

Let There Be Light!

Or, How do You See in the Dark Age

(By: Keith R. Doms, Garth of Wessex
as posted in the Winter '99 Plague)

Man has always had some difficulty trying to get by after the sun goes down. Not being equipped with eyes that work well in low levels of light, man has continually sought better or efficient ways to combat the darkness. Until this century fire has been the dominant form of artificial lighting, only the way the flame is fed contained and maintained has varied tremendously depending on materials available, technology, and ingenuity. This paper will deal with lighting techniques used during the middle ages in Europe. You will note a strong northern European bias that does not necessarily reflect a personal bias, but rather the limited nature of relevant material on this subject that I have been able to find. Most sources that discuss life in Europe in the Middle Ages only casually mention lighting techniques of this time staying with the well worn quartet of candles, lamps, touches, and central or large fire places. Little or no elaboration is usually given. There is however a good amount of variation by region and time. I will endeavor to shed some light on the particulars of lighting devices, where they were used and when they were used. Much of this material comes from F.W. Robins' book, *The Story of the Lamp*. This book is very thorough and discusses lighting devices from around the world and through time. Being printed in 1939,

it is a little dated where the archaeological evidence is concerned. I have supplemented Robins' information with more recent archaeological finds.

There are six types of lighting devices that I will discuss here. They are; candles, torches, splinters and rush lights, lamps, lanterns, and fire baskets. Candles were made most commonly with tallow and less commonly with beeswax. Torches were made from one or more pieces of resinous woods or treated lengths of rope. Splinters, narrow splits of wood, were commonly made of Boxwood, Birch, and Pine. Rushlights were stripped and treated pieces of soft rush. Lamps were made of glass, ceramic, metal, or stone. Lamps commonly burned a variety of oils but could also house candles. Sea birds such as the Great Awk and Stormy Petrel were used around the Shetlands and Hebrides, contain much fat and were used like a lamp by simply inserting a wick of dried moss down the throat of dead specimen and lit. Which of these lamps were used, and where, obviously depended on availability of proper resources, wealth of the individual, occasion, and in some cases religious doctrine.

Of the six types of lighting devices covered here, we are most familiar with the candle. Candles were made from tallow, wax, or an unlawful combination of both. Regardless of what material was used candles were expensive and regulations were passed to control their production and use. Holmes notes that it was forbidden for most occupations except those that needed them forbade work to be done by

candlelight (Holmes 1952). Period documents and church records also describe or hint at various sizes. A chandoile was a small tallow candle and a cierge was a large wax candle (Holmes 1952). The candles that I have been able to find in manuscripts, although they vary in height, seem to be depicted very similarly, that is a long cone with an almost constant taper (see [Fig. 1](#)). Only once have I seen a depiction of candles that were half way melted.

During the Middle Ages, tallow was the most common material from which candles were made. These candles are described as being smoky and pungent (Gies 1969). The most common method of manufacture was to make a braided rush wick which was repeatedly dipped and then cooled in liquid animal fat until it reached an appropriate size. They were then hung up to harden and whiten. The rush wicks began to be replaced by braided cotton wicks in the 15th Century as these wicks burned brighter and with out sputtering. Hanawalt states that, "A pound of hard fat for candles was four times as dear as meat, and beeswax the only alternative, was a prized possession." (Hanawalt 1986). The candles could also be passed through a cylinder or ring to shape them. Candles could also be sand-cast. Sand, reportedly was sometimes added to the tallow in order to keep the heat down. Beeswax could be added make the candle less messy.

Candles of beeswax were a luxury item until this century. Beeswax candles were also made by the dipping process along with pouring molten wax down the wick to produce the long

thin candles known as tapers. Many of the beeswax candles were used in church ceremony; in fact church doctrine demanded that only wax candles be used for various occasions and places. Whether a candle was made of tallow or wax was important enough to have caused separate guilds to be established, the Waxchandlers and the Tallowchandlers, for making the different

candles. In London a Waxchandler could have his entire supply of wax and candles confiscated if he were caught adulterating wax candles with tallow. Candles are depicted in various sizes in medieval manuscripts. Because of their nature, few candles survive from earlier periods. Two of the earliest surviving candles come from Sutton Hoo, circa 625-8 AD, and Broomfield, Essex. These candles are unlike any depiction or description I am aware of (see [Fig. 1a & b](#)). Here, two hemispheres of beeswax are held in iron bowls on iron stands that fork into 3 or 4 legs. Both tallow and beeswax candles

continued to be manufactured into this century with both being eclipsed by the invention of paraffin in 1850.

