A SYNOPSIS OF THE CULTURAL USE OF PERFIELDERS

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Abstract

Ancient societies routinely used devices responsive to the perfield to address utilitarian requirements such as the storage, preparation and consumption of food. Responsive devices were also used for cultural reasons such as defining personal status. A variety of devices is examined and their role in the societies identified for some.

Introduction

An indensation mechanism has been identified whereby plants directly obtain water from the atmosphere by responding to a universal energy field (Tunstall 2009 a, b). The energy field encompasses the earth and likely the universe and has therefore been termed the perfield. Devices that respond to the perfield are perfielders.

Ancient civilizations routinely used perfielders to address cultural needs, and their use can be identified in disparate locations and times. The locations include Scotland, central and southern Europe, Egypt, Asia, southern North America, and north and central South America. Major civilisations include Celtic, Egyptian, Indian, Chinese, Mayan, and Aztec.

Cultural needs historically addressed with perfielders include measurement and surveying, the storage and cooking of food, and state functions and ceremonies. The use of perfielders continues today as many are strongly traditional. However, as the reasons for their use in ancient societies are unknown the reasons for their current use are effectively unknown. While some are assigned high cultural significance that significance derives from hearsay and mythology.

This paper illustrates the use of perfielders by different cultures to demonstrate that such devices were known and used. Identifying their benefits can be straight forward for applications involving food but it is currently impossible for most devices. Identification of their cultural role is therefore usually restricted to general categories such as personal status and ceremonial. While more is known of the ancient cultural role for some artefacts it will be presented in another context.

Perfielder Design

The specific requirements for developing a response to the perfield are complex and will be addressed in a perfielder construction manual. The key design issue when evaluating responsiveness is that the requirements are highly specific, and tolerance levels can be small.

The responsiveness of artefacts can therefore usually be readily evaluated from images and, if doubt exists, be tested by constructing models.

Traditional designs that are still in use are most readily examined, as with the bamboo steamer and Chinese chopper. These have been examined to determine the implications of their response to the perfield. Models have been constructed for others, such as amphorae, to examine details of the response and the significance of different construction materials. Designs are usually specific to particular materials and changing the material usually necessitates a change of design.

Some artefacts can be reconstructed (modelled) using different structural forms. For perfielder design the basic forms are essentially 1, 2 and 3 dimensional where 1D is wire frame, 2D flat, and 3D solid. These forms cannot be simply defined as they depend on relativities rather than absolute measurements, but 1D forms are similar to stems, leaves are 2D, and trunks 3D. The form of construction is important in determining the response, and achieving a high overall response depends on appropriate connections between elements in a device.

The significance of some designs cannot be deduced without additional information. This particularly applies to simple forms such as stone spheres. While all rock spheres have the same form each has a unique response depending on the characteristics of the rock materials. The preciseness of construction and smoothness of finish also affect the form and level of response.

Food

Every civilisation depends on food for survival and continuity of supply is essential. Production from different plant species is intermittent hence continuity of supply must be addressed by harvesting different species or through storage. Both approaches are used as opportunities for achieving continuity through the use of different species are limited, particularly in cold and temperate areas having strongly seasonal climates.

Livestock provide living storage and thereby facilitate continuity in supply, but the nature of the food is restrictive. The agricultural systems of all large civilisations have therefore addressed the storage of food. This need was greatest with large concentrated populations in ‘cities’ because of the need to transport food from where it was produced. Concentrated development produces a dislocation between food production and consumption.

Modern storage is largely based on refrigeration and preserving using chemicals. While chemical preservation has long been used it was usually in association with other treatments such as drying. Modern chemical preservation typical uses high concentrations of chemical compounds having high toxicity to organic life to allow the maintenance of a high moisture content. This relates to food being sold by weight rather than nutritional value.

Drying was the main historic means of preservation. The current prominence of grains such as wheat and corn relate largely to their ease of storage arising from natural drying. This storage necessitated the construction of containers that protected food from damage by predators and pathogens, and also maintained its nutritional value.

Structures used to store grains were generally large. Most storage structures surviving as artefacts are generally small and were used for higher value foods such as oil and wine. The containers bundled food into manageable parcels to facilitate storage and transport, but they also protected against spoilage through predation and breakdown. As breakdown usually involves oxidation the best containers incorporated air tight seals.

