The Severn

From Gloucester to Bristol

Aspects of its

Trade and History

1800 – 1900.

By
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This work is dedicated to my Grandfather, Edwin Hopkins, who served on the Severn Puffer, The Black Dwarf.

Preface

The title of this study is "The Severn from Gloucester to Bristol." From the beginning I decided to concentrate on the Gloucester side and to omit a study of Bristol which would have involved much wider issues. To study the river and its connection with Gloucester inevitably meant a study of the waterway above Gloucester as, as far as Worcester and beyond, the traffic on the river affected Gloucester and the Severn Estuary.

I started my study by going to the Gloucester Records Office where the archivist showed me all the records he had appertaining to the Severn between 1800 – 1900.[1]

I then went to the city library in Gloucester where much of the material for the background of this study was found. Here also were the "minutes" of the Severn Commissioners.[2]

I then wrote to the Gloucester – Berkeley Canal Company Offices in Gloucester for information. But they informed me that all their material up to 1923 had been removed to the Transport Records Office in London. I found the records here very useful, especially those connected with the Gloucester – Berkeley Canal Company.[3]

Shirley White,
Eastbourne.
Summer 1955.

[1] These records remain archived at Gloucestershire Record Office as of August 2001
[2] As No 1
[3] These records are archived at the Public Record Office, Ruskin Avenue, Kew, Richmond, Surrey, TW9 4DU as of August 2001

Bibliography

First hand. Unprinted.

1. Petition of owners and occupiers of land in parishes adjacent to the River Severn protesting against a Bill before Parliament for improving the navigation of the River Severn. (1836) (Gloucester Records Office.)
2. Arrivals and Sailings Logbook of the Gloucester and Berkeley Canal. (Transport Office.)

Minutes of the Gloucester – Berkeley Canals Company – early years 1795. (Transport Office.)

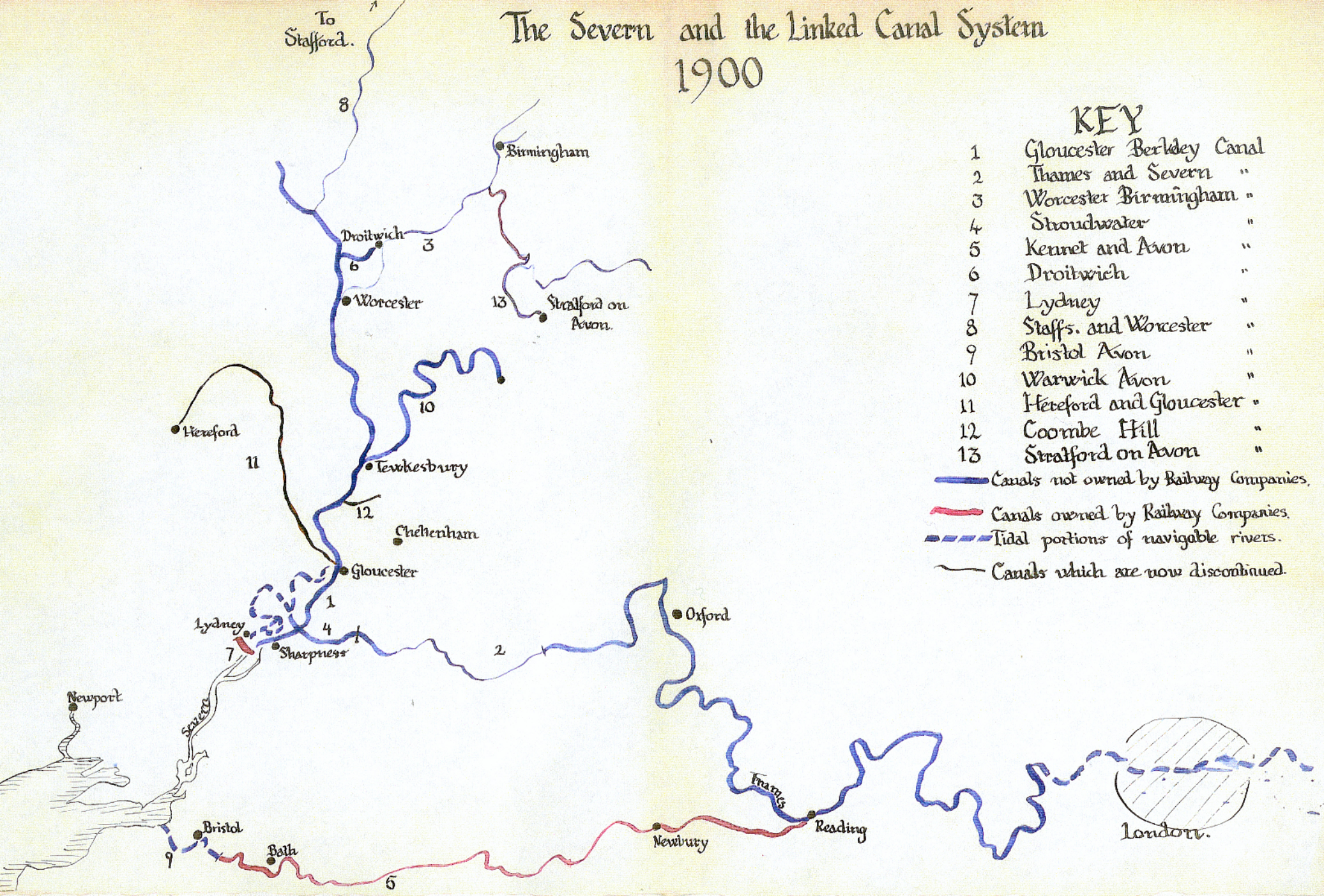
First hand. Printed.

1. The Acts of 1772, 1842, 1849, 1853, 1869.
2. Minutes of the Gloucester-Berkeley Canal Company.
3. Observations on Improving the Severn, (1788.)
4. Hints on Improving the Navigation of the Severn by R.Thomas of Falmouth. (1816.)
5. Report addressed to the Committee of the Gloucester to Berkeley Canal Company on the Bill now in Parliament for the improvements of the River Severn, (1841.)
6. Admiralty Enquiry into the Severn Navigation Improvement Bill, (1849.)
7. Reports of the Severn Commissioners, (1869.)
8. Abstract of the Accounts of the Severn Commissioners, (1876.)
9. The Byelaws and Regulations of the Gloucester to Berkeley Ship Canal, 1833 & 1862.
10. Volume 1 & 4 of "Canals and Waterways Commission" (1908.) Reports and Minutes of Evidence.
11. Rudder – A New History of Gloucestershire. (1799.)
12. Priestley – Historical Account of the Navigable rivers, canals and railways, (1831.)
13. Beauties of England and Wales, Volume 5 – Brayley & Brittain.

Secondary Authorities.

1. London Geographical Essays – The Severn Waterways – W. Gordon East, (1951.)
2. Transportation in Modern England, volumes 1 & 2 – Jackman, (1916.)
3. A survey of Gloucestershire – G.Payne, (1946.)

The Severn and the Linked Canal System
1900



KEY

1	Gloucester Berkley Canal	
2	Thames and Severn	"
3	Worcester Birmingham	"
4	Stroudwater	"
5	Kennet and Avon	"
6	Droitwich	"
7	Lydney	"
8	Staffs. and Worcester	"
9	Bristol Avon	"
10	Warwick Avon	"
11	Hereford and Gloucester	"
12	Coombe Hill	"
13	Stratford on Avon	"

Canals not owned by Railway Companies.

Canals owned by Railway Companies.

Tidal portions of navigable rivers.

Canals which are now discontinued.

Introduction

"The Severn is the second commercial river in England and it renders essential service to a large portion of this country." [1] So wrote Brayley and Brittain in their book, "Beauties of England and Wales" in 1803. Rudder, the historian of Gloucestershire, wrote at length in 1799 about the country's important river and his account is worth quoting fully as an introduction to the study. He says: "It rises out of Plimlimmon Hill in Montgomeryshire, and makes, says Camden, such a number of windings, that a person would think many times he returns to his fountain. The river passes by Llanidloes and Welshpool, where it becomes navigable; and proceeding to Shrewsbury and Bridgenorth; enters Worcestershire above Bewdley; visits Worcester and hastens into Gloucestershire a little above Tewkesbury, receiving the Avon from Warwickshire, about half a mile below that town. Taking its course downward it parts itself to make the Isle of Alney which is rich and beautiful, and then hastens to Gloucester; a little below which place, uniting its divided streams, it waxeth broader and deeper by the ebbing and flowing of the tide. Passing by the ancient borough of Newnham to a place below Chepstow, after a course of more than forty miles thro' the county, it receives the Wye, which rises out of the same hill, and lose its name at the place of confluence, their united waters being called the Severn. Here the river becomes a boundary between Gloucestershire and Monmouthshire, and continues till it receives the Avon, which runs from Bristol at King Road. For many miles above this place, the Severn is two or three miles over, but here it is three or four times as broad and capable of receiving ships of great burden.

On this river from Gloucester and Newnham, several brigs are employed in the trade to London and Ireland, and a great number of barges or trows run to or from Bristol, Gloucester, Tewkesbury, Worcester and Bewdley, at which place, a communication is opened, by a canal, with the rivers Mersey and Trent, promising great advantages to this trading county. [2] Rudder goes on to describe the great Severn bore, "the tide, which runs in with a head of three or four feet high, foaming and roaring in its course, as if enraged by the opposition it meets with from a strong current of fresh water, which seems to contend with it for superiority. They clash in such a manner as to dash the waters to a considerable height. This contest between them is called the Hyger or Eager, probably from the French eau – guerre, i.e. water war. The tide getting the better marches up the stream victoriously.) [3]

An interesting point made by Rudder also is that there are no locks on the Severn. Rudder described the two Avons which connect with the Severn as bringing trade from the counties through which they pass. "The Avon rises near Naseby, in Northamptonshire, enters Warwickshire at Colthrop, and passes by Rugby, Warwick and Stratford, where it is navigable. Quitting that county, it hastens by Evesham to enter Gloucestershire, a little above Tewkesbury; and above half a mile from that town, is discharged into the Severn.

The Bristol Avon rises at Tetbury, in this county, which it quits immediately; and passing by Malmesbury, Chippenham, Bradford and Bath, where it is navigable, runs

[1] Beauties of England and Wales – Brayley and Brittain, volume 5 page 509.
[2] A New History of Gloucestershire – Rudder, page 45 – 46.
[3] Rudder, page 46.

to Bristol, and from thence to King Road, where the Bristol ships first spread their sails when outward bound, and first cast anchor upon their return home. This river washes the western borders of Gloucestershire, and is the boundary between it and Somerset, for about twenty miles. The mayor, burgesses and commonality of the city of Bristol are conservators of the Avon from above the Bristol Bridge there to King Road, and further down the Severn to the two islands called Holmes. It was once proposed to join the Avon with the Thames by canal, and further to complete an island navigation between London and Bristol." [4]

From this description of the Severn estuary and river and it's linked rivers can be seen how far reaching for trade could be these waterways if they were sufficiently navigable and Rudder says that at this time the trade of the county was mainly transported by the river and the canals. At this time, he says, little was imported. "Yet if we import but little goods, this county supplies large quantities for exportation, part of which is the produce of the soil, and part the manufacture of the industrious inhabitants. The manufactures are woollen cloths of various sorts, havateens, chenies, cotton and worsted stockings, carpets, blankets, rugs, men's hats, leather, pins, paper, bar iron, edge tools, nails, tinned plates, brass, etc. Of the growth of the county, the principal articles of commerce are cheese and bacon, cyder and perry; fish etc.

