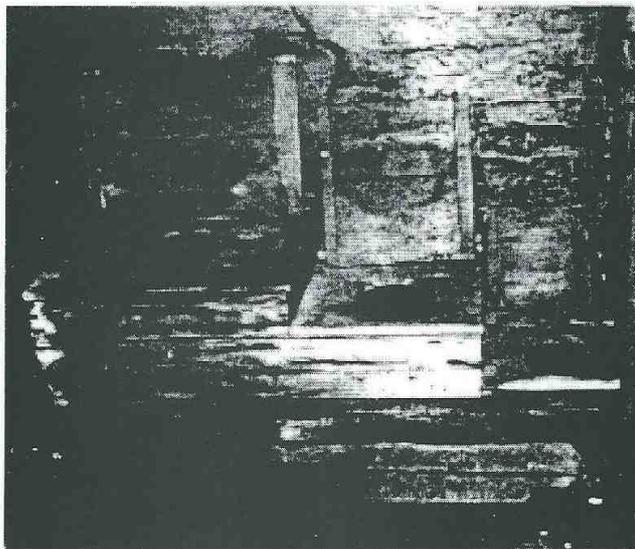




Robert Stone
NIGHTMAN & RUBBISH-CARTER,
*At the Golden Pole the Upper End
of White Cross Street, near Old Street*

NB. Decently Performs all he Undertakes
now carried on by his Daughter

Trade card of a night soil man.



A three hole privy.

Servicing the Houses of Bath 1714 – 1830: Sewage and Rainwater Disposal

Alan Hardiman

Introduction

Modern drains which carry away household waste are a nineteenth-century invention and require a plentiful and constant supply of water and a reasonably watertight pipe in which it could be conveyed. Neither of these was available before 1800.

John Wood describes the drainage and general appearance of Bath in 1644:

'all kinds of disorders were grown to their highest pitch in Bath: insomuch that the streets and public ways of the City were become like so many dunghills, slaughterhouses and pigsties for soil of all sorts, and even carrion was cast and laid in the streets, and the pigs turned out by day to feed and rout among it: butchers killed and dressed their cattle at their own doors: people washed every kind of thing they had to make clean at the common conduits in the open streets. The Bath-ers [Baths] were like so many Bear Gardens and modesty was entirely shut out of them: people of both sexes bathing by day and night naked and dogs, cats, pigs and even human creatures were hurled over the rails into the water while people were bathing in it.'

In 1714 those households without cesspits would have disposed of their sewage by tipping it into the road or carrying it in containers to the city walls where it would have been thrown over into the ditches below. Council water committee minutes of 1718 state that £3 was to be paid to Mr Thos Atwood and others:

'for emptying the excrements from the house of Ease into the Common Shoar (Sewer), lately made by Mr Atwood, and also £3 to them when excrements from the Common house of Ease in the Upper Walls shall be emptied into the said Shoar.'

Twentieth-century excavations in the areas around the city walls have, on occasions, revealed a black layer reminding us that the approach to the city may not have been sweet, and made worse by the low-lying airless quality of its setting.

The roads at the time were paved in stone to the full width between the houses and therefore no pavements were provided. The paving would be laid to fall to a central channel into which the rainwater from the houses would drain and into which all the detritus thrown out by the householders would collect waiting to be washed away in a heavy shower. In the better parts of town filth may have been removed by scavengers employed by the city corporation. All channels, ditches and open drains would run down to the river Avon, which was the final destination of the majority of the filth which piled up in the streets at this time.

Cesspits and Dead Wells

The 'cesspit' and 'dead-well' were the most common way of disposing of sewage in Bath throughout the Georgian period. The cesspit was a reasonably watertight stone-lined hole in the ground which, when full, would have been emptied. The dead-well was a natural or man-made hole in the ground into which raw sewage was deposited. The liquid content percolated into the sub-soil. These 'wells' took a long time to fill up and, when full, they would be covered over and a new one dug. Arrangements for emptying of cesspits were often neglected and it was not uncommon for them to be forgotten about and to overflow. On 11 June 1767 the Bath Chronicle reported:

'Last night a melancholy accident happened at a house in Westgate Street. Three men, having dug a hole adjoining to a necessary house, in order to empty it, the contents rushed in so suddenly upon two of them that they were immediately suffocated. The third man went down ladders to their assistance and shared the same fate.'

It seems likely that rather than emptying the 'dead-well' the men were digging a new 'well' too close to the existing one.

More often than not the cesspit would be dug at the far end of the rear garden, as far away from the house as possible, and immediately over it would be constructed a small room with a seat with a hole in it. These rooms were known as 'privies', 'necessary houses' or 'jerichos'. In the better houses there may have been a second privy constructed in the vaults for use by servants. By no means were all cesspits located at the end of the garden; some have been located under the kitchen floor. Indeed after the death in 1861 of Prince Albert, who died of typhus, 53 inadequate cesspits were found under the floors of his dwelling.