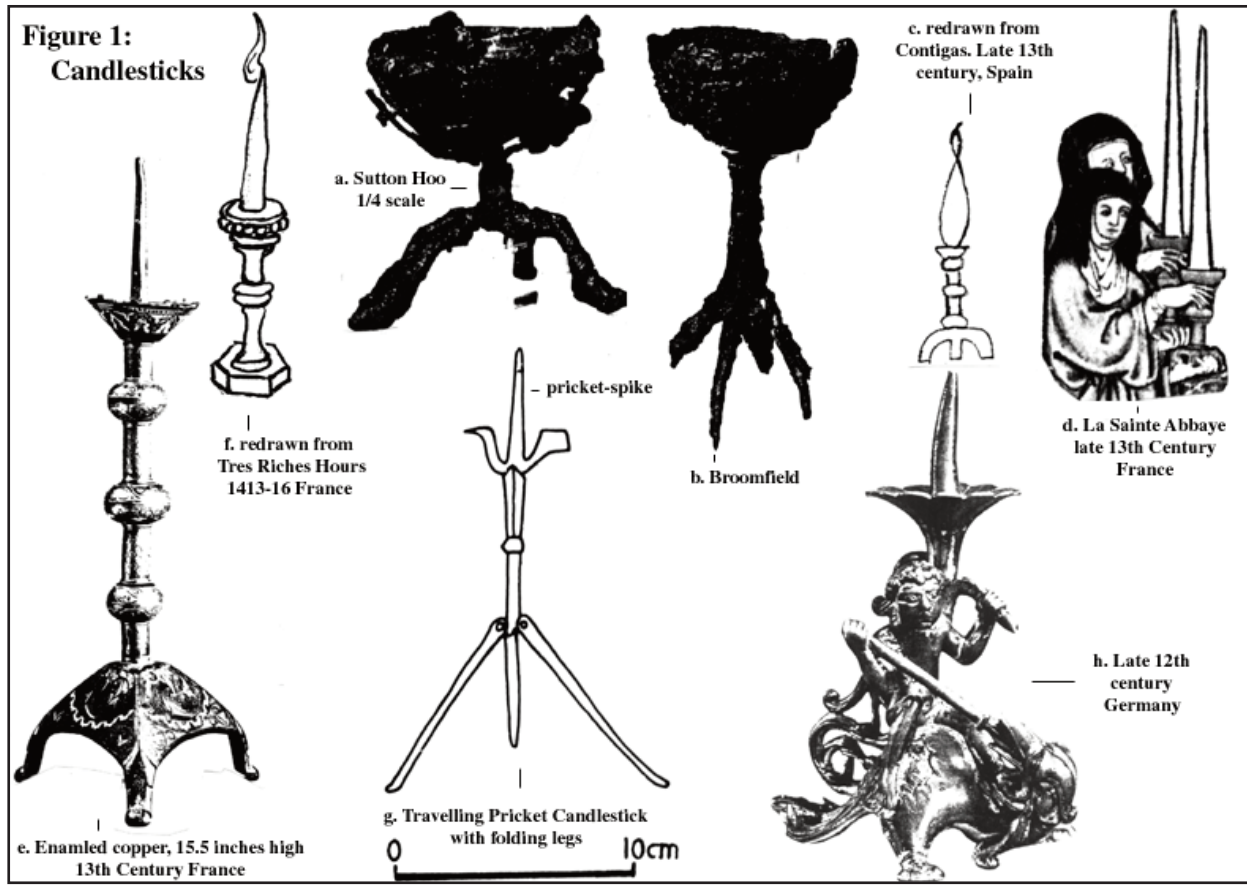
Not only did candles vary in shape and size, so also did the candlestick. Candlesticks can be

grouped into two general types; pricket, those that hold the candle in place by the means of a spike embedded in or molded to the top, and socketed, those that have a cup at the top to receive a candle of the right size. Although both pricket and socketed candlesticks were used by the Romans, socketed candlesticks seem to have been abandoned in Europe after the fall of Rome. Pricket style candlesticks

pricket and the socket type were manufactured from wood, various metals, and ceramics, The decoration on the candlesticks being determined by cost, region, and function (see [Fig 1](#)). In Tres Riches Hours (1413-16), tall candlesticks with tall candles are standing on the floor surrounding the coffin of Raymond Dioces. A French and a Spanish manuscript, both from the thirteenth century, depict

candlesticks in a similar fashion, with a flange at the top to catch dripping wax, a shaft with a central knob, and a footed base ([Fig. 1c & d](#)). These illustrations compare favorably with a 13th century candlestick in the Metropolitan Museum of Art ([Fig. 1e](#)). The Adkins (1982) show a very simple “traveling” pricked candlestick with three folding legs from England ([Fig. 1g](#)). Some candlesticks were representations of beasts such as dragons and stags with the pricket on their backs ([Fig. 1h](#)).