Cloth was an important export of the county, and there were four main buyers. [5]

1. The Inland Trade.
2. The Army Trade and the drapers in London. The drapers in London kept a variety of goods for retail customers; also the cloth for the army, marines and militia passed through their hands.
3. The Turkey Trade. Our superfines in Turkey had a good sale, though there was keen competition from the French.
4. The East India Company. This was the most considerable branch of foreign trade."

Rudder also describes the iron manufacture as "of the next greatest consequence to this county." In the Forest of Dean were several furnaces and forges, and at Froombridge, in the parish of Frampton on Severn, there was one of the largest works of its kind in the Kingdom, consisting of a set of mills for making iron and steel wire. Also at Framilode was a tin plate work and there were large brass works; one at the Baptist mills, near Bristol; the other at Warmley; in the parish of Bitton.

At Gloucester was a valuable pin manufacture which employed a great number of women and children and carried on both a large county trade, and an even larger one with London. [6]

The chief produce of Gloucestershire was grain and a large amount was grown in the Cotswolds and so great was the annual yield that grain had been sent to markets in south eastern counties.

Cheeses were sold in the fairs at Lechlade and Gloucester as well as being sent to London. Bacon was also sent to London and other counties.

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[4] Op. cit: page 46.
[5] Op. cit: page 60.
[6] Op. cit: page 60.

The River Severn, therefore, was at this time, of great value to Gloucestershire, as on it could be carried the various trade products to other counties all over England and it brought back, through its network of canals, goods which could be obtained more cheaply and quickly in this way than by any other route. For much of the traffic Gloucester was the port. The next section will show what were the hindrances to trade and navigation on the route and will also show what developments in the building of canals took place by 1831.

Chapter 1

The River Severn and its linked systems up to 1831.

By the end of the eighteenth century the passage of the Severn between Sharpness and Gloucester was extremely dangerous and boats could only go up the river to Gloucester on certain tides. The river above Gloucester was equally dangerous to river transport. Contemporary opinion on this point however, varied. J. Phillips, in 1795, said, "There is no river that has such a length of navigation (namely in England) as the Severn. You may navigate a vessel of fifty tons and not a lock on the whole way up to Welshpool, except in excessive drought, which does not happen every year, and, when it does, not above a month, seldom two." [7] In contrast Telford, who actually surveyed the river, found its navigation "very imperfect" and he wrote in 1797 "It has been suffered to remain in its natural and imperfect state, not one obstacle has been removed, nor has one improvement been introduced" [8]

Telford calculated that for about two months of the year navigation of the river above Worcester was stopped and for the rest of the year, irregular. Nor were conditions of the estuary below Gloucester much better.

For seamen the river estuary started at King Road, "the anchorage at which vessels awaited the tide before either continuing up the Severn or up the Avon to Bristol." [9] Vessels going up the river took a pilot, for the first fifty-mile stretch to Gloucester was very dangerous. Special care and local knowledge were necessary owing to "the meandering of the river, the rocks and sands exposed at low tides, the twisting and variability of the channel, the inadequate depths of water in the upper part of the estuary, and lastly the remarkable velocity of the tidal currents." [10]

From King Road vessels sailed through the Shoots, where the tide had scoured a deep passage between Lady Bench and English Stones. Above Aust Head the channel widened and the river passed Oldbury and Lydney Sands. The estuary narrowed between Sharpness and Lydney and above the former there was insufficient water except at high water springs. Hock Crib was reckoned to be the most difficult part of the river owing to the current, rocks, and shifting channel. Navigation of the Severn up to Gloucester depended on high water springs for depth, and spring tides occurred only five or six days per month. (After the opening of the Gloucester to Berkeley Ship Canal only small vessels used the river, as the paying of tolls could be avoided.) Another difficulty concerning the depth of the river was the variability of the rainfall, as in the summer there was a lower rainfall and increased evaporation. Hard shoals caused low rapids between Stourport and Tewkesbury and at low water acted as dams. The shoals between Gloucester and Tewkesbury were of a different nature, consisting of quicksands and mud. The larger barges and trows were caused much inconvenience

[7] London Geographical Essays. The Severn Waterway – by G.East, page 92.
[8] Op. cit, page 92.
[9] Op. cit, page 102.
[10] Op. cit, page 102.

by the shallow water. Actually a four-foot to four foot, six inch depth was adequate between Worcester and Gloucester. If it could be relied on, but even after improvements had been made by dredging and locks, a dry summer might give only three to four feet over the shoals (after 1844) above and below Diglis Lock.

Priestley, in his "Historical Account of the navigable rivers, canals and railways of Britain" written in 1831, tells us about the improvements which were made by various Acts for the River Severn. A first Act in 1772 set up Trustees to keep in repair a towpath and tolls could be taken.

Tolls

For every horse on the road between Bewdley and Bridgenorth – 7 shillings. Also on any vessel between Bridgenorth and Coalbrook Dale – 5 shillings. Horses drawing boats laden with straw are exempted from tax. Also horses who return within twelve hours of starting.

The further Act of 1788 empowered the Company to remove shoals, fill up holes in the channel of the river, to reduce the current to the breadth of one hundred feet by erecting, in any part of the river, a fence or embankment, to make a lateral cut at Sandy Point, to erect a weir across the river at Saxon's Lode, (17 miles above Gloucester) to dam up the water at all times to a height not exceeding five and a half feet.

The list of tolls to be levied is interesting, as giving evidence about the kind of goods being transported above Gloucester.

Tolls

On coals – 2d per ton.
On iron ore refined metal, pig iron, china stone, clay, fire bricks, pipe clay, sand, salt, timber, deals limestone, building and paving stones, bricks, tiles and slates – 4d per ton.
All other goods and articles 6d per ton.

In 1805 an Act was passed giving a body of people the name of "The company of proprietors of the River Severn Horse Towing Path extension." The company was also empowered to raise money among themselves for the purpose of extending the towing path. They had to raise £5000 in one hundred shares of £50 each; if necessary they could raise a further £6000 either among themselves or by creation of new shares. They were authorised to take further tolls. Another Act of Parliament was passed in 1809 and was entitled "An Act for making and keeping in repair a road or passage for horses on the banks of the River Severn, between a certain place at Coalbrook Dale, to above Shrewsbury," and it authorised a series of tolls to be taken.

In 1811 another Act relating to the river was passed by a number of persons, among whom were the Earls of Coventry and Essex, Lord Sydney, Lord Somers, Lord Beauchamp and the Bishops of Worcester and Gloucester, who were incorporated by the title " The company of proprietors of the Gloucester and Worcester Horse Towing Path." The Act extended the towpath from Worcester Bridge to Lower Parting (just

below Gloucester.) The Act also allowed the company to raise among themselves £10,000 in 400 shares of £25 each; and if necessary a further sum of £5,000.

Tolls

For every horse or beast passing the towpath and drawing a vessel – 1 shilling per mile.
For less than a mile – 1 shilling.
Vessels hauled by men exempted. [11]

There were many navigable connections of this river and these are listed below.
1. Shrewsbury Canal at Shrewsbury.
2. Shropshire Canal at the Hay.
3. Staffordshire and Worcester Canal and Leominster Canal at Stourport.
4. Droitwich Canal at Hereford.
5. Birmingham and Worcester Canal at Diglis, below Worcester.
6. River Avon at Tewkesbury.
7. Coombe Hill at Fletcher's Leap.
8. Hereford and Gloucester Canal at Gloucester.
9. Gloucester to Berkeley Canal at Gloucester with an outlet at Sharpness.
10. Stroud Canal at Framilode.
11. Lydney Canal below Lydney.
12. River Wye at Beachley.
13. Bristol Avon at Morgan's Pill.

In addition to these canals, Priestley says, "there are many railways connecting the river with the numerous coal and other mines, which are in its course."

An analysis of these connections which were so essential to the river's trade follows here. Priestley's evidence is used throughout, but it is reinforced by the minutes of the Gloucester to Berkeley Canal Company, when that waterway is considered.

The Severn and Wye Railway and Canal connected two rivers. The railway commenced from the Wye at Bishop's Wood 13 ½ miles through the forest, terminated in a basin at Cross Pill, at little below Lydney and was connected with the Severn at Naas Point by a canal one mile in length. In 1809 the first Act concerning this railway and canal was passed. The Act stated that the undertaking would open an easy communication between the Severn and Wye and the collieries in the Forest and greatly facilitate the conveyance of coal, stone and other productions of the Forest to the cities and counties of Hereford and Gloucester. The proprietors were empowered, by the act to raise among themselves £35,000. Tolls might be levied on stone for repair of roads, and on coke, coal, cinders bricks etc:

An Act of Parliament was obtained by the company to amend the Lydney and Lidbrook (sic) Railway Act; to vary certain parts of the railway and to extend it from Lidbrook (sic) to Bishop's Wood and from the Lower Forge to the Cross Pill and the canal was to communicate with the River Severn at Naas Point. It also changed the

[11] Historical Account of Navigable Rivers, Canals and Railways – Priestley, page 562 – 565.

title from the "Lydney and Lidbrook (sic) Railway Company" to "The Severn and Wye Railway Company and Canal." The Act authorised the company to continue the main line from Lidbrook (sic) to Bishop's Wood Furnace, on the Wye, and from the Lower Forge in two branches, one on each side of the basin to be cut, by the company, to a creek called Cross Pill and a canal of 21 foot depth, 8 yards width at the bottom and 28 yards at the top was to extend from the basin to the River Severn at Naas Point. There was also a lock to be made between the canal and outer harbour of 28 foot deep, 80 yards long and 26 yards wide at the bottom, with a pair of lock gates or a lock to open into the Severn with the tide; the company was also required to divert the waters of a creek called Lydney Pill into this basin and canal, and to stop up the present course of the creek. The company was authorised to take tolls.

Coal which had been carried on the railway and paid the toll there was exempted from the toll. Also the tenants of the collieries and ironworks of the Honourable Charles Bathurst were allowed to use, free of toll, the harbour, basins and canals for carrying coal etc: to and from their collieries and ironworks.

There were further Acts of Parliament in 1811, 1814 and 1822 dealing with the canal and money necessary for its improvements. [12]

The Staffordshire and Worcestershire Canal commenced in the Severn at Stourport, in Worcestershire and proceeded in a northerly direction till it joined the Trent and Mersey Canal near Haywood, Staffordshire. The Act for the executing of the canal was passed in 1766.

Tonnage rates

For all ironstone, coal, stone, timber and other goods – ½ penny per ton, per mile. Paving stones, gravel, sand, road repairing material and manure are exempted from rates, provided that the boats only use the lock when water is flowing over the weir.

The Act of 1790 obtained by the company to improve the navigation of the River Severn from Stourport to Diglis, stated that the company had completed the canal from the Trent and Mersey Canal to the Severn, but that the river was obstructed in various places by shoals, the removal of which would be of great benefit to the trade on the river, and the company were willing to do the work at their own expense. The Act authorised them to improve the river. The trade on this canal was immense and, from its junction with the Birmingham Canal, a considerable proportion of hardware manufacturers of Staffordshire and Warwick, and of coals from the Bilstone and other mines were carried on it. By the River Severn it communicated with the port of Bristol; and through the Thames and Severn Canal it had a communication with London; and by its connection with the Trent and Mersey Canal, communicated with Liverpool, Manchester and Hull. [13]

The Droitwich Canal commenced at Droitwich and terminated half a mile west of Hawford Lodge where the Salways River entered the Severn. It was five and three quarter miles in length and was built under the authority of an Act of George III.

