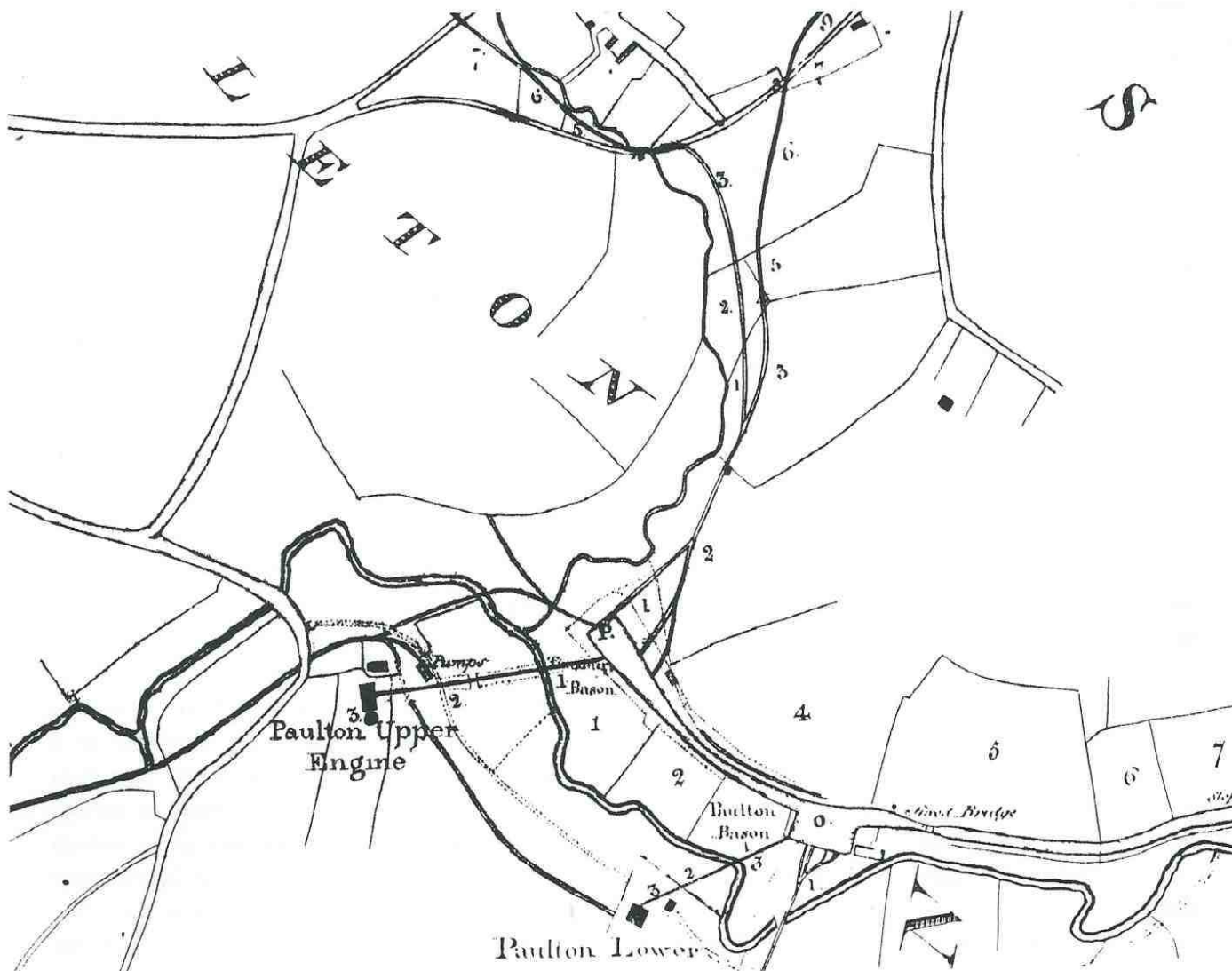


Canal Terminus at Radstock, Cruse Map - circa 1807.

There is no direct evidence of a pump on the Radstock Line, but a Tender to build one was put out in 1801 (Clew p56), and the pump mentioned in an 1808 advertisement (Clew p69) may be separate from the pumps already built on the Main Line. The Cruse map shows an isolated building marked 'Engine' next to the canal at Radstock where the railway sidings later stood near Waterloo Road. If this Engine was for pumping it is not well situated to draw water from Wellow Brook, perhaps acting as a mine-pump for Ludlows or Middle Pit only a few hundred yards away. It does not appear on the 1806 Waldegrave Estate map of Radstock and would have been redundant after 1815. A further complication is provided by a newspaper article (Somerset Guardian - 7th August 1925) where it is said that water for the canal was diverted from the 'Somer Brook' and that 'relics of a water--power pumping station below Radstock are still in evidence'.

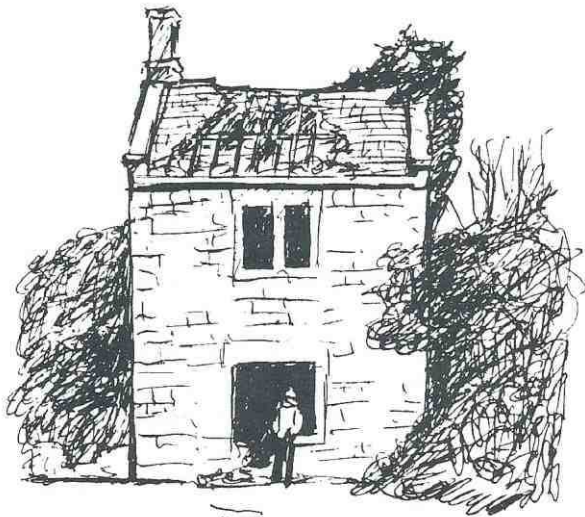
(b) Feeder Cuts.

The Cruse Map shows that the canal terminus at Timsbury was originally supplied from Cam Brook by a complicated set of leats, evidently originally cut to supply the boilers of both Paulton Upper and Lower Engine Pits with clean water (Pit water being too contaminated for the purpose) The canal supply leat is shown crossing back over the Cam and another smaller brook to join the terminal basin via a sluice. Whether these crossings were made by small aqueducts or launders is not shown, but may be surmised in order to achieve the necessary height. The Tithe maps do not show this area in great detail and by the time of the 1884 O.S. map this part of the canal had already fallen into disuse, as had the last of the local collieries - Paulton (lower) Engine. Incidentally the map on page 60 of Down and Warrington's 'History of the Somerset Coalfield' is incorrect in transposing



Main Canal Terminus at Timsbury, Cruse Map - circa 1807.

the two Paulton Engine pits. Although the Sewage works and extensive tipping in this area have obliterated most surface features, the point of entry into the basin is still clear and there is a prominent abutment in the south bank of the Brook at the crossing site. The remains of the sluice-keeper/wharfinger's cottage have only disappeared very recently.



Timsbury Wharfinger's Cottage in 1975.

A similar system may have operated at the Radstock terminus. Both the Waldegrave map and the Cruse map show a long cut following the Wellow Brook from the Fosseway Bridge and stopping several hundred yards short of the canal basin. It may have continued by culvert to the canal over the stream from Clandown. The canal was originally planned to extend beyond Radstock to terminate at Welton, thereby following the same course as this cut. The terminus has been buried by later railway construction but remains further upstream could come to light; many remains have been found of another leat that once fed the Radstock Collieries from the Clandown stream.

The lower level of the Main Line was supplied from the Cam Brook by means of a weir and culverted leat in the valley below Combe Hay Lock Flight. Both features have survived and the leat can be traced through gaps in the turf, from the weir near Anchor Farm to the lower Feeder Arm of the canal near Inner Meadow Cottage. The Feeder Arm was originally built as a terminus of the lower level to form a connection with the Inclined Plane that replaced the unsuccessful Caisson Lock. In turn it became redundant when it was replaced by the Lock

Flight, but was retained as a reservoir pond for the lower level. It still remains and the low arch of the leat outflow is still visible in the terminus wall. Although the leat does not appear on any of the maps it has been pencilled in at some later stage on the Moore-room map.