Many of the early socketed candlesticks had a slot or a hole in the socket to facilitate the removal of candles. Chandeliers for candles were common in churches usually consisting of an iron band, sometimes with pierced decoration, surmounted with a row of prickets.



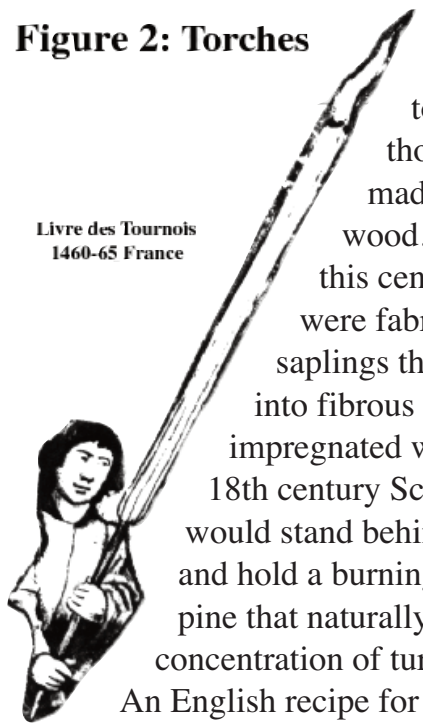
become the dominant form and flourish into the sixteenth century. They are still used in some ecclesiastical settings. Socketed candlesticks were reintroduced into Europe from the Near East during the thirteenth and fourteenth Centuries. Candlesticks of both the

By the later Middle Ages, more ornate chandeliers with multiple arms with sockets occur. Though simpler varieties also are found. A chandelier consisting of simple cross-timbers with shallow metal bowls at each terminus holding stout candles is depicted in *Livre des Tournois* (1460-65). It is apparent that candlesticks, from the few sources that are available, occur in great variety and for all occasions.

In the popular mind, the torch is the preferred form of lighting during the Middle Ages. Unfortunately this is probably far from the truth. One of the biggest problems in describing a medieval torch is that none have appeared to have survived. The few descriptions of torches that Robins discusses are either early Creek or from the 18th and early 19th century. But given the conservative nature of folk technology, these examples probably give a rather good example of what was possible in the Middle Ages. Creek torches were bundles of sticks, indubitably of a highly resinous wood. In one account from a medieval English churchwarden's account describes "A torch of rosin weighing 11 lbs.". Torches of this period are thought to be twisted wax or a course candle made of mixture of resin and wax. The earliest depiction I have found of a torch comes from a bas-relief on the tomb of Pierre de Gougis (1440) in Paris. Identical torches are drawn in *King Rene of Anjou's Livre des Tournois*, 1460-65. This depiction appears to be of several long candles grouped around a central wooden shaft ([Fig. 2](#)). A similar depiction occurs in a Flemish book

Figure 2: Torches

Livre des Tournois
1460-65 France



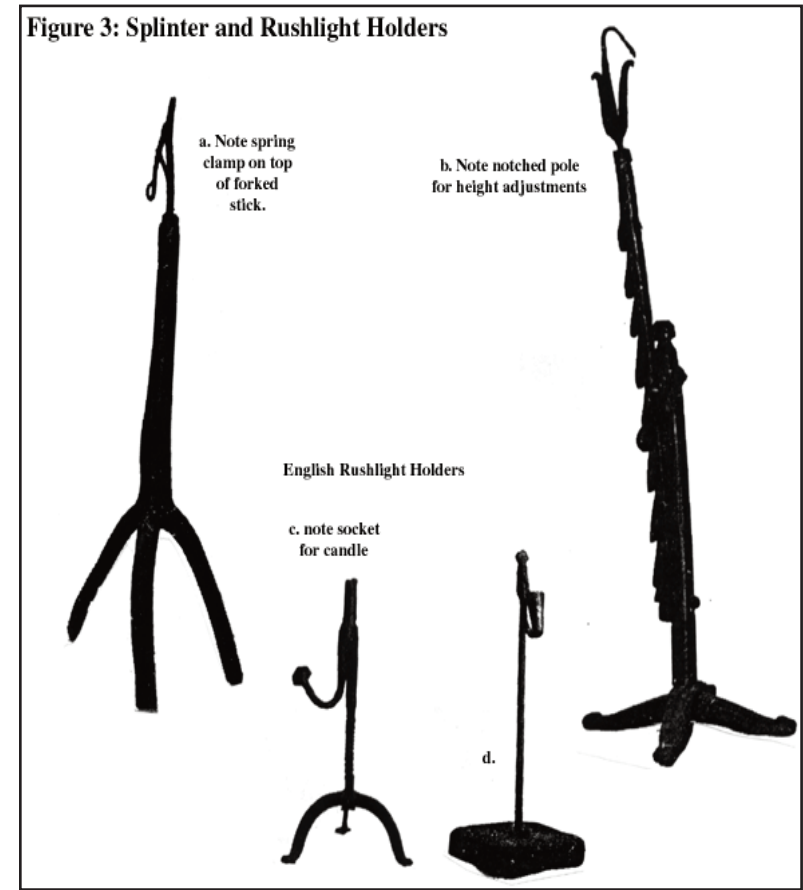
from 1515. Every day torches are thought to been made of resinous wood. In Italy until this century, torches were fabricated from saplings that were beaten into fibrous state and then impregnated with fat. In the 18th century Scotland, men would stand behind seated guests and hold a burning splinter of bog pine that naturally has a high concentration of turpentine.

