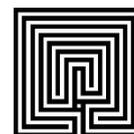


Mazes or Labyrinths...

What's the difference & what types are there?



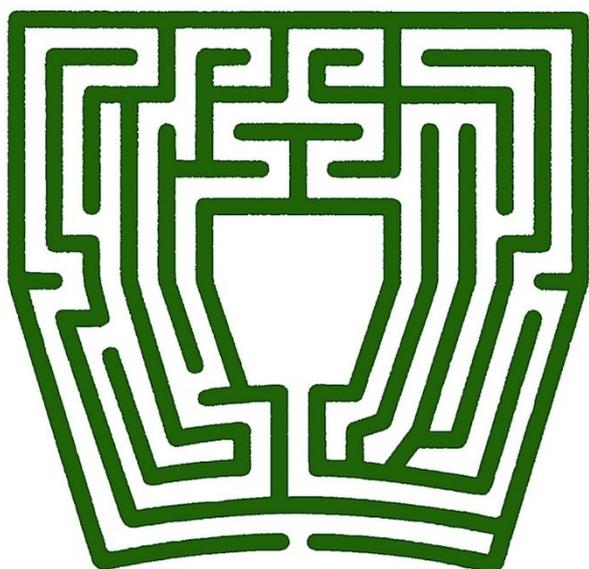
Jeff Saward

Introduction

In dealing with a subject as varied and complex as labyrinths and mazes, it is essential to make definitions that can be clearly explained. The first task is to clarify the difference between a labyrinth and a maze. While the terms are often used interchangeably, many historians and enthusiasts are passionate about which is which. Look up the words in a good dictionary and you will probably conclude that a maze is a labyrinth and a labyrinth is a maze...

However, in the English-speaking world it is often considered that to qualify as a **maze** a design must have choices in the pathway. Clearly, this multicursal category will include many of the modern installations in entertainment parks and tourist attractions, which exist solely for the purpose of perplexing visitors, as well as the traditional hedges mazes in public parks and private gardens around the world.

Popular consensus also indicates that **labyrinths** have one pathway that leads inexorably from the entrance to the goal, albeit often by the most complex and winding of routes. These unicursal designs have been known as labyrinths for thousands of years, and to qualify as a labyrinth, a design should have but one path. However, the dividing line between what constitutes a maze or a labyrinth can sometimes become blurred, as mazes with single paths and labyrinths with more than one path can exist, although their intent is usually clear from their designs and purpose.



To qualify as a maze
a design must have choices in the pathway



To qualify as a labyrinth
a design should have only one path

While this debate is easily resolved, much more discussion has surrounded attempts to establish a system of classification for different types of labyrinths and mazes. During the past century or so, various systems have been proposed to define the individual forms of labyrinths and mazes. They are often over-complicated and confusing to the general reader. The system given here is designed for clarity and relative simplicity, and is based largely on structural differences, classified according to cultural and developmental origins.

Classification of Labyrinths - The Major Categories

The earliest labyrinth symbols so far discovered are all of the same simple design - the "Classical" type - which is found worldwide and remain popular to this day. During this 4000 year history, the Classical labyrinth has developed into a number of closely related forms, often in particular geographical regions, by means of simple adjustments to the "seed pattern" that lies at the heart of its construction.

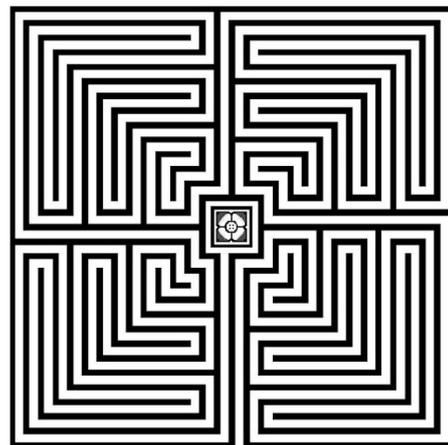
However, from time to time, major developments have taken place, resulting in quite different types of labyrinths being created, which have then themselves been further developed. This process continues to this day, indeed, since the 1980s several radically new types of labyrinth designs have been created and these will undoubtedly continue to flourish and develop in the future.