(c) Springs

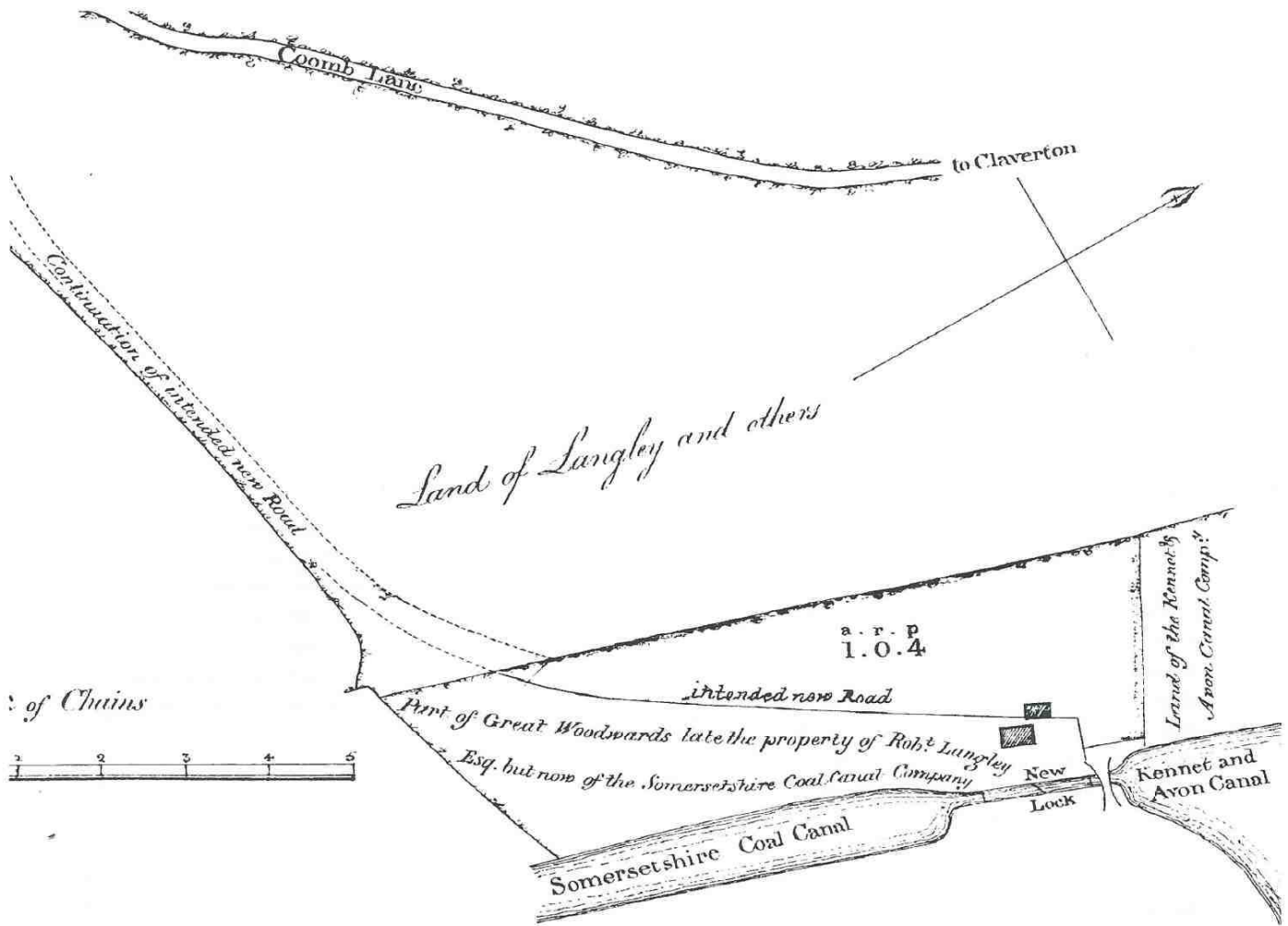
No reference has so far been found as to the exact site of the 'not unimportant' Dunkerton Spring, but the maps all show that a network of streams approached the canal at Withy Ditch, forming a marshy basin below the Baptist Chapel. At this point the canal was later destroyed by the railway and the neighbouring field is now dry, the spring being diverted to some other purpose. Many small springs were found along the banks of the canal during the survey, and it seems likely that there were more than those mentioned in the 1903 enquiry. It is worth noting here that the canal was built with long summit pounds, 6 miles on the Radstock Line and 6½ miles on the Main Line, compared with 2½-3 mile lower level. This had the advantage that the maximum amount of water could be collected and conserved at the summit level to cope with loss through the locks.

Water Control.

i) Locks.

The most important water control feature on this canal was Robert Weldon's Caisson Lock at Combe Hay, but this - as has already been mentioned - has been satisfactorily dealt with elsewhere. Similarly the spectacular remains of the flight of 22 locks nearby are becoming better known and some of them are being examined and consolidated by AIBT. The locks are of narrow type, 75ft long by 7ft 3½ ins. width, with deep chambers to overcome an average drop of about 6ft 3ins. and were equipped double-leaf tail gates, operating with gate paddles, and single-leaf head gates operating with ground paddles. Provision is made for stop planks. Lock 16 was destroyed by a railway embankment and Locks 17-20 have been filled in, but the rest still stand in various states of decay. The locks were given numbers counting from the summit, but the bottom three locks, No.s 20-21-22, were built separately four years before the others, in order to utilise the Inclined Plane (Clew p49).

Because the canal was built on only two levels there are no other locks except the Entrance



Dundas Junction, as shown on an Agreement dated 1823 between SCC and Kennet & Avon Canal Company to jointly build a road.

Lock at Dundas which was modified from a wider pattern and has a somewhat different design (Hammond p29). It has only a slight drop, the Enabling Act of 1794 stipulating that the 'canal be so made as to communicate with the Kennet and Avon Canal on a dead level' (Fuller p2273). In practice the Kennet and Avon Company insisted on a higher level being maintained so as not to lose any of their valuable water they were having to pup from the Avon at Claverton.

A stone-built chamber, now filled in, was found on the Main Line summit near Mill Lane at Radford, but there is no evidence that it served as a lock, and its purpose remains unclear, - possibly a bridge narrows.

ii) The Dry Dock.

Annexed to the South-East corner of Paulton Basin at the Main Line terminus was a Dry Dock, the entrance of which can still be seen in the basin wall. It has been mostly filled in, but

was approx. 40ft wide and 80ft long, terminating about 15ft from the Cam Brook at which point it was probably drained. There is a drain protruding through the bank of the Brook 20 yards further downstream, but this may have served for emptying the terminus basins which could be isolated by the Witherly Mills Stop-gate or perhaps a stop plank point on the terminus entrance bridge nearby. Slotted masonry for stop planks can still be seen in the sides of the Dry Dock entrance. Access from the canal to Paulton Basin was provided by a small stone-arch side bridge over the Dock entrance, but as I write news arrives that this bridge has just been pulled down - despite work done by AIBT to preserve it. Along the South side of the Dock can also be seen the ruined foundations of an unidentified building.

iii) Stop-gates and Sluices.

The Cruse map shows eight stop-gates on the Main Line and the 1884 O.S. maps identify a further

six. Although ten of these were on the summit level, none occur on the Radstock Line. Some appear at suitable junctions (at Dundas, and at both upper and lower feeder arms of the lock flight) and at other key points (Midford Weigh-house and both ends of Combe Hay aqueduct) other sites are less obvious. At Dunford, for example, there are two within 40 yards of each other. Remains were found at most of these sites as well as at Withy Mills, Bengrove and below Midford Castle. At the latter site, the stop-gate has been buried by tipping, but an associated drainage sluice under the towpath can still be seen nearby. At Combe Hay aqueduct only one of the stop-gates has survived, but so too has a sluice and together they are well preserved.

iv) Culverts and Drains.

Overall, at least twelve principal streams and seven large springs were crossed by the canal. Except for four streams provided with aqueducts, they would all have required culverts or drains. Only a few of these are still in good condition, the best examples being at Tucking Mill, Upper Midford, Stoney Littleton Lane and at St. Julian's Spring at Wellow.

Some have silted-up and breached the canal banks, a good example being Rowley Bottom Stream at the lock flight. It seems that the whole stream was culverted from above the pound between Locks 10-11 down to the Lower Feeder Arm and thence to the Can Brook. Judging from an eye-witness account (Clew p120) the culvert seems to have ceased proper functioning even before the closure of the canal, flowing directly into the lower locks 11-15, as it still does today. Traces of this culvert have been found in places, but its entrance and exit have not yet been discovered. There is a drain protruding from the bank of the pound below Lock No.1, but this may be part of a system for draining the Upper Feeder Arm, or perhaps one of William Smith's drains to prevent slipping of the Fullers Earth beds.

v) Lay-byes and Passing places.

When crossing a stream, the canal often formed a bend as it followed the contours on each side of the combe. At the apex of the bend it could be made wider, thanks to the gradient along the length of the stream being less than at the sides. This provided an opportunity for constructing either a passing place or a winding-hole in which to turn boats.