An English recipe for a torch from 1935 consists of rope treated with Stockholm tar, though resin, tal low, and beeswax, alone or mixed could also be used. It is quite apparent that torches could be made in a variety of ways by using what was locally available. In England and Northern France, there was little in the way of resinous woods that were available in Scotland, Ireland, Germany, and the Mediterranean. Bass fiber rope would have been used in Europe until the introduction of hemp rope during the 13th century. I believe that a torch could easily been made by tying some complex knot like a turks head on top of a wood handle and then impregnate it tallow, resin, or wax.

Two of the earliest, most common, and

longest used forms of lighting devices in Europe were the splinter and rush light. Used into the early part of this century in rural areas, these contrivances were the common man's candle. The splinter was a thin piece of resinous wood, that could be coated with tallow, that was held between two rocks, wedged into a crux of a stick or metal spines, or held in a simple metal clamp ([Fig. 3a & b](#)) so that the burning end pointed down at an angle. A metal plate was often placed under the splinter so as to reduce the chance of fire. Splinters were in common use in Eastern Europe, Scotland, Scandinavia, and the Mediterranean. England, lacking resinous

Figure 3: Splinter and Rushlight Holders



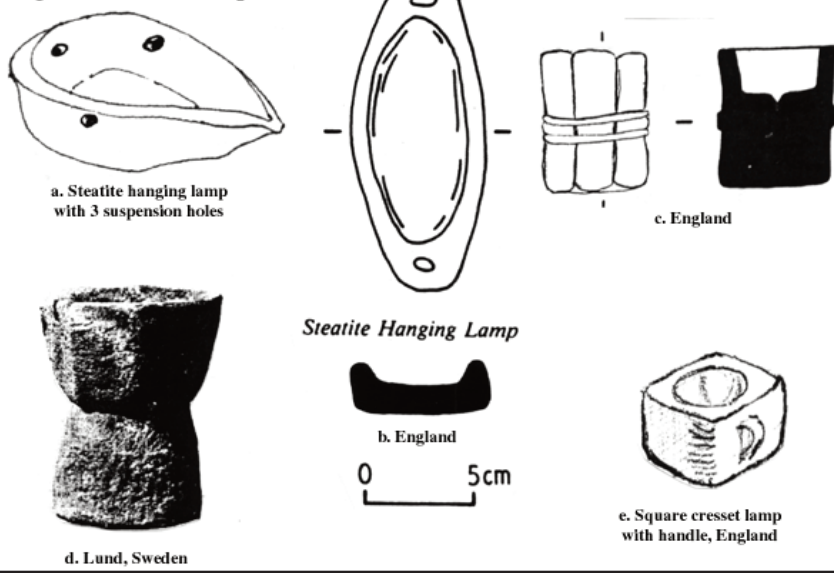
trees, developed the rushlight. Here a common soft rush is cut, soaked, stripped, dried, and then dipped in fat or grease and then dried again. As with splinters, the rush light was usually held in a small clamp or split device

(Fig. 3c & d) but unlike splinters the

rushlight was held at an upward angle and lit at the top end. Some rushlight holders are multipurpose having a candleholder attached to the arm of the clamp, To give an example of the rushlight's capability a rush two and a quarter long would burn for fifty-seven minutes. The splinter and rushlight were easy to produce which indubitably led to wide spread use among the common folk of Europe.

