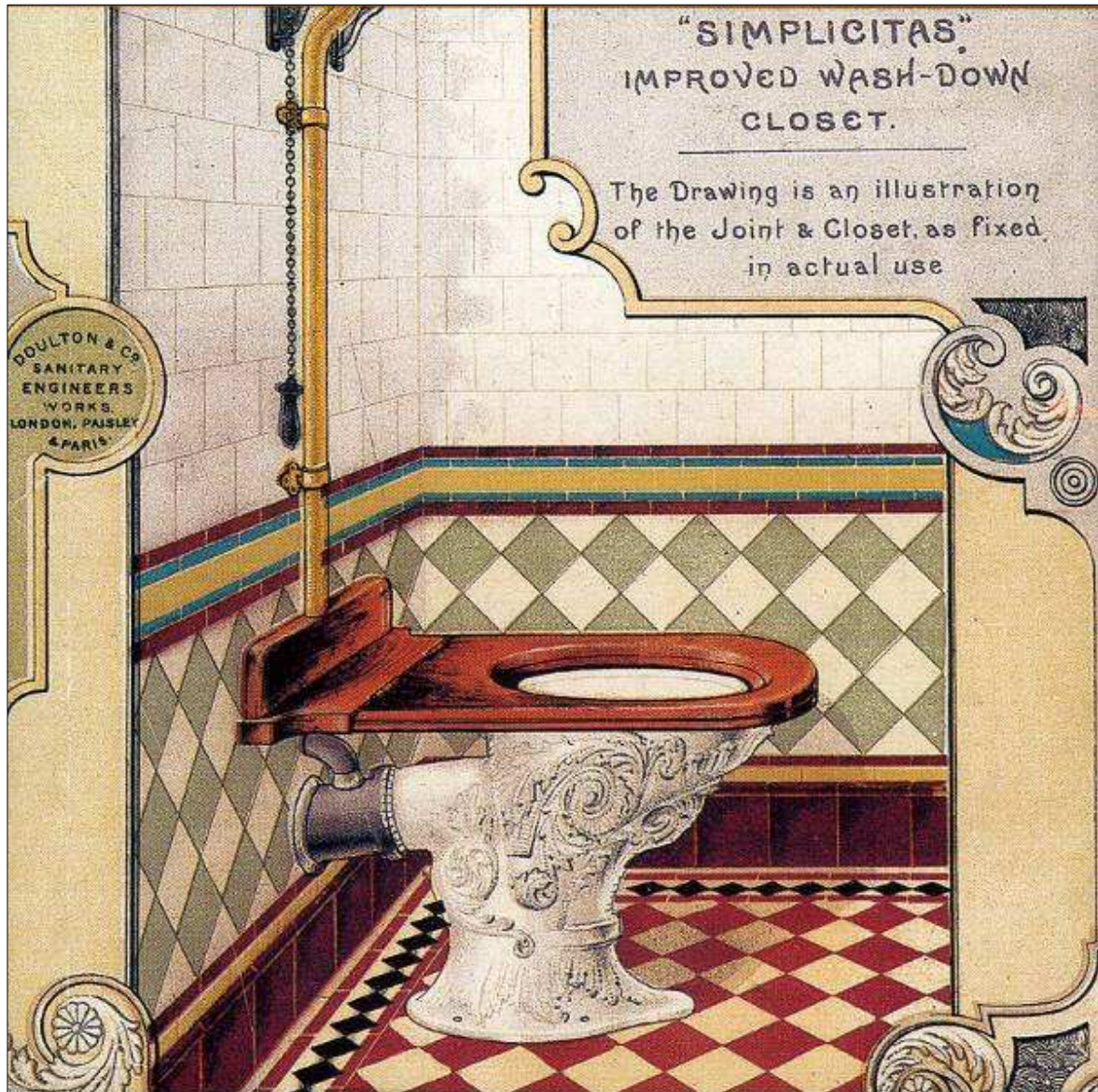


# THE HIDDEN ROOM



by

Johnny Ragland

# The Hidden Room

A Short History of the 'Privy'

by

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*To my grandmother, who died in 2003 aged 100.*

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"A fifty yards' walk to the lavatory or the dustbin is not exactly an inducement to be clean". George Orwell, *The Road to Wigan Pier*, 1937 (Eveleigh, 2002, p. 163).

## **Table of Contents**

Introduction

- XI -

### Chapter 1

#### **A brief history of the development of the closet**

- 1 -

### Chapter 2

#### **The various types of closet**

- 8 -

2.1 The pit closet

2.2 The valve closet

2.3 The ash closet

2.4 The earth closet

2.5 The pan closet

2.6 The cottage and funnel closet (the 'hopper')

2.7 The wash-out closet

2.8 The wash-down closet

2.9 The syphonic closet

### Chapter 3

#### **Necessities of the water closet**

- 26 -

3.1 The privy-midden

3.2 The Cape lavatory

3.3 Boxing in of the W.C.

3.4 The toilet seat

3.5 Cisterns

- 3.6 Toilet paper
- 3.7 Functional differences preferred by the British
- 3.8 Differences between closets for general use and those used by the upper classes

#### Chapter 4

### **A brief history of sewerage systems**

- 40 -

#### Chapter 5

### **Sanitary reasons for the development of the closet**

- 45 -

- 5.1 'Rakers'
- 5.2 New Houses
- 5.3 Cholera
- 5.4 The Chadwick Report 1842 and its consequences
- 5.5 Public Health Act 1848
- 5.6 Nuisance Removal Act 1855
- 5.7 Sanitation Act 1866
- 5.8 Public Health Act 1875
- 5.9 Medical research
- 5.10 The Royal Sanitary Institute

#### Chapter 6

### **Design of the closet**

- 56 -

- 6.1 Book chamber pot, 1800
- 6.2 Blue metal W.C. of the late 18<sup>th</sup> or early 19<sup>th</sup> century
- 6.3 Unitas, 1883
- 6.4 Deluge, 1886
- 6.5 Bert Winborne's closet, 1894
- 6.6 The Improved Marlboro, 1895

- 6.7 Excelsior, 1895
- 6.8 Nautilus, 1897
- 6.9 Improved Pedestal Simplicitas, 1897
- 6.10 Thonet chair closet, early 20<sup>th</sup> century
- 6.11 Simplon, 1904
- 6.12 The Dolphin, 1909
- 6.13 Modern bathroom, 1911

## Chapter 7

### **Selected inventors of the closet**

- 73 -

- 7.1 Sir John Harington
- 7.2 Alexander Cummings
- 7.3 Joseph Bramah
- 7.4 William Law
- 7.5 Josiah Wedgwood
- 7.6 George Jennings
- 7.7 Henry Moule
- 7.8 Thomas Crapper
- 7.9 Edward Humpherson
- 7.10 John Shanks
- 7.11 John Bennet Lawes
- 7.12 Steven Hellyer
- 7.13 John Randall Mann
- 7.14 Thomas William Twyford
- 7.15 Pierre Goux
- 7.16 J. Dimmock and Co.



## Chapter 8

### **General facts about the closet**

- 87 -

8.1 Closet terminology

8.2 Sayings about the closet

8.3 Money has no smell

8.4 W.C. verse

## Chapter 9

### **Interviews**

- 92 -

9.1 Dr. Fritz Lischka

9.2 Ing. Peter Stieg

9.3 Terry Woolliscroft

9.4 Collin Elderfield

9.5 Paul McGowan

9.6 Mick Warren

Conclusion

- 107 -

Epilogue

- 110 -

References

- 111 -

Visits made by the researcher

- 113 -

List of figures

- 114 -

Chronology of the water closet.

- 116 -

## **Introduction**

The closet is used by all, spoken about by few. From interviews both in Austria and England, the researcher estimates that the average time a person spends in the small room is approximately 16 minutes per day, or nearly a full year in a long lifetime. Yet this device is little appreciated in our lives, although we surely would be thankful for the closet if we were somehow to be transported to the time before the middle of the 19<sup>th</sup> century (after which the installation of the closet began to become the norm as opposed to the exception). Life in those days had very different sanitary arrangements and the sanitary comforts of the present would be one of the main things that we would all miss.

Investigating the history of the closet, gave the researcher an insight into complexity of the subject. He began to realise just how much information there was, and how much had been written on this subject; and also how many different types of closet there were before the 20<sup>th</sup> century. The researcher was lucky enough to visit museums both here in Austria and in England, some of which are solely dedicated to the closet. In two of these museums he was fortunate in being able to interview the Directors, whose knowledge made this subject all the more vivid. While talking to them he realised the closet was a truly fascinating invention. The mechanics of the early flushing closets are difficult to comprehend and appear very complicated; moreover they were not always the most attractive things to have in one's home, although they were all certainly ingenious.

The comparatively rapid development of the closet has had many stages; there have been hundreds of patents and experiments and many different types of closets, far too many to list comprehensively in this dissertation. Nonetheless, discussed in this concise history are the many interesting turning points which

the closet has gone through with the hope that some of the less obvious but interesting information the researcher has discovered can be shared. For example the invention and development of the rolled edge, necessary for the water to reach all parts of the bowl during the flush. This had been a major problem in the early days of manufacture.

The earth and the ash closet preceded the water closet by a considerable number of years, but the later water closet and these other two methods were to remain rivals for a long time. All were based on a simple assumption, namely: if the toilet area was free of smells, then all was safe and correct. Not until the second half of the 19th century did Robert Koch, a German bacteriologist, demonstrate that cholera was transmitted by water contaminated by the faeces of those suffering from the disease. This was the catalyst many were waiting for to make our lives safer. In particular Edwin Chadwick, a forceful voice in the British House of Commons, advocated a 'clean up' of Britain's cities, believing that foul air was the main carrier of cholera and other diseases. Koch's discovery gave an impetus to the planning and building of sewers, which in turn would stimulate the development of the water closet, so that a growing number of people began to demand them for their homes.

In this dissertation the researcher examines some of the different types of closets that have existed in the past and some of the reasons for their disappearance (or alternatively their survival) in modern times, for example the wash-down, which in the late 19<sup>th</sup> century was adopted as 'the British loo', and the wash-out, which continued to be manufactured in Britain for the European market. Both of them are still with us today and have approximately the same mechanics, shape and style as those early models of the late 19<sup>th</sup> century.

## Chapter 1

### A brief history of the development of the closet

Ideas and attitudes toward washing and the human body have changed considerably in history.

The ancient Romans had the highest standard of hygiene, which has only again been reached in our days. The Roman thermal baths were important to people's health, which is why the State invested large amounts of money in them. As the Romans used to say: "*Orandum est ut sit mens sana in corpore sano*", which is usually translated as: "You should pray for a sound mind in a healthy body" (Bruckner et al., p. 10).

In Roman times the term "culture of the closet" is surely correct. The technical standards were high. Men as well as women met for a chat in the toilet rooms with their expensive marble closets. The seats were only separated from one another by skilfully placed ornaments. Under the seats of cool marble were the water pipes which led away the waste products of the noble persons above.

Cloacina was the name of the goddess of the sewage. The Romans built wonderful temples for her celebration and thanked her for the relief she gave by means of the closet. Human waste was used for the fertilization of the fields. The god Stercutius, considered to be the brother of Cloacina, was also worshipped.

Figure 2  
Roman gully



The Romans used sponge sticks for cleaning themselves after using the closet. Such sticks were simply a natural sponge on a stick and were kept in containers of salt water so they would be disinfected ready for the next user. They would often be washed before being replaced in an ingenious gutter of flowing rainwater in which they could be further washed (Lambton, 1978).

The Romans were masters at constructing sewerage systems; they used closely fitting cut stones to carry fresh water and sewage. To be sure that the rainwater would not damage the walls below, they would use floating floors completely separate from the ceiling immediately below, which was the room used for relieving and adorning the body.

Sewage channels were connected very skilfully. Water pipes led from fountains powered by gravity into the houses, ending in holes under the floor where they were used as water reservoirs. The sewage ended its journey in a huge holding basin built of very thick and strong oak boards anchored firmly in the ground. The pipes rested on a bed of pebbles.

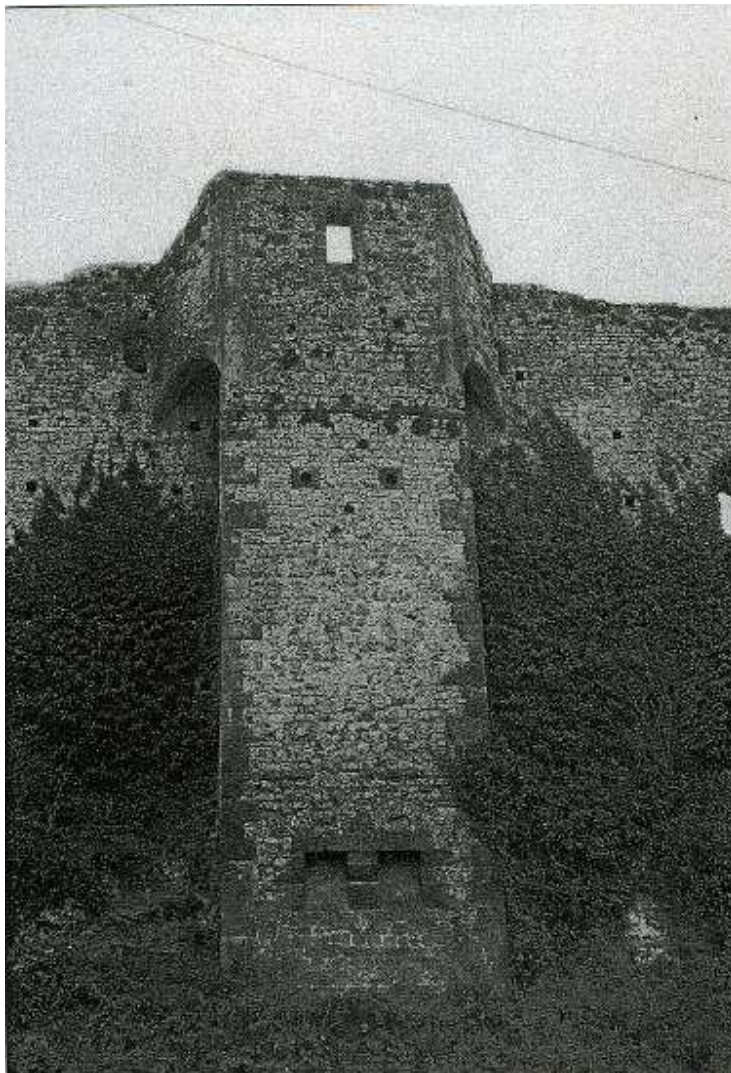
This ingenious technology was not continued beyond the Roman period and in medieval times the Roman pipes rotted, while former water reservoirs were used for garbage and human waste. Only in Rome itself was the famous "*Cloaca maxima*" still used but it was also considered to be perfect for water disposal under the ground (Illi, 1987, p. 174).

The Roman culture of cleaning and bathing the body largely came to an end; but people were not dirty in medieval times, only their attitudes changed. Private and public baths were used for meetings, eating, drinking and sometimes gambling. The townspeople washed, had their hair dressed and generally enjoyed their time in the sauna. This inevitably encouraged the brothel culture, which was much criticised by the church, but which is beyond the scope of this dissertation.

In late medieval times, gullies in the middle of the road were built for human waste in an attempt to keep them fairly clear; this should have solved the waste problem. However, sewage seeped into the earth below poisoning drinking water. To solve this problem many towns dug the drinking water pipes deeper than the cesspits which in the 14<sup>th</sup> and 15<sup>th</sup> century were constructed of wood. In the early 15<sup>th</sup> century cesspits were made less likely to leak with the use of bricks. Garderobes (still at this time built on the outside of buildings) channelled waste directly into the gullies or streams.

In the end of the 16<sup>th</sup> century, however, it was common practice in France, to build closets inside the house, and sometimes in the kitchen, thereby reducing the number of waste pipes required (Illi, 1987, p. 189-196).

Figure 3.  
Amberley Castle. One can only imagine how the ground beneath this garderobe must have once looked.





In the mid 18<sup>th</sup> century, the benefits of water on the body were not believed in. Taking a bath was considered to be unhealthy. People who studied medicine at this time considered water to be poisonous for the body. They thought that dirt protected the skin against diseases and bathing would remove this protection (Bonville, 2002, p. 82).

This point of view changed at the end of the 18<sup>th</sup> century with the French philosopher Jean Jacques Rousseau (1712 – 1778) and the emphasis on getting “back to nature”. Bathing became a habit again. Doctors (or the equivalent in those times) re-discovered the value of water for health and for cleaning the body as prevention of disease (Bonville, 2002, p. 99).

In showers it was usual to wear high hats; it was believed they were needed to protect your head against injury caused by water pouring down from above.

Figure 4  
Shower hats



There were also many bathing services, and everything needed for bathing would be brought and taken away from the home (Bonville, 2002, p. 104).

From about 1850 onwards the bath was not concealed, only the closet and bidet being hidden or disguised. Women started to decorate their bathrooms attractively (Bonville, 2002, p. 109).

The German priest Sebastian Kneipp (1821 – 1897) invented a water therapy, which is still practised today. The church now began to accept that bathing was normal and healthy.