The sight of a necessary house with two or even three holes is not, as one might suspect, to allow communal use, but to ensure that a variety of hole sizes were provided so that children did not fall through. It would also have provided for a more even distribution of the solids at the bottom of the hole.

Writing to his architect in 1752 William Windham wrote in connection with the privy:

'I would have it as light as possible. There must be a good broad place to set a candle on and a place to keep paper. I think the holes should be wide and rather oblong, and the seats broad and not quite level and rather low before, but rising behind.'

Some privies would have been provided with a bucket full of dry earth or cinders, to be thrown in after use in an attempt to absorb some of the smell, but also to make manure.

Initially there would have been no trap to seal off the smells emanating from the cesspits and it was both common and necessary to use smell thwarters. It was not unknown for someone to be overcome by fumes, sometimes in mid-sentence, while in the parlour! A typical odour mask was one half pomegranate stuffed with cloves.

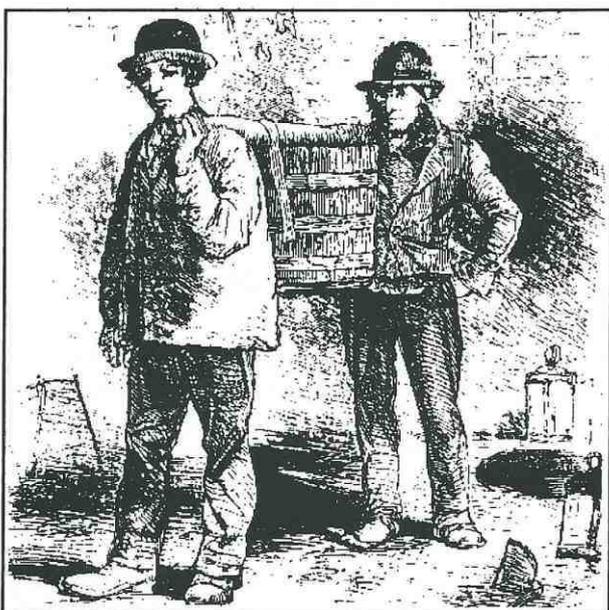
A visit to the privy was considered by some as a health risk and in 1779 A.F.M. Willich wrote:

'It would be a desirable object, in houses which are not provided with water closets, that every individual were furnished with his own night-chair, as most of the common places of retirement are literally ventilators, where some parts of the body are exposed to a current of air which is frequently the cause of disorders, particularly in persons subject to colds and similar complaints. Men suffering from piles ought to be very careful in resorting to such places. In the usual privies, there generally prevails in summer a pestilential fetor so that it becomes almost impossible to wait for the proper evacuation, both because of the disagreeable smell and the danger of being infected by disease.'

Rather than risk a visit to the privy the better classes used chamber pots and these remained the most popular system of disposal in the eighteenth century, cosier for the user but hard on the servant. These chamber pots were commonly disguised in pieces of furniture called close stools and ranged from Chaises-percées (chair with a hole in it), commodes, bed-side steps or pot cupboards. Some close-stools were made of cedarwood for its pleasant smell.

An inventory of one of the Royal Crescent houses of this period includes a mahogany night stool in the large front garret. The servants would have carried the pot downstairs for disposal in the privy.

When the cesspit needed emptying the 'night soil' man would be called upon. These gentlemen often worked as



The nightmen carry their indescribably foul load to the cart.

sweeps during the day doubling up as cesspit emptiers at night. In Bath the emptying of cesspits had to be carried out at night between midnight and 5am in the morning in the winter and 4am in the summer. The removal of the sewage from the cesspits may have been carried out quite profitably, for 'night soil' men not only got paid for removing the soil but could, if enterprising, sell it on for use as manure.

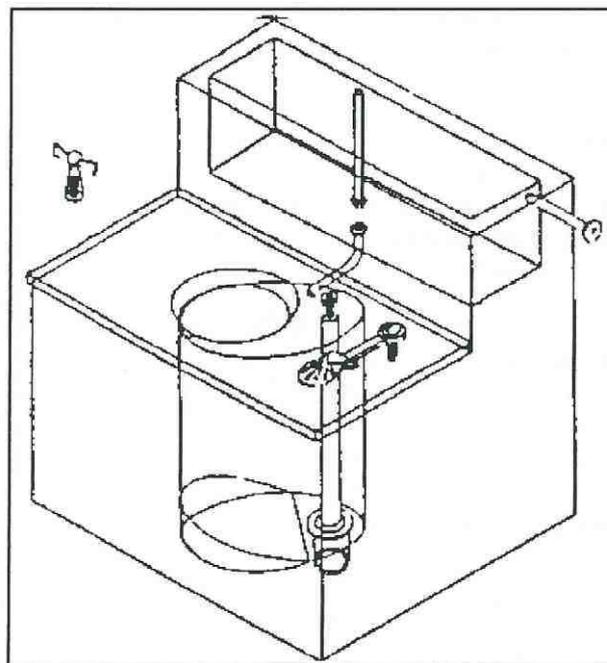
The contents of the cesspit would have been ladled out into a wooden tub which would in turn be taken through the house to the waiting cart. The reason why the men came at night can be better appreciated by the following description:

'The carts were nothing but great open tanks drawn by a carthorse, had to move slowly to prevent rocking and slopping the liquid. One man stood on the cart and hauled up, one stood below and heaved. There was a slobbering splash, followed by a thump, as the dripping tub was dropped down and the horse paced on to the next privy. The stench was indescribably foul and the horrid sounds lasted a full hour. If the cart men were delayed, the tank overflowed and splashed onto the road, to lie another week matted over with ashes thrown out by inhabitants. In later years a cart charged with carbolic was sent around to sluice the gutters after the cart, and lime was thrown down on the spilt muck.'

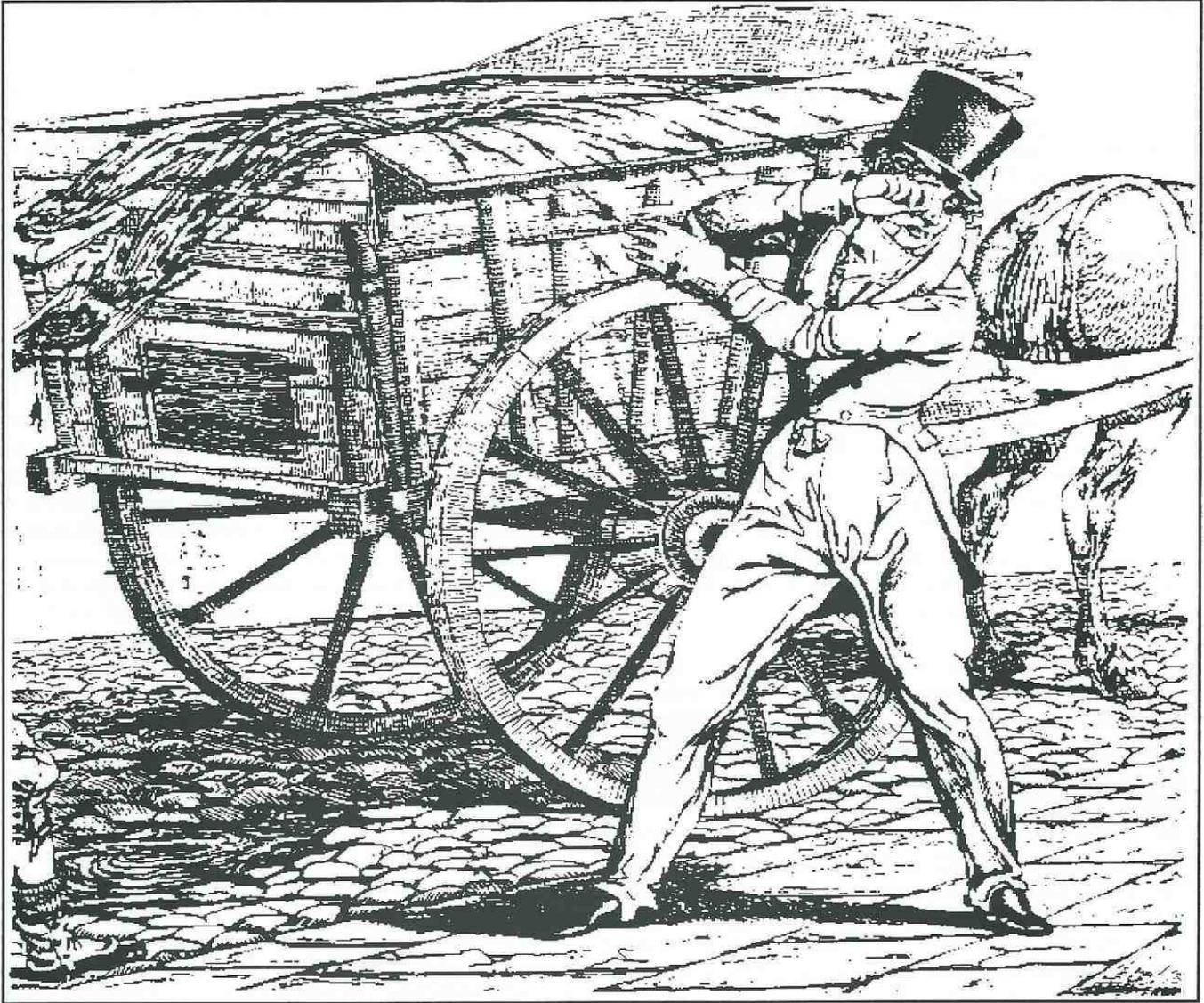
The night soil men carried the sewage either to a communal cesspit or the river.

