



HOPPER HEADS

AND

GARGOYLES

A SHORT HISTORY OF THE EVOLUTION
OF RAINWATER COLLECTION FROM
BUILDINGS

RAINWATER GARGOYLES versus HOPPER HEADS

There's no competition really. Any means of protecting the fabric of the buildings has evolved with time as occupants placed greater importance on the exertion/effort, materials and costs of replacing structures. Gargoyles and hopper heads have been used for centuries for this purpose and to provide in a collection system of rainwater, a device to assist the storage of same for the later re-use and irrigation.

As a Public Health Engineer, now retired, my research in the use of early rainwater collection systems and the conclusions reached has included several assumptions or calculated suspicions. Not being a Historian or Archaeologist, I have hopefully used some logic to arrive at the following statements, particularly in the earlier periods of history. Some of my logic has been gleaned from broadcasted programmes such as 'Time Team' which I can view with more regularity now and which has been very useful.



Excavated lead hopper c1720 on show at the Museum of London

I have chosen to start my story at a period around the Roman occupation of Great Britain. Prior to this during the Bronze and Iron Ages, due to the minimal population and basic forms of habitation, research has not produced recorded evidence of rainwater collection and discharge being utilised. This does not necessarily mean that the Romans were the originators of building services. I believe that earlier civilisations in other parts of the world must have also developed systems which must have included collection and uses for re-cycled rainwater.

The Romans were here for long term occupation they brought with them all their previous experiences from their vast Empire. Their structures were intended to be permanent, using stone, brick and mortar. More importantly excavations have identified buried pipes and conduits. The majority of these however can be associated with supplying heat and for the disposal of sewage. Coming from warmer climates heating was an essential requirement for the Romans in these Northern regions. Sewage disposal and latrines were also considered to be a priority to reduce the risks of disease. Roman archaeology and remains also provides evidence of major infrastructure constructed to transport water from adequate sources to their hubs of occupation by way of aqueducts and buried conduits. But I have not found any evidence of collecting locally, rainwater for recycling. I would still like to do more research in this area but my assumptions are that in the heavier populated town and city developments rainwater from roofs of dwellings and civil administration centres may have included roof channels, gutters and most likely, gargoyles to control the direction of discharges away from buildings but not for collection and re-use. However all the photographs of Roman structures which have been seen and indicated the use of gutters, appear that these are additions installed in recent times for longevity of the archaeology.

Elsewhere in rural settlements my thoughts are that they just did not bother with collection and rain-water would have discharged freely from the extended edges of roofs without the use of gutters. Covered colonnades were a common detail in larger residences and palaces, providing a dry area for travel between buildings. Archaeology has discovered ditches adjacent to some Roman buildings and even ditches to pits which could be some form of soakaway. Excavations at Fishbourne in Sussex found clay lined pits which may even indicate some form of rainwater storage.

The location of these smaller settlements were purposely chosen to be near to routes of communication and unpolluted sources of water, from either rivers, streams or wells. If required for irrigation or needed for industry, river and stream routes were diverted or intercepted wherever possible.

INTO THE DARK AGES

Following the decline of the Roman Empire, for a period, Britain continued to utilise the Roman legacies in the buildings and their remains, but gradually slipped into the Dark Ages.

Similarly, the information on gargoyles and hopper heads also disappeared into the Dark Ages and one can only presume what happened during this period. With my limited knowledge of this time, this I think was a period revolt. Revolt between clans and families all fighting for land and resources. Invasion from overseas. As I understand there is little archaeology from this period and I can only imagine that they did not incorporate very much rainwater disposal within their structures and castles, so these perished leaving no history.

I think I can recommence my history at a time during the Norman Conquest as we can see today some of the structures akin to this period. This was the age for the construction of castles. Initially constructed in wood and later in stone, there was little thought given to disposal of rainwater in these early Motte and Bailey structures. But with the later use of stone the gargoyle, which could have been as simple as slot through the walls surrounding battlements, started to be introduced into the construction.

In Norman churches there was some use for gargoyles particularly on the roofs of some square towers. Other towers had a pitched roof topping and discharged freely. Similarly the main roof over the nave also was pitched and usually discharged freely. These pitched roofs as seen today now have gutters added to protect the structures.

As the construction castles evolved and were extended into larger battlements incorporating living accommodation for residents and troops, the use of the gargoyle became more prevalent.

It was in 12th to 15th centuries and the construction of the great cathedrals and abbeys where the gargoyle was extensively utilised to drain pitched roofs and parapets. The high roofs and ornate stone structures were protected with this method of drainage.