There were two places however where the widening was large enough to form a small lake or basin. One was at Radford, and was later filled in to accommodate the Radford & Timsbury railway Halt, the other was at Woodborough on the Radstock Line, and still exists though overgrown and reduced in size to a small pond. The Cruse and Waldegrave maps refer to it as "Woodbro' Basin" and show it straight sided, as if provided with retaining walls. There might have been a wharf intended here. There was also a large basin at Bengrove which stretched out for about 100 yards in a finger along the edge of Bengrove Wood. During the winter of 1821 it provided an ideal skating-rink for Rev. John Skinner and his family (Skinner p158).

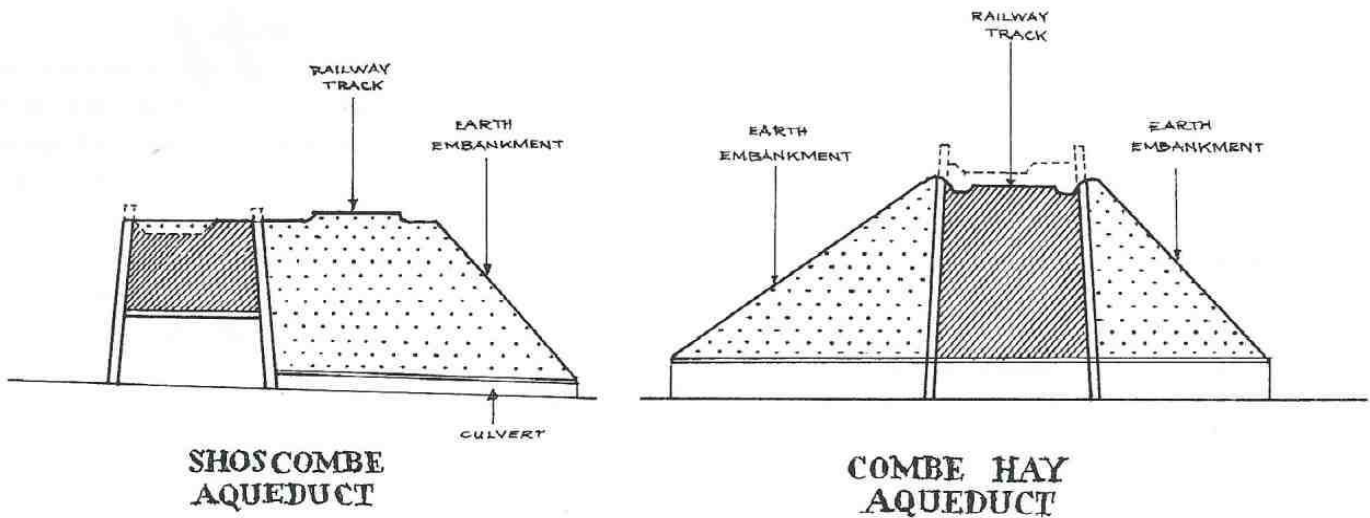
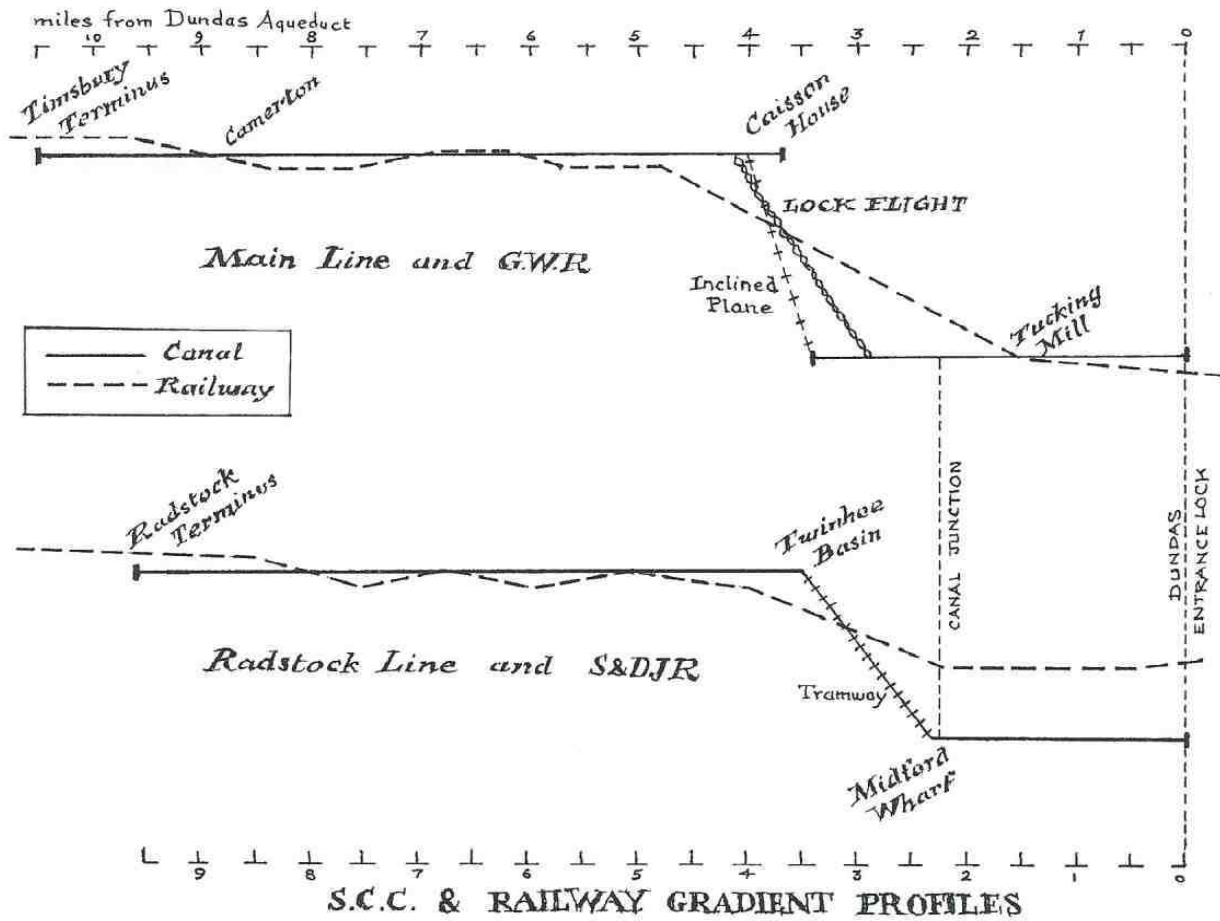
Although the canal was de-watered long ago, the clay puddling still retains water needed for new purposes. Three ornamental garden ponds, two swimming pools, a duck-pond, a fish tank and a cattle watering hole were found along its course; their previous existence as a canal bed being frequently unsuspected by their owners.

Milestones.

In accordance with the 1794 Act, which required the 'canal and rail ways to be measured, and stones set up at every half mile' (Fuller p2273), 21 stones were erected along the 10½ miles of the navigable waterway of the Main Line, each having a metal plate engraved with the appropriate number of miles from Dundas. An anonymous series of photographs in the Bath Reference Library shows at least 15 of these were still in situ by the 1950's or 1960's, of which 11 had their plates intact. During the survey all 21 sites were visited and 11 of the stones could still be accounted for, including three which had since fallen or been resited, but only two still had number plates. These two, at 4 and 4½ miles are in private grounds at Combe Hay.

On the Radstock Line there should have been a further 15 stones. Photographs taken in the 1960's show a 3½ milestone at Twinhoe Basin with its number plate intact, but although this stone is still in place (with its plate missing), no evidence was found of others along this line. The Twinhoe stone is smaller than those found on the Main Line and had a simpler style of plate, suggesting that this line was not provided for in the normal way.

Small boundary stones marked 'SCC' were also set up at various places by the Canal Company, but



Somerset Coal Canal - Profiles

it is difficult to determine their distribution, which in any case would only have been installed where the boundary could be in doubt by not otherwise being defined by hedges etc. A few still stand in situ, but many have been lost.

Towpaths.

The Act of 1794 stipulated that the 'width of the canal and towing paths to be 30yds. Towing paths to be fenced off.' (Fuller). Generally the towpath ran along the outer embankment on a 'cut and fill' basis, but in several cases it became necessary to follow the inner cutting. At the Main Line terminus, for instance, there were wharves on both sides of the basin which would have required a 'turnover' for towing animals at the terminus entrance bridge. A similar situation prevailed at the Aqueduct in order to negotiate Midford Wharf. There is no evidence of a towpath bridge over the junction, making it necessary to cross over at Midford Road Bridge and again at Upper Midford Accomodation Bridge where there seems to have been a wicket-gate. The 1881 O.S. map shows a path on the appropriate side but this is no longer obvious today.