Sir John Harington (1561 – 1612), the first known inventor of the flushing W.C. had made the first known flushing water closet for his country house, which included a water cistern that flushed the toilet bowl. Queen Elizabeth I, his godmother, liked it so much, that in 1592 she ordered one for Richmond Palace. However, for a long time Harington's and the Queen's W.C., proudly resting in Richmond Palace, were the only two known flushing W.C.s in existence – traditional chamber pots and pots hidden in wood or chairs remaining for many years the accepted system.

The French writer, Jules Verne, described a futuristic bathroom with a W.C. for the submarine "Nautilus" in his novel "Twenty Thousand Leagues under the Sea" published in 1869 [English translation, 1873] (Bonville, 2002, p. 131).

The first patent for water closets was taken out in 1775 by Alexander Cummings, a London horologist. This was considerably improved three years later by Joseph Bramah, a joiner from Yorkshire, who was granted a patent in 1778 for a double valve closet which sealed off smells.

In 1883 the English firm T. W. Twyford created the 'Unitas', which later became known as the 'Queen of Closets'; it was the first W.C., which encased the trap in one piece of ceramic and therefore was a special W.C. It became extremely

successful and later became the model which set several standards on which many closets were based, (for example the height of the W.C. still used today at 420mm), including future Twyford models (Lambton, 1978, photo 57).

## **Chapter 2**

### The various types of closet

#### 2.1 The pit closet

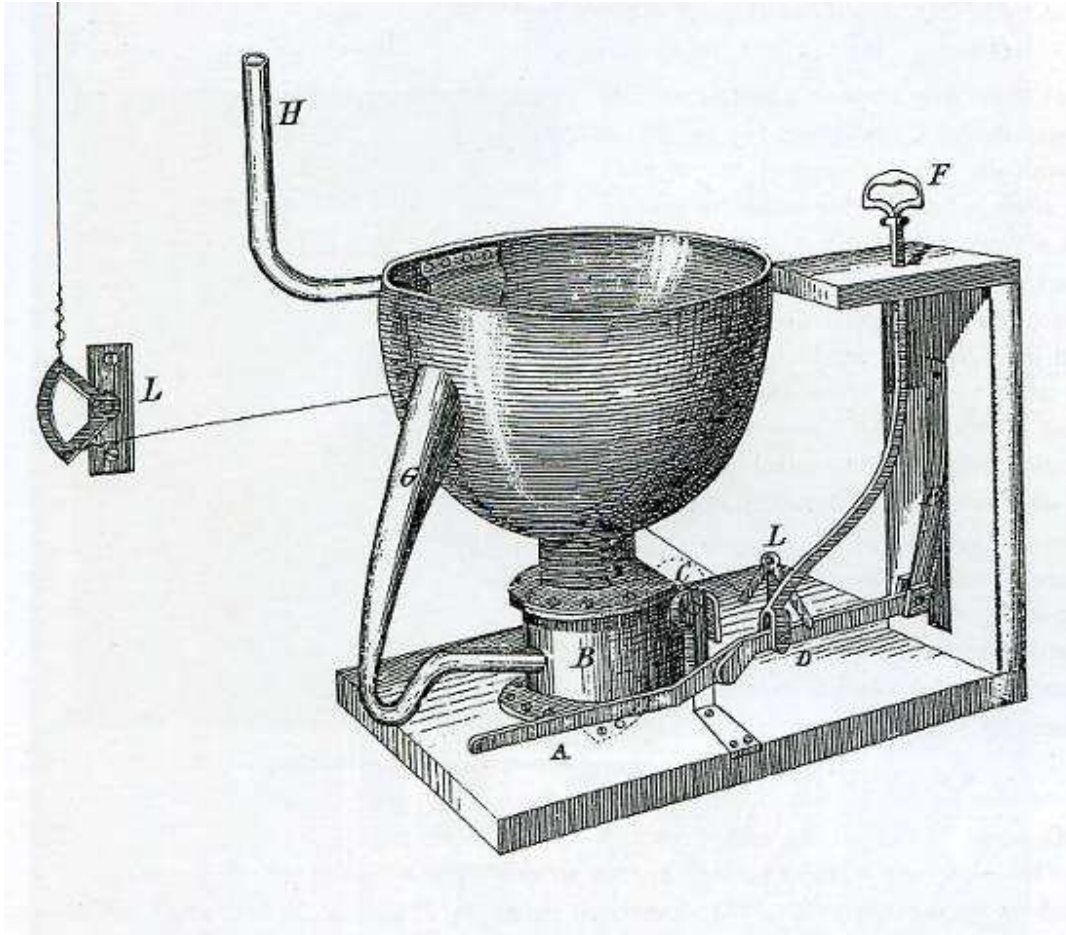
As the name suggests this is a pit dug under the house. The closet room was internal, but the pit below would have a door to the outside for the purpose of removing the waste. These are still used today in many countries of Europe. The researcher visited such a closet in Latvia, where the most interesting feature was a very simple method of ventilation, which was so effective one could hardly detect any smell at all.

#### 2.2 The valve closet

This was invented by Joseph Bramah [see chapter 7.3]. There was a hole in the lower part of the bowl, which could be shut by a valve; in the early stages the seals were made from leather. The flush was operated by an upwards motion handle, however there was a complicated system of levers and weights below to allow the water to run down from the cistern into the bowl.

Valve closets were manufactured in the late 18<sup>th</sup> and throughout the 19<sup>th</sup> century. An advantage of this system over the pan closet was that it was easy to clean and, if maintained, was much less likely to smell (Palmer, 1977). By the 1850's valves were being made with a surface of India rubber, which gave a much better seal than leather.

Figure 5  
Bramah's valve closet



The valve closet had its disadvantages; if one did not pull the handle completely upward, blockages could occur. The mechanism also needed much space and the valves therein were a little temperamental. From time to time they needed replacement, as they would slowly corrode with the damp, and the consequence would be sewage smells leaking into the room (Eveleigh, 2002).

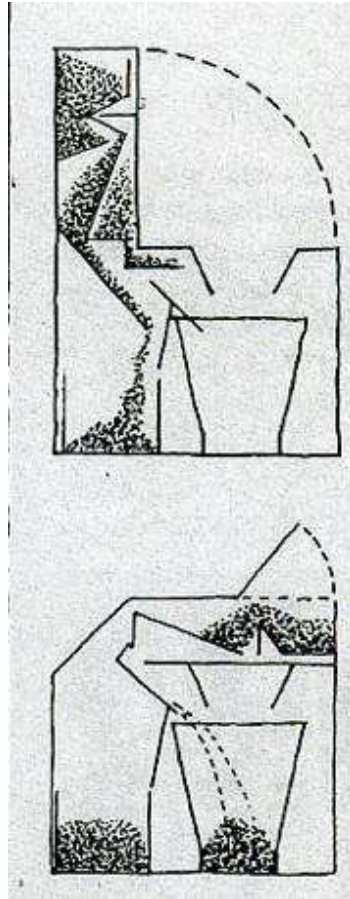
Valve closets nevertheless continued to be produced, and even after the breakthrough of the all-in-one ceramic pedestal, they were still being made in the 1930's.

However, when the production costs of the cleaner all in-one-closet went down and it became easier to instal, the valve closet disappeared altogether.

### 2.3 The ash closet

This was invented in the 1850s, but did not come into mass use until the 1860s. John Conyers Morrell from Leyland, Lancashire, an inventor and manufacturer of ash closets, maintained that ash was much more absorbent than dried earth. In many Victorian towns and cities ash closets became the preferred method over earth and the cesspit. This was mainly because dry ash was generally on tap, since most houses possessed open fires, and the ash was in any case in need of disposal. Many local authorities preferred this system, as it saved them collecting the earth and emptying the cesspits and was thought to be a cleaner method. In many cases, ash closets were thought of as superior to cesspits, which were continually leaking fluids and smells and, even when emptied regularly overflowing due to the influence of neighbouring cesspits. Because of its advantages, the ash closet replaced many cesspits in towns and cities and later they became largely obsolete. Another advantage of the ash closet was that the ash did not need to be dried, as was the case with earth before installation (Eveleigh, 2002). It was, however, essential that the stored dry ash was kept dry or it would completely lose its smell absorbing power.

Figure 6  
Ash Closet



Sifters closely followed the ash closet, whereby unburnt cinders were reused as coal for a second burning. J.S. Daves invented the first sifter in 1859. John Conyers Morrell, who patented his design in 1866, which ingeniously sifted the ash by merely opening and closing the privy door, created the most widely used sifter. Another version created by him operated merely by lifting and closing the privy seat. There were many ash closets used in rural homes usually housed in brick sheds that were also used to store the dry ash. Similar sheds were used to dry and store earth for earth closets,

Long before the mechanical ash closet was invented, ash was used to neutralise smells by means of a simple and very basic pail system. This consisted of a very large bucket, in which ash was just sprinkled on top of the waste to eradicate the smell.

The local Council would regularly empty the pail. Councils had plants across the country in which the waste was sifted and the combustible material separated for use in the boilers of the plants. The remaining waste was mixed with sulphuric acid and tipped into a giant trench. It would sit there for three weeks, and was then sold as manure. The pails were washed and returned. This method was considered to be hygienic. In Rochdale, between 1870 and 1878, the death rate dropped from 27 per 1000 per annum to 21 after this method of waste disposal was adopted (Eveleigh, 2002).

The Frenchman Pierre Goux [see chapter 7.15] later developed absorbent pails lined with straw or dry ferns which were firmly packed into the pail and mixed with soot or gypsum, which made very efficient deodorisers. Some towns and many military camps adopted this system. In a few towns this system was still in place in the early 20<sup>th</sup> century. The local authorities managed it, but by this time water closets were fashionable and the pail system had been completely superseded.

Ash as an absorbent material did have competition: patents appeared for other smell absorbing materials such as wood shavings, sand, road sweepings, horse manure, industrial waste products like waste bark from tanneries, and some strong smelling products such as tar. But none of the above was as successful at absorbing smells as earth or ash (Eveleigh, 2002).



## 2.4 The earth closet

In the 1860s, an Englishman, Reverend Moule [see chapter 7.7], invented the 'earth or dry closet'. He discovered that a mixture of human waste and earth rots quickly and hygienically. Later research found that microorganisms change the organic substances into good manure (Illi, 1987, p. 221).

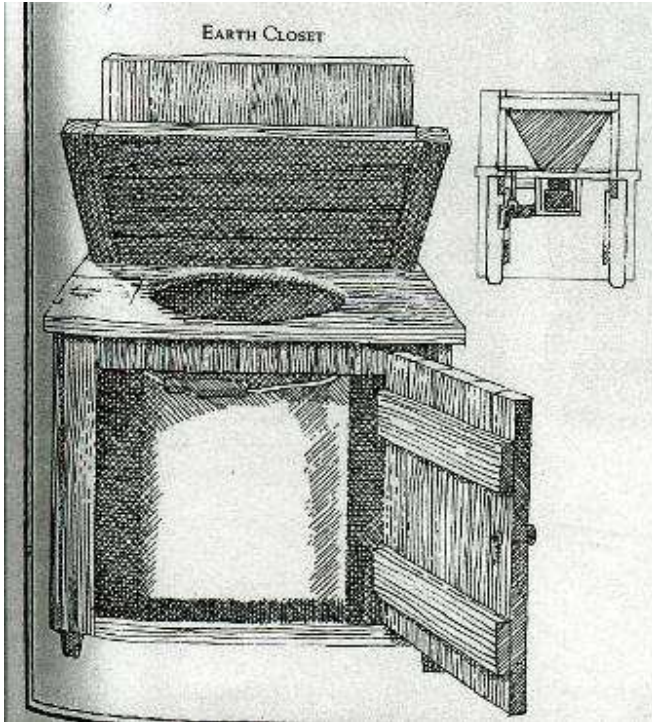
Moule was granted his patent for the earth closet and other inventions, but he was not the first to receive a patent for an earth closet. A Dr. John Lloyd from Anglesey achieved this in 1860, but it is Moule's closet, which went down in history and was to become a major improvement in sanitary hygiene. It is interesting that a preacher founded this system, since Moses, according to the Old Testament, is supposed to have suggested that human waste should be buried in the earth (Eveleigh, 2002).

Moule's development process included sprinkling earth or peat<sup>1</sup> onto human waste; he found that this completely removed the smell and stimulated the composting process. There had to be a correct relationship between the waste and the earth for his system to work well. Moule discovered that 3 to 4 pounds of earth was needed to compost human excrement weighing 1lb (Illi, 1987).

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<sup>1</sup> Peat was a second choice material as it was not so effective at absorbing liquid or smells.

Figure 7  
Earth closet



There were many different models of earth closet but most were simple holes dug into the ground. There was one problem with the earth closet. If the earth got too wet, its deodorising strength was reduced it could not be used to dispose of household slops. Even urine could be a problem if insufficient earth was added after use. The earth was often stored (as with ash) in brick built sheds which kept the earth dry as well as drying the soiled earth – the drying process was achieved by means of hot water pipes. This made it possible to reuse the material up to five times.

The ratio required for efficient deodorisation needed to be rather accurate. One to three parts excrement to earth was efficient and because of the problem of measuring this exactly, machines were designed to add the correct mass of earth to the waste. The machines used a container behind the closet filled with the

earth or peat and the container would tip the correctly measured amount of earth into the closet when you activated it.

Another model had buckets under the seats. Obviously these were emptied more often. For buildings with many floors, a soil down pipe was installed centrally and the earth was stored in a large container in the loft.

Earth closets were very popular in the 19<sup>th</sup> century, because the smell could be eradicated and the composted earth was of a good quality. There were critics, however, especially farmers, many of whom distrusted this system and did not want to use human excrement as manure.

In Britain, earth closets were mainly used in workers' quarters, army camps, sporting venues, schools and prisons. They were favoured in rural districts, but because of the transport costs, the materials were too expensive for use in cities and consequently earth closets were not successful in an urban environment.

Although generally a great success, the earth closet, developed in the 1860's, was not fully in use until the 1880's. Unfortunately for the advocates of the earth closet, most communities had by this time installed W.C.s complete with the sewerage infrastructure needed. Therefore it is generally true to say that the technology of earth closets came a little too late.

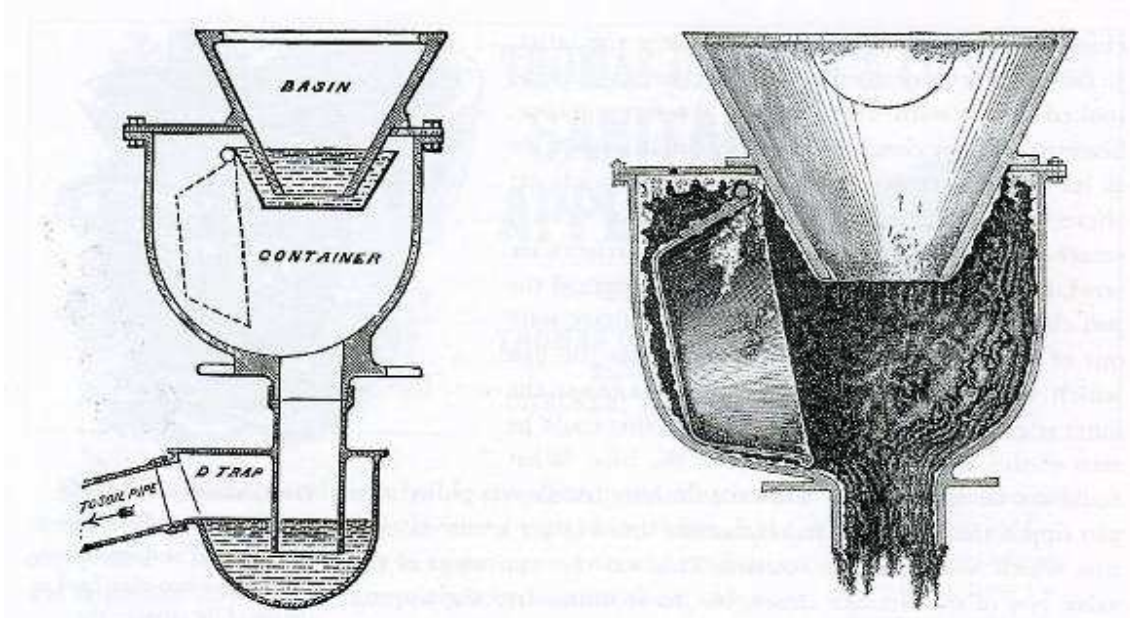
By the beginning of the 20<sup>th</sup> century, earth closets were still in use, but generally only in gardens or farms, where they were seen as an alternative to water closets in order to avoid the consumption of too much expensive water (Illi, 1987).

## 2.5 The pan closet

This was a badly working closet with an earthenware bowl over a flat pan made of copper, and filled with water. When tipped, the pan would pour the contents into a bigger iron container, which was connected with pipes to the sewerage system or a cesspit (Palmer, 1977, p. 34). Pan closets did have some advantages – they were cheaper to manufacture, robust and could withstand careless and rough usage. The 'D stink trap' water seal below the pan was less in need of maintenance than was the case with the valves of valve closets because the pan closet was valveless. However pan closets eventually came to be thought of as filthy contraptions and did not last.