This logical analysis is based on current perceptions of food storage requirements. It identifies many of the characteristics of artefacts used for food storage but does not identify any reason for the pointed base of amphorae and Mayan jars (Fig. 1). By current standards such shapes would not be used through being highly impractical. The impracticalities encompass their construction, storage, and cleaning, and that is likely why their use was abandoned.

The nutritional value derived from food depends on its preparation as well as the conditions of growing and storage. Cooking is effectively universal across cultures where cooking serves several purposes. Heating denatures protein and so increases the safety of the food by killing most pathogens. Moreover, the denaturation, which is associated with a phase change at around 62C, also increases the nutritional value of the food. Cooking is required to obtain most value from the available produce.

The phasic condition of food is important, and ideally all food should be maintained in an appropriate phase from harvesting through to consumption. This is straightforward with the consumption of fresh raw foods as live healthy organic materials have the appropriate phase. However, appropriately designed utensils are needed for storage, processing, cooking, and eating. The artefacts used for handling food identified here have been designed to produce and/or maintain the appropriate phase.

The considerations of food handling here are directed at ancient civilisations. Modern considerations will be addressed elsewhere in a purpose specific book.

Storage

Amphorae and Mayan jars (Fig. 1) have been designed to produce the appropriate phasing with the design of the amphora appearing to be by far the best. From the perspective of perfielder design the only commonalities are construction from fired clay, a ‘lip’ around the top opening, and pointed bases. The pointed bases are highly impractical for storage.

Only the amphora has been investigated in detail to date. Its construction would have been particularly difficult because of size, the long pointed base, the long neck, and the elongate handles. A high premium was obviously placed on the design where that could only have arisen from benefits deriving through food storage.

Tests identify that the amphora shape is particularly effective at conditioning food by developing the desired phase, and this conditioning is effectively independent of the orientation of the amphora. Characteristic features are the smoothly tapered bowl ending in a fine rounded tip, the long slightly tapered neck and its length relative to width, and the top lip. The material must have a Pmag response where this arises with many fired clays (definitely not all). Handles are not needed but where added must have an appropriate form. Example (a) in Fig. 1 is highly appropriate whereas (b) is moderately good.

The specimen vase (Fig. 1) has long been used for displaying flowers because of its practicality and the longevity of the blooms. This longevity, which can be achieved with other shaped vases, derives from the shape of the vase and the material used for its construction. The best response is likely best provided by Clect material but Amag and Pmag also provide good responses.

Preparation

Best results arise where the food is always maintained in the appropriate phase where this is promoted by the use of appropriate utensils. Organic forms such as seeds (e.g. wheat), roots

(e.g. carrots) and fruits are highly responsive when fresh and properly developed. Changing their form by segmenting or crushing changes their response to the perfield. This can be ameliorated by cutting into appropriate shapes and/or using appropriate utensils.

Part of the advantage of appropriate utensils derives from their interaction with the human body wherein the body aids in developing the appropriate response. This interaction between tools and humans has long been recognised. One manifestation is the recognition of a tool as being balanced. With apparently equivalent tools the balanced tool appears to be lighter even when both have the same weight. The 'dead weight' of a dead human body compared with a live person largely derives from the loss of response to the perfield.

The Chinese chopper (Fig. 2) has a very strong response when correctly constructed but correct construction involves many intricate details. The basics include the complex shape of the blade, a tapered tang that extends through the handle, termination of the tang using a large steel washer embedded in the base of the handle, and a correctly shaped collar between the handle and the blade. The groves in the handle are partially embellishments but should be constructed as illustrated to obtain maximum response (the handle in the photograph is new but the blade derives from China).

Knives can be constructed to produce the appropriate response but to date none have been personally developed to match the level of response of the Chinese chopper. However, conversion of a knife from non-responsive to responsive produces an obvious improvement in the functionality. One quality knife previously considered unusable became a favorite when the shape of the handle and blade were modified to make it moderately responsive. Variations in the performance of knives attributed to factors such as the steel, grinding, edge, and handle can derive from how well the overall design produces a response to the perfield.

The copper bowl is a traditional design that has been perpetuated because of advantages that are most obvious derive when preparing eggs. The example Fig. 5 has a high response despite having an attached ring handle (the bowl should not have attachments).