The construction of the Lock Flight produced the need to negotiate the junction of the Lower Feeder Arm. An eye witness account (Somerset Guardian 22nd Dec. 1937) describes the crossover at the South Stoke Bridge below the junction, where the horse was unhitched and taken through a wicket-gate. Continuing on, past Locks 19,18 and 17 on the 'wrong' side, it would then have been necessary to re-cross at the Midford to Combe Hay road bridge. This route is confirmed by the paths shown on the 1884 O.S. maps, and by an early photograph which shows this bridge to have had no towpath beneath its arch.

The Radstock Line, without such junctions, did not have these problems. According to local tradition, horses were unhitched to cross the Bath to Paulton road bridge at Radford, but no obvious reason can be seen for this other than the bridge hole being too narrow for a towpath.

The maintenance of the towpath surface seems to have involved the practice of spreading boiler ash and other pit-spoil thrown out of boats. Between Upper Midford and Lock No.22 a low mound projecting from the towpath embankment was recently disturbed, proving it to be made up of coal and coke ash - mixed with fragments of china, clay pipes and other 19th Cent. material, including the shells of oysters, mussels and

cockles. The 1884 O.S. map does not show this mound but marks the site with boundary stones (now disappeared). The modification of the towpath on the Radstock Line by the laying of a tramway is still apparent. Tramway stone sleeper blocks can still be found here and there, and the surface often appears to be metalled with limestone hardcore laid between the plateways which became compacted by the constant tread of horses hooves over nearly sixty years.

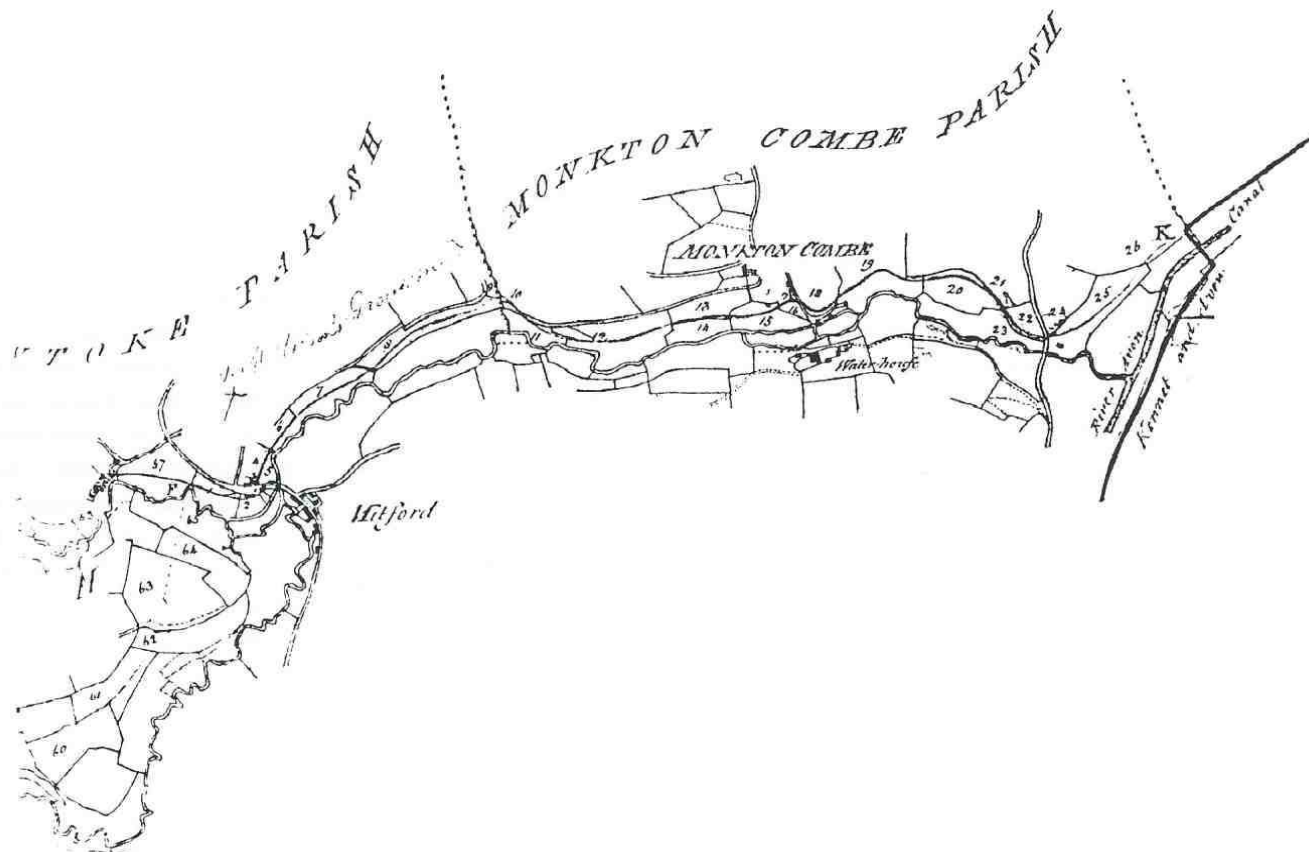
Engineering.

Materials.

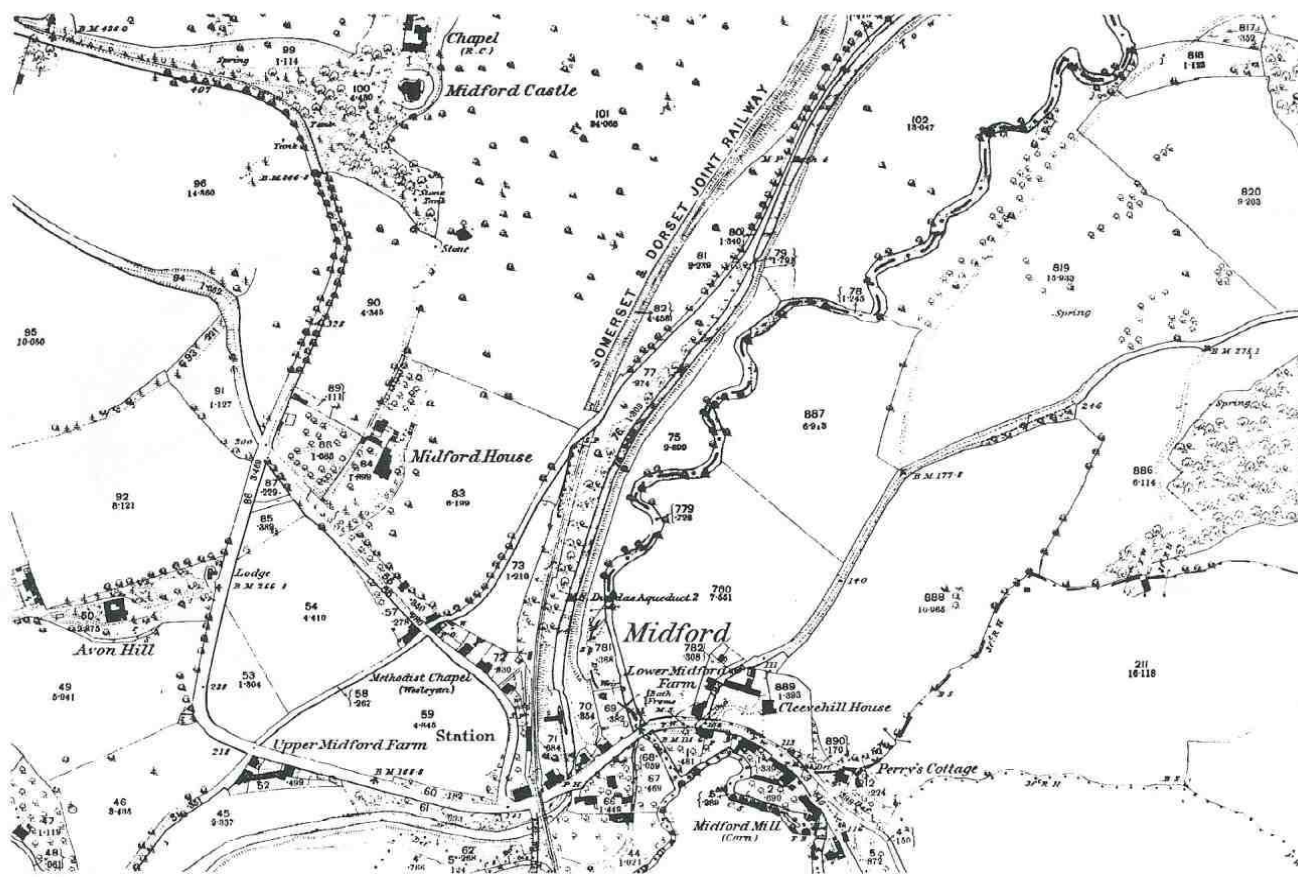
Most materials were obtained locally. The works were principally in stone and the surviving structures reflect the geology of the terrain through which the canal passed, i.e. Pennant Sandstone predominant at the higher, Western, end - giving way to Lias Limestone in the central section, and changing to Oolitic Limestone in the lower, Eastern, end. The early maps show numerous small quarries and claypits attached to the canal cuttings, some of which can still be seen. Local Limekilns were plentiful, although remains of these are now rare in this area. During excavations and repairs by AIBT a set of Mason's marks and numbers were found on the invert at the bottom of Lock 9 and also on the parapets of Midford Aqueduct. Similar marks can be found on Dundas Aqueduct, the Tunnels at Sydney Gardens, and elsewhere on the Kennet and Avon Canal. Some particularly fine examples can be seen on the tunnel roof of Combe Hay Aqueduct.