Lamps are probably the most varied lighting device found during the Middle Ages (Figs, 4, 5, 6). Stone, ceramic, iron, brass, silver, and glass were all used. Single or multiple lamp combinations were used. Most lamps from medieval Europe were of simple construction with an open reservoir and had either a floating, supported, or sunken wick. The fuel used depended on location, whale and fish oil along the coasts, fat or grease inland, and olive oil around the Mediterranean.

Figure 4: Stone Lamps



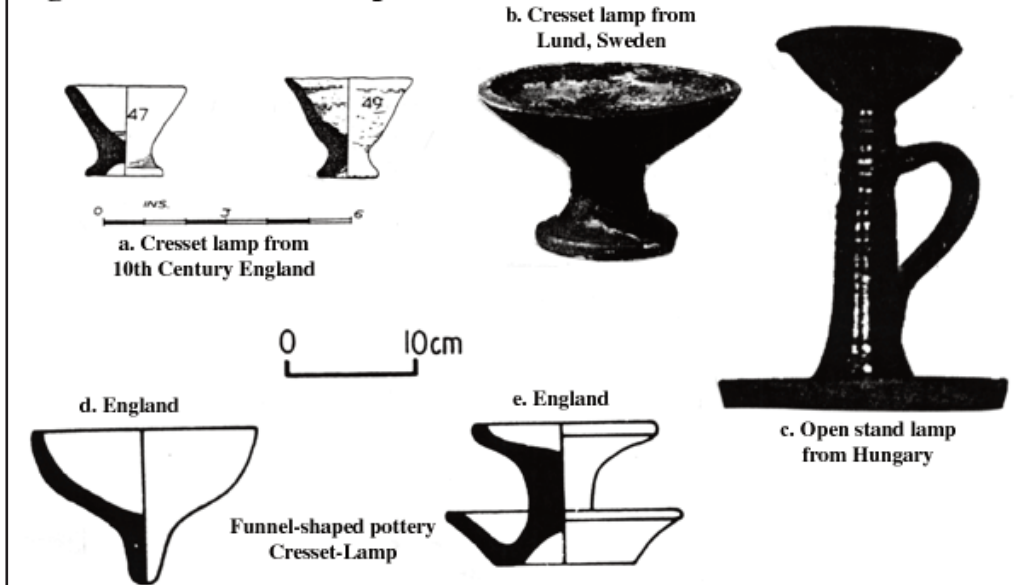
Stone lamps are indubitably the oldest form of lamp throughout Europe, dating to the Neolithic, but were steadily replaced by other lighter and more easily shaped materials.

None the less, stone lamps remained in common use in ecclesiastical establishments, rural, and northern regions. Which type of stone was used of course depended on either trade or more commonly what was locally available. The exact shape of the stone lamp is highly variable. A boat shaped lamp from the Shetlands, a shallow oval plate from Viking England, cylindrical slightly carved pedestals from Medieval England Scandinavia, and square stone blocks with anywhere from one to thirty small 1” to 3” diameter depressions recovered from various medieval churches in England,

are just some of the shapes that can occur (Fig. 4). The square stone lamps from England are known as cresset stones or lamps. Cresset means a light mounted on top of a pole, though it is quite clear that many lamps that are called cressets were not so mounted. They commonly have a small hole at the bottom of the reservoir for the placement of a post of some kind that will hold the wick. Though examples are known which have a narrow channel that runs down from the upper edge of the cresset lamp to the bottom of the reservoir for the purpose of holding a sunken wick.

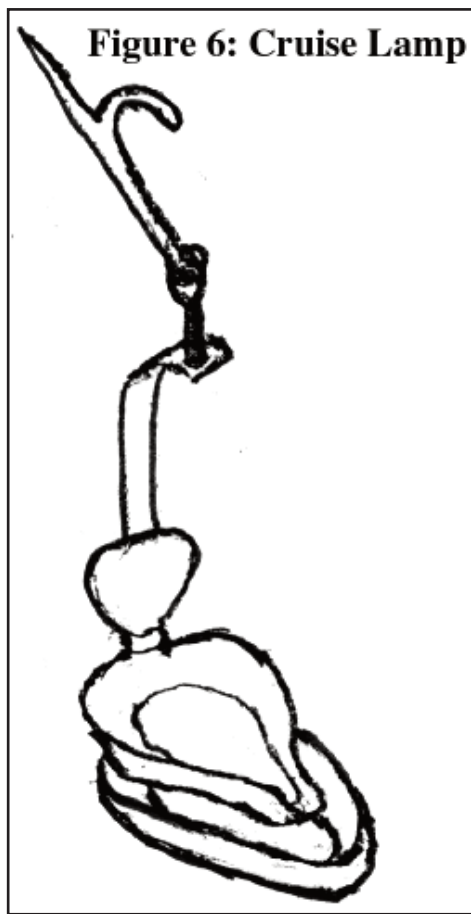
There appear to be at least four different types of ceramic lamps. From middle to late Anglo-Saxon England there are simple thrown lamps about three inches high and three inches wide at top with a tapering middle and a slightly flaring base (Fig. 5a). One example from South Hampton was determined to have fish oil residues in it. A second type, from Sweden, and