To bring some sense of order to this multitude of seemingly different labyrinth designs, I would propose that labyrinths can be classified into four major categories, although all of these have various sub-categories, which can be further sub-divided if one so wishes. These major categories can be classified as Classical, Roman, Medieval and Contemporary labyrinths:



Classical Labyrinths

Dating back to at least 2000 BCE, and found worldwide, these are by far the oldest and most widespread type of labyrinth.



Roman Labyrinths

First developed in the 2nd century BCE, they are found throughout Europe and North Africa, wherever the Romans settled.



Medieval Labyrinths

First developed in 9th/10th century Europe, they soon spread throughout Europe and have become especially popular in modern times.



Contemporary Labyrinths

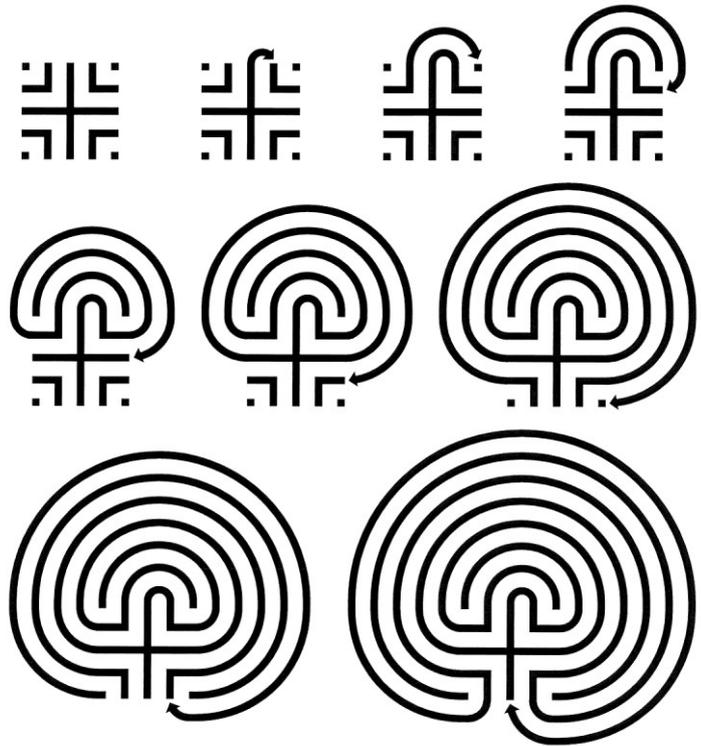
First developed in the late 20th century, this rapidly evolving group often have unusual designs, but are clearly labyrinths by intention.

The Classical Labyrinth

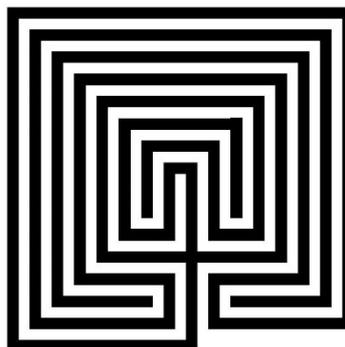
The archetypal classical labyrinth design consists of a single pathway that loops back and forth to form seven circuits, bounded by eight walls, surrounding the central goal. It is found in both circular and square forms. Practically all labyrinths prior to the first few centuries BCE are of this type. Found in historical contexts throughout Europe, North Africa, the Indian sub-continent and Indonesia, this is also the design that occurs in the American Southwest and occasionally in South America. During the current revival of labyrinths it has once again found popularity for its simplicity of construction and archetypal symbolism.

Wherever it is found, the same method of construction is commonly encountered - the so-called 'seed-pattern,' shown opposite. This simple technique for remembering the process of drawing the classical labyrinth has undoubtedly been instrumental in its widespread occurrence and popularity.

This form is also (inappropriately) known as the "Cretan" labyrinth, a term that implies an origin on the island of Crete. Although its association with the legendary Labyrinth at Knossos is well documented, the design certainly predates the legend and has not been found on Crete prior to the fourth century BCE. It is also known as the "seven-circuit labyrinth," but this too is confusing, for other labyrinth types can have seven paths and classical labyrinths may have more, or less, than seven circuits. The term "Classical" has gained widespread acceptance in recent years and is to be preferred, as it correctly implies the original form and is free from association with any particular location or region - appropriate for a design that is found worldwide.