Brick was only used later for patching the stonework, particularly the vulnerable Bath Freestone on the bridges and lock chambers. Wood was extensively used in the structure of the bridges at first, but it seems they were all later replaced by stone. Wooden lock gates and fenders, which were exposed to rough use as well as decay, were later provided with iron cladding. Massive iron plates that were used to protect the stone lock-sills have also been found. The name plates on the 1811 cast-iron footbridge that once stood over the canal at Monkton Combe showed that it was made at Paulton Foundry, adjacent to the canal at the terminus, and there seems little doubt that all the other ironwork had the same origin.

At Bengrove there is a steep cutting where the inner side of the bed has been lined with a form of concrete for about 50 yards. Evidence of



Somerset Coal Canal, Deviations Plan, 1795.



Ordnance Survey Map, Midford Area, 1/2500 Scale, First Edition, Surveyed 1884.

concrete lining has not been found elsewhere on the canal, and the composition of this example (crushed coal and brick fragments) suggests that it was an hydraulic mixture, possibly deriving from local colliery practice.

Embankments and Cuttings.

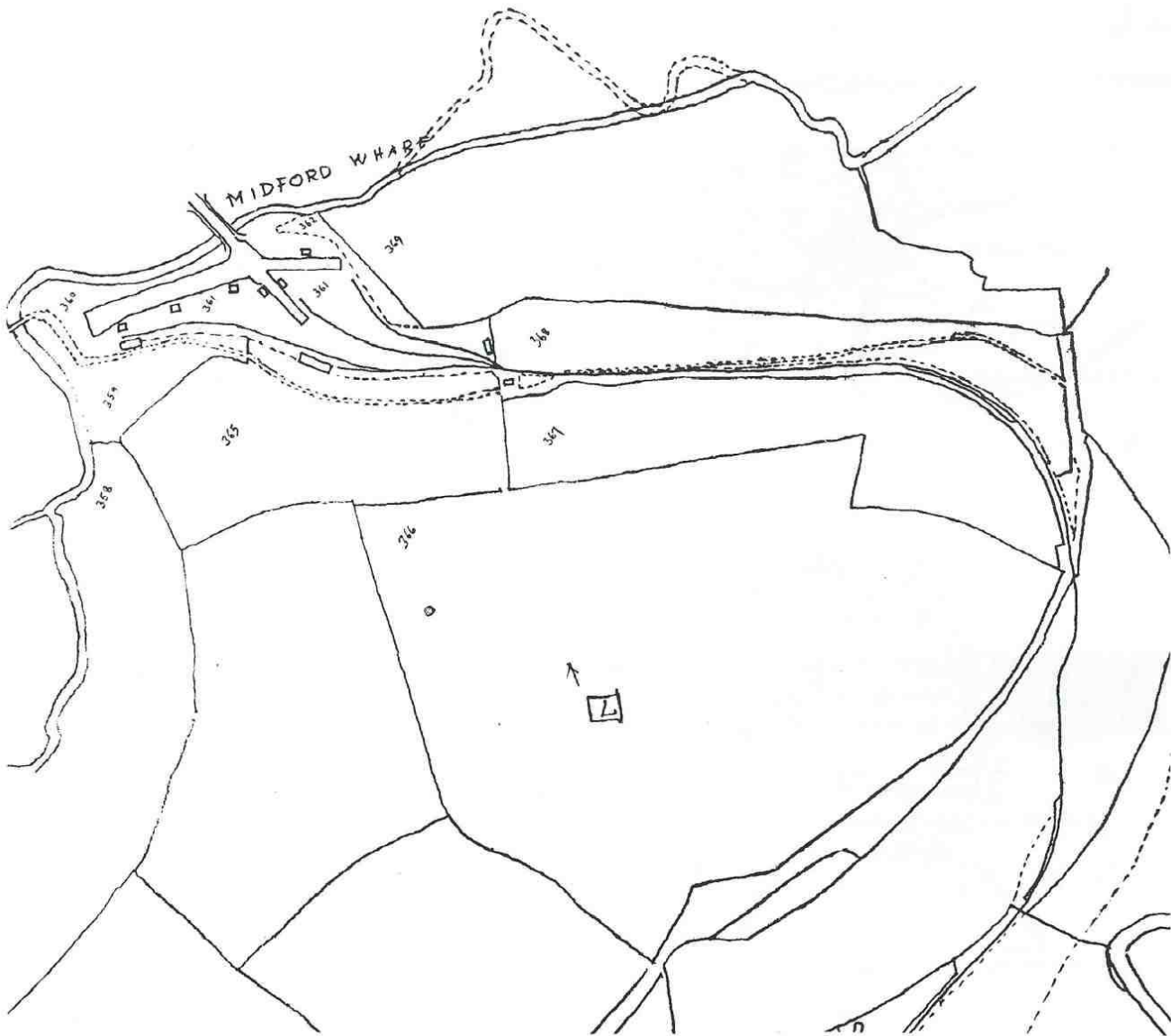
Throughout the canal, but mainly on the summit levels, the embankment was revetted with stone walling. Except in those places where steepness required mortared masonry, dry stone walls were built which are indistinguishable from those used as field boundaries, particularly now that large sections of the embankment have been adapted to that use. The use of walling in cuttings was rare. In general the canal was built to follow the contours, the only sections requiring large earthworks being at Dunkerton and Combe Hay.

Aqueducts.

Six small aqueducts were built; four on the Main Line, and two on the Radstock Line. All but one (at Midford) stood on the summit levels.

i) **Midford.**

Built to carry the Radstock Line of the canal over the Cam Brook and to form a junction with the Main Line, this aqueduct was exceptional, and although quite small, was something of a 'showpiece'. Unlike the others, which appear to all have been made with rubble masonry, Midford was faced entirely with Bath Stone Ashlar and its neat three-arched design is conspicuous even in its present dilapidated condition. Had the original plans for the canal been fulfilled it would have presented a charming approach to a flight of locks instead of its active life as entry to a rather grubby trans-shipment coal wharf - time and nature have since restored its dignity .



Wellow Parish Tithe Map, Midford Wharf, 1840

ii) **Wells Road, Dunkerton.**

This was the largest of the aqueducts, and is now the best preserved. It carried the canal over Severcombe, below Dunkerton coal-wharf by means of a single 'dry' arch, the stream being culverted separately under the floor of the archway.

iii) **The Hollow, Dunkerton.**

An early photograph shows that it had a single narrow arch over the lane from Dunkerton Village up to Longhouse. Little is known about it and it seems to have been demolished soon after the closure of the canal, probably for road-widening

iv) **Hill Lane, Wellow.**

This too was demolished long ago, and although no photographs of it have been found it probably had a similar narrow arch spanning the hollow-way from the village down to Wellow Brook. The Tithe map suggests that the trough was filled in to accommodate the tramroad.

v) **Combe Hay.**

This is barely recognisable as an aqueduct today, having been converted to use as a railway embankment by lowering the superstructure and extending the sides with earth. It crosses a small combe with a stream running down from Week Farm to Combe Hay Village. Its single arch was little more than 7ft. high and only wide enough for a footpath alongside the stream. This was extended by the railway works and now appears as a brick-lined tunnel, but midway through the embankment the masonry of the original arch can still be seen.

vi) **Shoscombe.**

Crossing a small stream that marks the boundary between Shoscombe and Stoney Littleton, this was similarly modified by later railway works. In this case, only one side was extended as an embankment, and the remaining (North) face is still visible - although the parapets have disappeared and the trough is filled in, probably when the tramroad was laid down. The stream still flows through the arch, but is then culverted through the wall that seals off the earth embankment at the other end.