Water Closets

Just outside Bath is the village of Kelston, where in 1596 Sir John Harrington installed the world's first flushing lavatory. He built a similar device for his godmother, the Queen. It is strange that the idea was not an immediate success and that it would be over 200 years before the flushing toilet began to be regularly installed in new houses.



John Harrington's toilet of 1596, isometric reconstruction.



The cart of raw sewage trundles through the street slopping its contents as it goes.

One of the early attempts at installing flushing toilets in Bath ended in failure. In April 1727 the Duke of Chandos wrote to John Wood, his architect, enquiring the fate of the ten water closets he wanted installed at St. John's hospital:

'You have not contrived one water closet to the whole house, though the want of them is increasingly inconvenient, especially in a house where it is supposed there may be frequent lodgers who are out of order and not able to stir far out of their chamber.'

Wood describes the 10 water closets he was proposing to provide as having 'Scots marble basons, lead pipes to let in and out the water, and all for the sum of £45.' When built much of the lead pipework specified for the 'out' was replaced with wooden boards nailed together to make a rough duct. The duke was not pleased with the results, 'an abominable smell' came up from the direct connection with the town sewer. The duke suggested that had the WCs been discharged into cesspools just above the drain (which was the manner which everyone else at the time adopted) they would have been more acceptable and that digging a well

and letting the pipes from the WCs carry all down into it would be a better solution. He added that the cesspools would 'take an age to fill!' The duke eventually settled on close stools in the rooms and necessaries out in the yard (with separate cubicles).

The contents of the water closet were not supposed to be discharged into the sewers and similarly water supplies were not to be used for flushing them through. In 1770 Mr Molmoth from Bladud Buildings was threatened with having his water supply cut off unless he ceased supplying water to his water closet.

During the Georgian period water closets were at no time installed as a matter of course and reports of the 1860s confirm that at that time many houses in Bath still had cesspools.

When installed the most common WC was the pan closet. It consisted of a funnel with a small pan at the bottom which was tipped down after use and its contents swirled with the help of a little water, usually poured in from a

jug into a larger container, whence it passed into the drain.

Some pans had a long handle attached to a plug which you simply pulled up to release the contents of the vessel into the 'D trap' which was a D-shaped container filled with water which, of course, was never emptied properly and the pan was later condemned. These water closets were the first in a long line of inventions that were to slowly change the unpleasant sanitary habits that still existed in the eighteenth century.

The valve closet was first developed in the 1770s; the complicated mechanism had to be enclosed in a wooden box. In 1775 Alexander Cummings invented and patented a new water closet with the first 'S' trap. By 1778 Joseph Bramah had fine tuned the design and by 1797 had sold 6,000 of his closets. The quality of Bramah's closets was such that the words 'a Bramah' came to be an expression for anything of first quality.

The use of a ventilation pipe to keep the air sweet was not appreciated in the Georgian era, it being introduced well into the nineteenth century.

By the early nineteenth century, a few of the more important houses had either a private water supply or rainwater tank, the contents of which would be pumped up to a tank at roof level and used to supply the water closet.

ments were planned, very careful consideration was given the provision of common sewers. The common sewer had several purposes as it culverted springs and drained natural waters. It was often sited in the centre of the street between and below the level of the cellars. It was not initially designed or intended to take any foul sewage.

The many leases and other agreements drawn up in connection with the eighteenth and early nineteenth-century development of Bath provide a great deal of information concerning the provision of both drains and rainwater pipes.

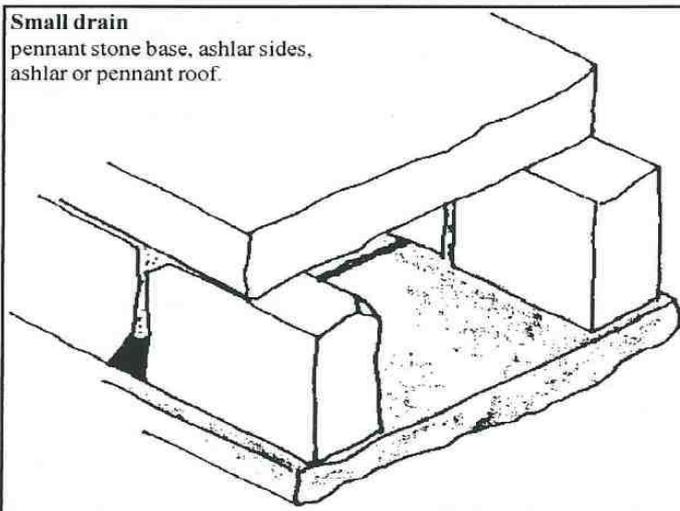
In a lease for 6 houses in Pulteney Street in 1788 there was a requirement to:

'...construct good and sufficient drains from the said dwelling houses which shall be sufficient to convey and to carry off and from the said dwellings to the common sewer, intended to be in the same street, all the foul and other water; and that, at his own expense, which drains shall be made of freestone ashlar and pennant not less than 10in x 8in in the clear and shall keep the same drains in repair. The landlord (lessor) to construct and make a grand common sewer not less than 3ft wide and 5ft high in the clear and discharging into the Avon.'