Figure 5: Ceramic Lamps



presumably other Scandinavian countries, is shaped like a footed funnel, they range around six inches in diameter at the top and four inches in height. These lamps differ from the Anglo-Saxon lamps in that their bowl is much more flared and usually have the inside of their bowls decorated with concentric lines, narrower stems, and deep indentations on the bottom of their feet so that they could be mounted on staves which in turn could be stuck in the ground or the dirt floor (Fig. 5b). These lamps do qualify as being true cresset lamps. Neither Angle or Scandinavian pottery lamps have evidence of a

support post, so they were probably utilizing a floating or a sunken wick. The third type from the Mediterranean, is a small bowl with a pinched rim giving them a simple spout. These open bowl lamps date back before the Roman Empire and were in use through the 19th century. A fourth type of clay lamp, though some examples of metal and some of wood are known, is the open stand lamp (Fig. 5c). This type of lamp consists of a small open spouted bowl surmounting a shaft that usually terminates in a dished foot. Looking very much like a candlestick, these lamps would sometimes have handles. The open stand lamp was common in both Northern and Eastern

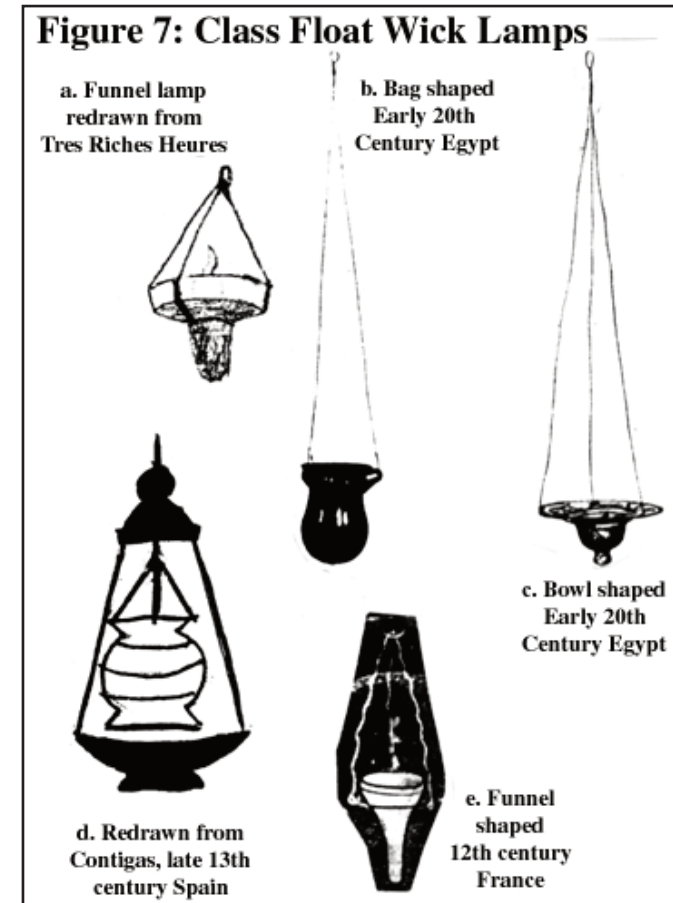


Europe. There are other forms of pottery lamps known (Fig. 5d & e), but I cannot determine how common they are or the extent of their distribution.

A variety of metals were used to make lamps in the Middle Ages. The material indubitably depended on the clientele. Unfortunately few examples survive due to the ease that some metals corrode and the recyclable nature of metal, especially more precious metals. The earliest iron lamp that I have found comes from the Oseberg boat burial (c. 800 - 50 AD) and a few Viking Age Norwegian burials. This Lamp consists of

a simple bowl with a flaring rim riveted to a twisted wrought iron stem. The bowl is about 20 cm. wide and the full height of bowl and stem is 86 cm. (Roesdahl and Wilson 1992). The most common type of metal lamp appears to be the Crusie Lamp (Fig. 6). This lamp usually consists of four parts; a back rib; a drip catching pan or bowl, this part is sometimes left off; a shallow bowl, commonly pear shaped, to hold the oil or fat; and a spiked hook which could be used to either hang or fasten the crusie to a convenient beam or wall. The reservoir of the crusie lamps were adjustable so that they could be tilted downward when the oil ran low so that the wick would not run dry.