Tunnels

Two tunnels were cut, both being provided with towpaths.

i) **Main Line at Combe Hay.**

Sixty five yards long, passing under the Bath to Wellow road. It is still open, but was considerably altered when it was converted to use by the railway. It is not clear what obstacle it avoided.

ii) Radstock Line at Wellow.

One hundred and thirty five yards long, passing under the village High Street near the parish church. When the tramroad was laid, the bed of the tunnel was filled in to carry the plateway. It has otherwise remained intact, having been walled-up subsequently for various farming purposes.

Bridges.

The Cruse map shows 31 bridges on the Main Line, and another 17 on the Radstock Line. Two thirds of these were small accommodation bridges and only four carried turnpike roads, the rest carrying parish roads. A large number were named or identified on the map, showing that among the minor bridges there were at least 9 'swivel' bridges, 4 drawbridges, 4 arch bridges, and 10 'fixed' (presumably wooden) bridges. No details of the wooden structures have yet been found, but it is possible that the 'swivel' bridges on this canal (and on the abortive Dorset and Somerset Canal nearby) were of the new 'ball-bearing' type swing bridge introduced by John Rennie on the Kennet and Avon Canal.

The early abandonment of the Radstock Line resulted in a rapid disappearance of most of its bridges by 1840, and the last few were removed by the building of the S&D Railway in 1872. Surprisingly, the remains of a stone arch bridge were found at Peglinch Farm where the ramp and wing-wall had been incorporated into the farm-yard wall. The bridge carrying the Bath to Wells Turnpike road (now the A367) at Radstock seems to have survived until the coming of the railway and may still be buried under the site of the level crossing.

There were still 30 bridges on the Main Line when it was abandoned in 1903, but thereafter the majority were quickly demolished and only 6 remain standing today. Three of these are old turnpike road bridges which still carry main roads,- at Limpley Stoke (A36), Midford (B3110), and Dunkerton (A367). The Inclined Plane bridge at Caisson House and the Accommodation bridge at Upper Midford still stand in fair condition, and Tucking Mill bridge (which replaced an earlier drawbridge) is still intact although partially buried with only the deck and parapets showing.

At Radford the Bath to Paulton road still passes over the bridge hole but the entrances have almost completely been buried. Something similar occurred at the Old Pit Bridge at Camerton, where

one of the parapets now serves as a garden wall. The ruins of five other bridges can be found at Dunkerton Hollow, at Durcott, the entrance to the terminus at Timsbuiy, and (now) the Dry Dock.

Wharves.

Overall 20 Wharves have been identified, although these were not necessarily operating simultaneously. The majority served the collieries at the western end of the canal, the rest being trans-shipment points (Wells Road, Dunkerton, at the ends of the Inclined Plane, Twinhoe Basin and Midford); or connections for stone quarries (Carlingcott, Tucking Mill, and at the Dundas entrance lock - transfered to the K&A wharf about 1820). It is said there were others connected with the Fullers Earth mines near Combe Hay and Wellow (Fuller p2264), but these have not yet been positively identified. Except for the large terminal basins, most wharves consisted of a simple shelf and hardstanding supported on a retaining waterway wall. Evidence of quayside equipment is rare; there was a crane at Caisson House and probably another at Midford. The 1884 O.S. maps show there were projecting coal-shoots at the Camerton Pits and Lower Conygre Colliery Wharf but that only the larger wharves had buildings. The early maps show that these buildings appeared at a late stage and consisted of small store-houses and sheds. One of these has survived at Midford which was used as a stable, but may originally have been built as a gun-powder store.

Except at Wells Road and Dundas all the wharves had some form of tramroad connection. A recently discovered photograph (Clew p102) of Timsbury Basin in the 1870's gives a good impression of the layout typical of the larger coal wharves. Much of the retaining walls of the Paulton and Timsbury Basins can still be seen, but all the buildings have disappeared except for a few ruined foundations on the Paulton side.

The terminus at Radstock is no longer visible, but the Waldegrave map shows that it had an unusual layout of end-on docking bays separated by tramroad jetties. Part of the bed was revealed during excavations for the road to Midsomer Norton in 1924 (Somerset Guardian 7th Aug.1925)

The formation of Twinhoe Basin, at the other end of Radstock Line's former water channel, still

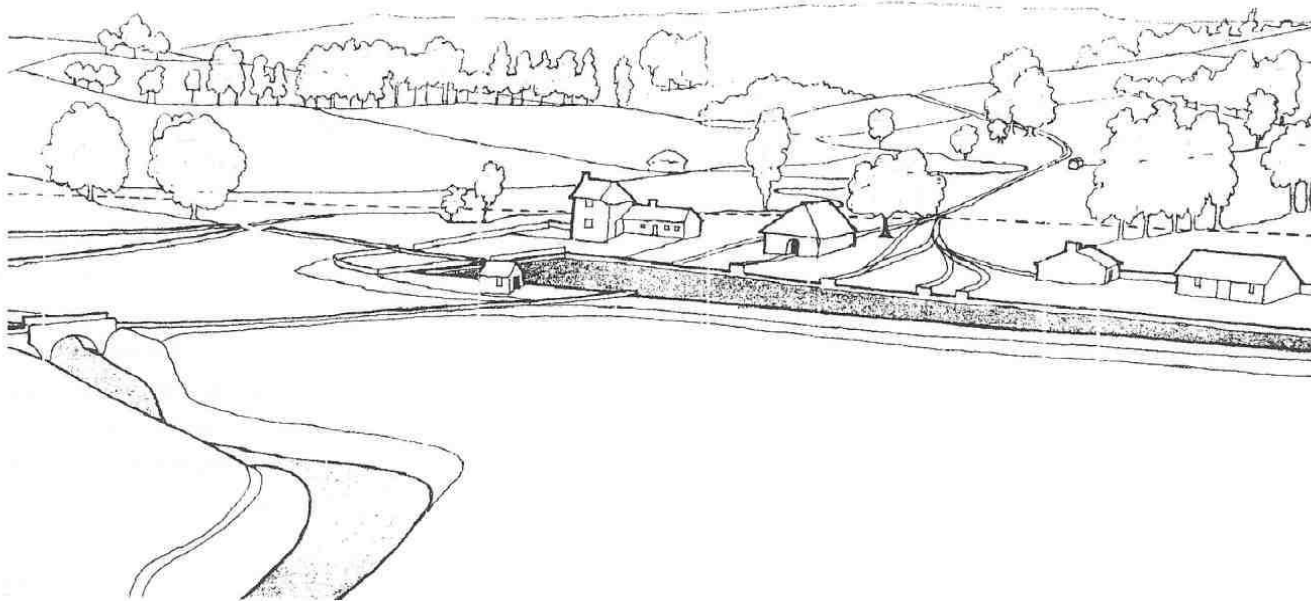
can be traced but did not see much activity during the 14 years of its working life. Quite the opposite was true at Midford Wharf which was provided with three large docking areas branching out from the aqueduct. These have since been filled in but can be seen as depressions in the grass. Thanks to recent pipelaying through the Cam Valley some of the topsoil of the wharf was removed, revealing a bewildering array of tramroad sleeper blocks. These indicate a complicated web of sidings and turnouts which tends to confirm the suspicion that traffic was extremely congested prior to the sale of the Radstock Line to the S&D Railway. The official S&D figures for tonnage carried on the tramway were no doubt exaggerated (Clew p104) but even the revised figure would still require the unloading of 23 trains, of 8-9 waggons, per day.

Such finds suggest that significant details of other wharves might be found by archaeological methods, particularly at Paulton Basin. Some sites have been disturbed, as at Camerton Old and New Pits where the Collieries stood almost on the bank of the canal, and at Lower Conygre Wharf which has been ploughed out (although the retaining wall still stands), but several smaller sites could be considered. Hill's Colliery at Stoneage Farm seems to have been short-lived, but the Cruse map shows a tramroad with inclined plane, referred to as 'Dunkerton New Railway'. Some doubt has been expressed about its existence (Down and Warrington p118), but stonework has been found showing through the turf at the site of the tramroad wharf.