Labyrinth petroglyph, Mogor, Galicia, Spain, c. 2000 BCE, one of the earliest known examples



Circular and square varieties of the classical design and mirror images, with the first pathway turning left or right, are common varieties



A classical labyrinth with 15 paths (16 walls), painted on the wall of Roerslev Church, Denmark

The simplicity of its construction from an easily remembered seed pattern has clearly been instrumental in the wide cultural dissemination of the classical labyrinth design. It is by far the world's most common and widespread form, and remains popular to this day. Simple amendments to the seed pattern allow different versions of this form to be created quickly and easily and such varieties, often with eleven or fifteen circuits, are common in historical contexts in Europe, especially in Scandinavia. Several important variants used in historical contexts are distinctive enough to deserve sub-categories of their own.

Classical Variants

Baltic type

Found throughout Scandinavia and also in northern Germany, but principally around the shorelines of the Baltic Sea, this labyrinth is also known as the "Baltic Wheel" or "Wheel," after an important example in Hanover, Germany. A relatively simple reconnection of the upper part of the classical seed pattern produces a double spiral at the centre with separate entrance and exit paths. These labyrinths are ideal for continuous processions and games where two or more walkers enter the labyrinth, and this purpose is often reflected in associated traditions and folklore.



*A Baltic type labyrinth cut in turf at Dransfeld, Germany (now destroyed).
The double spiral at the centre allows a quick exit from the labyrinth*

Chakra-vyuha type

An unusual development of the classical labyrinth, found primarily in India, is based on a three-fold, rather than four-fold seed pattern and is consequently drawn with a spiral at the centre. It is referred to in Indian tradition as "Chakra-vyuha," a name derived from a magical troop formation employed by the magician Drona at the battle of Kurukshetra, as recounted in the *Mahabharata* epic.



*The stone labyrinth at Baire Gauni, Tamil Nadu, India,
laid out in the Chakra-vyuha style encountered throughout India*

Man in the Maze

This distinctive variety of the classical labyrinth is found in the American Southwest, especially on the basketry, jewellery and other craftwork produced by various Native American tribes in the states of Arizona and New Mexico. First developed around 1915, it remains popular and has become a symbol of tribal identity for several communities in Arizona.



*Man in the Maze labyrinth on a basket created
by a Tohono O'odham weaver from Arizona, USA*

Other Classical Seed Patterns

Other labyrinths based on three-fold and occasionally on two-fold or five-fold seed patterns are found in various locations. A unique five-fold classical labyrinth with nine circuits recently discovered on a Pima basket from Arizona demonstrates the many varieties of labyrinth that can be created with a full understanding of the construction process. A number of labyrinths with curious designs, obviously based on the classical form, or incorrectly drawn by unskilled hands, should also be included in this category.



*A Pima basket, made c.1920, with an unusual
nine-path variant of the "Man in the Maze"
classical variant, created from a five-fold seed*

*An unusual seed pattern from India,
used for a ritual to ease the pain of childbirth*



Other Classical Seed Patterns

Labyrinths drawn with non-standard seed connections will often result in unusual designs. Occasionally these might appear to be deliberate design choices, other times simply happy accidents.



*Wall fresco,
Seljord, Norway*



*Rock-carved inscription,
Stora Anrås, Sweden*

Both labyrinths have one quadrant completed as a spiral, resulting in a curious 'entrance' to their designs

The Otrfrid Labyrinth

An important classical labyrinth variety, the Otrfrid is based on the classical seed pattern, but is drawn concentrically with an additional set of turns added to create an eleven-circuit labyrinth. Popular in Christian manuscripts from the mid-ninth century CE onwards, it probably provided the impetus for the development of the much more influential medieval design and also occurs as 17th century pebble mosaics in churches in NE Spain.



Otrfrid labyrinth design, with battle between Theseus and the Minotaur, late 12th century manuscript, Regensburg, Germany (photo: Bayerische Staatsbibliothek)

Swastika Labyrinths

An unusual and evidently ancient labyrinth variety, swastika labyrinths are seemingly unrelated to any other form, and are found throughout India, as far north as Nepal, and occasionally elsewhere in Southeast Asia. They frequently appear as a decorative element on temples, Hindu, Buddhist, Sikh and Muslim, and can also be found as graffiti. Currently under researched, they are easily overlooked, but their use in connection with various labyrinthine stories and legends in India marks them as a legitimate labyrinth variety. As with other labyrinth designs, there are various developments of the basic form, but all share common design elements.