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[12] Op. cit: page 565 – 572.
[13] Op. cit: page 583 – 585.

Tonnage Rates.

Salt, coal, stone, slate and logs – one shilling and six pence per ton.
Wheat, rye, beans, peas, malt and other grain – two pence per ton.
Meal – two pence per six bushels.
All other goods and wares – one shilling and six pence per ton.

A clause was inserted in the Act for the making of the Worcester and Birmingham Canal, by which that company were bond to make compensation to the Droitwich Canal Company for and diminution of profits of their concern below 5% on every share. The principal object the proprietors of this concern had in view, was to bring coal up to Droitwich, and to export salt, which was made from brine springs which abounded in the vicinity of the town and which so strongly impregnated the water of the canal that fresh water fish could not live in it. [14]

The Worcester and Birmingham canal commenced at the junction of the Birmingham and Birmingham and Fazeley Canal, at Farmer's Bridge and ran in a south westerly direction to the junction with the Dudley Canal, in a south easterly direction to King's Norton where it had a junction with the Stratford upon Avon Canal; it then took a south westerly course and ran eastward of the towns of Droitwich and Bromsgrove; it joined to form the Severn at Diglis. The Act sanctioning this canal was made in 1791.

Tonnage Rates.

For all coal, iron, ironstone, timber and all other goods and things carried on any part of the canal – two shillings and six pence per ton.
For all goods carried less distance than ten miles from the head of the canal – three pence per mile.
For all lime and limestone on any part of the canal – ten pence per mile.
Except it be carried on the first ten miles of the canal – one penny per mile.
For all the goods before mentioned carried out of the Severn or out of the basin near Worcester – one penny per mile.

The company had to make up, as compensation to the Droitwich Canal Company, in case they had suffered diminution of their profits from the work, the profits of that company to £5% on each share; the shares considered to be at the value of £160 to the Worcester and Birmingham Canal Company shall purchase then when thereto required by any of the proprietors. The company had also to make compensation to the Dudley Canal if their profits were decreased. By an Act of Parliament of 1815 the company was allowed to take the following tolls.

Tonnage Rates.

For all coal, iron, stone, timber or goods which shall be conveyed on the canal between Sidbury Bridge and Lowesmere Bridge or from those points to the Severn

[14] Op. cit: page 204 – 205.

and not passing on any other part of the canal between the Severn and Sidbury Bridge – four pence per ton.

The canal was 29 miles long, 6 foot deep and 42 foot wide and was a direct communication between the Severn and Birmingham and by that means formed a connection with the rivers Trent and Mersey, and all the great trading towns of the north; by the junction with Stratford upon Avon Canal it communicated with the eastern part of the Kingdom; it was also a channel for supplying Worcester and the borders of the Severn down to Tewkesbury and Gloucester, with coal; and in return, conveyed the hops and cider of that part of the country northward, and it afforded a means for the export of the Birmingham manufacturers, through to the port of Bristol to any port in the world. [15]

The Avon River also connected with the Severn and joined the river at Tewkesbury. For a considerable time the Avon had been navigated from Stratford to the junction with the Severn; but owing to frequent disputes between the proprietors of the navigation, it became necessary to apply to Parliament for an Act which should determine the amount of rates and duties to be paid.

In 1751 another Act was passed regulating the navigation of the Avon and tonnage rates were fixed. [16]

The Coombe Hill canal proceeded from the River Severn at Fletcher's Leap in the parish of Deerhurst and was 3 ½ miles in length. The principal object proposed by the building of the canal was the shortening and rendering more cheap the communication between the Severn and Cheltenham, which was about five miles distant; but since the Gloucester to Cheltenham Railway has been constructed business on the canal had been reduced. [17]

The Hereford to Gloucester canal was 35½ miles in length from its commencement at Hereford to the tideway of the Severn at Gloucester. The first act for making the canal was passed in 1791. In 1793 the act was amended and the advantages of the amended act were, a newer approach to Hereford and a tunnel at Oxenhall, which served the collateral cut to Newent and avoided a great deal of circuitous navigation.

In 1796 the canal from Newent to the Severn was completed; and after a two year interval the Oxenhall Tunnel was opened, by which navigation became practicable to Ledbury. Cutting and other incidental expenses were very great; but the advantages derived from it were also great for example, at the opening of the Oxenhall Tunnel it effected a reduction in the price of coal at Ledbury of no less than 10/6d (52 ½ p) per ton, that quantity being sold for 13/6d (67 ½ p) when it had previously been 24/- (£1.20p). Apart from the coal mines the canal could take iron, lead and other products of South Wales, as well as those of the immediate neighbourhood of Hereford, and by it conveyed to London, Liverpool, Bristol, Hull and various other parts of the Kingdom, entirely by water carriage. [18]

[15] Op. cit: page 690 – 695.
[16] Op. cit: page 38 – 41.
[17] Op. cit: page 164 –165.
[18] Op – cit: page 334-336

The Stroudwater navigation commenced at Framilode and ran eat by Whitminster, near which it was crossed by the Gloucester – Berkeley canal; it continued in an easterly direction crossing the Stroudwater by Eastington and Stonehouse, and terminating in the Thames and Severn canal at Wallbridge near Stroud. The total length of the canal was 8 miles. The first Act of Parliament for this canal was proposed in 1730. There was opposition from the millers who were afraid of losing their water and this act was not carried into execution. But in 1759 another act was passed giving them power to build a canal without locks, and consequently without loss of water to the millers. The scheme, by which these gentlemen meant to affect their purpose, was by shifting the cargo into boxes, and at every mill to remove them into other boats by means of cranes; the plan, however, did not work, though it was persevered in almost to the ruin of the proprietors. [19]

However Jackman says that " About 1775 the people of the Stroud valley, labouring under the disadvantage of a high price of coal, allied their interests in making the Stroudwater canal from the Severn up to Stroud by means of which there was effected a saving of £5000 annually on coal." [20]

In 1776 another act was passed and 15 years were allowed to complete the navigation. The tolls and rates were to be exempted from all the taxes. No boats were allowed to pass through the lock if they were 20 tons unless the water was running over the top of the weir.

The Act of 1783 for the making of the Thames and Severn canal restrained the Stroudwater from taking more than 2/3d (11p) per ton for coal carried on their canal and passing to the Thames and Severn canal and not going more than 150 yards above the high road at Brimscombe, and 1/- (5p) only for coal going more than 150 yards beyond such road. Jackman however, does not mention the act, but just says that the proprietors of the Stroudwater navigation gave assurance, that, in case this waterway (the Thames and Severn Canal) were made to connect with theirs, their tonnage rates would be reduced and made satisfactory to the undertakers of the proposed function.

This canal was of infinite advantage to the town of Stroud and the clothing district of the neighbourhood by furnishing them with coal at a very cheap rate, and conveying their heavy and bulky goods to various markets; and from its connection with the Severn and Thames was the means of forming the first communication by inland navigation between London and Bristol and the counties of Gloucestershire, Worcestershire and Hereford. [21]

The Kennet and Avon canal was first planned in 1794. In 1796 a further act was passed to alter the line of the canal authorised by the 1794 act. By 1798 it was found necessary to make further alterations and further acts had to be passed for raising money in the period 1798-1813.

"The canal formed a function with the Bristol Avon at the rear of the Great Western Railway and the river joined the canal at Poultney Weir." The canal was also rival

[19] Op – cit: page 606-608.
[20] Transportation in Modern England. Vol:1. Jackman, page 374.
[21] Priestley – An Historical Account of Navigable Rivers, Canals and Railways, page 606-608.

route to London. The line from the Severn lay along the Avon River, past Bristol and Bath, to near Winsley; then by the Kennet and Avon canal and Kennet river navigation to Reading; thence down the Thames River to London. [22]

The Kennet and Avon completed a circuit of navigable canals and connected together the four largest rivers, the Trent, Mersey, Severn and the Thames. The Kennet and Avon canal, it was thought, would be highly beneficial to the commerce, manufacturers and agriculture of the southwestern counties. [23]

Before the framework of the inland navigation system could be completed the two great rivers of the south, the Severn and the Thames had to be united. This was a project which had been considered as early as the reign of Charles II, but nothing was done at the time. About 1775 it was found that the people of Stroud had saved £5000 annually on coal. With such a benefit from a canal only 8 miles long, it was thought that there would be even more benefit from uniting the Severn and the Thames. It was thought that if the Stroudwater canal were extended it would join the two rivers. In 1781, after several meetings had been held, a survey was authorised to be made, and this committee were favourable to this course, not only because there would be few obstructions but also a greater volume of traffic and so the tide of public opinion was set in favour of this southern route.

The coal miners in Newcastle opposed this by saying that coal would be brought to London by the west and therefore the sale of Newcastle coal would decline. Also, if this happened, the nursery for seamen for the navy would decline and be largely at an end. This objection carried little weight, however, for since the coasters could carry a much larger tonnage at a lower rate than could be carried by inland navigation the amount of competition would negligible. At the same time benefits to be derived by the far inland counties along the proposed navigation would be important: fuel would be more easily and cheaply obtained: there would be between counties the exchange of surplus goods which could not stand the expense of land carriage each way, the products of agriculture would find a market in London in exchange for manufacturers. In 1782, upon a report and survey by an engineer Whitworth, the project was undertaken; and the bill introduced into Parliament and was passed into an act in 1783. The undertaking received so much support that the act was readily obtained for making the canal at Lechlade, on the Thames, to connect with the Stroudwater canal at Wallbridge and thus to communicate with the Severn at Framilode. This distance of over 30 miles was completed in 1789 and barges laden with coal at once began to pass from the Severn by way of the Thames and Severn canal, to London. A rather unusual circumstance in connection with this canal was that the landowners, through whose lands the canal was designed to pass, in general favoured the plans, whereas in many other instances the landowners were vigorous opponents of such artificial waterways. The anticipated advantages from the Thames and Severn canal, were however, not fully realised. The canal had been constructed with the understanding that the Commissioners of the Thames navigation would have that navigation completely improved by the time the canal was opened; but the Thames commissioners, although repeatedly implored to carry out their work, refused to do so until the canal should begin pouring its traffic upon the river. This neglect of the Thames navigation could only have one result, namely, to act as a barrier to the promotion of trade on the canal.

[22] Transportation in Modern England – Jackman page 375.
[23] Op: cit: Priestley page 353-360.