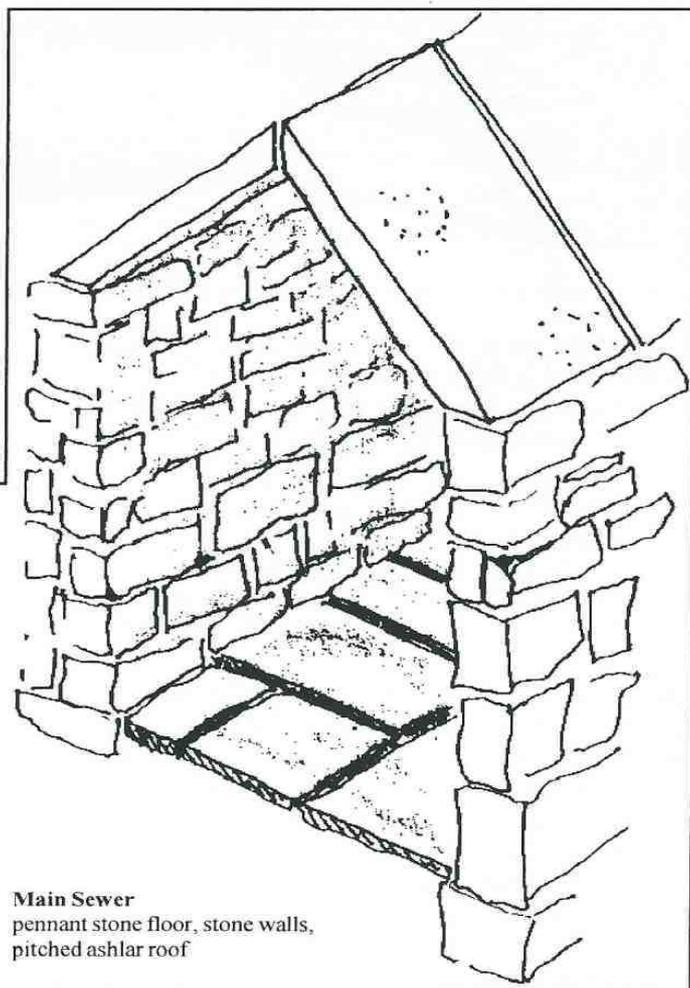
The Common Sewers

From 1718 onwards council minutes indicate that the better households were allowed to discharge their sewage into the sewers. This did not initially mean raw sewage being put into the sewers rather the waste from the kitchen sinks and the liquid overflow from the privy cesspool which could now be built in the vaults of the new Georgian terraces with an inlet 6in above an outlet, an early version of the septic tank.

The Georgian developers of Bath as well the city corporation knew that to attract visitors to the city it was important to keep the streets clean and, when new develop-



Small drain
pennant stone base, ashlar sides,
ashlar or pennant roof.



Main Sewer
pennant stone floor, stone walls,
pitched ashlar roof

Early Georgian sewers, designed to take liquid only.

At 4 Bladud Buildings 1755 a common sewer is specified and a codicil to the document mentions a cost of 17 shillings a yard for running the sewer down to the river. Sewers were not always taken all the way to the river Avon. Sometimes they were stopped short in a field, suggesting that the contents of the sewer would have been mostly liquid.

In the Royal Crescent leases stipulate a common sewer of 5ft by 3ft in the clear when built. At 7 Royal Crescent a lease of 1770 also makes reference to a contribution to the sewer being laid between the Crescent and the river Avon.

At 1 Milsom Street a deed of 1765 states that each householder is to pay a proportional share of making the sewers. Also lead rainwater pipes are specified.

The Bath Improvement Acts of 1757 and 1766 required rainwater to be placed to direct water to the ground and to make connections to the sewers.

A deed relating to 2 The Circus specifies that the sewer shall be *'sufficiently arched with stone so that loaded carts and carriages may at all times pass.'* So well was this achieved that 240 years later they now withstand the enormous loads imposed by lorries and tourist buses.

At 12a North Parade in an agreement between John Wood and Ralph Allen a common sewer fronting Grand Parade is specified as being 2ft 6in wide and 7ft 6in high. Also specified are rainwater pipes in either stone or lead and placed so as not to appear on north or east fronts.