*Temple ceiling
decoration,
Bijapur, India*

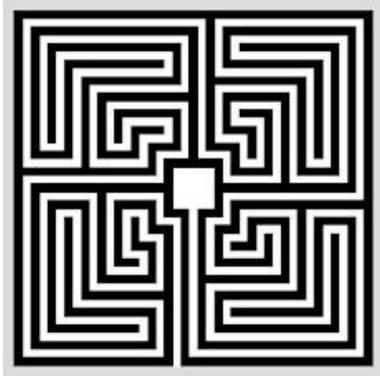
Swastika Labyrinths



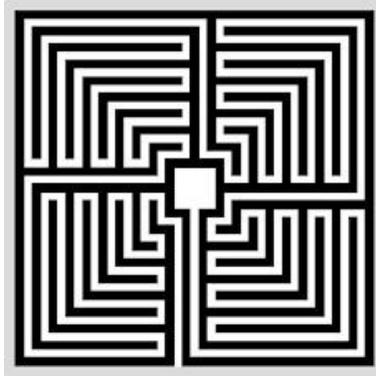
*Carved wooden
printing block,
Jaipur, India*

Roman Labyrinths

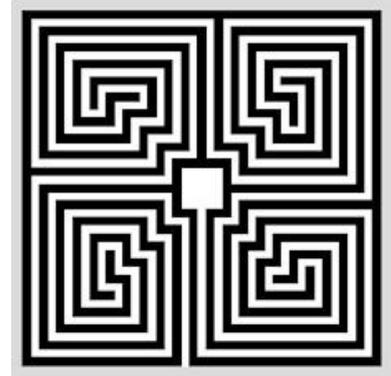
While the classical labyrinth was known throughout the Roman Empire, the popular use of the labyrinth as a design element in mosaic flooring resulted in a number of developments, all conveniently classifiable as "Roman" varieties. While rarely encountered amongst the examples created since these times, these labyrinths are of considerable interest, as they represent the first real attempts to create different forms of the genre and the first major changes to a symbol that had already been in circulation for some two thousand years. Researchers have attempted various classifications of these Roman designs, usually based on mathematical or geometrical properties, but basically the majority of the sixty or so Roman mosaic labyrinths documented or preserved can be designated as meander, serpentine, or spiral types, with just a few complex designs falling outside of this simple system.



Meander-type



Serpentine-type



Spiral-type

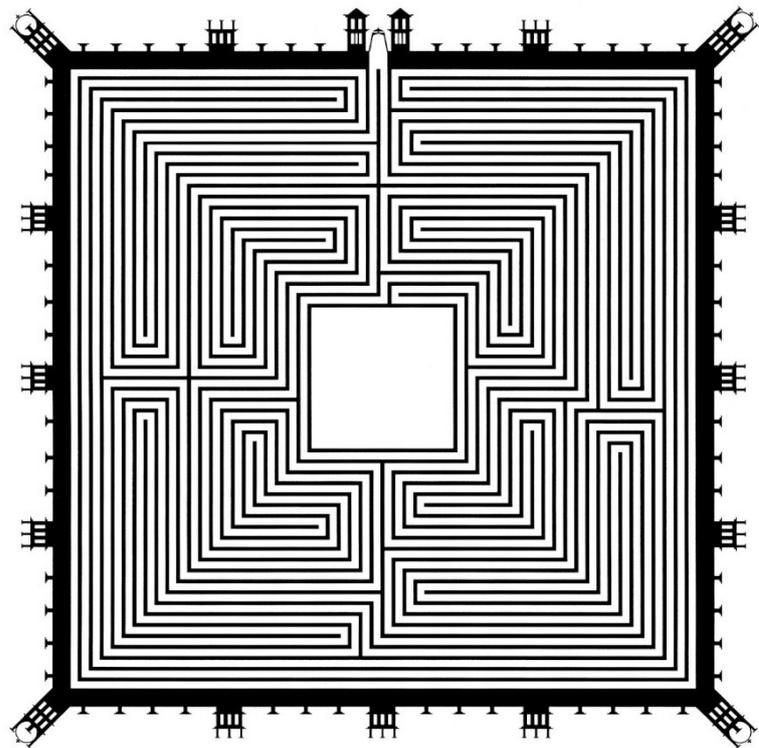
Numerous variations on these basic design types are encountered, with more or less circuits, single or multiple groups of meanders or turns, and more or less than four axis of symmetry. They were also created in a number of shapes, square and rectangular, circular, polygonal, etc., and date from the middle of the 2nd century BCE until the 4th century CE.