A rival route, from the Severn tideway to London was soon started, by the construction of the Kennet and Avon canal. But this route had scarcely begun when a petition was sent to Parliament asking for authority to construct a canal from Abingdon, to join with the Thames and Severn canal so as to avoid the many impediments in the upper part of the Thames and to shorten the course of navigation. It was not until 1795 that this was carried out by the passing of an act sanctioning the construction of the Berkshire and Wiltshire canal, from Abingdon, on the Thames, to join the Kennet and Avon canal near Semington and of a branch from Swindon to connect with the Thames and Severn canal at Hatton. This third through route passed from the Severn, up the Avon river to Winsley, thence along the Kennet and Avon canal to Semington, thence by the Wiltshire and Berkshire canal to connect at Abingdon with the Thames, along which the rest of the passage was taken." [24]

Priestley's judgement was "By connecting London with Bristol, Gloucester and Worcester and other towns on the banks of the Severn, a safe and easy trade to London is opened, not only for the trade of Gloucester and Worcester but also to Hereford, Monmouthshire and South Wales; to which might be added, the trade of the towns on the Thames, which receive their supplies of coal from the mines connected with the Severn." However he went on to say "These prospects have not been realised due to the inefficient state of the navigation of the upper reaches of the Thames and construction of other canals. [25]

The Gloucester to Berkeley canal was really necessary owing to the bad conditions of the river above Sharpness and this is to be one of the main subjects of the study. Without some improvement Gloucester could not continue as a main port. In 1793 the first act was passed for the permission to build a canal. In 1793 there was a general assembly of the proprietors and thanks was given to the gentlemen who had helped the Bill to be passed; these included the Duke of Norfolk, Archbishop of Canterbury, Lord Berkeley, Lord Bathurst, Lord Gage, Mr Luggan and Mr Dowdeswell. All the meetings of the company in 1793 were concerned with the building of the canal, the wharf and warehouses and reports concerning those. There was much discussion as to where the canal should enter the Severn, also much concern was shown about the growing expense and it was suggested that the canal should enter the river at Hock Crib rather than Berkeley Pill.

In 1800 it was suggested that a small canal should be cut to the entrance of the Stroud canal so that wares on the Stroud canal could pass along the canal. [26] Priestley also says that for every day the making of the Berkeley canal obstructed the Stroudwater canal 5 guineas (£5.25p) had to be paid. The tonnage of goods on the canal were increasing.

In 1805 another act was passed for making a branch line from Saul to the Severn at Hock Crib. In 1807 the company had difficulty in raising money and they sent a memorial to the Lords Commissioners of the Treasury asking them to help them. "It is not the mere adventure of a few individuals for their immediate advantage, or the mere lessening of expenses of the carriage of goods by a water instead of a land

[24] Transportation in Modern England - Jackman page 373 - 374.
[25] An Historical Account of the Navigable Rivers, Canals and Railways - Priestley, page 633 - 637.
[26] Minutes of the Gloucester Berkeley Canal Company.

carriage, it is in fact an undertaking to bring the sea into the very heart of the kingdom and to create a new port and these will be a safe, certain and commodious navigation and therefore benefit the extensive Severn district in particular and the British Empire in general." [27]

In the next few years the war held up the progress but in 1815 the proprietors again applied to Parliament for an act to enable them to alter the line and make the canal terminate at Sharpness Point instead of Hock Crib as large vessels could only arrive at Hock Crib with great difficulty and danger about once a fortnight: whereas the same vessels could arrive at Sharpness Point in apparent safety. In a company report it was said: "At the present time the transit of commerce below Gloucester and Bristol is chiefly once a fortnight, and once every spring tide; each trow or barge generally making the voyage up, while her partner makes one voyage down. The transit below Gloucester and Bristol acts upon and governs nearly all the commercial intercourse and trade between Gloucester, Worcester, Birmingham, Wolverhampton, Dudley and Shrewsbury and all the interior of the middle districts of the Kingdom.

In 1818 the act to complete the canal to Sharpness Point was passed and by 1819 the report showed that the foundations of the great embankment at Sharpness had been laid and the function with the Stroudwater canal practically completed. [28] The last act relating to the canal was passed in 1825 and its purpose was to raise money. The canal was opened to traffic in 1827.

Tonnage Rates.

Coal conveyed upon all or any part of the canal - 1/- (5p) per ton. All other goods - 5/- (25p) per ton. Ditto not passing through any of the locks - 3d (>1p) per ton. Vessels entering or going out of either and empty or in ballast - 1d (<1p) per ton.

Exemptions.

Stone, sand, gravel to be used for road repairs also any material for improvement of land only within three miles of the canal; but should any of the above articles pass through either lock, they shall pay as above.

Among the advantages of the canal was the avoidance of a dangerous and very difficult navigation of a circuitous part of the Severn. The distance from Sharpness Point to Gloucester by river was 28 miles: by canal 16½ miles, thereby saving more than 11 miles and for more time, as the river, as well as being 11 miles longer, was very dangerous. [29]

Owing to the many canals that had been built and the worst parts of the river avoided by using these canals, made much improved. Also goods from the Severn valley area could be taken all over the country by inland navigation, thus saving much money. The canals also benefited the Midland manufacturers who could send their bulky goods much cheaper and quicker by canal transport. The canals also allowed cheap

[27] Minutes of the Gloucester Berkeley Canal Company.
[28] Minutes of the Gloucester Berkeley Canal Company.
[29] An account of the Navigable Rivers, Canals and Railways. Priestley page 291 - 295.

coal to be brought to districts that were too far from the mines. Some of the canals, such as the Thames & Severn Canal, did not come fully up to expectations owing to neglect on the part of the Thames navigation company, yet others, such as the Gloucester to Berkeley canal, were a great help to shipping, as by using it they saved themselves much time and there also was no danger such as there was on the River Severn.

Chapter 2.

The River Severn above Gloucester 1831 to 1842.

Through the years the condition of the Severn bed became worse, as no improvements had been carried out since 1793. "Nothing further was done until 1836, when the newly formed Severn Navigation Company ordered Thomas Rhodes to make a fresh survey of the river below Stourport with a view to large scale improvements. [30]" Rhodes in his reports advised the construction of weirs and locks and hoped that, through securing a minimum depth of 12 feet between Gloucester and Worcester and of 6 foot, 6 inches from Worcester to Stourport. Worcester would be become a seaport for ships of 200 - 300 tons and Stourport accessible by trows and barges of from 70 - 100 tons.

The Bill that was introduced into Parliament by the Severn Navigation Company, to carry out the recommendations made by Rhodes, was strongly opposed and rejected. Among those who protested against the proposed improvements were the owners and occupiers of lands in the parishes adjacent to the River Severn. In the petition, which they sent to Parliament, it stated that the petitioners "base their opposition on their opinion that the purpose of the Bill would impede the drainage of their land and the free course of the stream, and that their property would greatly deteriorate in value by the imposition of tolls on the river which from time immemorial had been used and enjoyed as a free river." [31] The petitioners were also convinced that the powers sought would be detrimental to their property and rights.

In 1841 James Walker made a report, on the Bill then in Parliament, for the Gloucester to Berkeley Canal Company for the improvement of the River Severn. The improvements proposed by James Walker were as follows:- The river between Stourport and Gloucester had been very neglected. The track path had become covered with water becoming impassable. In short-water fine shoals are such, that even below Worcester a canal boat of 24 tons burden and drawing under 4 foot of water cannot make certain of getting over them. These shoals were local and appeared to have consisted of material which could be moved, the width of the river might also be regulated but nothing had been done.

"If the improvements are carried out, trade will have to pay for it and the idea of paying anything on a free river may not be welcome. The vessels load is now limited by the capability of the river; half the number of trows carry a half load due to a lack of water. A good depth of water would mean that floods would go more rapidly; thus navigation and drainage would improve. From the inclination of the river, and the nature of the channel, there is no way better than improving the navigation between Stourport and Worcester than by means of locks and dams. Permanent weirs will only increase the difficulty to any future improvements of the Severn. Solid weirs are

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[30] London Essays in Geography - The Severn Waterway. G.East. Page 101.
[31] Petition of owners and occupiers of land adjacent to the River Severn against a Bill before Parliament for improving the navigation of the River Severn 1836. (Gloucester Record Office)

objectionable, much more so with the introduction of steam tugs. Until this happens towing paths ought to be improved."
The figures Walker gave of the number of boats which passed above Gloucester are interesting.

In 1840 the number was 4,366.

Canal boats loaded	3,328
Canal boats empty	84
Barges, partly laden, partly empty	405
Trows laden	296
Trows partly empty	253
Total	4,366

Four fifths of this number were boats drawing less than 4 foot. Walker goes on to say "The River Severn in its summer state cannot be depended on for passing laden trows, none of which draw more than five foot generally four foot to four foot six. [32]"

The demand for the Bill however, led the Admiralty also to make an enquiry into the state of the river and the report was published in 1842.

"From Tewkesbury to Stourport the river was impeded by fords, consisting of rock, hard marl and gravel, these fords acting as natural dams pent up with water. In the seasons of low water the dams collected the water into pools. The district below Tewkesbury and Gloucester was much impeded by shoals of a different character, - shoals of alluvial deposit, sand and mud. Obstructions were so great that for an average of four out of twelve months (the summer season) not more than 20 inches of water was going over the fords and shallows. The depth of water over the fords between Stourport and Tewkesbury and to Gloucester was about 18 inches, one being over hard fords or beds, penning water above them, the other over loose quicksand; this did not pen the water up but it offered serious obstruction. At Upton 200 vessels had great difficulty in navigating the river in its old state. [33]"

Throughout the years of 1837, 1838 and 1841 there was a fight for improvements in the upper stretches of the Severn from Stourport to Diglis. Some people were desirous of handing this work over to a joint stock company for accomplishment, but Parliament refused to allow such an important navigation to be handed over to a private concern. Finally in 1842 an act for improving the navigation of the Severn was passed and extensive authority was conferred on a body of commissioners.

The act made full provision for electing commissioners and the commissioners represented all the interests connected with the river as can be seen by the list of people named in the Act. These were fifteen in all and were nominated as follows from:

- The Justices of the Peace for Worcestershire in the General Quarter Sessions.
- The council of the city of Worcester.

[32] Taken from a report addressed to the committee of the Gloucester Berkeley Canal Company on the Bill now in Parliament for the improvement of the River Severn - J. Walker 1841.
[33] Admiralty Enquiry into the Severn Navigation Improvement Bill 1849.

- The council of the city of Gloucester.
- The council of the city of Bristol.
- The council of the borough of Tewkesbury in the county of Gloucester.
- The council of the borough of Droitwich in the county of Worcester.
- The council of the borough of Wenlock in the county of Salop.
- The council of the borough of Newport in the county of Monmouth.
- The proprietors of the Lower Avon Navigation, and the Upper Avon Navigation, and the council of the borough of Evesham successively, the first election after the passing of this act to be made by the proprietors of the Lower Avon Navigation; next by the Upper Avon Navigation.
- The inhabitants of the hamlet of Lower Mitton in the parish of Kidderminster in the county of Worcester, rated for the relief of the poor.
- The company of the Staffordshire and Worcestershire Canal Navigation.
- The company of the proprietors of the Gloucester and Berkeley Canal Navigation.
- The company of proprietors of the Hereford and Gloucester Canal Navigation.
- The company of proprietors of the Worcester and Birmingham Canal Navigation.
- The company of proprietors of the Coombe Hill Navigation. [34]

The Commissioners had to meet at the Guildhall, Worcester or some other convenient place in Worcester and had to elect a clerk to keep the minutes of the committee and a general meeting was held each August.

The Commissioners had the power to purchase land needed for wharfs or places for receiving or depositing, loading or unloading goods, or land needed for the erection of weighing machines, toll houses, offices, warehouses and other buildings. It was also the duty of the Severn Commissioners "to maintain and render the Severn more navigable from the entrance lock of the Gloucester - Berkeley Canal to Gladder or Whitehouse Brook in Areley Kings, Worcester." It was their duty to "cleanse, scour, dredge and deepen the said river and to dig and remove all or any part of the shoal or bank or bed of mud, sand, soil, rubbish, gravel, rock and other accumulations or obstructions which may now or hereafter be in the bed of the Severn, between the said limits, also to narrow or confine the bed of the river, by setting up artificial embankments or by any other means whatsoever, and to shelve off and straighten the banks of the river." [35] Rubbish taken from the Severn could be deposited on the land at the side of the Severn without first obtaining the permission of the owners of the land.