Cooking

The main traditional cooking devices having high responses are the wok, bamboo steamer, tagine, and traditional clay cooking pot (Fig. 2). The wok is constructed from steel and has handles attached as indicated. Modern modifications such as a long handle and a flattened base degrade the response. Lids reduce the response.

Bamboo steamers provide excellent results with a readily noticeable effect being improved retention of water by the food. The unit used for steam production should be responsive and must be appropriately linked to the steamer stack. Woks are an appropriate source of steam but have the disadvantage of collecting the drainage water. Embellishments must not be used on bamboo steamers, such as gilded metal parts.

Other steamer designs can provide good results but must have an appropriate form of construction for the materials used. Circular shapes are generally appropriate and oval shapes generally are not. The plastic unit in current personal use provides a good result but does not give the level of water retention achieved with an appropriately mounted traditional bamboo steamer.

I have no experience with either the tagine or traditional pot but each is highly responsive when appropriately constructed. Most modern tagines don't have an appropriate shape and/or appropriate finish. The one illustrated in Fig. 2 has a high response.

Traditional clay cooking pots have the form illustrated in fig. 2 but lack handles, and the base is slightly more rounded. As with leaves on a plant there can be many variations that provide good results but the shape illustrated is the best observed to date. The pot design is incompatible with the use of a lid.

Consumption

The tulip shaped chalice is for consumption what the amphora is for storage, excepting that it must be upright. The basic form is as in Fig. 3 where the relative proportions are critical. The main flexibility arises with the stem but this must maintain relativities with the base. Any material is suitable.

While the tulip is best shaped drinking vessel several other traditional designs can provide good responses. The goblet[1] and V shaped chalice are examples. However, as with the tulip shaped chalice, the specifics of the design are important with some being critical. Few examples have been observed where the design and construction provide a good response to the perfield.

Chopsticks are the most traditional of eating utensils and most forms have the appropriate response. The response can be enhanced by embellishments such as coloured designs but it can also be degraded. When correctly shaped bamboo chopsticks provide the best response.

Cultural

Celtic

The earliest responsive devices were constructed by Celts. These were widespread and Fig. 4 provides examples. The basic form can be described as a stone sphere or ball having knobs or protrusions.

The form of the knobs varies considerably, as does their number and arrangement. The main distinguishing characteristic of the two main forms is the connection between the sphere and the knob. This typically is either a step, with the base of the protrusion at right angles to the sphere, or a smooth transition.

All of these devices were responsive but the level of response depended on the stone used as well as the design and finish. Their current response would not be the same as when constructed due to weathering and other damage. Such damage changes the nature of the response and reduces its level. Most are now poorly responsive due to the level of level of damage.

The use of the devices is not clearly understood but they played a central role in the societies. Each device had a particular function but could address several requirements within this role. This particularly arises with devices having several large knobs.

Stone spheres are a later development than the Celtic stone balls having knobs, and they are much more widely distributed. They occur in disparate locations in Europe, Asia, South America and New Zealand (Fig. 4). Most are simple stone spheres but some incorporate surface designs and features such as a small hole.

[1] There appears to be no differentiation in the use of the terms chalice and goblet, either in definitions or usage.

Spheres are easier to construct than the Celtic devices, however, their large size makes them difficult to apply to some functions. Stones used for purposes addressed by Celtic devices incorporate additional structures such as a hole and were designed for use with a conjunction with a small responsive device.

The large size of the spheres provides a high response that can interact strongly with other responsive structures such as the human body. Interaction between large spheres and individual or multiple humans was used to examine the human condition and to apply treatments using tailored energy from the perfield. The response from the sphere reflects the interaction between the characteristics of the perfield at that particular location, and the characteristics of the rock and any closely adjacent responsive device such as a human.

Truth stones encompass a variety of forms but the best known is the Intihuatana Stone at Machu Picchu (Fig. 5). This has long been degraded and non functional but the basic design features can be deduced. These include the location for the person being examined and the point where the response was measured. The specific device used for measurement is unknown but it would have had a form similar to an Egyptian pendulum. The small model in Fig. 5 illustrates the form of design but without specific observational or measurement points.

Other rocks at Machu Picchu were modified to develop specific responses, as with the rock in the Round House (Fig. 5). The location of Machu Picchu was related to the suitability of the stone for constructing perfielders.