Edwin Chadwick [see chapter 5.4] was an early critic of the pan closet and by the 1870's many had heeded his objections and turned their backs on this type of closet. In the late 19<sup>th</sup> century, the pan closet was unanimously condemned, and installing it in new-build was soon forbidden. After the new-build law was introduced, the more efficient wash-out and wash-down closets replaced the pan closet entirely.

Figure 8  
Pan closet with D-trap



### 2.6 The 'cottage' and 'funnel' closet (the 'hopper')

This was a cheap W.C. often used in prisons and for council housing, but it did not work efficiently. It had either a short or a long funnel. It was still used in factories up to the middle of the 20<sup>th</sup> century. In his book: "*The Water Closet. A New History*", Roy Palmer wrote that, "The flush was extremely slow and powerless and was not enough to clean the bowl" (1977, p. 37). This type was also used for the servants of the upper class. It was only successful because it was cheap to make and simple to use, and could be fitted without even the addition of a cistern, as it could be flushed with a bucket, and because of its lack of working parts, was very inexpensive to maintain and seldom needed repairs.

The inventor of the 'Hopper' and 'Cottage' closet was the Revd. Charles Girdlestone, rector of Alderley, Cheshire. He presented his invention to the Health of Towns Association in 1845 as a simple but clean and effective W.C.

This was perhaps an exaggeration as the 'Hopper' due to the length of the bowl, took most of the strength out of the flush. If the bowls were to stay clean, they nearly always needed brushing after use (Eveleigh, 2002, p. 39).

Figure 9  
Hopper & Cottage bowl often only flushed with a bucket, fitted in council housing and prisons.



### 2.7 The wash-out closet

This wonderful wash-out closet became very popular almost immediately after its introduction. It was first produced by Frederick Humpherson, Thomas William Twyford [see sections 7. 9 and 7.14], and Henry Doulton, the latter being a stoneware and terracotta manufacturer in Lambeth, London. The flush worked easily and cleaned the bowl effectively.

The main rival to the wash-out closet was the wash-down closet which did not come into full production until some years later, but by the end of the 19<sup>th</sup> century the wash-out closet was generally considered by the British to be undesirable and was replaced with the wash-down. We will look further into this phenomenon in Chapter 3.7.

Another advantage of the wash-out system was that the small amount of water, which stayed on the raised shelf part of the bowl, helped to stop any solids from sticking to it. Therefore it was easy to clean after use and mostly did not require brushing at all. Because of this it is still fitted today where the user might be considered careless and therefore unlikely to brush clean after use. Wash-out closets were forbidden in some hot countries, because the raised shelf could dry out and then it was more difficult to keep clean than the alternatives. If it became encrusted, the smell was potentially more unpleasant. However, even today, hospitals help continue production of the wash-out closet because it is easier to examine the waste taken from the raised shelf (Palmer, 1977). T. W. Twyford, then in the town of Harley, was granted the first patent for a wash-out closet in 1870.

Figure 10  
Wash-out Closet



Older wash-out models required a greater amount of water during the flush to shift the waste, this was mainly due to the large aperture of the trap and the amount of water that was held within it which the flush was required to force out. This became too expensive and the water companies later banned such models. George Jennings [see chapter 7.6] improved the design and created wash-out models which required less force to clean the bowl, thus needing less water; this was a huge advantage, especially when water companies imposed water restrictions. An answer to the water companies' demands were the 'waste preventer' cisterns, which only allowed the quantity of water for the flush that the water companies approved.

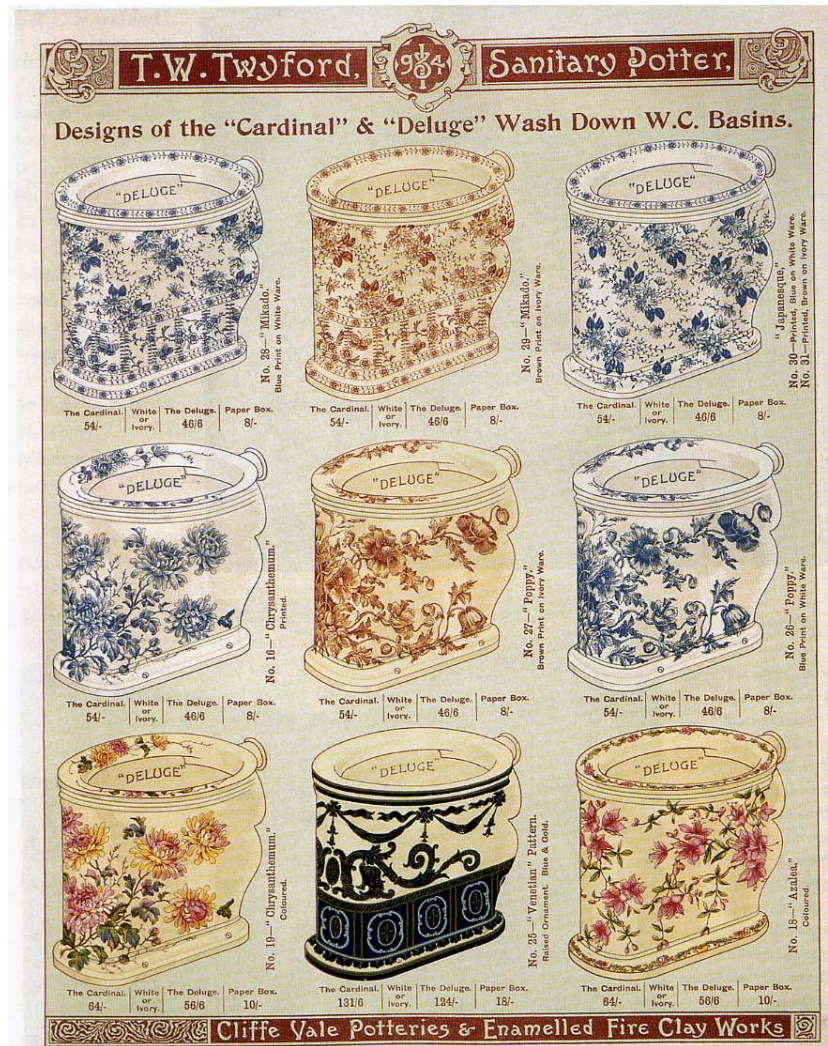
Later one-piece (bowl and trap together in one piece of ceramic) wash-out models were used for the first public toilets in Britain, which were at first only available at large exhibitions. The first one-piece closet, however, was the then famous 'Unitas' by Twyford.

During the development of this system, trap smells (a common problem of W.C.s in the early stages of development) were reduced by increasing the power of the water flushing through the trap, so that it was able to shift everything inside it. The extra power of the water was achieved simply by reducing the opening size of the trap. As a result only clean water was left in the trap, which was therefore free of smells.



## 2.8 The wash-down closet

Figure 11  
The first Twyford advert for wash-down closets



The wash-down closet was initially most successful in Great Britain and the USA, and only in the late 20<sup>th</sup> century did it become the norm across the whole of Europe. It was in the 1880's that the wash-down system started to appear. The main difference to the wash-out W.C. is that the wash-down has no shelf, where the solids lie before flushing. With the wash-down system the waste is instantly immersed in water thus reducing smells.

The wash-down flush needs less force, because the water is not required first to flood the raised shelf. Both systems have their advantages and disadvantages.

Figure 12  
Wash-down closet



A large portion of the credit for the development of the wash-down closet should be given to the Humpherson firm of Chelsea [see chapter 7.9]. The closet produced in this factory was first exhibited at the Congress of the Sanitary Institute in Leicester and was awarded a certificate of merit. At the same exhibition Doulton was given a similar certificate for his 'Combination' wash-down closet (Palmer, 1987, p. 37).

The wash-down W.C. followed the same pattern of development as the wash-out. However, Humpherson of Humpherson and Co. re-designed it and marketed the 'Beaufort', a pedestal flush-down<sup>2</sup> water closet, from their workshops and showrooms in Chelsea. The 'Beaufort' was exhibited in 1885 and it was not long before other firms began to design their own flush-down/wash-down closets including Twyford whose 'Deluge' was a fairly inexpensive two piece closet with an exposed trap. The wash-down started life as a humble loo in the servants' quarters (Palmer, 1987, p. 39). However it was the wash-down that was finally adopted as the 'British loo' and which stood the test of time; today's wash-down closets bear a very close resemblance to the models of the last decade of the 19<sup>th</sup> century.

### 2.9 The syphonic closet

With this system the water and the contents of the W.C. are moved syphonically. The earliest of these was invented by John Randall Mann [see chapter 7.13], who designed his system with three pipes. The first was for filling the cistern, the second channelled about two litres of water behind the water already in the bowl, which started the suction on which the syphonic system is based; after this, the third pipe gave a slower fanned flush, which cleaned the bowl. In 1888 the American Thomas Kennedy, using only two pipes, improved this system. In 1890, William Howell simplified this model. Many flushing tests were carried out on all closets in the late 19<sup>th</sup> century and the syphonic was found to be the one best able to cope with non-human objects, and could even swallow the particularly buoyant objects used for the experiment.

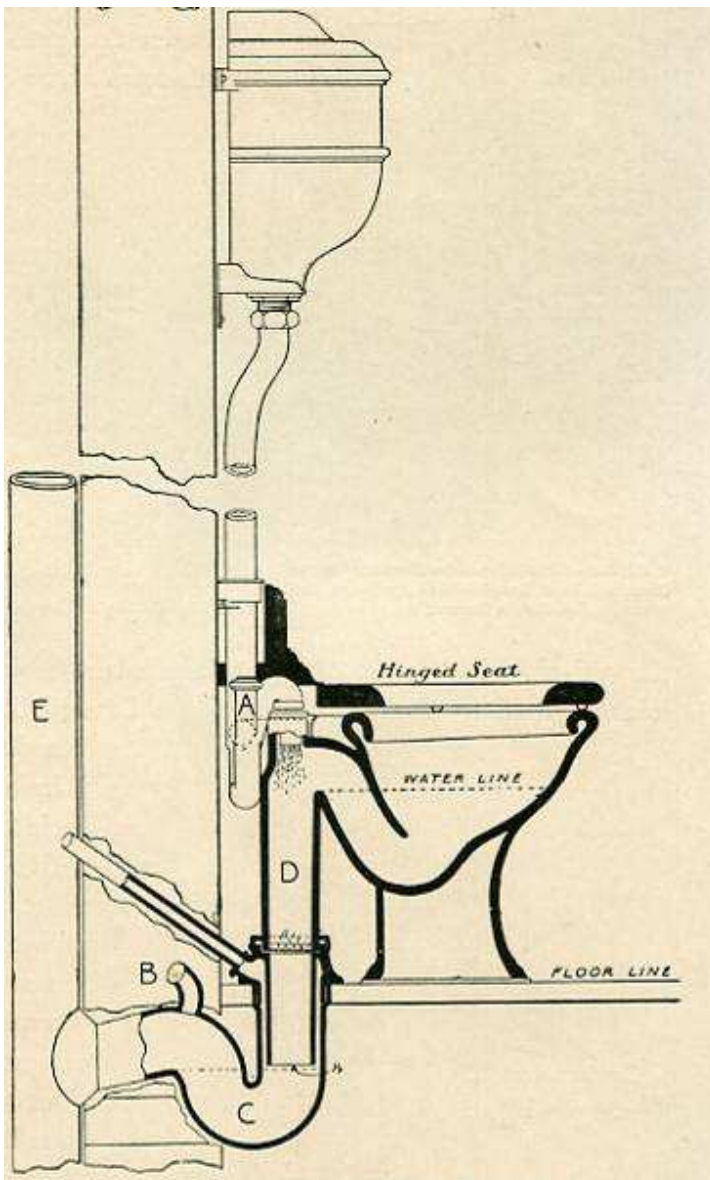
Nevertheless the syphonic closet was a sensitive mechanism susceptible to blockages in the pipes (Palmer, 1987, p. 40).

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<sup>2</sup> Twyford was the first to use the term 'wash-down' in 1887 for the 'Deluge'

George Jennings had success with his 'Closet of the Century' launched in 1894. Indeed, the 'Closet of the Century' became Britain's most successful syphonic closet.

Figure 13  
Syphonic closet



The first man to receive a patent for syphonic closets was John Gray in 1855, but his models were not sold commercially.

Later, three British men who had interests in bathroom manufacture took out patents for this system: Twyford, John Shanks [see chapter 7.10] and Jennings, all in the summer months of 1894. The syphonic W.C. was marketed from the late 19<sup>th</sup> century, however most of development for the syphonic W.C. took place in the USA from 1870 to 1890.

In 1886 Glenn Brown, an American architect, wrote that; "water closets in the USA are generally a copy, or at least of the same class, as those of the old country" (Eveleigh, 2002, p. 134). The syphonic closet is commonly observed in cafes, restaurants and up-market homes in the US today.

In the late 19<sup>th</sup> century Britain also saw the syphonic closet fitted in luxury and expensive new buildings, but it never took the place of the wash-down or wash-out. One reason was possibly that it was expensive and therefore orders were in small numbers.

The main advantage of the syphonic closet was clear: due to faster moving water during the flush, it had greater cleaning power, and it was not dependent on the height of the overhead cistern having sufficient force to clear the trap of solids. This extra power was achieved by the narrowing the bore of the trap, which created a vortex in the water, which then started the syphonic action (Eveleigh, 2002, p. 135).



## Chapter 3

### Necessities of the water closet

#### 3.1 The privy-midden

Until the middle of the 19<sup>th</sup> century, privies were built above a stream or river. People not fortunate enough to have a stream nearby all had the same problem with their privies: the waste and the seat would never be far apart and this often caused a terrible stench.

Privies were washed in lime in order to keep the bacteria at bay, as lime is fatal for most insects, since it burns them to death. It also acted as a good preservative on the wood, which some privies were made from (Arscott, 1998, p. 12).

Figure 14  
Brick built garden privy



### 3.2 The cape lavatory

In the 18<sup>th</sup> century it was possible to employ the services of a mobile closet or 'human lavatory'. This was actually a man, who wore an enormous cape which he used to completely envelop the customer, who in turn made use of the pail which he carried with him.

Other bathroom services started in France in the Middle Ages, whereby staff were employed to bring the water and the bath, heat the water and then remove everything again (Bonville, 2002, p. 112).

### 3.3 Boxing in the W.C.

When models such as the 'Unitas' came on the market, 'boxing in' mostly became a thing of the past. Boxing in of closets was not the most hygienic solution for the small room, as the area behind the wood facade could harbour dirt or even vermin.

### 3.4 The toilet seat

The hinged toilet seat started life in the 1880's, being advertised as a cleaner device which made the W.C. more user-friendly for men. It also made the opening larger, which enabled general slops to be emptied into it.

The liftable seat was first exhibited by Doulton, and was first fixed to a wash-out closet aptly named; 'The Combination'.

Very soon afterwards, Twyford were advertising the 'Unitas' with such seats. In Twyford's advertisement he pointed out the advantages: the hinged seat enabled men to use the W.C. as a urinal without wetting the seat (Reyburn, 1989, p. 65). Of course, today women who find the seat left up do not always appreciate this device.

Figure 15  
Waste preventer marketed by Thomas Crapper



### 3.5 Cisterns

The first cisterns were known as 'water waste preventors', because the cistern, which was set to a specified amount by the water supply companies, restricted the flush. These restrictions came into being due to the relatively sudden demand for water and difficulties in supplying it. Drummonds (see interviews) informed the researcher that Albert Giblin patented the cistern pictured above in 1898.

### 3.6 Toilet paper

The Romans used sponges, Henry VIII reputedly used a flannel and the common people used bunches of hay, cotton waste, and when they became available, old newspapers, torn into squares. Purpose-made toilet paper came on the market around 1863, when F. Feichtinger took out the first British patent. This paper



was unsized and treated with boiled yellow bark. The paper was made antiseptic by adding eucalyptus, carbolic acid and pine oils. Rolled toilet tissue was not produced until 1878, when the Scott Paper Co of Philadelphia took out a patent for it. One year later Scott Paper was granted another patent for perforated paper, which could be purchased in rolls of 500 m. The British however, preferred 'Bronco' toilet paper, which was the trade name used for the British Patent Perforated Paper Company (Reyburn, 1989, p. 81). Many designs and types shortly followed, including the novel idea of giving the W.C. user some entertainment by printing jokes on the paper [see figs. 17, 18 and 52]. But it was not until 1957 that variable coloured paper appeared on the market, produced by Andrex, which is now the most successful producer of toilet tissue in Britain (Eveleigh, 2002, p. 136).