*A simple serpentine-type mosaic,
Paphos, Cyprus*



*A typical meander type mosaic,
Cremona, Italy*

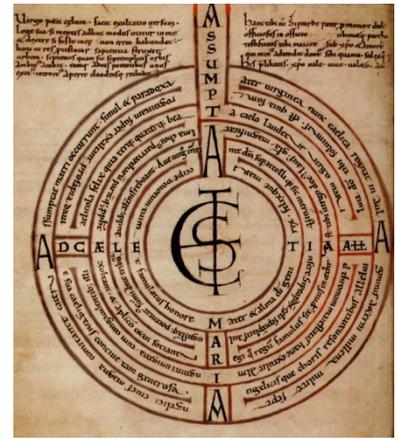


*Complex Roman mosaic design, with a continuous single path
leading to the centre, and back out by a different route, Pula, Croatia*

The Medieval Labyrinth

First developed in Christian manuscripts in Europe during the ninth and tenth centuries CE, the medieval labyrinth has obvious four-fold symmetry (also often seen in the Roman labyrinths) to produce a design far better suited for use in a Christian context. While commonly created with 11 concentric circuits surrounding the central goal, a number of early examples can be found with anywhere between 5 and 15 circuits and with slightly different path connections and arrangements.

6-circuit medieval labyrinth design, in a manuscript created at Abingdon, England, c.1030-1048 (photo: Cambridge University Library)



11-circuit form, Lucca Cathedral, Italy, late 12th or early 13th century



Different path arrangement, Sens Cathedral, France, late 12th century



5-circuit form, Compiègne, France, 17th century

By the eleventh and twelfth centuries this form became common in manuscripts and in the decoration of church walls and floors in Italy. By the early thirteenth century it had spread to France, and soon became the principle form throughout southern and western Europe. The famous use of this labyrinth at Chartres Cathedral has led many writers to term this design the "Chartres" labyrinth. For exact replicas of the labyrinth at Chartres, this term is acceptable, although inappropriate otherwise, as this design was in widespread circulation long before it was employed at Chartres. Likewise, "cathedral" and "eleven path/circuit" are names that do not accurately reflect the variety of designs and locations in which this design is encountered. Although others have used the term "Medieval Christian," "Medieval" accurately portrays the context of this labyrinth, and does not exclude those examples that appear in secular or non-Christian contexts.



An ornate form, Chartres Cathedral, France, c. 1215-1220



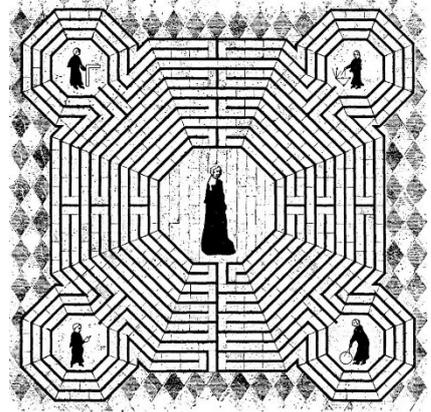
Various shape varieties: wooden lectern, Volterra, Italy, 15th century



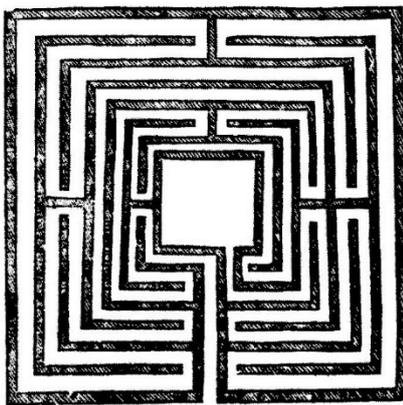
Left and right-handed versions are known: Arras, France, 13th century

Medieval Variants

As with the classical labyrinth, a considerable number of variations upon the basic theme of the medieval labyrinth have been recorded. Circular, square, and polygonal forms of the basic medieval form are common and need no separate classification. However, some examples display deliberate attempts to produce a different design - with more or fewer circuits, different methods of connecting the pathways, or alterations to fit the space available or purpose intended. Some, such as the labyrinth formerly in Reims Cathedral, France, were especially influential. With the invention of printing in late 15th century, specific labyrinth designs appearing in early architecture and gardening books were widely copied and adapted further. Other variations are clearly the result of incorrect attempts at construction or inaccurate restorations of previous designs; this is especially the case with labyrinths formed from turf or boulders, which are prone to deterioration and disturbance.