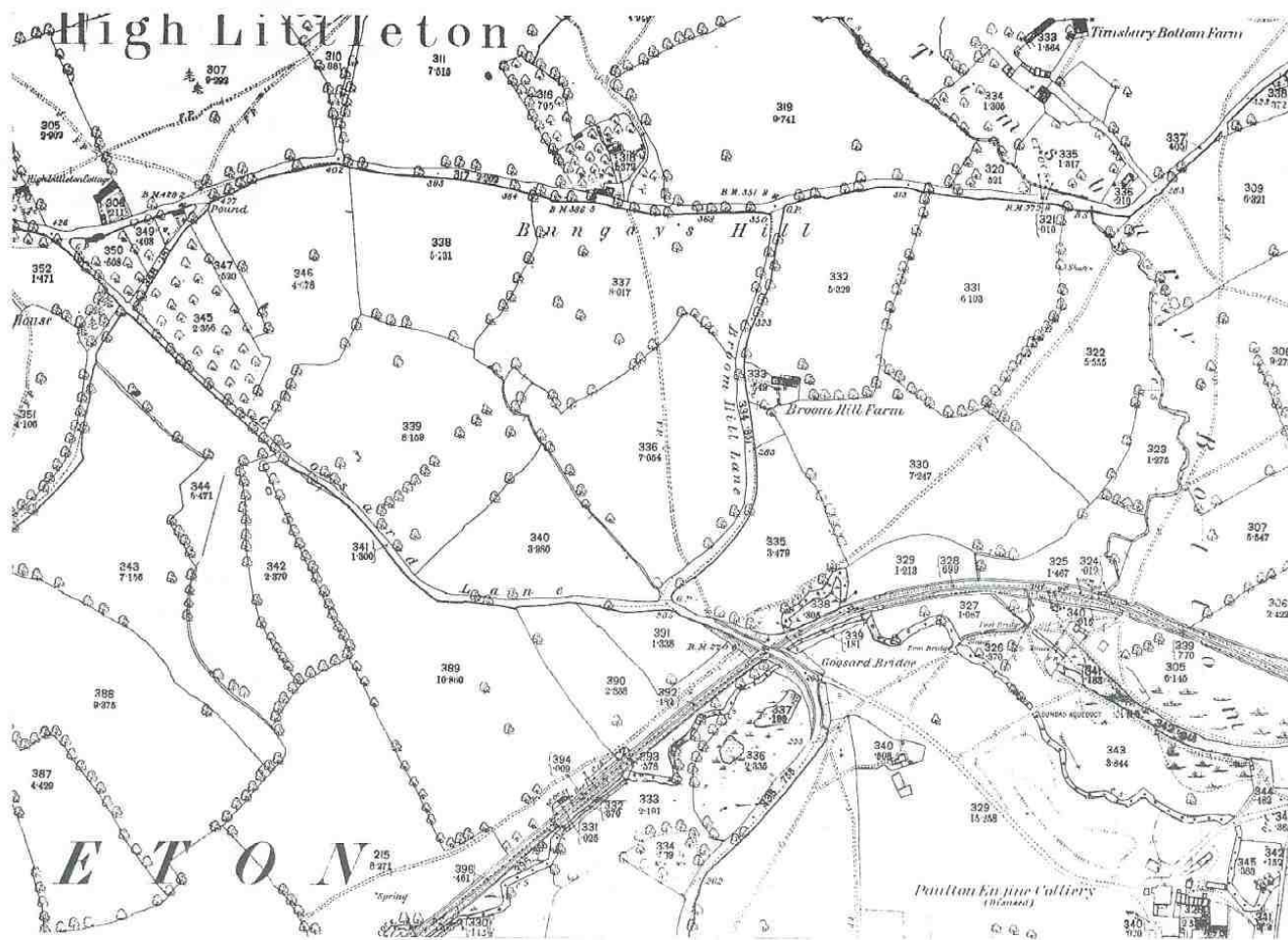
The wharf at the top of the Inclined Plane at Caisson House has disappeared, but the bottom platform on the Lower Feeder Arm has survived as a lawn for Inner Meadow Cottage. The high-walled tramroad platform at Radford Colliery Wharf is still impressive despite infilling of the canal formation. The corresponding embankment on the far side of Cam Brook can also be seen, but the bridge that joined them had already disappeared by 1884. Nearby the site of Withy Mills Colliery Wharf is still visible, but it may have been disturbed by the building of the Camerton Branch Railway.

Tramways.

The long feeder tramroads from Paulton, High Littleton and Timsbury to the Main Line, and from Welton and Clandown to the Radstock Line were not dealt with in great detail by this survey. They are clearly shown, however, on the



Timsbury Basin in 1872 (from an old photograph)



Timsbury Terminus in 1884 - O.S. Map 1/2500, First Edition.

Cruse map; included are the collieries they served, and the proposed extension to Clutton which may well have been built - from ploughed field indications if not stone sleeper evidence. It is worth noting that three of the SCC tramroad bridges shown on this map are still standing i.e. at Welton Old Pit - crossing the Wellow Brook, two at Paulton Basin - crossing the Cam Brook. One of the latter has an unusual skew arch but it is in a very fragile condition.

Running the Canal.

Tolls.

The Boat Weigh-house at Midford. was already considered a curiosity when it was demolished in 1914. Built in 1831 to deter toll evasion and be more accurate than simple 'gauging', it seems to have been the first of its kind, in this country (Household p191-2) and only two others have been positively identified - at Cardiff (built 1836) on the Glamorganshire Canal, and at Brimscombe (built 1845) on the Thames and Severn Canal; the former now re-erected at the Stoke Bruerne Waterways Museum. The weighing-chamber of the Midford machine now lies buried under a lawn, but the Toll Collector's House still stands a few yards away, next to the Midford Road Bridge.

Maintenance.

Between 1830 and 1882 maintenance was supervised by a Canal Engineer who resided in Caisson House beside the Feeder Arm above the Combe Hay Lock Flight. Nearby were the cottages and engineering workshops for the blacksmiths and carpenters, a saw-pit, and a crane. Several of these buildings still form part of the private grounds of Caisson House.

Near the bottom of the Lock Flight, next to the Combe Hay-Midford road, were two cottages for the Lock-keepers and possibly the Lengthsman, but both have been demolished. The entrance lock at Dundas had its own Lock-keeper, whose cottage can still be seen beside the reconditioned lock chamber. The Pump-Engineer's cottage stood next to the Pumping Station at Dunkerton and. was demolished sometime after 1911.

The Cruse map shows that the building now called 'Inner Meadow Cottage' had already been built at the bottom of the Inclined Plane. This suggests that it may have been a wharfinger's cottage, although by then it would have been redundant for the purpose. If negative evidence on maps is

anything to go by, the next building of this kind did not occur until after 1840 when the Wharfinger's House at Timsbury Basin was built. Standing derelict but largely intact in 1975, it has since crumbled, with the final remnants demolished only recently.

The cottage called 'Edelweiss Farm' at the Wells Road Wharf, Dunkerton, is also thought to have been a wharfinger's house. Presumably Midford Wharf was administered from the Midford Toll-House, or somewhere nearby, but a night-watchman seems to have remained on site (Fuller p2267).

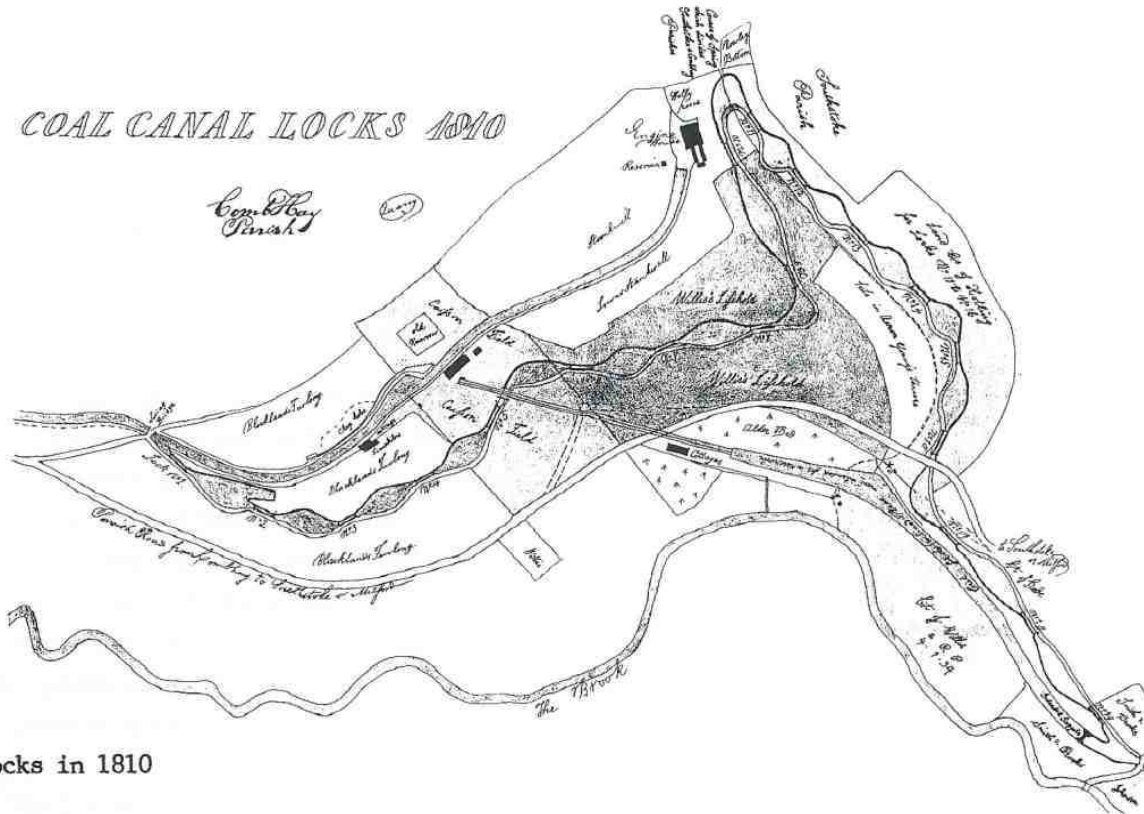
Inns.