At 9 Northampton Street the lease specified circular lead rainwater pipes and good and efficient drains not less than 10in by 8in to convey all foul and water, and in freestone ashlar and pennant. Also to pay the proportional cost of extending the Grand Common Sewer to the river.

The smaller sewers were chiefly rectangular and constructed in local limestone usually with dressed stones for the floor and roof and rubble stone, or ashlar or brick for the walls. The soft Bath stone was easily scoured by the action of the water and pennant stone was found to be more durable as a floor. Pennant is a bluish-grey fine-grained coal measure stone once quarried in north eastern suburbs of Bristol and to a lesser extent between Bristol and Radstock. These drains would have been far from water-tight and would have allowed the passage of some water into the sub-soil which, while they continued to carry only rainwater, was of little consequence.

The larger 'grand' or 'main' sewers were large enough to walk along and were constructed in stone with a flat floor (sometimes with a fall to the middle) usually of local Bath stone, but sometimes of pennant, and with rub-

ble stone walls and either a vaulted roof or a flat or pitched roof made with large flat stones.

Many of these Georgian drains are still in existence, some still in use. A 10in by 8in ashlar drain with pennant base was recently uncovered adjacent to Bath Abbey. It was quite clean when opened up and still conveyed rainwater into the city sewers; even more surprising was that a modern 100mm clay drain from the Vestry toilet also discharged into it!

Recent excavation of a Georgian drain which runs around the Circus has revealed that Victorian sewer pipes were laid inside the older sewers on the flat stone base. These Georgian sewers were found to be in a reasonable state of repair. Wessex Water inspectors suggest that it was common practice to lay new drains within the larger eighteenth-century sewers as such 'tunnels' allowed for easier installation and maintenance.

Problems in the Sewers

Whilst the excellent stone drains constructed to convey rainwater into the river Avon worked admirably for their intended use the introduction of foul liquids and solids caused considerable problems. From the late eighteenth century cesspools with outlets, kitchen sinks and water closets were all connected into the sewers and there was widespread use of the drains by the town's butchers and other trades. Such practices would have resulted in abominable stench emanating from the drains, unless the connections were trapped.

It should be mentioned here that the average householder in this period would have used very little water. There was little interest in soap and water for cleaning oneself and, when a complete all-over wash was undertaken, it would have normally been carried out using the same jug and basin as for washing the face. The very low consumption of water meant that, particularly in periods of drought, very little water went down into the sewers.

In the wet months of the year there may occasionally have been sufficient water to flush the drains through but more often than not there would have been insufficient water to prevent the build up of solid matter in the drains and 'rakers' would have to be employed to keep the sewers flowing by dislodging the blockages in the larger sewers.

In 1845 a report by the Health of Towns Commission stated of Bath:

'The porous nature of the oolite stone of which the sewers are constructed, is absorbing the deleterious properties of the sewage, which there decomposes, constantly evolving noxious gases, so insidious in their nature that they work their way through the ground and walls defying the most perfect system of trapping to exclude them from the houses. These drains have been patched and pieced in and left mostly unventilated and in an unsatisfactory state and a great source of danger to the health of the inhabitants. Similar sewers elsewhere have been con-

demned as little better than elongated cess-pools: to this must be added the presence of 52 slaughter houses in the middle of the city also discharging the contents of their trade into the sewer'

Writing in 1852 Henry Mayhew catalogued the contents of the sewers as:

'all the ingredients of the breweries, dead cats and dogs and rats, offal from the slaughterhouses, vegetable refuse, stable dung, refuse from pig sties, night soil, ashes, rotten mortar and rubbish of all kinds.'

The first attempts at getting the sewers flowing consisted of improving the water supply and cutting a channel in the bed of the grand sewers to 'concentrate the flow.' Later stoneware pipes were laid in the bottom of the sewers so as to 'contract the stream and concentrate its scouring powers.' However, it was not until the second half of the century that major improvements were carried out and for the most part the inhabitants of Georgian Bath had to put up with the inconvenience of drains that were regularly blocked and always obnoxious.