The pavement labyrinth formerly at Reims Cathedral, France, a medieval design with various changes to the circuit connections and corner bastions



This labyrinth design from Serlio's architectural design book of 1537 was used for the construction of a number of labyrinths across Europe during the 16th century



The design of the turf labyrinth at Sneinton, England shows several path connection 'errors,' resulting in a choice of paths and no central goal as such



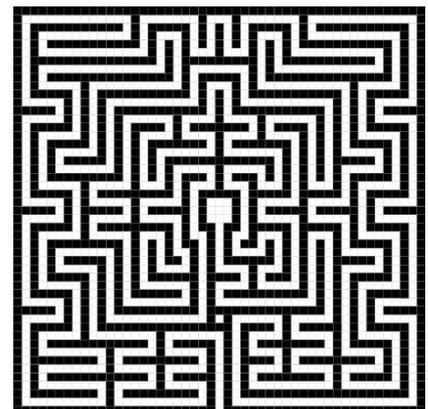
The turf labyrinth formerly at Boughton Green, England, had a medieval design with various changes to the circuits and the centre replaced by a spiral

The current revival of interest in the medieval labyrinth design, especially in America since the mid-1990s, has resulted in the development of a number of new variations. Some are based directly on the labyrinth in Chartres Cathedral, often with fewer circuits to enable them to fit in confined spaces, or to produce wider paths. A number have been given specific names by their creators, but as most of these titles exist primarily to establish copyright, they can conveniently be included in this sub-category of the medieval type.

St. Omer type

One particular medieval group probably deserves separate recognition - the St. Omer labyrinth. Although its pathway may seem to be a random meandering design, it can be demonstrated that the pattern was developed directly from the standard medieval form. The original example constructed in the fourteenth century at the Abbey of St. Bertin in St. Omer, northern France, was subsequently copied and further developed and has been employed on various occasions until recent times.

The pavement labyrinth formerly in the Abbey of St. Bertin, France



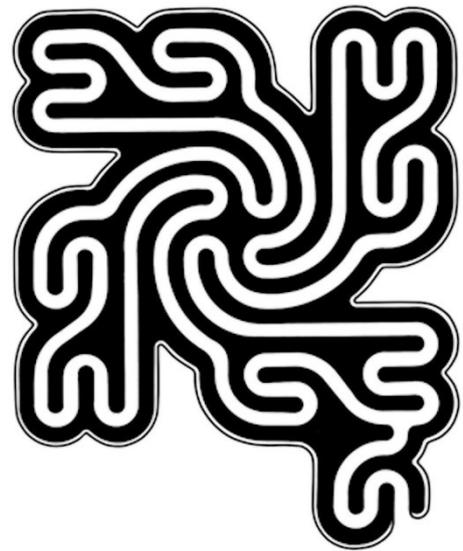
Contemporary Labyrinths

The current revival of interest in labyrinths has resulted in a number of designers and builders consciously stretching the boundaries of what constitutes a labyrinth, or deliberately seeking new forms for new purposes. Ranging from the minimalist, with just a few turns and paths to capture the essence of the labyrinth, to complex symbolic and thematic designs, they still retain a single pathway, leading sometimes to a centre, but other times around the full course of the design and back out

The "Snoopy Labyrinth," designed by Lea Goode-Harris, Charles M. Schultz Museum, Santa Rosa, California, USA



The modern stone labyrinth at Folhammar, Gotland, Sweden, is inspired by traditional forms, but consists of numerous meanders and spirals, forming one long pathway covering an extensive area



Alex Champion's "Viking Age Horse Trappings Maze," a complex swirling design with one continuous pathway

The twin path "Trojan Ride" labyrinth created by Jeff Saward at New Harmony, Indiana, USA in 2010, specifically designed to be ridden by a troop of horses



Also included here are the Reflection and Relationship labyrinths that have become popular in recent years, which despite having more than one pathway are still labyrinths by intent. Undoubtedly, some of these modern varieties may go on to be judged as important separate developments when studied in the future, but for now this proliferation of forms can best be compared and contrasted within the "Contemporary" heading.