The Crusie type lamp is found through out Europe with the exception of England, probably because of the popularity of rush lights. The open pan lamp is the other common variety of metal lamp. Here a shallow pan has its corners pinched in to form simple spouts. A square pan with four spouts is the most common while hexagonal pans with six spouts are also known. These lamps are usually suspended and have large hoods testifying to the smoky nature of the fuel used, These lamps are common in the Low Countries and commonly made of brass. Robins speculates that the bronze hanging bowls from England and Ireland may have been hanging lamps. If



so, they would certainly be the largest metal lamps known in Europe. Metal, though more durable than ceramics, was more expensive and therefore was used less commonly by the average person in the early middle ages but used more commonly as the middle ages waned.

Glass lamps apparently originate from the Middle East and defused through Europe through the auspices of the church. In fact, they appear to spread little outside the church, indubitably be cause of cost and limited skills of glass production, although some do appear in Anglo-Saxon graves. Generally these lamps have floating wicks and occur in three common shapes, funnel, bag, and bowl (Fig. 7). Looking at these glass lamps I wonder how many of those round or pointed bottomed glass drinking vessels and palm cups from the early Middle Ages might really have been lamps. Conversely some hanging lamps were apparently converted or reused for drinking as illustrated by 13th C. illumination where a man appears to be sucking the bottom of a bell shaped lamp while his companion pours what is presumed to be spirits in the top (An early form of a beer bong perhaps?) (Reeves 1995). Funnel lamps are represented in 12th, 14th, and 15th Century French manuscripts (Fig. 7d & e). An undated Medieval ceramic funnel lamp comes from England (Fig. 7d)

The Earliest description of a lantern in medieval Europe comes from Asser's Life of King Aelfred, in which King Aelfred orders that a lantern be built with thinned plates of

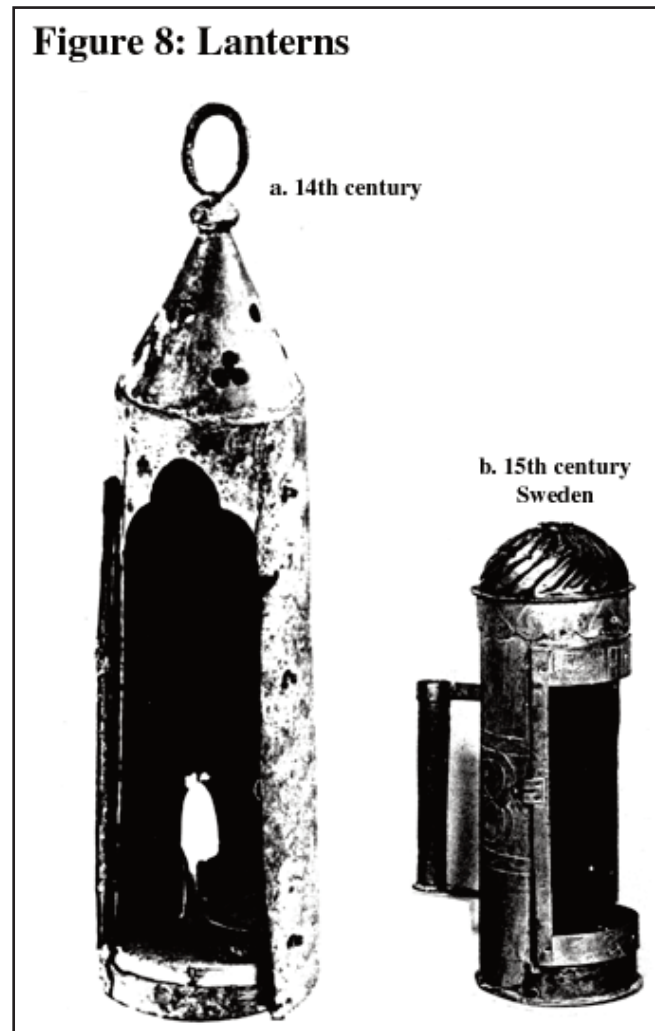
white ox horn which are transparent so that the candle that measures time burns at a constant rate and is not hampered by drafts. Lanterns were not new in Europe by this time, being previously introduced by the Romans, but remain scarce until the thirteenth century. European lanterns were built almost exclusively for candles. They tended to be cylindrical with a rectangular opening in the front that could be covered with clear horn (Fig. 8). The rest of the lantern could have decorative holes pierced in it for ventilation,

similar to the punch lanterns of the eighteenth and nineteenth centuries.