Several Inns have a particularly close association with the canal. The 'Hope and Anchor' at Midford is still in business next to the Midford Road Bridge, and nearby at Upper Midford was the 'Boatsman's Arms', now converted to other uses. Both were frequented by boatmen loading up at Midford Wharf.

On the Combe Hay-Midford road below the Lock Flight was the 'Anchor Inn' (demolished after the last war) which would have profited from delays or effort expended on the long ascent. Still standing as a private house below Wells Road Wharf, Dunkerton, is the ancient 'Swan Inn' where William Smith stayed while supervising the cutting of the canal. The Dunkerton Tithe map shows a building by the side of the canal at Carlingcott, now in ruins, which later railway plans show as a public house (Maggs and Beale p66). This may have been a canalside inn, although this area, now the site of the Dunkerton Colliery spoil-heap, was originally a Limestone Quarry with limekilns which was connected by a tramroad to the canal at this point.

Still in business at Camerton is the 'Jolly Collier' which seems to have been built at the same time as the canal specifically to serve canal traffic, and was originally known as 'Camerton Inn' or the 'New Inn'. Boatmen staying there moored their craft next to Red Hill Bridge at Old Pit .

The Radstock Line did not exist long enough to generate such services, but it is said that a Tavern and two smith's forges were provided for the navigators in the cellars of the Waldegrave Hotel at Radstock, which were still visible in the 1920's (Somerset Guardian 7th Aug. 1925). The 'Magpie Inn', now a private house, was built in the bed of the canal at Single Hill, and may have exploited tramroad traffic.



Combe Hay Locks in 1810

Conclusion.

Although the 'hub' of the whole canal organisation seems to have been centred in the Midford and Combe Hay area, the canal was built piecemeal in sections that were gradually linked up and brought into use. This process began in 1795, and although traffic was opened to the Kennet and Avon Canal in 1801, the SCC did not reach its final form until the completion of the Radstock traroad in 1815 after which only minor modifications were made

For the purpose of recording the data collected during the survey, the canal was broken down into short sections based closely on the original steps of construction. Each section was given a site number under which all details could be described and linked to a colour coded 1/2500 scale base map showing the present condition of the remains. In this way it was possible to enter the data onto the Avon County Sites and Monuments Record kept at Avon House, as well as on AIBT files. Although there can scarcely be anyone alive today who can remember the canal in operation, local reminiscence will continue to provide important details and, as further archaeological and documentary evidence comes to light, the survey will thereby provide a basis for the future compilation of research material.

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Epilogue.

'In August 1898 I travelled with a picnic party in a coal barge from Seend, in Wiltshire, to Dunkerton by way of the Kennet and Avon Canal to its junction with the Coal Canal at Limpley Stoke. There was plenty of water in the lower reaches of the coal canal, and at that time it was capable of taking as full loads of coal as at any time in its existence...

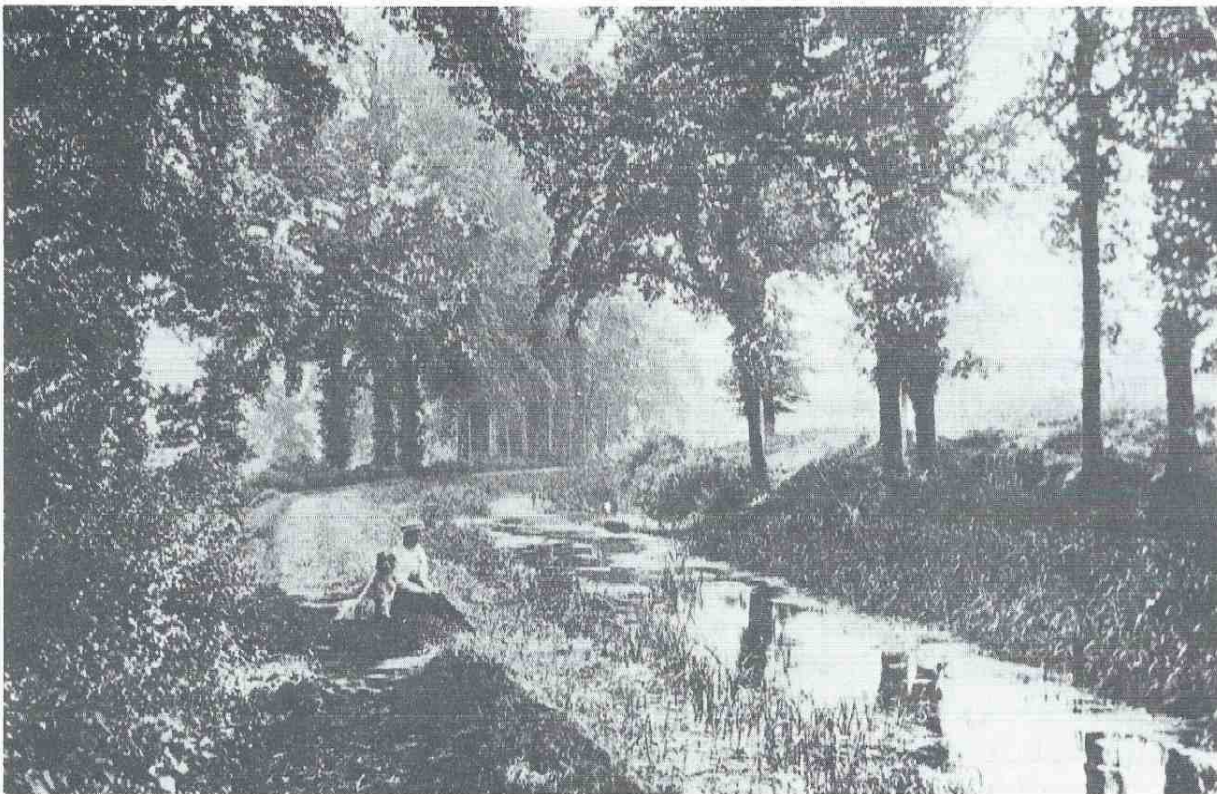
The lock gates seemed to be in quite good condition. The weighing machine at Midford was intact, with its ironwork looking ready to hold its boat-loads of coal... but it could not have been used for a very long time, as it was standing amid a perfect bed of water-reeds.

The locks at Combe Hay also had plenty of water in the lower pounds; I remember that they contained some quite large pike. The lake in the hollow below South Stoke overflowed in a pretty strewn and kept the canal at that point well

supplied with water; in fact those pounds which were at the lower levels ran over the tops of the locks as the boat went up stage by stage. Above the pound fed by this little stream, however, the water was very low indeed, although the boats going up let down their water behind them and helped a little.

The top lock was made of iron, no doubt the more easily to hold up the full weight of water which stretched all the way to Paulton. The water in this part was very low, and some distance along the bank towards Dunkerton stood two big pumping engines of which only one was working. These were designed to raise the water from the Cam Brook to the higher level of the canal...A noticeable feature was a large beam of wood which rose up and down, discharging a quantity of water at each stroke; as there was only one of these machines at work, the water was only deep enough to carry light loads - that is 12½ tons. Under these circumstances the owner of our boat decided that he could not continue to use the canal, and it was the last journey that was made by our barge from Wragg's Wharf, Seend to Dunkerton Colliery. Time was when two boat-loads arrived at that wharf every week with sixty tons of Somerset coal. Only one type of boat was in use, and the canal was built to carry boats of only half the size of the bigger barges used to carry timber and other goods from Bristol on the Kennet and Avon Canal."

(Letter to 'Country Life' by Sydney H. Bourne of Bath, 11th May 1951)



Somerset Coal Canal at Timsbury, circa 1900.