Figure 16  
Paper holder



Figure 17  
Toilet paper booklet (cover)

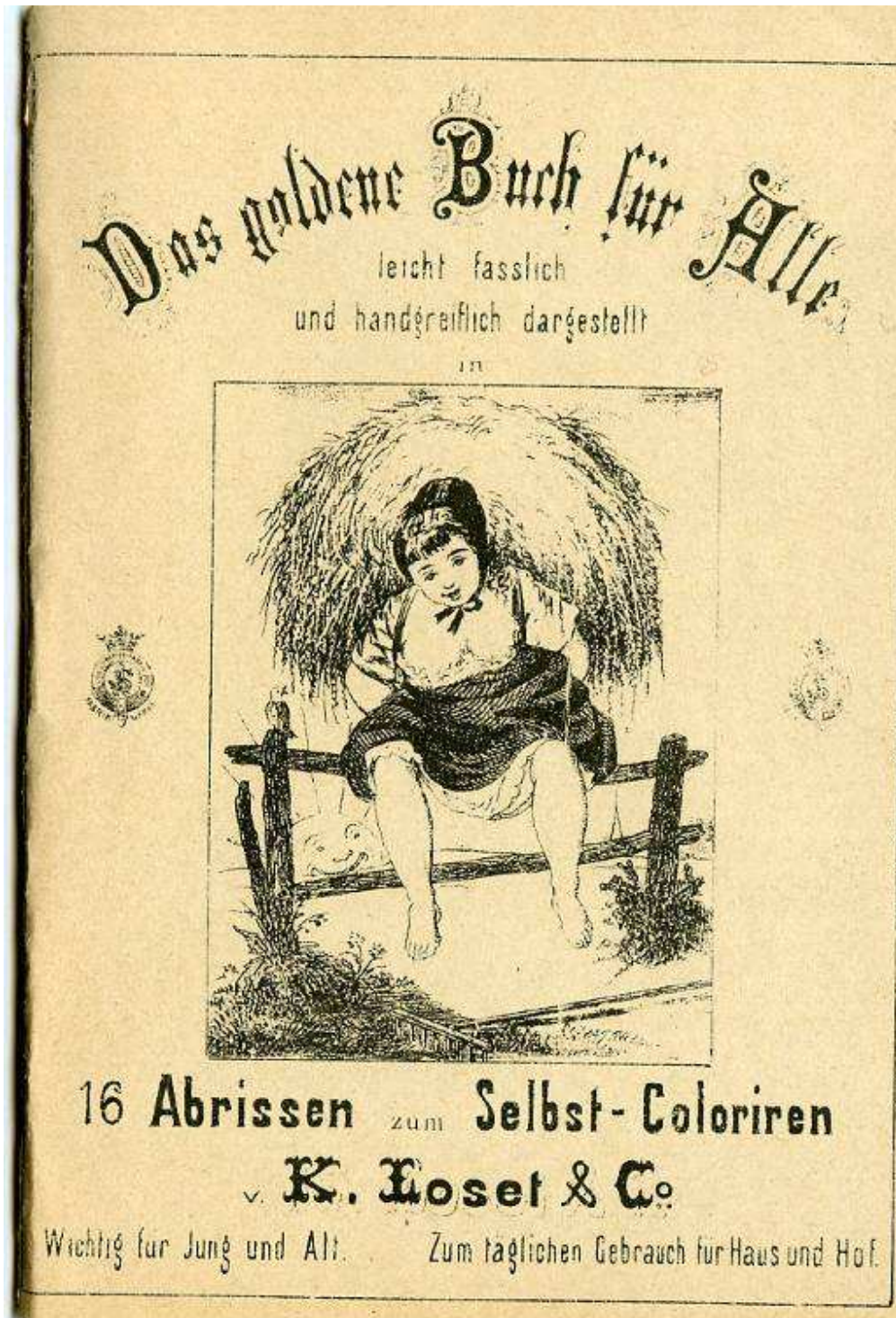




Figure 18  
Toilet paper, an example page to be removed from the booklet



### 3.7 Functional differences preferred by the British.

Neither before nor after the last decade of the 19<sup>th</sup> century was the variety of W.C.s on the market to be greater. However the pan closet, which used the 'D stink trap', was by this time generally considered undesirable and therefore production was reduced. 'Hopper' and 'Cottage' closets were also beginning to lose favour by the end of the 19<sup>th</sup> century and were thought of as insanitary, but 'Hopper' closets were so cheap to manufacture that they were sold, on a very small scale, until around 1914.

By the end of the 19<sup>th</sup> century the wash-out closet in Britain had passed its peak, although Twyford featured the 'Unitas' in catalogues until 1910, but by then only in plain white. Britain generally rejected the wash-out model. The reason for this can only be understood in terms of national character. From those which the researcher interviewed on the subject of this work, it is possible to deduce that the English prefer to forget what leaves the body as soon as possible and also to disperse the smell instantly. The wash-down closet was far closer to these ideals than the wash-out. The wash-out closet, however, was still, at this time produced in Britain on a large scale for export to the countries of Europe, especially Germany, [See also sections 9.1 and 9.3].

### 3.8 Differences between closets for general use and those used by the upper classes

Figure 19

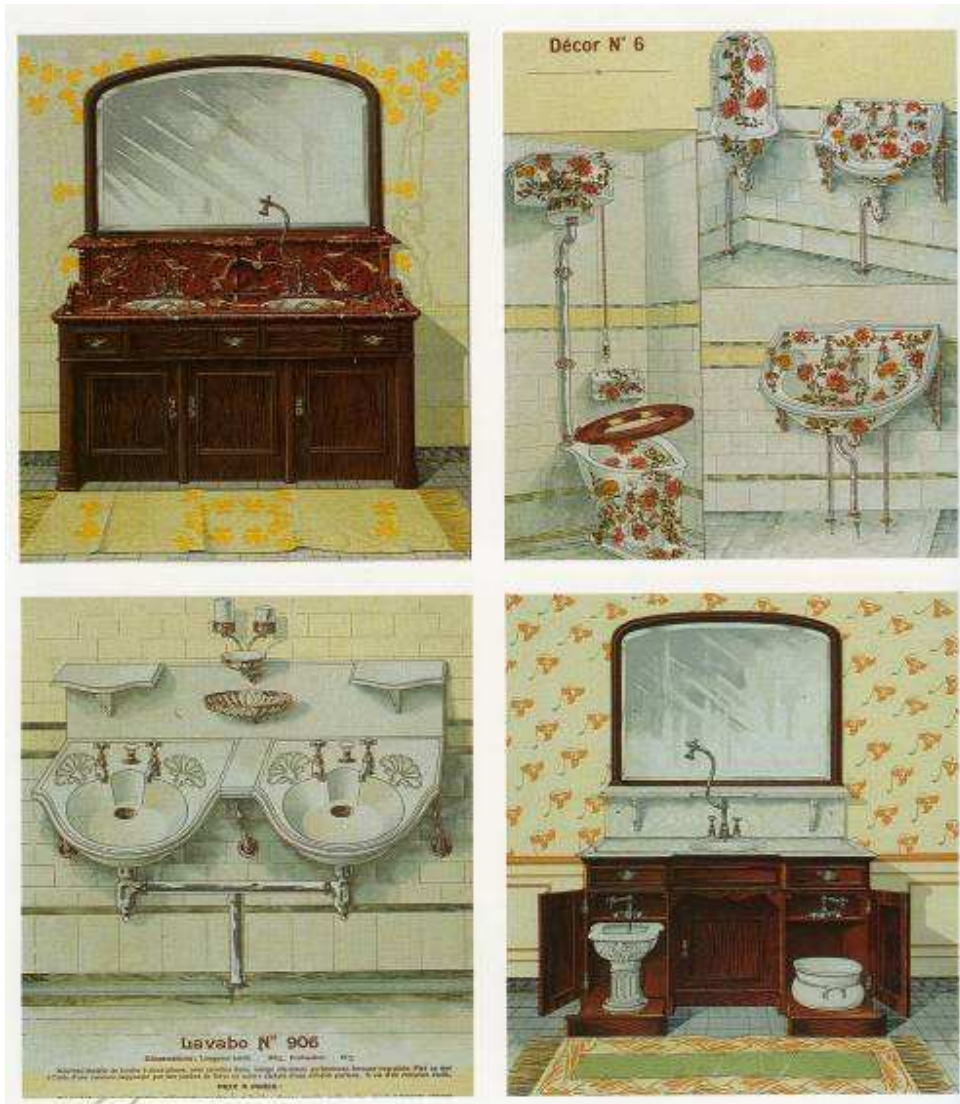
The instruction "please flush well" shows that more was required than merely pressing a button to flush a toilet in the early days of this technology.



The upper classes were the first to use modern water closets. The aristocracy liked to copy the life style of the monarchs as much as possible, so naturally they also liked to have water closets fitted in their town and country houses. High quality materials, such as porcelain, were used to fit out bathrooms and the decoration might include marble, exotic woods and paintings in gold frames, all of which was a demonstration of the wealth of the occupants. Expensive W.C.s were especially effective to show guests how rich and powerful their hosts were.

The advertisements for the Hampton's collection (fig. 20) show the taste of the upper classes.

Figure 20  
Early 20<sup>th</sup> century objects in the Hampton's catalogue





Not only adults had the advantage of the water closet. In the late 19<sup>th</sup> century W.C.s were also produced for the babies of rich families who could afford such luxury, as seen here in fig. 21.

Figure 21  
Baby W.C.



Figure 22 shows a huge bathroom which included an exclusive water closet, bath and bidet. This bathroom could be described as a "temple of convenience", designed especially for rich ladies who enjoyed the luxury of wealth, illustrated below:

Figure 22





Figure 23

This picture of a servant washing provides a stark contrast with Fig. 22



The sanitary situation for the vast majority of people was, of course, far from luxurious. Until well into the 20th century, living conditions for the working class were poor; they usually had no bathrooms, only one sink in the dwelling and a small gully closet<sup>3</sup> which was often shared by neighbours, and would usually be situated in the corridor, or hidden in garderobes which were structures built onto

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<sup>3</sup> Gully closets later became known by their trade names; 'Hopper' and 'Cottage'.

the side of large housing blocks, and in former times attached to castle walls (see figs. 3 and 24).

The garderobe made plumbing far easier as it centralised all pipework. Another advantage was that they would be situated within the block so that the closet would not invade the living quarters with an unpleasant smell. Within the garderobe the waste would be led away with the aid of a pipe into an area on or below the ground floor, usually in an inner courtyard out of sight.

Figure 24  
Garderobe with soil and rainwater pipes



The working class often did not have a cistern with which to flush the closet conveniently, but did so simply with a bucket of water.

Fine clay made its entry into the world of sanitaryware in the middle of the 19<sup>th</sup> century. Goods made from fine clay were known in the industry as cane or white-ware goods. The exterior of W.C.s was mostly yellow in these very early stages of clay firing technology (the natural colour), while the interior of the pot would be white glaze.

The servants often had to use basin or trap closets, while the family of the house mostly had the use of far more expensive valve closets. Moreover servants had no special rooms for the W.C. They were fitted behind screens or under the stairs.

It is interesting to note that the family also used the servants' W.C.s, when their closets were not working, or had to be repaired, since the cheaper and simpler closets were sometimes more reliable due to their lack of working parts.

In 1878 Robert Rawlinson wrote in his book 'Sanitary Science' that in the London of his day there was about one closet for every 5 people, which is very few by the standards of today (Eveleigh, 2002, p. 42).

## Chapter 4

### A brief history of the sewerage system

#### Sewage treatment systems of the 19<sup>th</sup> century

Dealing with human waste became a cause that was embraced by social reformers, physicians, technicians and researchers in the 19<sup>th</sup> century. There existed several systems for solving the waste problem, but it mostly depended on the wealth of the community as to which system was chosen. However, in the middle of the 19<sup>th</sup> century, the more wealthy areas sometimes chose to have no system at all. The rich were powerful enough to prevent the implementation of sewerage systems, and sometimes did so because they feared a rise in property tax.

One could argue that the W.C. is one of mankind's greatest inventions. However, against this view, it was argued that the damage caused by sewage, and the cost of the necessary treatment plants, were a worse evil than the systems (or non systems) of earlier times. In many towns sewerage systems were voted down. It was argued that a private problem would become a public nuisance, as far as the dispersal of excrement was concerned. Until the mid-to late 19<sup>th</sup> century, cesspools were mostly used to deal with sewage; but these often leaked into the nearest stretch of water or, when not regularly emptied by 'rakers' also known as 'scavengers' (the people whose job it was to empty cesspools), caused soil saturation and consequent damage.

Inventors worked very hard to find solutions to these problems. Reverend Moule, the inventor of the earth closet, said that W.C.s were more of an evil than a benefit because of the polluted water associated with them. Some municipalities such as Manchester attempted to reduce this problem by

discouraging the use of W.C.s. Many northern towns and cities in England continued to use dry privies due to the lack of the necessary infrastructure.

Drainage was the main problem with the W.C., not only because of the waste, but also because of water pollution. Water supply was also very expensive and caused unpopular increases to property rates.

Figure 25  
Water pipe from the city of Vienna, first installed at the end of the 19<sup>th</sup> century



The city of Liverpool, however, set a very positive example, which many subsequently followed: the Council developed and built a water supply and sewerage system second to none in Britain, and installed it between 1847 and 1867. At this time Liverpool had approximately 250 miles of sewers. Water did not come cheap — between 3% and 5% of a council tenant's annual rent was allocated to the cost of supply (Eveleigh, 2002, p. 142). Many cities followed

Liverpool's example when the benefits became clear. Until this time, sewage from cities was mostly plumbed straight into tidal rivers. London's sewerage system construction began in 1859 and had an amazing 1300 miles of sewers which connected to 82 miles of main tunnels (Eveleigh, 2002, p. 37).



Figure 26  
Trenches for the laying of sewerage pipes



In the mid 1840s, Chadwick persuaded Doulton, to make salt glazed stoneware drainpipes in the hope that they would be more efficient and less susceptible to blocking than the porous brickwork drains in place at that time. Doulton did produce them and they became a great success, such a success, in fact, that Doulton's business changed. Soon he became well known all over England for his earthenware and stoneware manufacturing skills (Eveleigh, 2002, p. 38).

With sewers in place in most cities in the latter part of the 19<sup>th</sup> century, the aristocracy and upper class no longer exclusively used the W.C.; it could now be seen in most houses with four rooms or more. 'Two up two down' houses were still somewhat behind the times and a W.C., if fitted at all, would most probably be a 'Hopper' or 'Cottage' closet, and would be likely to have no cistern and be flushed manually using a bucket of water.



## **Chapter 5**

### Sanitary reasons for the development of the closet

There were very many Sanitary Acts. Possibly the first was in 1189 for the city of London, which however changed very little. The most important factor in the development of the water closet was the installation of a water supply; it was King Henry III in 1237 who passed an Act which requested a review of the city's water supply. Although this gave London its first water supply, it consisted merely of standpipes in the main squares, where people would go with their containers and pump the water by hand. The first Act to really change anything, as far as the mass of people was concerned, and to have any lasting effect, was passed in 1358, when open gullies were built in the middle of most main streets of London to carry waste thrown in by the public; some public toilets were also built (Lambton, 1978, p. 6). Later these type of street gullies were installed into other cities in continental Europe and could still be found in the first half of the 19<sup>th</sup> century as seen in figure 27.

Figure 27  
Open gully in the middle of the street, 1836



### 5.1 'Rakers'

'Rakers' or 'gongfermors', as they were called (*gong* from the Saxon *gang*, from the Saxon word to *cleanse*) were people who emptied the cesspits of both public and private buildings. This had to be done every few months, and one can imagine that it was a very unpleasant task. They were paid well, however, with a handsome fee of £2 per person per job; nonetheless it would often take many night-time hours (Lambton, 1978, p. 7).

### 5.2 New houses

The Metropolitan Sanitation Act of 1848 in London forbade the building of new houses without a privy of some kind. Some sewers were built at this time purely to cope with new water closets. By the beginning of the 1850's, sewer

construction in London was well underway and by 1854, 30,000 cesspools in London had been made obsolete or had been removed in favour of a main sewerage system (Eveleigh, 2002, p. 15).

### 5.3 Cholera

By 1850 the link between cholera, other infectious diseases and polluted water was being investigated and within 10 years this theory was generally accepted, although it would take nearly 50 years for the miasma-theory that foul air could carry cholera to be disproved (Eveleigh, 2002, p. 16). The miasma-theory was that burning or decaying organic materials caused harmful or even poisonous emanations into the atmosphere. While this is correct it did not apply to cholera or other diseases discussed by Chadwick. However, his theory of airborne cholera was thought to be sound by many scientists.

Figure 28

A drawing of the three diseases (diphtheria, scrofula and cholera) which father Thames introduces to Lady London, 1858



The cholera epidemic of 1854 caused so many deaths in Soho that investigations were made in this area of London as to the causes. It was found that a sewer, which ran along side a public water pump, was infecting the drinking water. Dr. John Snow (1813 – 1858), a pioneering anaesthetist, said that water polluted by sewage was probably the means by which cholera was spread. Chadwick, however, while not disputing that polluted water was a cause of cholera, maintained that bad air emitted from human waste was the main cause. During this cholera epidemic there were 90,000 deaths from the disease. However, the outbreak helped Chadwick and the Whigs to get the various Health Acts which followed through Parliament.

There was another outbreak of cholera in 1866, the worst affected area being the East End of London; it was found, after water tests, that the water supplied by the East London Water Co. was contaminated with sewage. This still was not enough evidence for those convinced that 'bad air' was the main culprit. It was not until Robert Koch (1843 – 1910), a German bacteriologist, identified the cholera bacillus in India in 1883, that it finally became accepted that cholera was carried in sewage and water contaminated by the faeces of those infected (Cootes, 1984, p. 177).