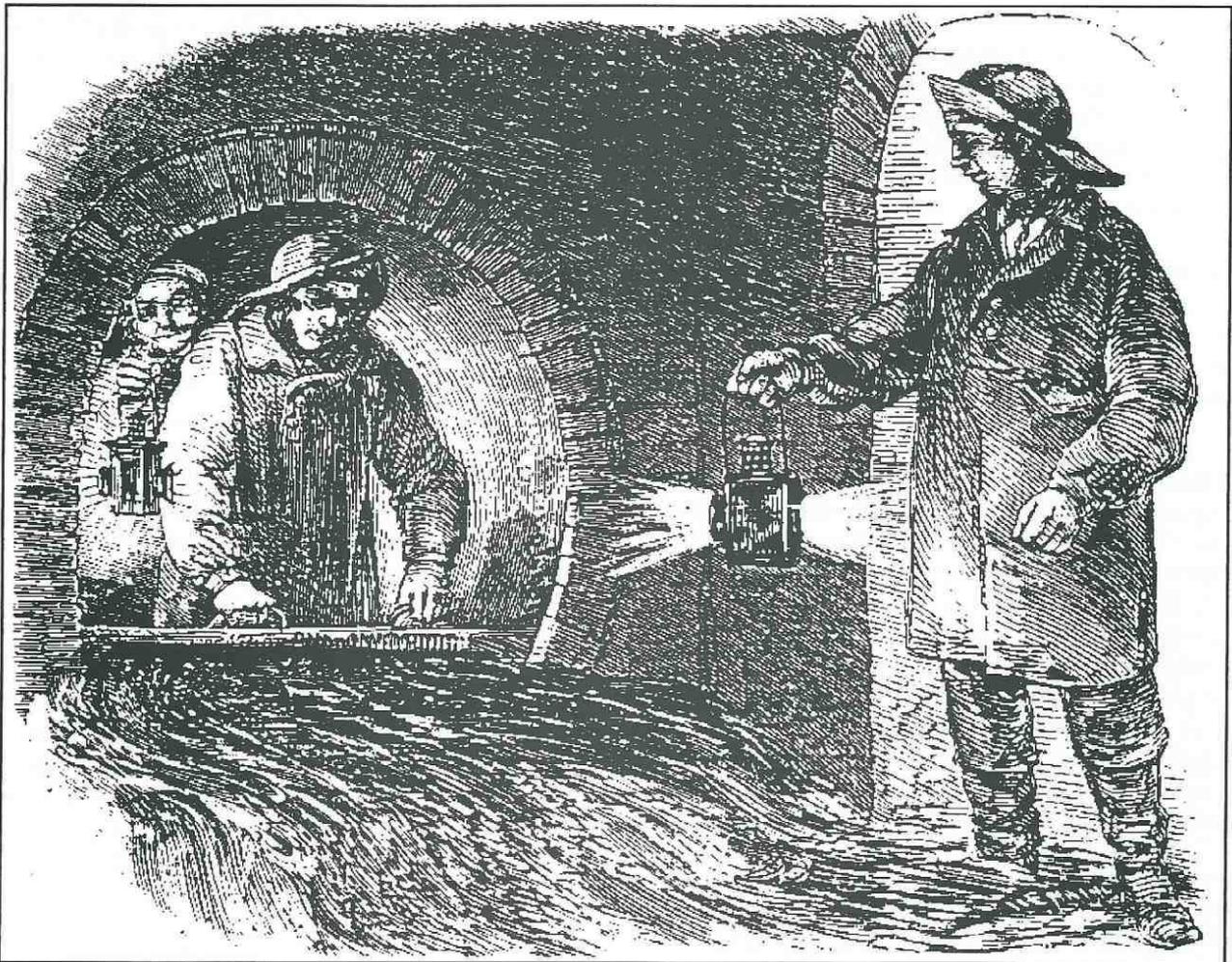
It has been mentioned that the common sewers were all laid to discharge their contents into the river Avon or the surrounding low-lying fields. So how was the river coping with the discharge of sewage by the early nineteenth

century? The answer, predictably, was not very well at all. In 1846 the Bath Health of Towns Association attempted to persuade the council to take action on drainage and the state of the river Avon. the course of which had been in many places impeded by successive deposits of rubbish and other materials.

Writing in 1869 S, Sneade-Brown stated that:

'the whole of the Borough sewage is discharged through the main sewers into a dammed up and sluggish part of the River Avon. This accumulation of sewage in the bed of the river and in close proximity to the poorer parts of the City has been the subject of a number of complaints. In time of flood the sewage is washed into the basements.'

The appalling sanitary conditions in the poorer parts of town were one of the main causes of deaths in the area. The slums in Dolemeads, Avon Street and Holloway were cramped, damp and notorious. Situated in the low-lying flood plain of the river, the slums were ill-drained, unhygienic, and ridden with disease and misery. Avon Street was worst of all. It had been built as middle-class accommodation in 1730 but it became a through route for horses being led to water at the Avon, and for materials carted to and from the wharfs. By the 1830s, the whole area was an appalling slum. In 1821 Avon Street was the home of



Rakers had to clear the blockages.