It was also lawful for the Commissioners "to maintain, vary and improve the cuts and canals navigable and passable by boats. Each cut and canal had to communicate at both ends with the Severn, and to commence in or near a certain field in the parish of St Peter the Great, Worcester and to terminate at or near certain grass fields owned by Mary Powell, widow, and John Field, Clerk; one other navigable cut or canal to

[34] Act for improving the navigation of the Severn 1842, schedule A.
[35] Op: cit: CXLii

communicate with the said river, to commence near Omberley and to terminate in the same parish." [36]
The Commissioners, in the act of 1842, were also empowered to erect and maintain "the dams, weirs and locks." [37] Also certain works were not to be constructed without permission of the Admiralty. " No pier, quay or other building, below the line of high water mark at ordinary spring tides." [38]

Tolls were fixed by the Act of 1842 and it was the duty of the Commissioners to enforce them and see that they were collected.

Tolls.

- On all goods, wares and merchandise carried upon the Severn the whole distance between the lock of the Herefordshire and Gloucester Canal or the lock of the Gloucester - Berkeley Canal respectively, and the entrance lock of the Birmingham and Worcester Canal at Diglis, a toll not exceeding 6d per ton.
- On all goods, wares and merchandise carried on the river for any intermediate distance between the Gloucester - Berkeley Canal and the entrance of the canal at Diglis, the sum of ¼ d (<1p) per ton, per mile but not exceeding for the whole distance 6d (2 ½ p).
- On all steam vessels and tug boats navigating the Severn between the two limits and carrying passengers for hire or for pay, a toll per mile not exceeding ¼ d (<1p) per ton on the registered tonnage of the vessel. [39]

The Commissioners may also demand 2 ½ d (<1p) per ton on goods which pass out of the Avon at Tewkesbury along the Severn to Gloucester, and 2 ½ d (<1p) per ton on goods passing from the Severn to the River Avon. [40]

"No boat laden only with manure save and except lime to be used for the purpose of agriculture shall be subject or liable to any tolls." [41]

In the Act provision was made for the salmon's passage in the river.

The commissioners appointed seven of their number as a committee of works who had to supervise the operations described in the act. The committee were authorised to borrow, at interest, on the credit of the tolls. The whole of the improvements had to be carried out before the tolls could be levied. Also no commencement of work could be authorised until complete funds were received to meet the new expenditure. [42]

The Minutes of the Commissioners are now in the keeping of the Transport Office and can be examined there. Their work was mainly the maintenance of a clear passage

[36] Op: cit: CXLii
[37] Op: cit: CXLiV
[38] Op: cit: CXLV
[39] Op: cit: CLXXXVi
[40] Op: cit: CLXXXVii
[41] Op: cit: CXCVi
[42] Commissioners Minutes 1842

of the river and the removal of restrictions, and the next section will show also how they had to secure a further series of Acts of Parliament to carry out their purpose.

Chapter 3.

Development connected with the Severn Commissioners 1842 - 1900.

In 1849 the Severn Commissioners made another application to Parliament, to improve the River Severn. [43] The Bill asked.

- That a dam could be made at Upper Lode to maintain a depth of water suitable for navigation and for making new channels at Tewkesbury to divert the river.
- To make a towing path from the north side of the Severn in Bushley along the bank of the new channels to rejoin the existing tow path on the west side of the river and to stop up as much of the original navigation of the Severn as may be rendered unnecessary by the channels.
- To allow the Commissioners to raise a further sum of £50,000 and to alter existing tolls and to levy new ones by this act. To allow the Commissioners to carry out any arrangements found to be requisite to the bridge at Upton on Severn and to enable them, by raising, by mortgage, the money required for repairs, also to enable the Commissioners to subscribe a sum of money from their funds towards defraying the cost of repairs, alterations or rebuilding of the bridge.

The improvements of a new weir would allow boats of a larger draft to go up and down the river at all times of the year. It is estimated that there will be a saving of £1500 - £2000 per annum by the erection of this weir at Tewkesbury.

Before the improvements were made horses were necessary between Diglis and Stourport to drag the boat up river.

In 1853 another act was passed for further improvements on the Severn. The improvements proposed were:

- A dam across the river at Upper Lode.
- A new cut or channel across the river at Tewkesbury commencing by a junction with the present channel, together with two locks.
- A towing path from the north side into Bushly near Upper Lode to join the path on the west side of Forthamton.
- Owners of all boats on the Severn between Gladder or Whitehouse brook shall have his name and address painted onto the boat so that everyone might see it. Whenever demanded by any officer of the Severn Commissioners any owner must permit his boat to be gauged, weighed or measured at the expense of the Commissioners, and the person employed to do this shall enter it into a book kept for this purpose. Any owner who does not have this or refuses to let his boat be weighed etc: shall pay a fine not exceeding £5.

[43] Severn Navigation Improvement Bill 1849.

- Previous to commencing the weir or any other works under this act below Diglis, the Commissioners shall deposit at the Admiralty plans, sections and drawings of the said weir and any other of the said works connected with it, for the approval of the Lord High Admiral. Approval to be signified in writing and such weirs and works only to be constructed in accordance with such approval. [44]

In 1868 the average yearly amount taken for tolls was £7742 10s 5d (£7742.52p.) In 1869 a further Navigation Act was passed. Improvements were to be made.

- A dam or weir was to be erected across the western channel of the river in the parish of Maisemore, in Gloucestershire.
- A new cut or channel for the river in the parish of Maisemore in the county of Gloucester near the weir commencing and terminating in the western channel of the river with a lock in such a new cut or channel.
- A dam or weir across the east channel of the river in the parish of Saint Nicholas and the hamlet or extra parochial place of Llanthony, otherwise in Gloucestershire.
- A new cut or channel in the parish of St Nicholas and near the dam or weir commencing or terminating in the eastern channel of the river, with a lock in such new cut or channel.
- A towing path commencing in the parish of St Nicholas by a junction with the existing tow path and terminating in the same parish by a junction with the existing tow path on the north side of the eastern channel.

An act for the further improving the Severn and for amending and extending the Severn Navigation Acts; and for many other purposes was passed in July 1869. This act laid down the measurements of the dams and where they were to be situated. [45]

The reports of the Severn Commissioners between 1870 and 1900 show the progress of the work and also the financial state of the body. In 1870 this stated: " The good effect of these works as securing adequate depth of water from Gloucester to Tewkesbury at all seasons of the year has already led to an increase in traffic. Two bills were brought before Parliament in the present session affecting the interests of the Severn Commissioners.

- The Severn Junction Railway Bill - this proposed to abandon the line of railway authorised by the act of 1865 for connecting the South Wales Railway with the Great Western Railway and Midlands Railway and which was intended to cross the river at Newnham and substitute it for a line of railway crossing the river by a bridge at Gatcombe. The bill was thrown out of the House of Commons.

The report went on to say: "The new weir will have (under the act of 1869) a fish pass. The committee are now expecting to receive from the Home office a plan for

[44] Severn Navigation Improvement Bill 1853.
[45] Severn Navigation Improvement Act 1869.

such a fish pass as will best promote the passage of fish without seriously affecting the navigation of the river."

The report of the Severn Commissioners for 1871 stated: "Great progress had been made at Gloucester for further improvement of the navigation of the river. It is hoped that the certainty of deep water all the year round will lead to a gradual increase of river traffic. A fish pass has been constructed at Llanthony."

Owing to severe frosts which had interrupted navigation, tolls were £82 1s 10d (£82.8p) less than the average amount for the three years ending June 1868. A small portion of the original mortgage debt and a small portion of the amount borrowed under this Act of 1867 had been paid off out of the surplus income for the year ending June 30th 1870.

In 1872 there was an increase of £385 16s 7d (£385.83p) in the amount taken for tolls. The report said that this would be available for the payment of interest on the principal money borrowed for the construction of the new works at Gloucester. Expenditure had been in excess of the average. This arose from the opportunity afforded by the opening of the new works at Gloucester, to acquire for general purposes of the Commission, a stock of plant and machinery that would later have cost more. The opening had also involved raising Toll Collectors' wages.

Five Bills were brought into Parliament for the construction of railways with bridges over the Severn below Gloucester and one for the construction of a railway with a tunnel under the river. Four of the Bills were withdrawn, but the "Severn Bridge Railway number two," and "The Severn Tunnel Railway" received the sanction of Parliament.

Navigation, in 1873 was reported as being maintained in an efficient state all year. "Expenditure was less than last year but surmounts the amount for prior years owing to additional wages. A plea was laid before the committee for the proposed trial shaft for the Severn Tunnel; it has been arranged to be made on the shore, whereby damage to navigation will be prevented."

Traffic in the early part of the year 1874 increased considerably, but the report of that year said that recent strikes in iron and coal had caused great diminution, especially in downward trade so that the amount of tolls was far less than any year since 1866-67.

The report also noted that an Act had also been passed for vesting the Worcester and Birmingham canal in the Gloucester and Berkeley Ship Canal by the name of "The Sharpness New Docks and Gloucester and Birmingham Navigation Company." This link tended to increase traffic on the river and to secure to the public the benefit of competition between the railway and water carriage.

The report stated further that the new locks at the Gloucester and Berkeley canal at Sharpness were approaching completion and by the accommodation they would afford to vessels of large size would no doubt bring an increase of traffic to Gloucester and consequently, to the Severn.
The report mentioned the Act that had been passed for extending the limits of the City of Gloucester and containing powers for the improvement of the City Quay and for

other purposes - the proposed improvement to the quay must have been an advantage to river traders.

The river traffic for the 6 to 8 months ending in February - revenues from tolls, £400 was in excess of corresponding months revenue of previous years, but the strikes of iron and coal the past few months ending June 30th had not only absorbed the surplus, but had left a deficit of an equal amount.

The year of 1875 was uneventful. "The traffic was slightly in excess of last year." The tolls for the first half of the year were £678 16s 11d (£678.85p) less than the corresponding year of 1874. But those in the latter half of the year were more by £799 2s 5d (£799.12p) than the year of 1874. The new docks at the Gloucester and Berkeley Canal had by now been completed and gave the desired accommodation to vessels of large tonnage.

A description of the cargoes entered for conveyance on the river and the amount of tolls is given here.

For four weeks ending September 1881.

Cargo	**Tons**	**Tolls**
Coal	4631	£151 16s 1d
Iron, Iron Ore	378	£9 10s 6d
Stone	893	£17 15s 11d
Bricks	1646	£19 0s 2d
Salt	5602	£152 16s 0d
Lime & Limestone	1646	£19 0s 2d
Pitch, tar & creosote	1567	£25 15s 6d
English timber	355	£8 9s 6d
Foreign timber	3531	£92 12s 11d
Hay & straw	761	£19 7s 6d
Grain & flour	3088	£52 11s 4d
Manure	179	£3 14s 6d
Sundries	3470	£118 16s 4d
Total	**26043**	**£674 16s 7d**

For 4 weeks ending June 1882; Tonnage 18401; Tolls £488 11s 6d.
For 2 weeks ending July 1883; Tonnage 16814; Tolls £444 6s 9d.