Gargoyle from a side roof at Wells Cathedral. The gargoyle has been extended to provide more protection to the structure below



Four gargoyles discharging from one of the main towers at Wells Cathedral. Again the original gargoyles have been extended away from the structure. All four discharge onto

INTO THE AGE OF THE HOPPER HEAD

As populations increased and villages, towns and cities expanded into the middle ages, provisions for rainwater disposal from roofs was still mainly related to the larger buildings associated with the church, the realm or dwellings of the more important members of society. For the rest of the populace in the cities, towns and villages their habitats were basic. There were no sewers therefore rainwater discharged freely onto unmade streets or to wherever it could. Many dwellings had thatch roofs which have no rainwater collection and rely on the compaction of the reed or straw to prevent the ingress of water.

Hampton Court is a good example to demonstrate the development of a dwelling of importance through these early periods and beyond. It's history is well documented and Hampton has also experienced several archaeological investigations. I have tried to make contact with Oxford Archaeology who were responsible for one of the more recent digs, but without success. From the information I have gained,

cont'd over



Lewes, East Sussex. Some imagination required here. The street originally was probably unmade and some of the roof would have been

the history of the development of the drainage infrastructure is fascinating and I would like to expand on what I have already found. For the time being I must just catalogue my observations based on a visit to Hampton.

Hampton was not always the Grand Palace it is today with its restoration. Originally a manor house surrounded by countryside the property and land was acquired by The Knights Hospitallers of St John Jerusalem at the beginning of the 13th century. Nothing much happened until the 14th century when the property became very useful as accommodation, 'bed and breakfast', for the high society making official visits to nearby royal palaces. The value of the property increased over a period and after some changes in ownership Hampton was eventually occupied by Thomas Wolsey. Wolsey's elevation was rapid and Hampton developed from a manor house into a Cardinal's Palace. Henry VIII who was a good mate of Wolsey made several visits to Hampton and fell in love with the property. Not sure if any money changed hands but Henry, after some marriage guidance counselling with the Pope, acquired the Palace from the catholic Wolsey in 1528.

Parts of this original Palace known today as the 'Base Court' can be seen at Hampton.



16th century lead hopper head on extensions around the Base Court at Hampton.

The history of the hopper head can also be followed at Hampton, for as the buildings extended and developed through the ages, so did its drainage. Parts have been restored but it is hoped the original patterns have been adhered to, therefore what can be seen today there is an almost complete history.

I have inserted this link to You Tube which readers with a connection with drainage should find interesting. (http://www.youtube.com/watch?v=-FWjhx_cZPo)

The link placed by Ben Ford of Oxford Archaeology provides some historic links to the evolvement of the sewers at Hampton and to which connect the hoppers shown on the left and others later included.

When you walked to rear of the original Base Court you will see the magnificence of the William and Mary baroque extensions from the 17th century. Not a lot of external rainwater evidence, as the majority of the rainwater discharge was incorporated into the envelope of the extensions, but if you visit the south elevations very large lead hopper heads can be seen.

The development goes on and later extensions by Queen Anne, George I. George II and George III with the examples of the rainwater goods can also be seen. As previously stated an almost complete history of the hopper head.



18th century lead hopper head at Hampton Court



William III and Mary II 17th century lead hopper head at Hampton Court



Later George III lead hopper head at Hampton Court. I did wonder if this was cast iron?



An elaborate lead hopper head with stone gargoyle above on the Temple Law Courts in London. 1818 if you can work out the Roman numerals.



13th/14th century lead hopper head on church buildings at Wells Somerset



19th century cast iron addition to 13th century church in Sussex. With floral embellishments!

Cast lead was almost entirely used for the manufacture of hopper heads into the 19th century. The choice of pattern or design was almost infinite. A good lead caster could produce to order various shapes and sizes with personalised embellishments such as Coats of Arms, Crests and dates. There are many properties that have lead hopper heads with the original date of the buildings construction cast into the front of the hopper. Not all dates you see are necessarily contemporary with the building, as during the 20th century it was common on refurbishments for lead to be used to replace cast iron or other materials.

Cast iron foundries were starting to provide cheaper mass produced alternatives at the end of the 18th century. The lead manufacturers also produced standard pattern catalogues. The page included with this article is from a Cloughton Brothers Limited catalogue dated 1967. That company has now closed.

The cast iron industry could also produce very ornate designs with added embellishments and one company was Sloan and Davidson Limited of Stanningley, Leeds. A page is also included in this article but I have no date for this.