The last lighting device that I will discuss is the fire basket. This is quite simply a metal basket of metal ribs and hoops that hold pieces of burning kindling. It is usually mounted on the top of a pole with either a closed bottom portion or rocks covering the bottom so as to prevent hot coals from falling out. This device is found through out Europe and is used until the nineteenth century. Colonial Williamsburg still uses them at Christmas as part of their festival of light where they are used to light the streets. Strangely enough they call them cressets, the term used in the middle ages for small clay and stone lamps, these cressets are mounted on posts.

Lighting devices in the middle ages were much more varied than what is typically assumed or shown, lamps especially so. It would appear that man in the Middle Ages was not limited in his devices to combat the darkness though most of his responses were smoky and low power. I have briefly described torches, splinters and rush lights, lamps, lanterns, and fire baskets along with their construction and distribution. It is evident that northern Europe and the Mediterranean have little influence on each other as far as lighting techniques are concerned after the collapse of the Roman Empire, Eastern Europe seems to have more in common with Scandinavia than Northern Europe, historic trade routes and cultural affiliations probably explain this.

Figure 8: Lanterns



A Note on the Figures:

I am sorry that so many of the figures appear with out unfortunately most of the texts from which they appear gave none.

Bibliography

Adkins, Lesley and Roy The Handbook of British Archaeology, Papermack, London, 1982, pp. 160, 161, 191, 192.

Backhouse, Janet The Illuminated Manuscript, Phaidon Press Ltd., Oxford, 1979, p. 45.

Bruce-Mitford, Rupert 1972 The Sutton Hoo Ship Burial, A Hand Book, British Museum Publications Ltd., 1972, p. 65.

Burns, Robert I. "Christian-Islamic Confrontation in the West: The Thirteenth-Century Dream of Conversion", The American Historical Review, Vol.76, No. 5, The American Historical Association, Richmond, 1971 pp. 1414-1428.

Chantilly, Musee Conde, The Tres Riches Heures of Jean, Duke of Berry, The Wellfleet Press, Secaucus, 1969 p.81.

Delort, Robert Life in the Middle Ages, Greenwich House, New York, 1972 pp. 67, 278, 279.

Frazer, Margaret English Medieval Church Treasuries, The Metropolitan Museum of Art Bulletin, Winter, 1985/86, NY, p. 29.

Gies, Joseph and Frances Life in a Medieval City, Harper Colophon Books, New York, 1969 p. 37.

Graham-Campbell, James and Dafydd Kidd The Vikings, British Museum Publications Ltd.,1980 pp. 77, 134.

Hanawalt, Barbara A. The Ties that Bound: Peasant Families in Medieval England, Oxford University Press, London, 1986 p.51.

Holme, Bryan Medieval Pageant, Thames and Hudson Ltd., London, 1987 pp.83, 96.

Holmes, Urban Tigner Daily Living in the Twelfth Century, University of Wisconsin Press, 1952 pp. 86, 283.

La Fay, Howard The Vikings, National Geographic Society, Washington, 1972 pp. 86, 87.

Keynes, Simon and Michael Lapidge Alfred the Great; Asser's Life of King Alfred and Other Contemporary Sources, Penguin Books, Harmondsworth, UK, 1983 pp. 108, 109.

Pay, Sharon Hamwic: Southampton's Saxon Town, Milstone Publications, Horndean, UK, 1987 p. 19.

Rahtz, P. The Saxon and Medieval Palaces at Cheddar, B. A. R., 1979 p. 323.

Reeves, Compton Pleasures and Pastimes in Medieval England, Alan Sutton Publishing, Ltd. London, 1995 p 153.

Robins, F. W. The Story of the Lamp (and the Candle), Kingsmead Reprints, Bath, UK, 1939 pp. 6-20, 24-26, 34, 37, 43, 48, 76, 78, 87-97, 99-101.

Roesdahl, Else and Wilson David M. ed. From Viking to Crusader, Rizzoli, NY, 1992 pp. 268 - 269.

Schrader, J. L. A Medieval Bestiary, The Metropolitan Museum of Art Bulletin Vol. XLIV, No. 1, Summer, 1986 pp. 3 and 44.