An increase of traffic was reported in 1877, on the river, and navigation was maintained in an efficient state. "The town council of Gloucester," it was said, "have given notice that they are going to use the act enabling them to take a portion of the bank and bed of the River Severn at the Quay at Gloucester for the construction of a new quay wall - this will be of great convenience to traders. Progress had been made with the trial tunnel under the Severn at "The Shoots" with a view to constructing the Severn Tunnel. There is a bill pending in Parliament to prevent the use of canal boats for the residence of women and children."

The tolls taken for the year ending July 30th 1880 were £8171 5s 0d (£8171.25p) more than any other year since 1868. Tolls for 1881were £7380 6s 11d (£7380.35p), £790 less than the previous year, due to severe frosts and continuous floods of last winter.

In 1882 it was proposed that all, or part, of the Thames and Severn Canal should be filled in and used as a railway site. This was opposed by Stroudwater, Sharpness New Docks, Gloucester and Birmingham Navigation Company and the Staffordshire and Worcester Canal Company, and was withdrawn.

The tolls for the next years may be summarised briefly.

Tolls.

1882	£8177 3s 0d (£8177.15p)
1883	£7929 0s 11d (£7929.5p)
1884	£8248 17s 9d (£8248.88p)
1885	£318 10s 11d (£318.55p) above last years.
1886	£8411 2s 9d (£8411.13p) decrease due to unusually high flood, highest in the Severn Valley since 1770.
1887	£7764 13s 8d (£7764.68p) decrease caused chiefly by a general depression of trade throughout the country.
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1888	Tolls nearly recovered, £8260 18s 5d (£8260.92p)
1889	£8711 16s 6d (£8711.82p) the largest since 1860.
1890	The Severn Navigation Act passed through Parliament. The Commissioners were empowered to dredge the Severn to a minimum depth of seven feet, from Gladder Brook, near Stourport, to Worcester Bridge, and ten foot from Worcester Bridge to Lower Parting, near Gloucester; and to make some alterations in the lock above Worcester. Sharpness New Dock Company and Birmingham Navigation Company would have to deepen their locks between the basin at Gloucester and the Severn with money lent them by the Commissioners. The Commissioners also had to construct a dock or basin at Diglis. 1890 tolls £8243 19s 10d (£8243.99p)
1891	Protracted frosts caused almost entire stoppage of navigation for more than five weeks. Tolls from December 21st 1890 to January 25th 1891 amounted only to £16 11s 0d (£16.10p); a falling off of £231 1s 3d (£231.6p). Tolls for the year £8175 4s 8d (£8175.24p).
1892	Tolls £7701 18s 0d (£7701.90p), due to stoppages of traffic necessary for alteration of locks at Holt and Bevere and locks at Gloucester.
1893	Application of reduction of threepence (<1p) per ton on iron carried from Stourport to Gloucester, applicants stating that otherwise the trade would be taken from the river. The application was refused. Tolls £7527 9s 4d (£7527.46p) stoppage of navigation due to severe frosts.
1894	Tolls less by £32 4s 6d (£32.22p) attributed to the canal strike.
1895	New scale of tolls and charges. Severe frost caused a loss of about £1000 in tolls in January and February.
1896	Tolls £7827 18s 10d (£7827.94p).
1897	Improvements on the Thames and Severn Canal. Tolls £7377 8s 9d (£7377.43p)

1898 Tolls £7400 6s 2d (£7400.30p).
1899 Tolls £6611 17s 1d (£6611.85p) less than in any previous year. The Thames and Severn Canal was reopened to shipping.
1900 The tolls continued falling. Tolls £6106 0s 11d (£6106.5p). It may be noted that in twenty years, from 1880 to 1900, the tolls taken have dropped by £2065 4s 1d (£2065.20p).

Over the years the Severn Commissioners spent a great deal of money on keeping the river in a navigable condition and from the following accounts it can be seen how much of the money was spent and how money was obtained.

1847 Capital Account of Amount Expended.

Item	£. s. d.
Cost of land, redemption of land tax.	90 0s 0d
Erection of locks and weirs	20,000 6s 5d
Engineering	921 3s 10d
Salaries and allowances	529 10s 2d
Interest on mortgages	4,171 4s 1d
Printing and stationery	14 6s 6d
Mortgage stamps and expenses	125 2s 0d
Law and Parliament expenses	1,325 10s 0d
Commissioners Office, rents, postage and miscellaneous	25 0s 0d
Total	**£ 30,851 15s 1d**
Purchase of dredger	1500 0s 0d

[46]

Income Account Amount Expended.

Item	£. s. d.
Dredging & maintenance of works, wages, materials, coals.	608 5s 1d
Salaries	525 0s 0d
Wages of Toll Keeper & Lock Keeper	538 12s 7d
Interest on mortgages	4,499 19s 9d
Rents, rates & insurance	54 17s 9d
Printing & stationery	84 13s 3d
Miscellaneous	5,6 17s 11d
Total	**£ 6,368 5s 11d**
Income Account amount received, Tolls	**£ 6,379 2s 4d**

Accounts for 1860.

Income	**£ s d**
Tolls	4,269 8s 6d
Hire of dredger	129 8s 7d
Expenditure	
Dredging & maintenance	1,536 13s 8d

[46] Abstract Accounts of the Severn Commissioners 1847.

Salaries	1,004 4s 0d
Wages of Toll Collector & Lock Keeper	1,040 2s 0d
Interest on mortgage	5,016 8s 7d
Law expenses	264 10s 11d
Total	**£ 9,399 7s 1d**
Money owed	
Borrowed on mortgage of Tolls	250,006 0s 0d
Due to mortgage of Tolls	214 18s 10d
Interest in arrears	288,309 10s 0d
Total	**£ 538,520 8s 10d**[47]

Accounts for 1890.

Income	**£ s d**
Balance in Treasurers hands	1,011 18s 5d
Tolls	8.243 19s 0d
Income Tax on interest paid	206 8s 8d
Great Western Railway (amount payable under guarantee)	5,288 3s 6d
Interest allowed	1 18s 0d
Rents	21 10s 0d
Total	**£ 14,773 17s 7d**
Expenditure	
Drainage & Maintenance of Works wages	1,435 11s 11d
Materials, etc	961 12s 8d
Coal	179 6s 7d
Salaries - Engineers	200 0s 0d
Clerk	200 0s 0d
Accountant	100 0s 0d
Auditors	4 4s 4d
Wages of Toll Collectors, Lock Keepers	1,202 0s 0d
Interest on mortgages (arrears to June 30th 1889)	5,703 12s 0d
On account of further interest on same mortgages	2,803 16s 6d
Rents, Rates & Insurances	232 4s 10d
Printing & Stationery	51 2s 6d
Income Tax	221 6s 7d
Upton Bridge	8 16s 11d
Mortgage expenses	17s 6d
Law & Parliament expenses	183 18s 4d
Mortgage money paid off out of surplus income	682 2s 8d
Miscellaneous	171 12s 2d
Balance in Treasurers hand on general account	475 12s 11d
Total	**£ 14,773 17s 7d**

Amount of money still owed by the Severn Commissioners was £ 189,243 16s 11d [48]

[47] Op cit: 1860
[48] Op: cit: 1890

Obviously the tolls and revenue of the canal balanced its expenditure but the revenue was not sufficient to pay off the heavy debt incurred through the initial works on the river.

Chapter 4.

The Development of the Gloucester to Berkeley Ship Canal from 1831.

From the regulations of 1833, issued by the Gloucester and Berkeley Canal Company we can understand, through seeing what the owners of ships had to observe if they wished to use the canal, something of the working of the canal and the difficulties the owners had to contend with, not only to ensure the safety of the vessels but also to ensure the smooth running of the canal system.
"The master or owner of the ship is responsible for any damage to weirs, bridges etc: belonging to the company. All vessels are placed within the entrance of the canal, basins and works at the risk of the owner, but all such vessels are subject to the orders of the Superintendent, the Harbour Master and other officials appointed by the Canal Company. If the owners refuse or neglect to obey there is a penalty of £ 5. If a vessel is placed where it might obstruct or cause an accident there is a fine of £ 1 for every hour of obstruction is continued after it has been given notice to remove it.

All square rigged vessels above 100 tons register before entering the Canal at Sharpness shall hence forward strike their top-gallant yards and top-gallant masts, rig in their jib boom, sprit sailyards and martingales; send their studding sail booms down, take off their boom irons, where practicable and top up their lower yards; get both lower anchors on the forecastle; and not to be suffered to pass up or down the Canal without first complying with this order; refusal to do so, the owner or master of such vessels shall forfeit or pay to the company £ 5.

The crews of all vessels passing on or using the Canal, are to assist the lock and bridge keepers in opening and closing the bridges and locks; and every person belonging to any such vessel, refusing to assist the lock or bridge keeper, or leaving any such lock or bridge before it is effectually closed and secured shall be fined £ 1.

The utmost care is to be at all times taken of fires and lights on board vessels using the Canal or Basins, in order to guard against accidents or mischief therefrom, and the Canal Company's officers are strictly enjoined in case they shall witness on board of any vessel a negligent, careless or improper conduct with regard to fires or light, immediately to require the same to be extinguished and report the circumstances to the Canal Committee; and in case the master, owner or other person having charge of such a vessel shall neglect or refuse so to extinguish such fires or lights there shall be a penalty of £ 5.

In the daytime, whenever the entrance gates at Sharpness Point are opened a red flag is to be hoisted at the Pier Head, and kept flying until the gates are again closed. The master, or the person having charge of any ship, boat or other vessel using the Canal or Basin, immediately on entering the same shall give a true account in writing, signed by him to the Collector appointed by the Company for that purpose of the several quantities of goods and other things which shall be on board such vessel, from

whence bought and whence the same are to be landed, in order that the whole may be rated and charged according to the table of rates fixed by the Company. If the master or other person gives an account which is incorrect or delivers any part of his loading than what shall be mentioned in such account, with the intent to avoid payment of the said rates; he shall forfeit and pay the Company 40/- (£ 2) per ton of goods and other things which shall be on board the vessel.

No vessel shall receive her clearing ticket from the Canal Office at Gloucester, until she shall first have paid all her charges and cleared out at the Customs House.

Vessels under 150 tons and laden with an assorted cargo of five or more different kind of goods, from or to any part of the United Kingdom to pay 1/3d per ton from the entrance lock at either end to the Stroud Canal, and 2/6d (12 ½ p) per ton if they cross the Stroud Canal, on the total amount of tonnage on board any vessel, in lieu of the established rates, provided always, that if the master or owner of any such vessel should prefer or require to pay the tonnage specified in the above Table of Rates on such separate description of goods composing the cargo of the said vessel, he may do so, on producing an accurate and particular account of the tonnage of such a cargo, that the whole may be rated accordingly." [49]

A report of the port of Gloucester, given in 1856, describes the state of the canal, docks and traffic.
"The building of this canal allowed vessels to enter Gloucester port with safety and it was after it's opening in 1827 that Gloucester docks developed, as formerly Bristol had been the port for Gloucester." [50]

"The canal enters the Severn 18 miles above King Road. At the entrance to the canal at Sharpness the spring tides rise from 30 - 35 feet and neap tides from 13 - 18 feet. The tidal basin is 40 foot in width; from the basin there is a ship lock into the ship canal, 165 foot long and 36 foot in width with 18 foot of water over the sill, the practical navigable depth being less than this. At Gloucester are commodious docks, extensive quays, wharehouse (sic) and yards with every appliance for the rapid discharge and loading of vessels. Railway communications with all the ports of the Kingdom range along the quay, close to the ship's side. There are two public graving yards at Gloucester, at moderate charges for repair of vessels, the largest of which will take in any vessel that can navigate the canal. The tracking on the canal is performed with horses at a charge of ¼ d per mile per ton, on vessels not exceeding 150 tons register, and at reduced rate for vessels above that tonnage. The navigation of the river between King Road and Sharpness has been considered of a difficult and dangerous character, but the experience of the last 20 years has proved to be the reverse. It has an efficient staff of Trinity House Pilots and is rendered still more secure by a powerful class of steam tugs always in attendance between Kings Road and the Holmes, which can be employed to bring vessels to the canal and to take them on their outward journey down the Channel, or to the loading ports of Newport and Cardiff. There are also pilots for the canal which may be employed at the option of the master of the vessels, at a charge regulated by the size of the vessel, the maximum charge not exceeding 30/- (£ 1.50p) each way.