Egyptian

Status

Responsive devices were used as symbols of power in ancient Egyptian society, and status and/or position appears to have been explicitly indicated by the device. Representations of the Shepard's crook and 'flail' (Fig. 6) are specific to Pharaohs and they feature on their sarcophagi. This specificity is absolute as only Pharaohs were permitted to use such devices. The particular design and hence response of each flail was unique.

The shepherds crook is a reasonably simple design but is difficult to construct. Proportions are important but the shape of the crook is critical. The staff has an oval cross section (it is not circular).

The flail has a complex design comprising bone beads, cotton string and wooden handle. The particular arrangements and forms of connections determine the magnitude and form of the response. The response is primarily determined by the beads with the handle serving mainly to provide a connection to the human hand that allows for the correct suspension of the beads.

The shape of the top of the handle and its connection with the shaft are critically important in achieving a strong response. The response depends on having a good connection between the responsive beads device and with the flail this connection is indirect in being mediated through the handle. The handle must provide good connection without significantly interfering with the response.

For me the flail is only responsive when held in the right hand. With all depictions observed of Pharaohs with flails the flail is held in the right hand.

The spear flagpole and wooden 'tulip' (Fig. 6) are full size representations of devices occurring in hieroglyphics and as artefacts. They were constructed to investigate the responsiveness. The status indicated by these devices is unknown.

Purpose

The Ankh (Fig. 6) is one of the best known Egyptian amulets and is always represented as being associated with gods. A common representation has the Ankh being held to the nose of a mortal individual by a god. Historically the Ankh had a purpose that is now unknown. The illustration here represents the correct form of the Ankh. Most artefacts (virtually all) are variants incorporating modifications that negate its use for its specific purpose. Nowadays they are used for their aesthetic appeal in jewellery.

Egyptian artefacts encompass many forms of 'divining' pendula, and some pendula had sufficient status to be entombed along with pharaohs. One such device was associated with the tomb of Tutankhamen (Fig. 6). Some of these devices were used in locating particular modules of the perfield and hence could be used for measurement and surveying. The Tutankhamen pendulum appears to be associated with blue cubits, which are the most stable. In ancient Egypt the royal cubit was differentiated from the others.

Cubits provided a highly efficient means of locating plot boundaries where fields had been inundated by floods as they do not depend on the persistence of ground markers.

Unknown

The Dijd pillar (Fig. 7) and Wadji amulets (Fig. 8) are the most common perfielder amongst ancient Egyptian artefacts. The Wadji amulets have the typical form of pendula and were constructed from papyrus. Each has an individual response relating to specific characteristics of its form and the impressed patterns. Each device was unique and could be linked with a particular individual. Their occurrence in tombs indicates that they were associated with status.

The form of the Dijd pillar amulet reflects Chinese temples more than traditional pendula. Their response to the perfield is high. As with the Wadji amulets each has a unique response and they were prominent in tombs. The current abundance of Dijd amulets relative to Wadji amulets would arise in part through their being more resilient through being constructed from stone or wood.

Religious

Consideration of religious uses is restricted to the present as separation of religion from other aspects of society is effectively impossible with ancient civilisations. However, the designs of the devices considered derive from ancient civilisations.

The Christian and Coptic Crosses, and the Star of David, are all responsive to the perfield, as is the symbolic crescent (Fig. 9). Of these the Christian Cross is least responsive and its design is particularly sensitive to proportions. The Coptic Cross has broader design tolerances as well as a higher response. The Star of David has a strong response whether constructed in a 1D or 2D form.

The Christian and Coptic Crosses only respond strongly when upright. The Star of David and symbolic crescent have strong responses when vertical or horizontal but the specific response is orientation dependent for the Star of David.

The existence of these responsive designs does not appear to be accidental. The design of the Shepherd's crook is very specific and not a simple crook. The Crescent used by States and Churches is not a simple crescent as formed by the geometric overlap of two spheres.

The design of traditional church fonts was similar to a tulip shaped chalice. The traditional form of thurible (insensor) (Fig. 9) was highly responsive hence the pendulum motion could arise through the interaction between the thurible and the human holding it. There was no need to impart motion to the thurible by moving the arm. The embellishments incorporated in most modern thuribles make them non responsive.