#### 5.4 The Chadwick Report 1842 and its consequences

Figure 29 Edwin Chadwick



Edwin Chadwick (1800 – 1890), the Secretary of the Poor Law Commission, was concerned with the social questions arising from the industrial revolution, such as poverty, the exploitation of female and child labour, the bad living conditions of the labouring population in Great Britain, the lack of sewers, and problems caused by human waste, which were the cause of many diseases, such as rickets and typhus as well as cholera (Murphy et al., 2003, p. 127).

Between 1848 and 1867, half the deaths of workers in industrial cities were of those under 20 years old. Chadwick urged: "Cleanliness is next to godliness", and thought that much of the misery of the poor was caused by lack of hygiene. He demanded a good system of sewers and worked with the Londoner, John Roe, to improve the sewers in London. Chadwick wanted to use human waste as liquid manure for the fertilization of fields instead of polluting the rivers and lakes with it. Although criticised by some farmers, his ideas proved fruitful and

stimulated an increase in agricultural production, so that more food for the population became available than had been the case prior to his intervention. His theories were ecological: the idea was to have a form of sewage treatment that recycled the otherwise problematical human waste.

According to Chadwick "The annual loss of life (around 22 per 1000 per year in the early 19<sup>th</sup> century) from filth was greater than the loss in any war in which the country had been engaged in modern times" (Cootes, 1984, p. 179).

He managed to get the first sanitary bill through Parliament, the Public Health Act 1848. The Board of Health set up under this bill had powerful members, including Lord Ashley and Chadwick himself. This bill gave the Board of Health the authority to create local Boards of Health around the country, which would control services such as the supply of clean water and public baths.

These local boards provided drains in the city streets (the construction of costly sewers came much later). Local Health Authorities were a success, but at this stage of sanitation development it was not always compulsory to have a Health Board within a Local Council and opposition by property owners who feared increases in property tax did impede its implementation. An article in The Times newspaper may best reflect this opposition in 1848, which called the 1848 Health Act "a reckless invasion of property and liberty". The Act nonetheless grew in strength, due mainly to two factors; 1/ Chadwick's powerful campaigning and 2/ the fact that he could demonstrate that the death rate caused by disease dropped from epidemic proportions in areas that heeded his cautionary advice. This Act also included a provision that every new home built should include a sanitary arrangement of some kind.

Chadwick continued to press for a cleaner way of living, free from foul drinking water, and for safe waste disposal. He also ordered experimentation with glazed earthenware pipes for possible use as sewerage pipes, which would later result in vast improvements to the existing brick sewers. These glazed pipes prevented blockages and were eventually adopted by all cities (Cootes, 1984, p. 181).

Chadwick's demands caused technical problems in cities because of the high cost of implementing them, and in London only half the necessary sewerage system could be installed. Nevertheless, Chadwick's ideas were very important for further generations, especially the principle that sanitary systems should be the responsibility of the Local Authority, for which Chadwick had so vigorously argued. He ensured that parliamentary action was taken to protect the health of the people of Britain (Illi, 1987, p. 210).

By the time Benjamin Disraeli (1804 – 1881) became leader of the Conservative Party in 1868 the tempo had quickened in the drive to clean up Britain's cities. "Health is our first essential" was Disraeli's oft quoted slogan (Cootes, 1984, p. 181). His Home Secretary, Richard Cross got a very important Health Act through Parliament in 1875, which enforced sewer maintenance and the planning of drainage, a clean water supply and street cleaning, and finally general rubbish control and collection.

Included in this 1875 Health Act were minimum standards of sanitation to be included in every new home built. Sanitation inspectors and medical officers were employed to ensure sufficient measures were taken during construction to ensure an efficient supply of clean water, drainage and sewage disposal. Of these measures Chadwick could surely be proud, since between the years 1850 and 1900 the average life expectancy increased by 10 years, to around 53 (Cootes, 1984, p. 181).

### 5.5 Public Health Act 1848

When the death rate within a district rose to 23 per 1000 inhabitants per year and above, it was compulsory for a general Board of Health to be established by the Local Council (Eveleigh, 2002, p. 15). All local authority Health Boards were supervised by a Central Board in London, which was led by Chadwick. These boards could only be established when any one of the following criteria was met: 1/ at least 10% of the inhabitants petitioned for it; 2/ the death rate rose to 23 per 1000 per year and above, as previously mentioned; 3/ the local authority voluntarily decided to establish a Health Board. One very enthusiastic local authority was that of Leicester which made considerable endeavours to provide clean water, rubbish disposal and human waste disposal. Here property tax went up by 75% confirming the fears of many property owners many of whom voiced objections to this idea.

It took another 16 years for 400 towns to adopt such powers. Before the powers were used, these towns were often the worst affected by continuing outbreaks of cholera. Over 10,000 Londoners died from cholera in 1866, which spurred many other towns and cities to follow the example of Leicester in empowering their Local Authority with Health Boards.

### 5.6 Nuisance Removal Act 1855

This Act equipped Health Boards of local authorities with powers to take proceedings against owners of filthy, and therefore potentially dangerous, privies.



### 5.7 Sanitation Act 1866

Following a large number of deaths from cholera earlier in the same year, this Act was passed. It gave government the power to insist that all local authorities employ sanitary inspectors, which was necessary in order that plans drawn up in all towns for sewers and clean water supply could be realised.

### 5.8 Public Health Act 1875

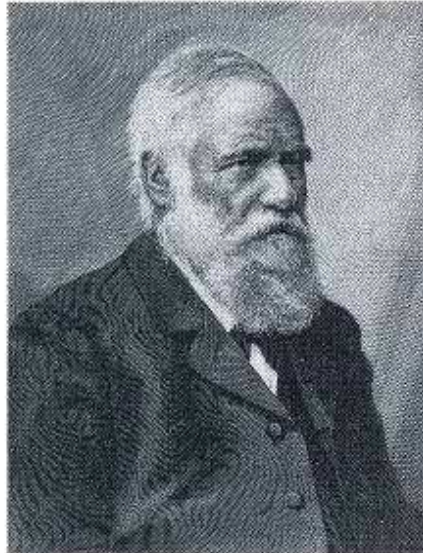
This Act was a consolidation of regulations introduced in the previous 30 years. It contained few new ideas, but carried considerable weight and rationalised the sometimes incoherent Acts of the past. It was this Act which helped to stimulate the rapid development of the water closet which followed.

### 5.9 Medical research

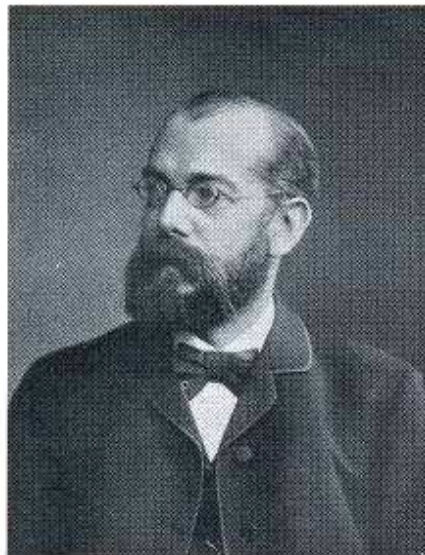
Peter Frank (1745 – 1821) a German physician is considered by some to be one of the founders of modern hygiene in cities. He demanded general laws for health and hygiene from the government and asked for more social responsibility and a greater contribution from the wealthy. It was he who discovered the link between the amount of disease in a community and the number of workers living in unhygienic conditions (Illi, 1987, p. 210).

Max von Pettenkofer (1818 – 1901) and Robert Koch (1843 – 1910) were German physicians who researched hygiene and bacteria (Illi, 1987, p. 211).

Figure 30  
Scientists Max von Pettenkofer and Robert Koch



Max von Pettenkofer,  
1818–1901



Robert Koch,  
1843–1910

Max von Pettenkofer thought the condition of the ground and the groundwater were the cause of cholera. Later he also demonstrated that daily hygiene was very important for health. Von Pettenkofer defended Robert Koch, whose ideas were similar. In 1883 Koch discovered that cholera bacteria could be found in human waste, which meant that bacteria could find its way into the ground and contaminate ground water and thus spread disease. This discovery by Koch was the catalyst needed to implement a law concerning the proximity of sewerage pipes to drinking water and the distance the privy should be away from the house. Privies were ordered to be a distance of at least 1.8 metres from any well, spring or stream, and they had to be watertight (Illi, 1987, p. 212).

#### 5.10 The Royal Sanitary Institute

The autumn annual meeting of The Royal Sanitary Institute had considerable influence on the design of W.C.s and manufacturing companies would pay close attention to these meetings. Many manufacturers would exhibit their inventions and new models at these occasions. Papers on public health written by physicians were circulated, and plumbers' ideas for improvements to fittings could also be seen. However, displaying at these functions also involved the risk that, if the new inventions on show were thought to be insanitary, it meant the certain failure of that object on the market. Also, existing W.C.s might be declared insanitary, which would almost invariably mean their later removal from the market. One such W.C. was the pan closet (Eveleigh, 2002, p. 123).

## Chapter 6

### Design of the closet

#### 6.1 Book chamber pot, 1800

Figure 31  
Chamber pot, around 1800



An alternative to hiding the chamber pot under the bed was to disguise it. This pile of large books (fig. 31) could not be more unlike a chamber pot and was therefore more acceptable to have on display. Such elaborate disguises for chamber pots were designed and made for the discerning, or rather for people of distinction with money who could afford such objects of luxury. Notice the books are all the same size and one is exactly stacked upon another. From this we can deduce that the idea was not to pretend that it was really a pile of books, but to give a more pleasant aspect to the chamber pot, and in so doing be able to place the pot in a more convenient position in the room.

## 6.2 Blue metal W.C. of the late 18<sup>th</sup> or early 19<sup>th</sup> century

Figure 32

Blue metal W.C., Sanitaermuseum Wien. Date unknown but assumed to be late 18<sup>th</sup> or early 19<sup>th</sup> century



This unnamed piece, which can be seen in the Sanitaermuseum, in Vienna, could perhaps be called the 'ugliest closet of the century'. The lever on the side operated a plug below it, which when pushed down, allowed the contents of the bowl to be emptied into a receptacle for the waste below. It was then necessary to lift the handle again in order to reseal the bowl ready for the next operation. If the seal was good, the next user would not be welcomed by a repulsive smell. Made of cast iron and steel, it was liable to corrode, which did not add to its attractions.



6.3 Unitas, 1883

Figure 33  
The beautiful 'Unitas' from Twyford 1883.



The 'Unitas', a wash-out closet, designed by the Twyford Company in 1883, was supreme in its design in that, apart from its very attractive appearance, it had no need of the usual boxing to hide the unsightly pipes behind. The skirting plinth went right to the back of the pedestal, which meant it met the wall. This was an all-in-one ceramic piece, and was not an easy thing to manufacture. Previous attempts had failed in the firing of the clay. It was therefore an aesthetic breakthrough in the world of closets.

If you compare the shape of the 'Unitas' with wash-out closets of today, they can generally only be differentiated by the decoration. The raised oak-leaf pattern and conservative colours quickly became very popular and set a new style for closets in general. Brash colours available with closets such as the flamboyant 'Dolphin' would soon be 'out' however. This model shows decoration inside and out, but could be purchased with only the outside decorated. It was not available without any decoration.

The success of the 'Unitas' was such that the Twyford Company was able to build a new factory with the profits of just this one model [see chapter 9.4]. It was considered chic to have it in one's home. The gentle curves and the uncluttered feel about this piece added to its desirability and possession of this model meant one was the proud owner of the ultimate in closets. The water entry point is shielded from view by a simple housing below the beautifully turned edge. Another noticeable difference from a closet of today is the position of the screw holes in the plinth, giving the latter a somewhat 'added on feel' when compared with the much later 'Marlboro' by Crapper (see fig. 36).

## 6.4 Deluge, 1886

Figure 34  
The 'Deluge' of 1886 by Twyford



After the 'Unitas' came many other models similar in design; pictured above is the 'Deluge' – Twyford's first wash-down closet. In the seven years immediately following the launch of 'Unitas' closet, design began to move very quickly; suddenly many companies were producing new closets and marketing them. However, nearly all followed the 'Unitas' example and were composed of one ceramic piece with skirting running to the rear of the closet, which hid the all-important, but unsightly, soil pipes and traps behind.

For the upper classes, the second half of this decade (1880's) saw a major change in what was thought of as fashionable. An all-in-one bowl and trap, which required no boxing, had now become obligatory for anyone with social aspirations.

Although the shape of the W.C. was now generally only available in designs with gentle curves, the number of patterns available was enormous.

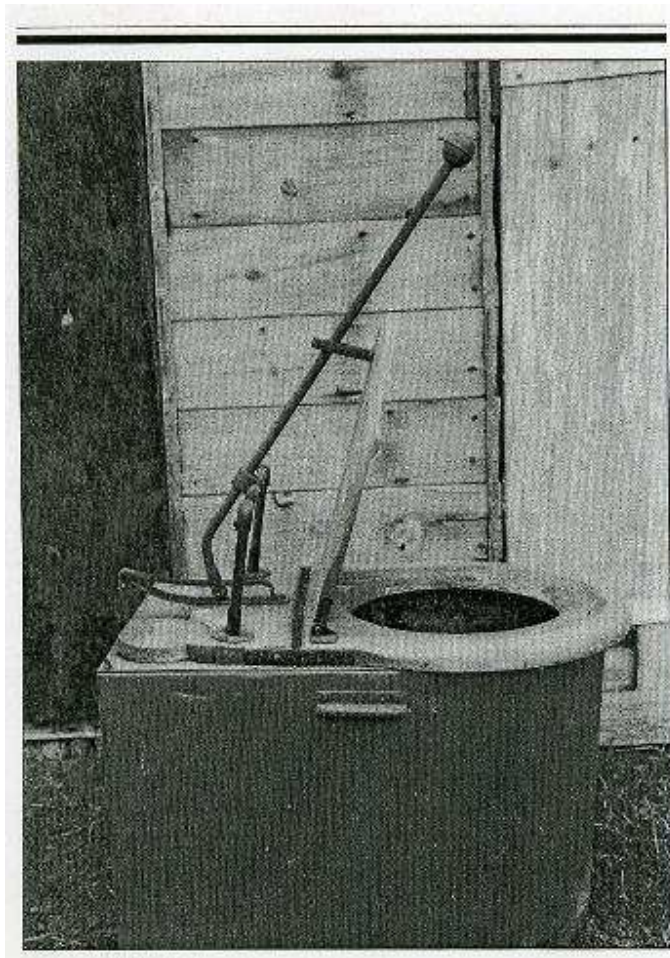


The 'Deluge' (fig. 34) came out in 1886 and is an example of one of the more unusual patterns available at that time.

#### 6.5 Bert Winborne's closet, 1894

Figure 35

Bert Winborne's closet (1894) was emptied purely by opening and closing the lid



When function was the only consideration of a closet, the appearance could be not only devoid of decoration, but could also look untidy, with a mass of working parts. This self-contained closet by Bert Winborne (fig. 35) was used in rural areas of Britain until the early 20<sup>th</sup> century.

It was possible that the ash wood seat could be attractive, but it would generally not be oiled, was only fitted for its durability, and therefore would lack any aesthetic appeal.

#### 6.6 The Improved Marlboro, 1895

Figure 36

Thomas Crapper's 'The Improved Marlboro' pedestal wash-down closet, 1895.



In 1895 came Thomas Crapper's 'Improved Marlboro', a wash-down W.C. The 'Improved Marlboro' had a reduced depth (from front to back), but despite this the pedestal had ample room behind to completely house and hide the soil pipe. Because of this reduced depth it was noticeably different from its predecessors made by Twyford and now by many others. This was an advantage where space was in short supply. The plinth was not flat as with the 'Unitas', but at an angle of approximately 45 degrees to the floor, a great advantage when fixing to the

floor, as the holes for the screws followed the plinth's angle which made for a very convenient fixing. This was also a more secure way of fixing a closet, and the Marlboro was probably the first with this design. The water inlet within the turned edge had an advantage over the 'Unitas' in that it had no need for a separate shield, since this edge was continuous at the same depth right around the bowl, thus having the effect of spreading the flushing water more evenly.

When compared with the 'Unitas', Crapper's 'The Improved Marlboro' had a lighter feel to it: the pedestal circumference was much smaller, giving a tighter, neater look; it does not have the bulging top curve of the bowl as with the 'Unitas' and the pattern without any relief. Instead it featured a simple and uncrowded foliage pattern. It was a great success and was Crapper's main contribution to the development of the closet.

## 6.7 Excelsior, 1895

Figure 37  
'Excelsior', made by The Sanitary Pottery Co., 1895



The Excelsior (fig. 37) of 1895 by The Sanitary Pottery Co., Staffordshire was similar in size and general appearance to the 'Simplon' (fig. 41), but had a much smoother feel and look about it, and was mechanically superior. It had one disadvantage compared to the 'Simplon' however, which was that the lack of seat fixings meant boxing or wall fixings were needed for the seat. The rolled edge looked as if it fell into position naturally, and this, together with the understated external decoration, gave a simple but classic appearance to this

piece. However, if one were to look behind the bowl, the soil pipe would be visible, as the pedestal was too small to house it.