[49] Byelaws and Regulations of the Gloucester Berkeley Canal 1833.
[50] The Port of Gloucester - The Gloucester Berkeley Ship Canal 1856.

There are no port charges whatever on vessels entering or departing with cargoes except the tracking charge, the tolls being levied entirely on the goods. Masters of vessels preferring to discharge their cargoes or lighten their vessel in the canal at Sharpness can do so by arrangement with the consignee; and vessels too large to enter the canal from the Tidal Basin at Sharpness, can be discharged at Sharpness. They will not of course be liable to the tracking charges not having made use of the horses.

The chief exports from Gloucester are salt and iron; and convenient and powerful drops for the shipment of coals have been recently erected, with railway communications to the coalfields of the Forest of Dean and South Wales.

Channel and River charges on a vessel of 500 tons register, drawing, say, 17 foot of water, to Sharpness Point.

Pilotage from Lundy Island to King Road……..£ 7 7s 0d (£ 7.35p)
Ditto from King Road to Sharpness Point……..£ 3 3s 7d (£ 3.18p)
Steam tug (if employed) from ditto to
ditto at 8d (3p) per ton……..£ 16 13s 4d (£16.66p)
Total……...£ 27 4s 1d (£27.20p)

If a tug be not employed the pilotage charge between King road and Sharpness will be 1/3 more than the above; and if a tug be employed both ways the charge will be 1/- (5p) per ton for up and down tonnage. The charge for tugs from Sharpness to Newport and Cardiff Dock Gates is 7d (2 ½ p) per ton. The pilotage of the Bristol Channel is now under revision by the government, the result of which is believed will materially lessen the charges.

As a proof of the safety of the Port of Gloucester it may be mentioned that in the years 1851, 1852 and 1853 there were 484,636 tons of foreign goods brought to Gloucester in vessels ranging up to 970 tons register with a cargo of 1178 loads of timber and drawing 21 feet of water, without a single loss or accident to any one of them; and it is believed there are as few accidents to vessels trading at Gloucester as to any part in the Kingdom."[51]

In 1862 further byelaws were issued by the Gloucester to Berkeley Canal Company, relating to the pilotage in the canal and in the Bristol Channel and the River Severn. The regulations also gave orders as to how the ship should be rigged when she was in the canal or basin. It also stated that,

"All vessels lying in the canal or basins, or passing along the canal with their heads towards Sharpness shall have their lower and topsail yards topped to the starboard. All vessels lying in the canal or basin, with their head toward Gloucester shall have the low topsail topped to the port. The lading of vessels are not to project beyond the bulwarks. No person shall act as a pilot in navigating vessels upon the canal who has not received a licence to do so from the Committee, fine for doing so, £ 5.

From the table of rates on goods, there can be seen the different goods moved by the canal.

[51] Port of Gloucester - Gloucester and Berkeley Canal 1856.

RATES OF TONNAGE - IMPORTS	From Foreign places		From Ireland and coastwise and the Severn	
	s.	d.	s.	d.
Ale, beer, porter, cider and perry, per barrel of 36 gallons	0.	4	0.	4
Ditto in bottles per dozen.	0	1	0.	1
Borilla (?) - per ton.	1	6	1	0
Bricks for building per 1000.	2	0	2	0
Scouring, fire tiles per ton.	2	0	1	0
Brimstone per ton.	1	6	1	0
Bones and bone ash per ton.	1	0	1	0
Stones per ton.	1	6	1	0
Clay per ton	0	6	0	6
Coals per ton.	0	6	0	6
Corn and Meal, Wheat and all Corn and Seed per ton.	1	9	1	6
Flow and all the other meal per ton	2	0	2	0
Bran per ton.	1	6	1	6
Earths per ton.	1	0	1	0
Gunpowder per ton.	5	0	5	0
Kelp per ton.	1	6	1	0
Marble per ton of 14 cu feet.	1	6	1	0
Manures per ton.	1	0	1	0
Metals and ores.				
Copper, Spelter, Tin, Zinc and Manganese, per ton.	2	0	0	9
Pig Iron and old loose iron per ton.	2	0	0	9
All other description of iron per ton.	2	0	0	9
Metallic Ores per ton.	0	9	0	6
Oilcake and Locust Beans per ton.	1	6	1	0
Potatoes per ton.	1	0	1	0
Slates for roofing per ton.	2	0	1	6
Slates for draining per ton.	2	0	1	6
Slabs for paving per ton.	2	0	1	0
Spirits and Wine, per pipes, pin or butt.	2	6	2	6
Spirits and Wine per ½ ditto or hogshead.	1	3	1	3
Spirits and Wine, all casks.	0	6	0	6
Spirits and wine, in bottle - per dozen.	0	1	0	1
Wood and Wood Goods				
Mahogany - five woods per ton.	2	0	2	0
Other timber and poles.	1	6	1	6
Lathewood, per fathom per 4'	2	0	2	0
Staves, Baltic Pipe per 120.	3	6	3	6
Plincheon (?) and Hogshead per 120.	3	0	3	0

RATES OF TONNAGE - IMPORTS	From Foreign places		From Ireland and coastwise and the Severn.	
	s.	d	s.	d
Quebec standard per 120.	1	6	1	6
Barrel per 120.	1	0	1	0
West India Pun (?) per 120.	1	6	1	6
New Brunswick small per 120.	0	3	0	3
Laths per 1000.	0	4	0	4
Unenumerated articles per ton.	2	0	1	0[52]

Due to the fact that the Gloucester to Berkeley Ship Canal had made the journey to Gloucester safe for vessels of large tonnage, vessels were now coming from all over the world and bringing their goods direct to Gloucester, from whence they could be distributed, by the inland canals, to a large area.

By looking at the following extract from the Arrivals and Sailings Log Book of the Gloucester to Berkeley Canal Company, we can see the kind of ship used, where she came from and what she carried.

April 1867						Outward journey from Gloucester	
Sharpness	Gloucester	Ship	Tonnage	From	Cargo	To	Cargo
1st	5th	Brig	191	Berdiantrial (?)	Wheat	Riga	Salt
1st	2nd	Brig	315	Sanbrero	Phosphate	Cardiff	Empty
2nd	4th	Barque	399	Nicolaus	Wheat	Cardiff	Ballast
2nd	5th	Barque	451		Wheat	Cardiff	Ballast
2nd	4th	Schooner	77	Plymouth	Empty Casks	Plymouth	Creosote
3rd	4th	Schooner	420	Geish	Wheat	Newport	Ballast
3rd	3rd	Brig	235		Wheat	Cardiff	Empty
3rd	6th	Barque	427	Odessa	Wheat	Cardiff	Ballast
3rd	13th	Brig	302	Trieste	Wheat	Cardiff	Ballast
3rd	4th	Schooner	86	Sligo	Oats	Dunkirk	Potatoes
3rd	14th	Sloop	31	Bristol	Wheat	Watchet	Salt
4th	15th	Brig	290		Wheat	Newport	Ballast
4th	5th	Schooner	93	London	Super phosphates		Salt & Coal
5th	16th		485		Wheat	Cardiff	Ballast
5th	8th	Barque	318		Wheat	Cardiff	Ballast
6th	10th	Barque	361		Wheat	Cardiff	Ballast
6th	15th	Barque	501	Odessa	Wheat	Cardiff	Ballast
6th	8th	Schooner	70	Bordeaux	Seed	Swansea	
6th	8th	Schooner	100	Bapaune	Corn	Cardiff	Empty
6th	8th	Schooner	52	Waterford	Oats	Waterford	Salt
6th	8th	Schooner	68	Wexford	Oats & empty sacks	Lanelly	Ballast
6th	8th	Sloop	76	Cadiz		Cardiff	Empty
7th	13th	Barque	453	Odessa	Wheat	Cardiff	Ballast
7th	12th	Barque	348	Odessa	Wheat	Cardiff	Ballast
8th	12th	Barque	347	Valparaiso	Wheat	Cardiff	Ballast

[52] Byelaws and Regulations of the Gloucester - Berkeley Canal 1862.

Sharpness	Gloucester	Ship	Tonnage	From	Cargo	To	Cargo
8th	15th	Schooner	85		Wheat	Newport	Empty
9th	17th	Barque	347	Marianople	Wheat		
9th	12th	Barque	388	Odessa	Wheat	Sunderland	Ballast
9th	9th	Schooner	75		Oats	Newport	Ballast
11th	12th	Schooner	70	Teignmouth	Clay	Waterford	Empty
11th	12th	Schooner	63	Cork	Super phosphates	Dunkirk	Coal, pitch
11th	12th	Schooner	53	Cardiff	Sundries	Cork	Clay
12th	15th	Sloop	37	Lydney	Coal	Cardiff	Iron, Bran
15th	17th	Barque	356	Odessa	Wheat	Ilfracombe	Salt
15th	16th	Sloop	49	Teignmouth	China Clay	Cardiff	Empty
16th	17th	Galliot	48	Newport	Sundries	Port Isaac	Coal
17th	3rdMay	Barque	423	New York		Cardiff	Sundries
20th April	20th April	Schooner	94	Burgoyne	Corn	Cardiff	Ballast
20th	20th	Lugger	79	Nantes	Barley	Cardiff	Empty
20th	20th	Sloop	46		Clay	Cardiff	Ballast
20th	20th	Sloop	35	Boscastle	Slates	Plymouth	Iron
20th	20th	Galliot	91		Oats	Portraith	Salt
20th	20th	Galliot	80		Oats	Konnigsburg	Salt
21st	22nd	Brig	214	Odessa	Wheat	Konnigsburg	Salt
21st	22nd	Schooner	99	Nantes	Barley	Swansea	Potatoes
21st	22nd	Schooner	60	Londonderry	Potatoes	Waterford	Salt
22nd	22nd	Lugger	49	Bordeaux	Millet Seed	Cardiff	Ballast
22nd	22nd	Brig	93	Nantes	Barley	Cardiff	Empty
24th	29th	Brig	177		Iron	Lerwick	Maize
25th	26th	Steamer	63	Cork	Sundries	Cork	Iron, bran
25th	26th	Sloop	45		China Clay	Barnstaple	Salt
25th	26th	Brig	200	Trieste	Oak Staves	Cardiff	Empty
25th	26th	Brig	242	Alexandria	Cotton Seeds	Newport	Empty
25th	26th	Schooner	88		Manganese Ore		Salt
25th	26th	Sloop	38		China Clay	Bideford	Salt
27th	27th	Schooner	59	Nantes	Barley	Swansea	Salt
29th	30th	Schooner	64		Potatoes	Clare	Maize
29th	30th	Schooner	76	London	Ballast	Waterford	Maize
29th	30th	Lugger	95		Sundries	Swansea	Salt
30th	1st May	Sloop	29	Guernsey	Stone Oats	Guernsey	Salt
30th	1st May	Galliot	53	Bristol	Sundries	Cardiff	Sundries
30th	1st May	Schooner	57	Wexford	Potatoes	Newport	Sand
30th	1st May	Schooner	162		Sulphur		Salt

By these entries it can be seen how large a proportion of imports were grain, while outward cargoes consisted mainly of salt.