The skull cap used in the Jewish and Roman Catholic religions closely resembles the calyx cap on chillies. While the separated calyx cap has a low response it helps produce a high response in the fruit and remainder of the plant by providing an appropriate connection. Damage to the cap greatly degrades the fruit.

The design of Chinese temples is highly responsive, and this also arises with many Middle Eastern churches and traditional Christian churches. The use of highly glazed tiles is common to Chinese temples and Middle Eastern churches but the latter additionally incorporates geometric designs.

Conclusions

From artefacts there is no doubt that ancient societies used devices that are responsive to the perfield, and that they expended considerable effort to do so. Responsive devices had a central role in many ancient societies even though we have little knowledge of why. There is essentially no recorded knowledge of the reasons for their use, or of how their designs arose.

It is now possible to deduce why some responsive devices were used, as with amphorae and some pendula. However, it is not possible to identify how the complex designs were developed as there is no record of any evolutionary development. Amphorae appear without any record to identify that the complexity arose from progressive development from a simple design based on improvements in performance.

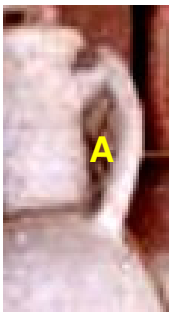
The range of responsive devices used by ancient civilisations identifies there is considerable scope for their use in understanding the functioning of those societies. It also indicates considerable potential for the use of responsive devices in ours.