### 6.8 Nautilus, 1897

Figure 38  
'Nautilus' by Rudolf Ditmar Znaim (RDZ), 1897



The 1897 'Nautilus' (fig. 38) was made by RDZ and adequately met the functional demands of its time, in that it had a good water sealed trap, and with sufficient cistern head it was possible to at least, for the most part, remove the waste from the bowl. But it will be best remembered for its incredible eye-

catching decoration, never before seen in Britain. It was cheaper than the 'Dolphin' (fig. 42), which is its nearest counterpart.

However, notice the wide opening of the water inlet; because of the large aperture, this made it difficult to supply sufficient force to throw water around the bowl efficiently. It can be observed from the illustration that it would be impossible for the water to reach the curved edge, which is required if the water is to be carried around the bowl. The 'Dolphin', on the other hand, possessed a smaller outlet, which created more pressure. Despite its large size, this spectacular closet was not able to incorporate and hide the soil pipe, seen here behind. It is also plain to see that the skirting did not fit to the wall such as with the 'Unitas' and other W.C.s of this period in Britain. From this it is possible to deduce that the emphasis of design with this piece was on decoration rather than functionality. Nonetheless, it was an extremely brave piece of art and no doubt proudly enjoyed by many in the Austrian Empire – the market for which it was made.



## 6.9 Improved Pedestal Simplicitas, 1897

Figure 39  
Brown oak leaf 'Improved Pedestal Simplicitas' 1897



The illustration shows the 'Improved Pedestal Simplicitas' by Doulton and Co., a wash-down closet which differed markedly from most closets of the late 19<sup>th</sup> century; its texture had a very different look and feel to it. This was because it was made of plain stoneware, without the glaze which was usually added to give colour, gloss and smoothness, and which was particularly used with closets of quality. The 'Simplicitas', however, had a simple but attractive herringbone design above and below the raised Acanthus leaf pattern, the latter being reminiscent of Corinthian capitals. Decoration such as this on an unglazed unit was particularly unusual because the usual reason for manufacturing an earthenware closet void of decoration was to decrease the price tag. In this

case, the decoration seen here actually doubled the price (Lambton, 1978, p. 41).

#### 6.10 Thonet chair closet, early 20<sup>th</sup> century

Figure 40  
Thonet chair closet, early 20<sup>th</sup> century



In 1900 this combined chair and chamber pot by Thonet was not seen as something out of the ordinary. It was in fact a convenient and practical solution to the problem of where to keep the chamber pot. Although today it might, perhaps by some, be viewed with disgust, at this time it was seen as a good alternative to keeping the pot under the bed. The dual-purpose chair could be used as a seat in the normal way, with the lid suppressing the smells in the pot.

## 6.11 Simplon, 1904

Figure 41  
Rudolf Ditmar Znaim's (RDZ) 'Simplon' 1904



In 1904 RDZ started production of the 'Simplon' which proved to be a considerable success for the company. RDZ made very many of these closets, which were smaller than average, but were one of the first W.C.s to have fixings for a seat, as seen here.

## 6.12 The Dolphin, 1909

Figure 42  
'The Dolphin', known as the 'King of Closets' 1909



The 'Dolphin' wash-out closet which, became known as the 'King of Closets', was first put into production in the early 1880s by Stock, Sons and Taylor. In 1909 Edward Johns, who was then also making 'Dolphins' under licence, promoted this model with a very clever sales gimmick; from the coat of arms seen inside one would assume the manufacturer was claiming a royal warrant, but in fact closer inspection of the words does not bear this out, as it actually reads; "Not by Appointment to the King".



Made also by J. Dimmock and Co. [see chapter 7.16] it had an extremely good glaze, which never crazed which was noted by the researcher at the Sanitaermuseum, Gmunden, and the Sanitaermuseum, Vienna in 2004.

### 6.13 Modern bathroom, 1911

Figure 43  
Bathroom of 1911



Super, clean, sparkling and modern are the words that might have been used for the fittings in this advertisement for a bathroom in 1911. Made by Standard Sanitary Co., it was heralded as the best and most hygienic type of bathroom, with every surface washable. The clean lines of the style were intended to confirm the impression of cleanliness and efficiency. It was around this time that British architects started to take note of what the Americans were doing with

their bathrooms. It became not unusual in Europe to see the W.C. included in the bathroom, much to the delight of many American visitors to the UK.

At the time this bathroom was being marketed, the type of family that would own it would also be very likely to have servants to clean it. One of the main attractions to this bathroom was that it looked clean and easy to keep clean, though the reality was probably different.



## Chapter 7

### Selected inventors of the closet

#### 7.1 Sir John Harington

Harington (1561 – 1612) designed and invented the first flushing closet with a cistern or as it was then known a *cisterne*. He worked from drawings by the Italian architect, Barozzi da Vignola. The closet was fitted in his home in 1592, while he was serving as High Sheriff of Somerset. Harington was the godson of Queen Elizabeth I and when she visited shortly after he had fitted it and saw his closet, she was so impressed that she asked him to make an exact copy for Richmond Palace (Lambton, 1978).

Figure 44  
The first W.C. (1592) which included a cistern



## 7.2 Alexander Cummings

Cummings was born in 1732 and became a horologist in London. In 1775 he took out the first patent for a water closet. It was a success in that it was purchased by many of the aristocracy and royalty, not least because his 'D stink trap' and valve above worked well, for its time, against smells rising from the cesspit. Its main problem was, that the valve, once soiled, would corrode from the moisture and would then clog, which led to smells. Also the pipe from the cistern would constantly be full of water and was therefore liable to freeze (Eveleigh, 2002, p. 20).

## 7.3 Joseph Bramah

Bramah was born in 1749 and was brought up in Yorkshire on a farm. He was then apprenticed to a joiner. In 1773 he made the long journey to London on foot as a travelling joiner (a tradition in Europe among craftspeople to learn of other methods). During his work as a joiner, he spent time boxing in and housing W.C.s. While recovering from injuries he sustained from a fall at work, he devised improvements to the W.C. of Cummings. In 1778 he was granted a patent for a new system with a double valve named 'The water spreader' a feature of which was a curved piece of copper fixed to the bowl in front of the inlet, which had the effect of spreading the water in the bowl, hence its name. He also worked on the cistern and included a syphonic mechanism which kept the pipe from the cistern empty of water, while not in use, therefore reducing the risk of freezing (Eveleigh, 2002, p. 26).

Three of his five children became engineers and worked for him in his company, 'Bramah & Sons'. He would sell a closet for 8 guineas, but installation and other accessories generally brought the price up to 12 guineas.

This model was a huge success and he boasted of having sold 6000 by the time he ceased production. It was often copied, but Bramah deterred plagiarisers with a successful court action (Eveleigh, 2002, p. 26).

#### 7.4 William Law

William Law, an iron founder from London, in 1796 patented an automatic flushing toilet. The W.C. automatically flushed when the user rose from the seat (something similar is now again on the market which uses infrared). This device became Bramah's chief competitor in the 19<sup>th</sup> century (Eveleigh, 2002, p. 28).

#### 7.5 Josiah Wedgwood

Wedgwood (1730 – 95) worked as a potter developing a distinctive pottery ware inspired by the ancient Greeks. He established a highly successful pottery business, and was especially known for his pale grey-blue decoration. In 1802, the Wedgwood business was taking orders for the manufacture of hard glazed earthenware water closets from Joseph Bramah, among others. The earthenware was a great step forward for the W.C. as it could be hard glazed, which made it more attractive, easier to keep clean and rust free, thus lasting indefinitely. It also gave rise to the very ornate patterns which we associate with the W.C.s of the 19<sup>th</sup> century. The only disadvantage it had, compared to the metal W.C., was that it could crack if hit by something hard or heavy. This could damage it or even render it useless and irreparable.

#### 7.6 George Jennings

In 1847, Prince Albert presented George Jennings with a medal from the Society of Arts for his inventions, which were later used all over the world. At this time he was becoming known as the person who had developed the W.C. to near perfection. He later invented the first thermostatically controlled bath taps (Eveleigh, 2002, p. 87). He also invented the sanitary technology for public

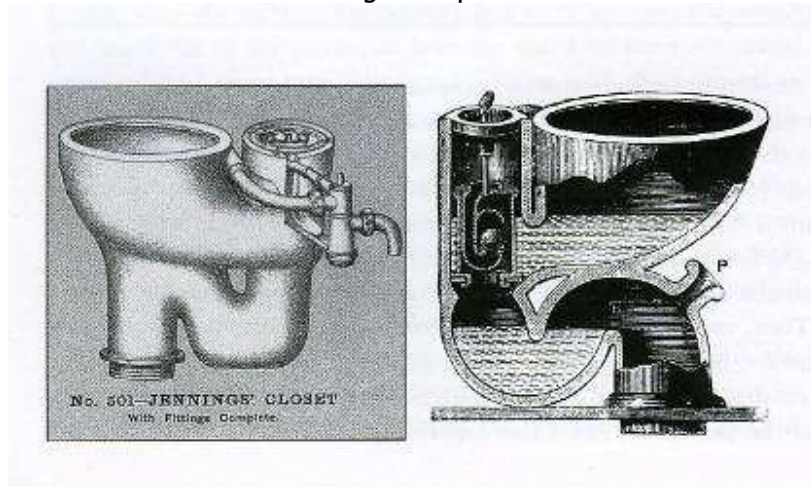
conveniences, introducing his inventions at the Great Exhibition of 1851, featuring his 'Monkey closets', which were an early form of wash-out closet. He received a gold medal for these public lavatories, which soon grew in popularity.

The development of the wash-out closet should largely be credited to George Jennings; he also supplied his W.C.s to public events all around the world, such as the Paris Exposition Universelle in 1867 and the Philadelphia Exhibition in 1876. As a consequence of this he became internationally known as the inventor of this system. The Jennings Company was continued after the retirement of George Jennings by some of his sons, and went on to produce the first pedestal water closet called the 'Pedestal Vase' (Eveleigh, 2002, p. 117).

Permanent structures were built to house his closets and by the 1890's more than 36 towns in Britain had at least one of his public toilets in a permanent structure. They operated by means of a sealed wash-out system which was very robust and able to withstand rough treatment, since the interior was completely free of joints.

In 1878 the Jennings Company won an important contract to supply the prestigious Palace Hotel in San Francisco with 550 of his combined valve and trap closets. In its day, this hotel claimed to be the most luxurious in the world (Eveleigh, 2002, p. 119).

Figure 45  
The Jennings one-piece closet



### 7.7 Henry Moule

Born in 1801, Moule became the chaplain of St. John's College, Cambridge and later the vicar of Fordington in Dorset. In 1860 he patented his earth closet, and in 1873 patented another, improved version. Both worked very well and were extremely successful in the countryside, but were problematic in cities, due to the cost of transporting the earth necessary for their function. A family of six used about 2½ tons of earth per year (Illi, 1987, p. 222).

### 7.8 Thomas Crapper

Born in 1835 Crapper became a well-known Victorian plumber with a successful business first established in 1861. He made a few small improvements to the cistern 'water waste preventors' as they were then known. However, no major or lasting developments in the W.C. can be credited to Crapper. A patent he took out in 1863 for a self rising toilet seat was ingenious. Mistakenly he is sometimes given credit for the syphonic system, because he took out a patent for such in 1891. However, these were already well established, though perhaps with an insufficient patent to be protected against imitations.

Figure 46  
A Crapper and Co. advertisement  
displaying the 'Prince of Wales feathers'



Crapper, in 1886 was granted a royal warrant for work he had undertaken at Sandringham Palace installing sanitary fittings. From this time he proudly displayed the 'Prince of Wales' feathers on his logo (Reyburn, 1989, p. 29).

In 1888 Crapper developed the cantilever toilet, which was used in prisons and mental institutions largely because it was less easily damaged than other models. It resembled modern W.C.s seen in luxury homes today.

Crapper's name is synonymous with the development of the closet; however, in actual fact, all the sanitary products he worked on were previously invented by others, and were mostly in production before he further developed them. 'The Marlboro' is the most important development by Crapper, see figure 36.



### 7.9 Frederick Humpherson

Born in 1854, died in 1919, he was the oldest son of Edward Humpherson and was apprenticed to Thomas Crapper in 1871. In 1876, he and his father founded the company Humpherson and Co. in Chelsea, London with a showroom in Beaufort Street. Later his son Alfred joined them. Humpherson and Co. produced many patented inventions, including the wash-down closet (although at this time it was called the flush-down and was not known as the wash-down until Twyford named it and marketed it as such). Humpherson and Co. won many medals and prizes at exhibitions, their greatest success being 'The Beaufort', a much revered and copied closet which brought wealth to the business. The company is still producing W.C.s today (Eveleigh, 2002, p. 131).

Figure 47

'The Beaufort', by Humpherson and Co.



### 7.10 John Shanks

Born in 1825 Shanks started his career as a plumber in 1863. Until the mid 1850's, he worked as a journeyman plumber in Scotland, later establishing his own business in Barrhead near Glasgow.

His first patent for a trapless water closet was granted in 1863. In 1875 he founded Shanks & Co Sanitary Engineers with his brother. He became a leading sanitaryware manufacturer and was known for good quality merchandise at a sensible price, with no unnecessary frills or decoration. By 1894 he had taken out 100 patents for closets, fittings and other sanitaryware (Eveleigh, 2002, p. 98). From 1870 to the 1960s Shanks were the major manufacturers of sanitaryware in the United Kingdom. The factory is still manufacturing sanitaryware under the Shanks name in Barrhead, Glasgow today.

### 7.11 John Bennet Lawes

Born in 1814, Lawes established an experimental farm at Rothampstead in Hertfordshire in the 1830's. He wanted to prove that the agricultural value of human sewage could exceed the cost of its transportation.

Lawes studied sewage samples in Rugby between 1861 and 1863 and submitted his findings to the Royal Commission on Sewage in towns (est. 1857). He discovered that each person produces approximately 60 tons of dilute sewage, within which were 12½ lbs of ammoniac, equivalent to 74 lb of guano. In terms of manure, these findings seemed to suggest considerable financial potential (Eveleigh, 2002, p. 44).

Many thought that exploiting human sewage in this way would greatly help the finances of towns, which in turn would benefit the country as a whole; but when the idea was tried this proved incorrect. It was shown that the system could be

of social value, but would never generate significant income, largely due to the costs of transportation and pumping stations. These were costs the farms buying the manure would have to pay. However, by the late 19<sup>th</sup> century, at least 100 towns and cities had such schemes in place, so it is true to say that using human sewage as farm manure was at least partly successful (Eveleigh, 2002, p. 45).

#### 7.12 Steven Hellyer

About 100 years after its invention, Hellyer improved Bramah's valve closet by developing a curved rim closet in ceramic. The curved rim had been made long before, but not in ceramic, as it was difficult to manufacture. 'The Optimus' was the first W.C. to carry the flush around the complete bowl. Hellyer claimed to have invented the wash-out closet, but this was only after he had seen Jennings's 'Monkey Closet' and probably copied it. Hellyer complained of the difficulty of getting skilled potters to make the curved rim, but did eventually find the necessary craftsmen to carry out his design and it was produced until the late 1930's.

His models were installed in Buckingham Palace, for Queen Victoria as well as in Marlborough House in Balmoral for Edward VII. He even received commissions from the Czar of Russia and the King of Siam.

#### 7.13 John Randall Mann

Mann was an American manufacturer of closets who in 1870 took out a British patent for a syphonic closet, but with little success. Jennings improved John Randall Mann's design, which later became very prestigious, Jennings dubbing it eventually the 'Closet of the Century' (Eveleigh, 2002, p. 133).

### 7.14 Thomas William Twyford

Thomas William's father Thomas Twyford was born in 1827; in 1849 he established two factories where simply designed washbasins and closet pans were made. Thomas Twyford died in 1872; it was in this year that Thomas William [1849 – 1921], at 23 became the managing director of the already successful business. Thomas William's design skills undoubtedly helped to change the attitude whereby the W.C. was hidden in boxing or behind screens. He educated people to think of the W.C. as something to be proud of, and even cherish. In about 1884 he launched his 'Unitas'<sup>4</sup>, a design that was not easy to make, even by a skilled potter, because it encompassed the bowl and trap in a single element.

He later added new, more expensive versions, such as the 'Florentine', which had a raised leaf pattern and could be purchased in white and ivory inside and out (Eveleigh, 2002, p. 100). Although he took out 13 patents between 1884 and 1892, not one of the major lasting developments of this period can be attributed to him, except the 'Unitas' which was the earliest, fully enclosed pedestal wash-out closet. George Jennings had earlier made a 'Pedestal Vase', which also integrated a trap but was not free-standing.