1519 people. It was so unsavoury and poor that even the alehouse keepers had deserted it. Flooding, intensified by the narrowing of the river channel caused by building along its banks, was an annual problem. It caused effluent and waste from pigsties and a slaughter house to be periodically washed back into the basements of the houses and into the streets themselves. The problem was so great that in the cholera outbreak of 1831, 27 out of 49 deaths in the city were in Avon Street and the majority of the remainder in the adjoining Corn Street or in Holloway. In 1838 Avon Street was also swept by the smallpox epidemic. In 1842 the Rev Elwin described the Avon Street area thus:

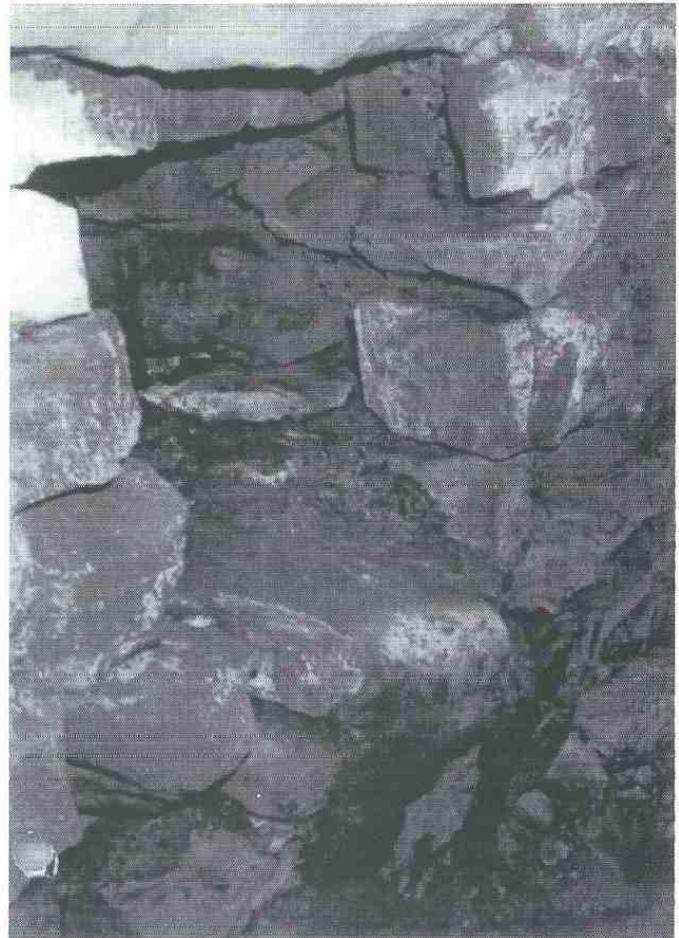
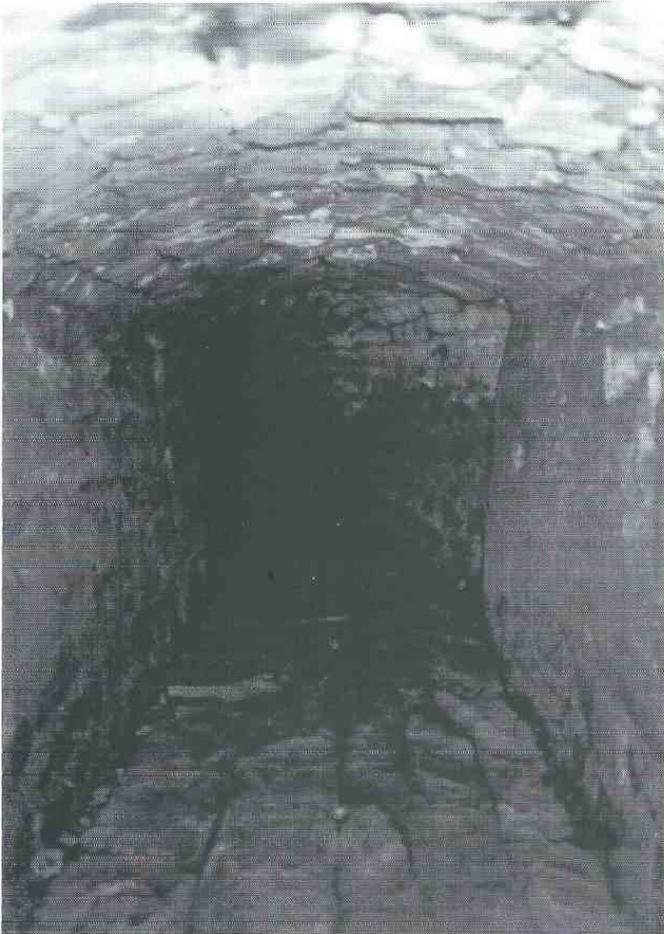
'Everything vile and offensive is congregated there. All the scum of Bath, its prostitutes, its thieves its beggars are piled up there.'

At the close of the Georgian Era the sewers of Bath were due for a major overhaul. The remaining years of the nineteenth century saw huge strides in the understanding

of how diseases spread and in the manufacture of pipes, traps and so on, which in turn led to major improvements in the way the city disposed of its sewage and rainwater.

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Beneath the streets of Georgian Bath.