By an Act of Parliament in 1870 permission was given for a new entrance to be built to the canal, thus giving increased accommodation, this work was completed in 1874.

The state of the Severn waterways, at the end of the century, can be seen in the report on Canals and Waterways of 1906.

This report said that there were,

"through connections by the Stroudwater Canal to the Severn and Thames Canal, and via the Thames to London and all inland navigations connected with the Thames through the Severn. The Severn had connections with the Worcester to Birmingham Canal, the Droitwich Canal, the Birmingham Canal and all connection herewith." [53]

There was competition to the Gloucester and Berkeley Canal by the railway as the Midland Railway and the Great Western Railway Companies had access to both ends of the canal.

The following figures were given for the Severn itself.

Severn Navigation Traffic in 1898.
Loaded and discharged on the canal…….80,283 tons.

(Loaded but not discharged……. 21,638 tons
Through traffic…… (Discharged but not loaded……..29,330 tons
(Not loaded or discharged……..233,275 ¼ tons
Total……...292,326 ¼ tons

Revenue in 1898.
From tolls…….£ 7648
From freight as carriers from other sources……..£ 99
Total…. £ 7147

Working expenditure.
Management of canal…… £ 2,619
Maintenance of canal…….£ 2,224
Other expenditure……..£ 350
Total……..£ 5,213

Net Revenue.
1888……..£ 9,298
1898……..£ 1,934

Method of Transaction.
Steam towage, horse haulage, self-propelled steam vessels.

Description of Traffic.
Grain, coal (10.7%), timber (foreign), salt, sand, iron and other minerals (21.96%) [54]

[53] Canals & Waterways Commission Vol. iv, page 351.
[54] Op: cit: page 86.

The following figures are given for the Gloucester and Berkeley Ship Canal Traffic conveyed.

Imported at Sharpness.
Goods either sent away from Sharpness by rail or brought up to Gloucester by lighters etc: 575,638 tons. About 92,000 tons passing up the River Severn from Gloucester.

Exported.
Goods brought down the Severn and by rail to Gloucester and Sharpness: 171,375 tons (only about 151,000 tons subject to canal tolls.

Revenue.
From tolls……..£ 26,416
Charges on ships……...£ 14,517
Rent……...£ 9,358
Total……..£ 50,291
Expenditure……...£ 16,754

Net Revenue…….£ 33,537

Transaction.
Almost entirely steam tugs.

Imports.
Corn, timber, oilseed, sugar.

Exports.
Gravel, coal and salt. [55]

[55] Op: cit: page 86

Chapter 5

The situation at the end of the 19th century.

In the appendix of the Royal Commission on canals and waterways of 1906 we find that the original canals on the linked Severn system described in Chapter 1, with the exception of the Coombe Hill Canal and the Hereford to Gloucester Canal which had been discontinued, are still in use. The Droitwich Canal though, had been leased by the Sharpness New Docks and Gloucester and Birmingham Navigation Company.

Although the canals were still working many of them were doing so at a loss. The Worcester and Birmingham Canal could only take canal boats of ordinary size, the depth of water and the amount of locks on the canal, hampered travel and the canal had been running at a loss since 1874. The Droitwich Canal, which carried salt to Bristol, was also running at a loss. By 1900 many canals were running at a loss, but this may have been due to the competition from the railways, which caused many of the canals to cut their charges in order to obtain trade from the railway. With the coming of the railway along side a canal, the latter was forced to think of making improvements in its waterways in order to maintain traffic but inevitably a portion of the traffic went to the railway, this leading to a decline in the revenue of the canals. At the same time five advocates of the canal pointed out that where canals provided alternative transport, the railways had to keep their charges down.

Decreased revenues of the canals were marked by a lower market value of the shares.

"By 1844 the Warwick and Birmingham Canal shares had fallen from £ 84 to £ 55 and those of the Kennet and Avon Canal from £ 25 to £ 9."

Jackman also tells us that after a while the decrease in rates took profit from both the railway and canal and,

"In certain instances the canal companies, in their opposition to railways, and with the concurrence of their engineers, prompted Bills to convert the canals into railways, or to construct lines of railway parallel to or in connection with their waterways." [56]

However, soon the railways and canals began to amalgamate and this was usually accompanied by an increase of rates. As railways gradually took over a canal they, for most part, let them deteriorate until they were unfit for navigation.

"The Act of 1872, requiring railways to maintain their councils in working order, did something to arrest the decline of these waterways, although it was so meagrely obeyed that it had little constructive effect." [57]

[56] Transportation in Modern England - Jackman Vol: 2, page 635.
[57] Op: cit: Page 368.

The canals joining the Severn ran at a loss, as the following figures show:

The Kennet and Avon.

Year	Tons conveyed	Revenue
1888	4785	£ 658
1898	9826	£ 686
1905	9609	£ 596

The main goods travelling on this canal were grain, bricks, stone, sand, hay, coals and tar. [58]

A much greater loss is shown by the Severn Navigation, where over a period of seventeen years there was a drop in tonnage of nearly 25,000 tons.

Year	Tons conveyed	Revenue
1888	323,329	£ 8,712
1898	292,326 ¼	£ 7,048
1905	75,198 ¼	£ 6,672

The net revenue for these years was:

1888	£ 9,298
1898	£ 1,934
1905	£ 2,122 [59]

The Stroudwater Canal:

1888	67,940 tons
1898	49,455 tons [60]

The Thames and Severn Canal:

Year	Tons conveyed	Tolls
1888	35,542	£ 1,912
1898	3,771	£ 1,621
1905	16,904	£ 815

This canal company, after deduction of expenses was running at a loss over the whole of the period.

1888, a loss of £ 165.
1898, a loss of £ 1,621.
1905, a loss of £ 815. [61]

[58] Canals and Waterways Commission Vol. iv, page 100.
[59] Op: cit: Page 56.
[60] Op: cit: Page 88.
[61] Op: cit: Page 90.

Mr Waddy went on to say that:

"Any amount of stuff is despatched; when the Black Sea and the Argentine trade fails, something like 50,000 tons of grain comes every year from Avonmouth and Bristol to Sharpness Docks and on to Gloucester and further on to Tewkesbury and to the Birmingham mills. And there is a great deal of general cargo, provisions and things of that sort which come on the liners which come up to Gloucester and right up." [66]

"The city of Worcester regards the efficiency of her waterways as being absolutely essential, not only to her welfare, but also to her existence. We ascribe her existence as a city to the Severn and to the canals which have since been made as feeders to the Severn and we think that if these decay the town must also decay. We have an example of that further up the river." [67]

On the Severn however, the railway company by an order of an Act of Parliament, had to make up the tolls of the Severn Commissioners to £ 19,000 per annum and so through this act paid the Severn Commissioners £ 6,000 to £ 7,000 per annum. [68]

[66] Op: cit: Vol 1. 3819 - 3824 - 6. Page 136.
[67] Op: cit: Vol 1. 4071. Page 143.
[68] Op: cit: Vol 1. 2823. Page 96.

With the Gloucester to Berkeley Canal it was a different matter. The canal carried more goods at a lower rate and in the Canals and Waterways Commission, Mr Southall, Clerk to the Severn Commissioners, was questioned about this.

"In 1880 you carried 687,000 tons of freight and received £ 36,000 and in 1905 carried 1,000,000 tons, an increase of 50% - for a less sum? Yes. Up to 1890 there was no competition practically with Bristol, but since the opening of the new docks at Avonmouth and Portishead we have had to reduce the rates to meet the competition."[62]

The canal officials had decided to arrange through tolls.

"All traffic from Gloucester to places on the Birmingham canal or through that canal to canals east or north of it, is declared "Through Traffic." [63]

Therefore via Stratford on Avon Canal to Warwick via the Grand Union Canal to London there was a reduction of tolls of 30%. By this measure, transport on the canals became cheaper and it had been hoped that it would bring trade back to the canals.

In evidence it was said that in many cases it was quicker to send goods by canals rather than railway.

"Goods despatched from Sharpness by water were discharged in Birmingham in 30 hours, (or at the most 36 hours.) My experience has been that in consequence of the large mills and timber yards being principally situated on the canal side at Birmingham, it has frequently happened that millers in Birmingham requiring quick delivery have ordered trucks of grain to proceed by railway, the bulk of the cargo still being forwarded by boat, but on many occasions the boat has reached its destination and partially discharged before the delivery by railway waggons (sic), the boat leaving Sharpness at the same time as the trucks. With the improved towing services now contemplated the river ought to be quicker than rail." [64]

Mr Waddy, who was the General Manager of Sharpness Docks, said that 33% of the imports into the Midland district out of something like five million tons going in and out, was by the Bristol Channel route. Mr Waddy was asked also if he thought the Worcester to Birmingham Canal had caused the rates on the railway to be lowered. He replied that this was so.

The rate on grain from Liverpool to Birmingham was 11/3d (56p) per ton for four ton lots as compared with 7/8d (38p) per ton from Avonmouth, the distance being practically the same, a saving of 3/3d (17p) per ton on railway rate charges although the Gloucester to Berkeley Canal Company lost £ 6,000 per year on the canal. [65]

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[62] Op: cit: Vol 1. 3971. Page 140
[63] Op: cit: Vol 1. 3878. Page 137
[64] OP: cit: Vol 1. 3781. Page 134
[65] Op: cit: Vol 1. 3798. Page 135

Conclusion,

The canals in the early part of the century proved to be very valuable to the county, as on them bulky goods could be carried far quicker and it was also much cheaper than by any other mode of transport. The heavy industries of the Birmingham area found that by using the inland waterways, heavy bulky goods could be shipped to Gloucester, Sharpness or Bristol or via the "Trunk Canal" to Liverpool, by barge and there shifted to a larger vessel which would transport the goods all over the world. Some canals were made, not only for conveying goods at a cheaper rate, but also to avoid dangerous stretches of water, for example, the Gloucester to Berkeley canal.

The actual prices of some goods went down with the opening of a canal for example, the people in Stroud saved £ 5,000 a year on coal alone. One trouble, however, was that the width of the canals was not constant and this caused much inconvenience as cargoes had to be shifted from one barge to another in the middle of its journey, consequently this increased the price of the goods.

During the 19th century, however, the railways had been introduced to this country and towards the end of the century had bought up many of the canals and had forced the traffic from them on to the railway; by letting the canals fall into disrepair, so making navigation impossible. Other canals had gradually closed after it was found cheaper and quicker to send goods by rail, whilst other canals lacked trade through being in such a bad state of repair.

The Gloucester to Berkeley canal was an exception among the canals, as this canal was necessary to by-pass a dangerous part of the Severn and also goods would be taken, whether by rail or the inland canals, to Gloucester and shipped, via the canal, to all places in Europe.

It still seemed, even at the end of the 19th century, useful to keep the Severn waterway above Gloucester open to traffic for purposes suggested earlier, i.e. transport of bulky goods, but not so necessary to effect improvement in the canals still linked with it, to enable boats of a larger size to use the waterways. It was expected that the railway would cope with this traffic and today motor services take even more.