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<sup>4</sup> "The Unitas' was the first ever all-ceramic, free-standing, one-piece, wash-out, pedestal closet. It had an integral trap as a single piece of pottery. The 'Unitas' was exported throughout the world and the name itself is used to this day in the Russian language to mean toilet."  
(*Information kindly supplied by the Twyford museum.*)

Figure 48  
The 'Unitas' and 'Deluge' by Twyford



The wash-down closet shortly followed the 'Unitas' (seen above left), and although not their invention, Twyford could justifiably claim that they had developed the wash-down closet into something saleable and desirable. They were indeed very successful in marketing the wash-down closet and produced many different models. The firm of Twyford was also the first to use the name 'wash-down' and to establish standard measurements for it. In 1887, they introduced the 'Deluge', (above right) which closely followed the 'Unitas', and was the first so-called wash-down closet. This was a cheaper closet for use only in servant's quarters and prisons. The wash-down closet was very successful in Britain and Twyford were not slow to exploit its potential.

In 1889 they began to market numerous, more luxurious models of the wash-down, some of which were very ornately decorated with picturesque floral designs (Eveleigh, 2002, p. 101).

For countries outside the UK the wash-out 'Unitas' was still Twyford's premier model and they continued to produce it for export. The UK market enjoyed their wash-down models and other firms also followed suit and started to produce wash-down closets with minor variations, examples being Shanks with their 'Citizen', Doulton with their 'Simplicitas', and Thomas Crapper with his 'Marlboro'.



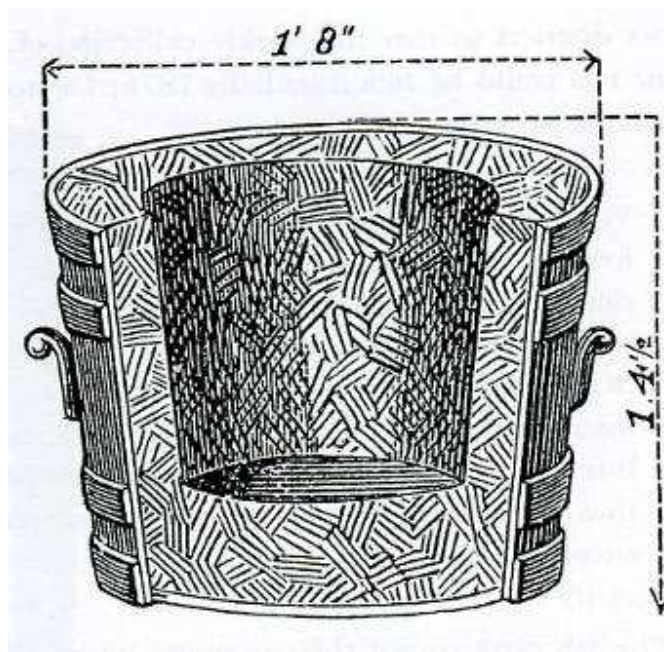
Figure 49  
A Twyford Advertisement for their syphonic closet



### 7.15 Pierre Goux

Goux invented the lined pail closet used in many military camps until the early 20<sup>th</sup> century (Eveleigh, 2002, p. 58).

Figure 50  
The 'Goux tub'



### 7.16 J. Dimmock and Co.

Dimmock and Co., who were fireclay manufacturers in Wortley, Leeds, registered their 'Dolphin' design around 1885.

## Chapter 8

### General facts about the W.C.

#### 8.1 Closet terminology

- Loo – the familiar word for closet is supposedly derived from the French word “l’eau” (water). Until the middle of the 19<sup>th</sup> century in France (as well as most other countries in Europe), night pots were emptied by pouring the contents into the streets. In France pedestrians were, if lucky, warned by the words: “Gardez, l’eau!” (“Look out! Water!”), when this was about to happen.
- Privy – this is an Early Middle English word, coming from the Latin *privatus*, meaning apart, private, secret or not publicly known. Single cubical toilets started to appear from the late 18<sup>th</sup> century named by George Jennings; ‘monkey closets’.
- Toilet – The word is derived from the French word *toilette*, meaning, among other things the process of dressing. It came to mean also the place where one withdrew to perform necessary bodily functions in private.
- Toilet (version 2) – from the French word ‘*toile*’ material used as, or attached to the doors of closets (Bruckner, 1999, p. 29).
- Closet – coming from the Latin word ‘*clausa*’, meaning locked in or separated. Originally *clausa* was in Latin a euphemism to describe the secret room where human waste is deposited.

As this dissertation was written in Austria, it may be of interest to add some German or specifically Viennese words on the subject:

- *Abtritt*— a plinth to stand on while urinating, but also a word to describe the smallest room.
- *Abort*— an old word for the closet, coming from the Latin word `abortus' to get rid of something. The famous Wienerschnitzel restaurant in Vienna, Figlmueller, proudly describes its huge schnitzels as "abortdeckelgross" ("as big as a lavatory seat").
- *Haeuschen, Haeusl*— originally meant a special wooden small building separated from the house for use as a closet, see figure 51 (Coturnix, 1979, p. 17).

Figure 51  
'Haeusl', was very typical of many outside closets in Austria, but also in England and other countries of Europe, until the middle of the 20<sup>th</sup> century



German phrases exploiting the force of the word 'shit'.

*Jemandem was scheissen* – to shit on someone

*In sein eigenes Nest scheissen* – never to shit on your own doorstep

*Dukaten scheissen* – to shit money

*Auf die Welt scheissen* – to shit on the world

*Seinem Chef was scheissen* – to shit on one's boss

Dialect words having reference to human waste:

*Sesselfurzer* – chair farter (the employee)

*Baumbrunzer* – someone who pees on trees (farmer)

*Blattscheisser* – page shitter (a poet)

*Querfurz* – crossways farter (the boss) (Vetten, 1980, p. 121)

### 8.2 Sayings about the closet

Mick Warren (see interviews) told me the following limerick:

“There was a young man from Hyde,  
Who fell down a privy and died,  
Sadly his brother  
Fell down another,  
Now both are interred side by side.”

(This Limerick is reputed to have been written by a clergyman)

In Austria they have the saying:

“Wenn’s Oarscherl brummt, is Herzerl g’sund!”,  
(When your bum makes noises, your heart is healthy)

### 8.3 Money has no smell

Emperor Vespasian (81 – 39 B.C.) needed money for the State and had the idea of building public toilets and charging for their use. He also sold the urine to textile manufactures, although his son Titus criticised him for this. Defending his measures, Vespasian held a coin he had received from the latrine tax under the nose of his son and asked him if it stank. “*Non olet!*” was the answer. “*Pecunia non olet*” became a famous saying for special bargains (Vetten, 1980, p. 123).



#### 8.4 W.C. verse

In around 1890, Adolf Sala had the idea of advertising his paper factory in Berlin with jokes (see also figs. 17 and 18) and poems written on toilet paper. The paper could be obtained in book form, from which one tore out the sheets before use.

Figure 52  
Toilet paper poem to entertain users of the smallest room



## Chapter 9

### Interviews

The following reports interviews conducted by the researcher:

1. Lischka, Fritz, Begründer des Sanitaermuseums Gmunden, Gmunden: October 2003
2. Stieg, Peter, Gruender des Sanitaermuseums Vienna, Vienna: August 2003
3. Woolliscroft, Terry, curator at Twyfords Museum, Stoke-on-Trent: November 2003
4. Elderfield, Colin, Resident plumber and consultant for antique bathrooms at Drummonds, Hindhead: July 2003
5. McGowan, Paul, Buyer of antique bathrooms for Walcote Reclamation, Bath: July 2003
6. Warren, Michael, Course Director for Product and Furniture design, Kingston University, Surbiton: June 2003

#### 9.1 Dr. Fritz Lischka

Retired Director of 'Laufen' sanitary ceramics producers in Gmunden and founder of the Sanitaermuseum, Gmunden

Where: Gmunden

When: August 2003

I was very grateful for the opportunity to interview Dr. Fritz Lischka, who spent half a day with me patiently answering my questions concerning the history of the W.C.

**Q:** I am interested in Rudolf Dittmar (trade logo RDZ) who produced sanitary articles in Znaim<sup>5</sup>, which was a town in the former Austro-Hungarian Empire. What can you tell me about him?

**A:** He came from a Czech family that had produced ceramics of various kinds for generations. His experience came from working in the factory owned by his family. Later the company name became 'Dittmar-Urbach'. The short form remained 'RDZ' for 'Rudolf Dittmar Znaim'. You can read about the history of this factory in the booklet of our museum 'Klo & So' [see Bruckner et al. in the references].

**Q:** What do you know of the advantages and disadvantages of RDZ's W.C.s?

**A:** This factory was very famous and produced W.C.s for most of Europe and even for Turkey. It is possible for example, to see W.C.s from RDZ in the Museum of Rhodes. I think the quality of its products was as good as English W.C.s and RDZ had a rich assortment of different types and styles.

In mainland Europe the W.C.s of RDZ were very popular. I would say that in the late 19<sup>th</sup> century in Europe, 70% of W.C.s would be products of RDZ and 30% of England. RDZ had more decoration than the English equivalent and were made from very good quality earthenware, which was nearly as smooth as porcelain. It is true that in England the quality was very high, and certainly a little better than the closets made by RDZ. You can see a difference in the crazing (hairline cracks in the glaze); RDZ had more of this problem than the English W.C.s but in my opinion RDZ's designs were better and richer than those from England.

**Q:** Were RDZ's closets original or copies from England?

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<sup>5</sup> Znaim is now Znojmo in the Czech Republic.

**A:** The first ones were surely copies, but in later models the design changed according to the taste of the Austro-Hungarian monarchy and these new models and designs became typical for RDZ. One can see a big difference in the rich decoration, which was more flamboyant than the more conservative taste of English W.C.s.

**Q:** There were also some German companies producing W.C.s. Why were they not successful?

**A:** Production from these companies was limited and not nearly as large as from RDZ. His W.C.s were the first to become popular and famous all over Europe and therefore it was difficult to break into this market. German factories like Villeroy & Boch did not manage to sell enough of their products because RDZ was the market leader in the market.

**Q:** What do you think of the advantages and disadvantages of wash-out and wash-down closets?

**A:** In England wash-out W.C.s were not so popular because the people did not want to see their own waste. I think that is the reason they preferred the wash-down W.C. Whereas in Europe people thought differently and today wash-out closets are very popular in the Czech Republic and Hungary. Wash-down W.C.s are easier to produce and were made more for the English market. This is usually the type of W.C. one can see in England. In Europe it was a different story, as the majority of closets were wash-outs. Today, I would say, the proportion is about 70% wash-down to 30% wash-out.

**Q:** When did the W.C. become part of the bathroom in Austria?

**A:** Following the installation of water supply pipes and sewage systems, from about 1890 the W.C. could be seen in private houses, especially in Vienna. From about 1910 the W.C. could be seen in private bathrooms but mostly those of rich families.

**Q:** Of which materials are the best W.C.s and baths made?

**A:** The material needs a hard glaze to be robust and to have good resistance. Until 1900, English ceramics were the best, but Czech clays were also of good quality, nearly as good as English ceramics. It was just that the glaze was not quite as good.

**Q:** Where did the materials come from?

**A:** The kaolin came from the Czech lands. Kaolin was used in all Austrian production of ceramics until the 1970s.

During my visit to the Sanitary Museum of Gmunden, Fritz Lischka described some of the objects on display, as well as providing other snippets of information:

- ❖ The shape of the bidet came from France in about 1730.
- ❖ Heinrich Enders was a plumber for the Austrian emperor; his family is still working as plumbers today.
- ❖ 'VINETA' (a special design of W.C. by RDZ) was neo-Rococo, and very luxurious.

- ❖ RDZ employed numerous artists for painting the ceramics.
- ❖ 'UNITAS', the Twyford design of wash-out closet around 1896, had a problem of the water disappearing without touching or cleaning the whole bowl. RDZ copied this system and improved it with many of his models.
- ❖ 'The Dolphin', known as 'The king of water closets' and produced by Armitage Shanks in England in 1895, was distributed by Gamlick in Vienna.
- ❖ W.C. paper, in the form of thin brown tissue paper with printed cartoons, jokes and poems for amusement, was produced in Germany in the late 19<sup>th</sup> century for advertising purposes.

## 9.2 Ing. Peter Stieg

Founder of the Sanitarmuseum Wien

Where: Vienna

When: August 2003

Peter Stieg is a master plumber who collected sanitaryware over 30 years. He lent his private collection to the guild of plumbers in Vienna and it is now on show in the sanitary museum, Vienna, which opened in June of 2003. The following interview was conducted in German and then translated into English, with the exception of the quotations, which are left in German.

When I interviewed Peter Stieg I could sense his special interest and love for the sanitary collection in the museum. Many of his observations betray his passion for the subject:



“Das Bad ist der wichtigste Ort im Haus – neben dem W.C. – es dient nicht nur der Hygiene, es dient auch der Entspannung. Aber was ist heute? Heute gibt es nur noch Waschräume!“ (The bathroom is the most important room in the house, second only to the W.C. It is not only for hygiene; another important purpose is relaxation. And today? Today it is generally only used as a washroom!)

“Der Installateur ist auch Kosmetiker. Schauen Sie sich die Haut an, wenn Sie drei Tage nicht am Klosett waren und keinen Stuhlgang hatten.“

(The plumber is also a cosmetic therapist – look at your skin, when you are constipated and have not visited the water closet for three days.)

Questions and answers:

**Q:** I am interested in Rudolf Dittmar Znaim (trade logo RDZ) who produced sanitary articles in Znaim, which was a town in the former Austro-Hungarian Empire. What can you tell me about him? Did he ever go to England to visit ceramic factories there?

**A:** His family owned a ceramics factory. I don't think that any of the family went to England to learn of methods there, as it was a traditional family factory and members of the family lived and learnt in old Bohemia.

**Q:** What do you know of the advantages and disadvantages of RDZ's W.C.s?

**A:** One big advantage of RDZ was surely the method of underglazing. First the ceramics were fired, then painted, then glazed and fired again, which meant that the surface was very smooth. You can feel its smoothness when touching it. It was also very durable.

**Q:** Were RDZ's closets original or copies from England?

**A:** I think there were no copies of English W.C.s by RDZ, because you can spot the difference between English and RDZ W.C.s very easily; the Czech ones are flatter and heavier; also the material is a little yellow, whereas the English W.C.s are lighter and whiter.

**Q:** There were also some German companies producing W.C.s. Why were they not successful?

**A:** In Germany the main producer was Villeroy & Boch but Austrians buying W.C.s in those days were very pleased with RDZ's closets and trusted them. Therefore they did not want to buy German closets, which were new on the market. There were however imported English W.C.s as these were very high quality and were good value for money.

**Q:** How would you assess the advantages and disadvantages of wash-out and wash-down closets?

**A:** The wash-out closets were used more in Europe and the wash-down were preferred in Great Britain and the USA. Today, in Austria, hotels instal wash-down closets, because they are easier to clean, whereas hospitals prefer the wash-out W.C., because they have a raised shelf which makes it easier to examine human waste.

**Q:** When did the W.C. become part of the bathroom in Austria?

**A:** Around 1900, I think, when big bathrooms were built in large houses. But they were certainly not the norm, as the vast majority of W.C.s were separate from the bathroom.

**Q:** Of which materials are the best W.C.s and baths made?

**A:** RDZ used very good quality earthenware, which was very hard-wearing. Also in England earthenware was mostly used, and they added materials to make the product whiter and lighter, with the appearance of porcelain.

**Q:** Where are those materials from?

**A:** RDZ was founded in the Czech lands, so the materials would have originated from that area. There were many birch wood forests in the Czech Republic, the wood from which was used to heat the ovens for firing the ceramics. Birch burns consistently and lasts a long time, and was also used in the Czech glass industry. The ovens were later heated with electricity, gas and oil, which was cheaper than the wood.

**Q:** In the early days of development, what was the attitude toward the W.C.?

**A:** The rich especially liked them, because they were thought of as trendy at the beginning of the 20<sup>th</sup> century.

**Q:** When was the sewerage system installed in Austria?

**A:** The Mayor of Vienna from 1897 – 1910, Dr. Karl Lueger, had it installed during the modernisation of the city.<sup>6</sup>

**Q:** What were the differences between the W.C.s of the rich and their servants?

**A:** There were big differences, especially in the quality of the materials used. Closets used by the family of the house would have rich decoration. Sometimes the models were the same, but with the difference that, in the servant quarters, the W.C. would have no decoration and would be in plain white.

During my visit to the Sanitary Museum of Vienna Peter Stieg described some of the objects therein, and provided other interesting snippets of information:

- ❖ W.C. seats were fixed separately until about 1910, after which fixing seats to the main body of the W.C. became usual practice.
- ❖ Initially closets were chamber pots hidden in wood.
- ❖ Chamber bidets were not invented for women, as is usually thought; a more likely theory is that they were designed for the cavalry: after several hours of riding the skin on the thighs is sore and needs to be treated gently.
- ❖ W.C.s solely for children existed; one was especially designed for Otto von Habsburg, the son of the last Austrian emperor.

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<sup>6</sup>During his reign as Mayor, gas, gas lighting and trams were also introduced and municipalized in the city.