Fig. 1 Ancient food storage vessels

Stone model

Amphorae

Collection from shipwreck



Forms of handles

Mayan storage jars

Specimen vase
constructed from stone

Fig. 2 Ancient food preparation and cooking utensils

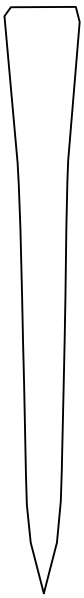


Fig. 4 Chinese chopper with a vertical section of the blade

Fig. 5 Copper bowl

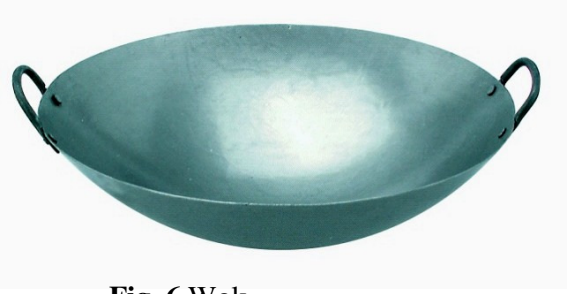


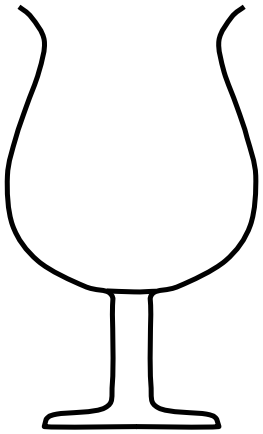
Fig. 6 Wok

Fig. 7 Tagine

Fig. 8 Traditional clay cooking pot

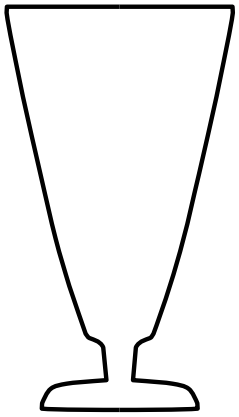
Fig. 3 Ancient drinking vessels

Stone model

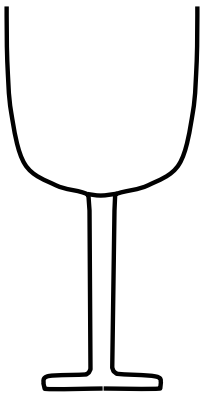


Outline of shape

Tulip shaped chalice



V Shaped chalice



Goblet

Fig. 4 Ancient ceremonial stones

Celtic

China

Europe

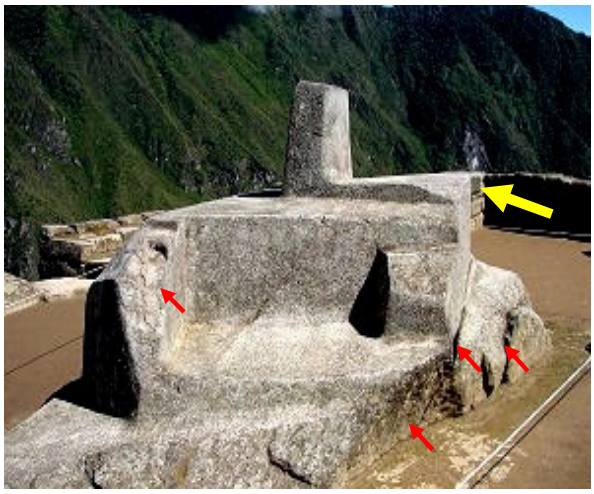
New Zealand

South America

Surface designs

With hole

Fig. 5 Ceremonial stones at Machu Picchu



Intihuatana Stone at Machu Picchu of the Aztec civilisation
Red arrows identify major damage
Yellow arrow identify the measurement point

Stone model of a responsive device similarly configured to the Intihuatana Stone

Round House at Machu Picchu containing a stone shaped into the form of a headless bull.

Flail

Fig. 6 Devices used to identify status in ancient Egypt
A Shepherds crook
B 'Spear flagpole'
C Tulip shaped staff

Ankh amulet

Pendulum from the tomb of Tutankhamen (blue) and stone model.

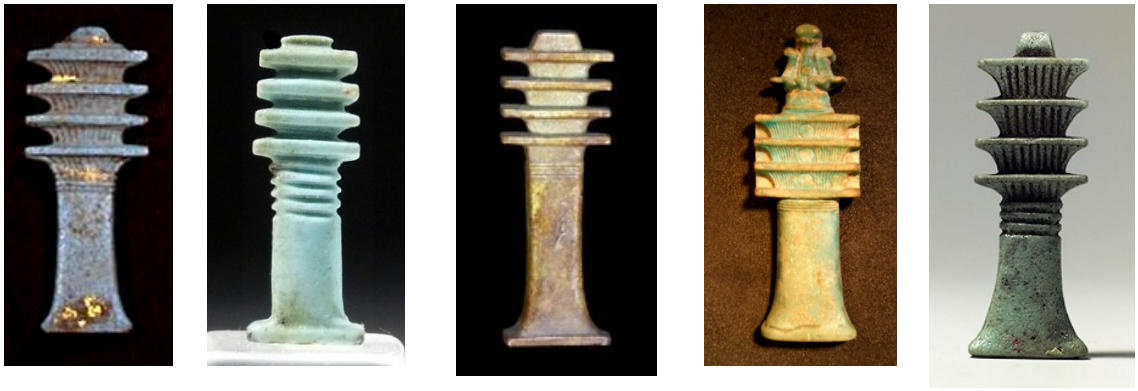
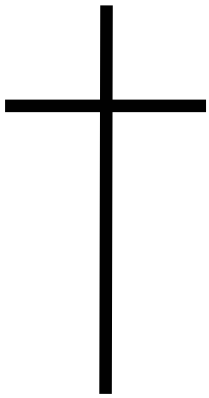


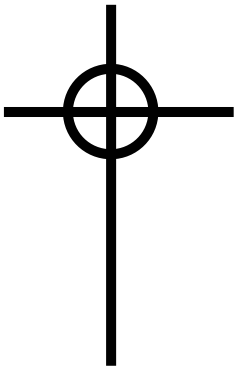
Fig. 7 Djed pillar amulets constructed from clay or wood

Fig. 8 Wadji amulet constructed from papyrus

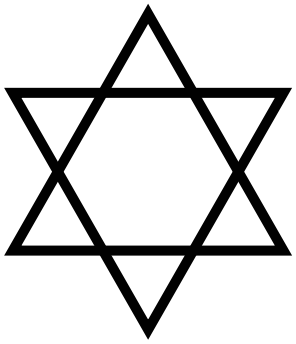
Fig. 9 Religious crosses



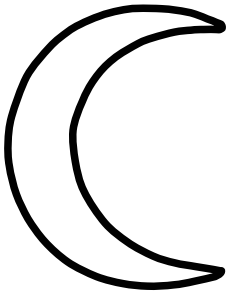
Christian Cross



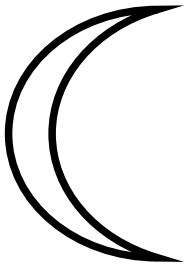
Coptic Cross



Star of David



Symbolic (responsive)



Geometric (non-responsive)

Crescents

Thurible