- ❖ Chamber pots for women were shaped differently; they took the form of one half a very large avocado cut lengthways.
- ❖ Closets made of cast iron with lids are no longer in use, however in trains and aeroplanes, closets are currently made from stainless steel.
- ❖ The Guild of Plumbers in Austria was founded in 1888, but the Simmering, Vienna gaswork's Geometer was not founded until 1910, installed by the Major of Vienna Dr. Karl Lueger, which brought much work for many plumbers. Because of this, many people trained as plumbers, their skills being later used for fitting W.C.s
- ❖ In the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> districts of Vienna there were many plumbers' workshops, since the richest people lived in the centre of the city, desiring and being able to afford the latest W.C.s. Most of the hospitals of the capital also required much work from the local plumbers.
- ❖ Pre-1938, 70 % of plumbers in Vienna were Jewish. This was because Jews were always interested in innovation. From about 1900, many Jews had worked as plumbers, in fact from the very beginning of the profession in Vienna.
- ❖ In the private block dwellings when there were insufficient funds for W.C.s, there were open toilets in the courtyards. Some of these have been converted into fountains and are working today.

### 9.3 Terry Woolliscroft

Curator at Twyfords Museum, Stoke-on-Trent

How: by Telephone

When: November 2003

**Q:** If you were living in 1880, but with the knowledge you have today, which model would you have most rigorously marketed?

**A:** It would be the 'Unitas'; 'The National' helped develop the 'Unitas' and shortly preceded it. 'The National' was a twin bowl and separate trap closet. Twyfords developed 'The National' into a one-piece, but it looked very odd and was not a great success. Shortly after this model came 'The Unitas'.

**Q:** Why do you think Europe, and Germany in particular, adopted the wash-out and Britain the wash-down system?

**A:** There is no doubt it was a cultural thing; the British considered the workings of the wash-down closet more discrete system and preferred this system. In mainland Europe the people preferred the wash-out system, it was far more popular, these people had a different culture, but wash-out closets today only have 10 to 15% of the market in mainland Europe.

**Q:** Would you say that the 'Unitas' brought much success to your company?

**A:** Yes, without doubt. The 'Unitas' came out in 1883 as a wash-out closet, and it really had a super design. With no valves, it was free-standing with no boxing required, and it sold for a high price. This model supplied big profit margins for Twyford, and was sold in huge amounts. With the profits of this model alone,



Twyford built his factory in 1887. 'The Deluge' followed the 'Unitas' in 1886. It was similar to its predecessor, the main difference being that it was a wash-down closet. Both were made for many years concurrently. Shortly after 'The Deluge', Twyford developed 'The Twycliff', which was a syphonic water closet; but this was not a success and did not last.

**Q:** When did the rolled edge start to appear?

**A:** This is unclear, but it started around the 1850's and was fully developed by the 1880's. It was not a channel to carry the water, but a lip to stop the water from spilling over the edge during the flush, so that greater force could be used to spread the water right around the bowl.

The closet was developing very fast in the 1880's like computers today. A computer only a few months old has already been superseded and is out of date; so it was then with the closet. The models developed in the 1880's set the style and techniques that are still with us today, for example the average height of 420mm. We are living off these designs today. As far as the closet in the 1880's is concerned it is really true to say that form followed function.

#### 9.4 Colin Elderfield

Resident plumber and consultant for antique bathrooms at Drummonds, Hindhead, Surrey, UK

Where: Hindhead, Surrey

When: July 2003

Lord Tennerfield was one of the first people to have an all-inclusive bathroom as we understand it today. It was finished in 1875, but the hot water still had to be carried to the bath. There were 20 bedrooms but only one bathroom and the

closet was located on the stairway. Hot water boilers for use in houses were not installed in any number until about 1890. They were powered by coal or wood.

By 1920 the countries of Europe had started to develop their own style in bathrooms and W.C.s, but inventions mostly came from England. The United States of America were slow to change and generally kept the English style until the early 20<sup>th</sup> century. America then began to develop its own styles, such as 'True Deco'.

The mixer tap (mono tap), invented and originally marketed in England, ironically was not a success on its home ground. The British thought of it as a fad that would pass. However it was a great success in France, and later the UK began buying mono taps back from France from about the 1980s.

W.C.s were extensively decorated until the 1920s. Materials used for baths came mainly from the colonies: copper from Australia, zinc from Africa. The tin came from Cornwall. Baths were made from cast iron, often with gold or sulphur added to allow it to flow into the moulds.

A decline in the quality of bathroom manufacture took place in the 1950's; from this time onwards bathrooms and W.C.s were fitted as standard in council houses. Then in the 1960s when people had more money, plastic was widely used for baths and fittings and the quality of things concerning bathrooms have declined ever since.

'The Burlington' was originally a trade name but was adopted as the accepted term for waste preventer cisterns at the end of the 19<sup>th</sup> century.

#### 9.5 Paul McGowan

Buyer of antique bathrooms at Walcot Reclamation Centre, Bath, England

Where: Bath

When: June 2003

British baths were longer than those of the rest of Europe. The continent had a more square and deep style and the baths would be more likely to be built into a wooden box.

The great exhibition of 1860 set in motion the one-piece bathroom, which included the W.C.

#### 9.6 Mick Warren

Head of School, Design Dept., Kingston University

Where: Surbiton, Surrey

When: July 2003

Every village had a field designed for the purpose of waste disposal. The excrement would be dumped there and, if possible, allowed to dry in the sun. Pigs would then eat it, and the population would then eat the pigs.

In the 19<sup>th</sup> century it was usual to spend £6.10s.0d., on a bath, which was about twice the average weekly wage.

John Tyler & Sons, established in 1830, made baths which were distributed very efficiently by mail order. The order was placed by post and the goods arrived almost invariably three days later. Even modern day mail order firms could be

proud of that. They sold, among other things, baths, wash bowls and dry ash and earth closets, which in those days were semi-automatic.

The best material for a closet seat was (and still is) wood. It is by far the most comfortable, although bakelite is also acceptable; but plastic and other materials are too rigid.

## Conclusion

It was my intention to identify a single clear-cut overriding factor in the history of the W.C., which would explain its rapid development in the late 19<sup>th</sup> century. However, it appears there are many reasons for the astonishingly fast development and one has to conclude that there was no single determining factor, but a combination of several different elements. The major turning points in the development of the closet, such as the move from pail to earth, to ash, and finally to water are clear, however.

The cholera epidemic of 1866 in London, when very many people died, caused more concern in the government of Britain than ever before. It provided the opportunity for the forceful Chadwick and his supporters to advocate even more strongly a "clean up of the cities". Although his miasma theory for the cause of cholera was not correct, Chadwick and his supporters nevertheless had great influence over the building of sewers in Britain. He thereby saved many lives and spared people much suffering. By the end of the century, the average life span had increased by 10 years.

The history of the W.C. of course involves many names of those who invented and produced some wonderful devices, such as Henry Moule's earth closet, which was only very slowly replaced by the W.C., concurrently with the building of the sewers. The earth closet, before the building of sewers, was generally thought of as the future, as far as closets were concerned: in the mid-19<sup>th</sup> century, few imagined the idea that they would be replaced by the water closet. The reasons for the triumph of the W.C. were, firstly, that the earth for the earth closet had to be purchased, and (secondly) had to be moved quite long distances.

This was a powerful incentive for people to switch to the W.C. In addition the idea of human waste remaining on one's property was undesirable to many, whereas with the W.C. it disappeared.

Another name, which has to be mentioned here, is that of George Jennings, who had the greatest impact on the development of the W.C. It was his skill, business acumen and inventiveness that undoubtedly helped bring an end to the stinking closets that existed prior to the wash-down and wash-out closets.

It is true that, until the 1880s, the closet's development was a slow process; however George Jennings should be credited and remembered over all others for his hard work, experimentation and inventiveness, which set the stage for this rapid development. In Victorian Britain, George Jennings undoubtedly had a lasting influence over the development of the W.C.

Britain abandoned the wash-out closet in favour of the wash-down. Why was this so? I believe it was the rapid disappearance of the waste into the water below and the avoidance of smell that was decisive. British culture contained many taboos with regard to such things as sitting on the toilet, while the noises and smells associated with this activity were a secret world. The British liked to pretend that these things were not part of their everyday life. In such delicate matters the wash-down closet clearly had the advantage over the wash-out closet.

From 1890 onward there were only small improvements to the W.C., and they were generally aesthetic. The rapid changes which the decade of the 1880s had brought, when inventors raced against the clock to be credited with the latest and best design, were never to be seen again. Never before or since the 1880s have there been more choices of types and styles of W.C.



The latest developments today, such as air-extracting toilet seats and automatic all-washing and flushing closets, are less impressive than the technology of the late 19<sup>th</sup> century. This surely was the most interesting and exciting period to be involved in the W.C., when the likes of Jennings and Twyford were competing for their share of the market.

## Epilogue

I would like to finish my dissertation with a quotation from the famous French novelist Honoré de Balzac, who wrote in "Les comptes drolatiques" ("Droll Tales"): "Il n'y a aucun bonheur plus grand qu'une bonne selle!", which can be translated as: "There is no greater pleasure than having a good shit!"

Personally, I can think of things that give me more pleasure, but perhaps Balzac was very old when he said this. Nevertheless I also think that the time spent on the closet ridding oneself of one's bodily waste is time truly well spent. The philosopher Bertrand Russell (1872 – 1970) attributed his longevity and robust health to visiting the closet twice daily.

I believe that the theme of my dissertation is therefore of universal interest, since the subject is one that concerns us all.

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## **Visits made by the researcher**

Walcot Reclamation Centre, Bath Road, Bath, England, June 2003

Drummonds Architectural Antiques Ltd., Hindhead, Surrey July 2003

The Science Museum, Exhibition Road, London July 2003

Sanitaermuseum Gumpendorferstrasse 57, Vienna, August 2003

Sanitaermuseum Traunstrasse 4, Gmunden, August 2003

## List of figures

- Figure 1 Clean & Decent (Wright, 2000), (front cover)
- Figure 2 Temples of Convenience, p. 2
- Figure 3 Sussex Privies, p. 13
- Figure 4 Das Buch vom Bad, p. 99
- Figure 5 Bogs, Baths and Basins, p. 25
- Figure 6 Britain since 1700, p. 117
- Figure 7 Britain since 1700, p. 117
- Figure 8 Bogs, Baths and Basins, p. 34
- Figure 9 Bogs, Baths and Basins, p. 39
- Figure 10 Photo by J C Ragland, Gmunden.
- Figure 11 Bogs, Baths and Basins, p. 141
- Figure 12 Photo by J C Ragland, Gmunden
- Figure 13 The Principles and practice of Modern House-Construction,  
(Andrewes et al., date unknown, probably early 20th century, p.  
393)
- Figure 14 Bogs, Baths and Basins, p. 142
- Figure 15 Drummonds, Hindhead, Surrey. Photo by J C Ragland
- Figure 16 Drummonds, Hindhead, Surrey. Photo by J C Ragland
- Figure 17 1. Mielke, Heinz-Peter, Das goldene Buch fuer alle.
- Figure 18 2. Mielke, Heinz-Peter, Das goldene Buch fuer alle.
- Figure 19 Drummonds, Hindhead, Surrey. Photo by J C Ragland
- Figure 20 Das Buch vom Bad, p. 132
- Figure 21 Drummonds, Hindhead, Surrey. Photo by J C Ragland
- Figure 22 Das Buch vom Bad, p. 135
- Figure 23 Das Buch vom Bad, p. 96
- Figure 24 Schissgruob, p. 101
- Figure 25 Photo by J C Ragland, Sanitaermuseum, Wien

- Figure 26 Unsere Baeder, (Feichtenberger, 1994, p. 13)
- Figure 27 Schissgruob, p. 67
- Figure 28 Bogs, Baths and Basins, p. 35
- Figure 29 Britain Since 1700, p. 178
- Figure 30 Schissgruob, p. 212
- Figure 31 Sanitaermuseum Gmunden, Klo & So, p.10
- Figure 32 Photo by J C Ragland Sanitaermuseum , Wien
- Figure 33 Temples of Convenience, p. 37
- Figure 34 Bogs, Baths and Basins, p.141
- Figure 35 Sussex Privies, p.50
- Figure 36 Bogs, Baths and Basins, p.137
- Figure 37 Photo by J C Ragland, Sanitaermuseum , Wien
- Figure 38 Photo by J C Ragland, Sanitaermuseum, Gmunden
- Figure 39 Photo by J C Ragland, Sanitaermuseum, Gmunden
- Figure 40 Sanitaermuseum, Gmunden, Klo and So, p. 13
- Figure 41 Photo by J C Ragland, Sanitaermuseum, Gmunden
- Figure 42 Temples of Convenience, p. 44
- Figure 43 Bogs, Baths and Basins, p. 142
- Figure 44 Temples of Convenience, The Foreword
- Figure 45 Bogs, Baths and Basins, p. 118
- Figure 46 Flushed with Pride, The Foreword
- Figure 47 Bogs, Baths and Basins, p. 130
- Figure 48 Temples of Convenience, p. 37/ Bogs, Baths and Basins, p. 132
- Figure 49 Bogs, Baths and Basins, back cover
- Figure 50 Bogs, Baths and Basins, p. 58
- Figure 51 Sanitaermuseum Gmunden, Klo & So, p. 40
- Figure 52 Das goldene Buch fuer alle, (Mielke, 1988, p. 15)



## Chronology of the water closet

The following information was primarily taken from: *Auch das W.C. hat seine Geschichte*, by Roy Palmer, "The Water Closet. A New History" (Palmer, 1977, p. 133). It was translated from German for the purposes of this dissertation. Certain additions or modifications were made to the text.

- 1589** Sir John Harington invents a plug closet with water flush, used manually
- 1592** Queen Elizabeth I is so deeply impressed by this invention that she orders such a W.C. for Richmond Palace
- 1740** From about this time, some English aristocrats begin to use W.C.s in their country houses
- 1770** Installation of W.C.s in Claremont Mansion, Surrey
- 1775** Patent issued to Alexander Cumming in London for a W.C. with a smell trap
- 1778** Joseph Bramah invents the W.C. pressure valve
- 1796** John Law improves the pan closet
- 1823** The Manchester and Salford bye-law limits the amount of water cisterns are allowed to use
- 1825** Valve closets with water flush are offered in Keely's Price Book
- 1835** First W.C.s in a tenement house in London
- 1842** The Chadwick Report on the social condition of working people appears
- 1846** Henry Doulton founds a factory for earthenware pipes
- 1846** Nearly every house in Edinburgh has a W.C
- 1847** A new Parliamentary Act about economical cisterns is passed; if too much water is used for the flushing of the W.C., people can be prosecuted
- 1847** The Englishman Thomas Maddock opens a ceramics factory in New York, as the first person exporting sanitary articles to the USA

- 1848** The Public Health Act enforces the installation of W.C.s in or near all new and renovated houses
- 1849** A cholera epidemic causes 55000 deaths in Great Britain, mainly due to drinking water infected with human waste
- 1859** James Duckett founds a factory producing salt-glazed earthenware pipes
- 1870** Steven Hellyer invents his valve toilet the 'Optimus' which became very famous
- 1870** John Randall Mann invents the first syphonic toilet. In 1872 Twyford changed from ceramics products to sanitary ceramics
- 1873** The ceramics producer and painter, Maddock, founds an earthenware factory for sanitary products in the USA
- 1875** Law passed concerning the hygiene of modern W.C.s, which is based on the Public Health Act of the same year
- 1876** Edward Humpherson founds his factory for sanitaryware articles
- 1876** Jennings is granted a patent for his double valve W.C.
- 1877** Charles Harrison is able to produce a W.C. with a trap in one piece, the first step towards producing one-piece W.C.s in porcelain
- 1877** 'The Plumber and Sanitary Houses' by Steven Hellyer is published
- 1879** Hellyer's wash-out W.C. 'Artisan' gets USA patent
- 1883** The low noise W.C. 'Sanitas', by J. Pickering Putnam, is produced
- 1883** The 'Dolphin' by Armitage/Shanks is produced, and acquires the name 'King of Closets'
- 1885** 'Unitas', the first free-standing W.C., is created by Twyford
- 1885** Croydon invents a vent for cisterns, which becomes very successful
- 1886** Portable W.C.s with cisterns, become available, but are emptied by servants

**1889** The Twyford 'Deluge' lays the foundation for the success of the wash-down W.C.

**1890** Earthenware sanitary production started by Rudolf Dittmar, Znaim

**1891** The first pedestal W.C. is produced, the originator of the shape of the modern W.C.

**1892** Production of syphonic cisterns with a facility to interrupt and stop the flush when the bowl is clean, thus saving water, is created for public W.C.s

**1894** The syphonic W.C. 'Twicliffe' is produced by Twyford

**1895** Shanks offers the first low-hanging, low noise cistern

**1900** From about this time the W.C. became a status symbol for upper class households. For servants and hotel staff cheaper W.C.s are installed

**1900** W.C.s to hang on the walls are created, and are especially used on ships

**1907** An Act of Parliament specifies that ambiguous terms for the different types of W.C.s must be more rigorously defined

**1912** Harrods of London instals luxury toilets for women, today charged at the handsome rate of £1.00 (for both men and women)

**1913** The catalogue of Dent & Hellyer, London, offers 100 pages of different designs for W.C.s

**1921** New laws are passed concerning the operation of cisterns and the amount of water that can be used. The British Standards Institute lays down the requisite measures.

**1930** Armitage produces the low-hanging water cistern combined with W.C. 'Universia' which became extremely popular