The dual-path "Heart Labyrinth," by Marty Kermeen & Jeff Saward, has two paths leading to the centre, linking to each other to return to the entrance. While technically multicursal, it is a labyrinth by intent



Mazes

With a history stretching back to the late Middle Ages, puzzle mazes, like labyrinths, were simple at first, then underwent periods of rapid development. Developed initially from medieval labyrinth designs, the earliest mazes in the gardens and palaces of Europe were designed by rearranging the walls of a labyrinth to create a pathway with choices; often including a number of dead-ends.

While various types of mazes have been proposed and described by modern authorities, five basic types can be clearly identified, as described below. It should be noted, however, that the ingenuity of modern-day designers often results in mazes that can fit happily in more than one of these categories, and, indeed, a few that are difficult to fit into any type. A conundrum that would surely have pleased Daedalus himself!

Simply-connected Mazes

The majority of early mazes, however complex their design may appear, were essentially formed from one continuous wall with many junctions and branches. If the wall surrounding the goal of a maze is connected to the perimeter of the maze at the entrance, the maze can always be solved by keeping one hand in contact with the wall, however many detours that may involve. These 'simple' mazes are therefore correctly known as "Simply-connected."

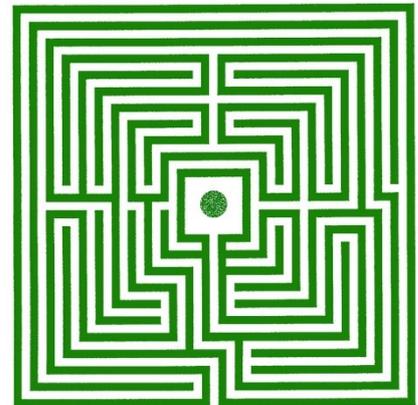
A simply connected maze design with limited choice of paths, planted at Krenkerup, Denmark, in 1877



Multiply-connected Mazes

It was not until the early nineteenth century that the principle of isolating the goal of the maze from the perimeter to defeat the "hand-on-wall" method and increase the level of difficulty was truly understood. Any maze with the goal set within an island of barriers, physically unconnected to the rest of the maze, qualifies as "Multiply-connected." The best examples contain islands within islands and, paradoxically, can be developed into very intricate mazes with very few dead-ends that are nonetheless extremely difficult to solve.

The hedge maze at Chevening House, England, c.1820, one of the first consciously designed to provide a more complex puzzle and thwart the "hand-on-wall" rule for solving mazes



Three-dimensional Mazes

Although the majority of traditional mazes with walls of hedges or other materials may appear three-dimensional, the pathway through the maze is essentially only two-dimensional. While the concept of truly three-dimensional mazes has been around since the nineteenth century, they existed only on paper until the early 1980s, with the introduction of bridges and underpasses to add complexity to the panel mazes then popular in New Zealand, Australia and Japan. Bridges are also a common addition to the huge cornfield, or maize mazes that have become popular worldwide since the mid-1990s. The introduction of the third dimension allows the islands of a multiply-connected maze to be totally isolated from each other, with the only link via a bridge. In some of these mazes, successful progress to the goal depends on reaching a series of points within the maze in the correct order.

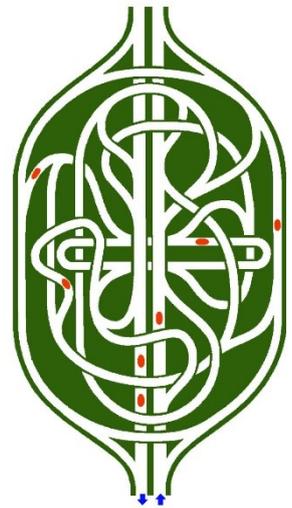
A wooden panel maze at Labyrinthia, Rodelund, Denmark. With bridges and underpasses, it is typical of the new generation of three-dimensional mazes (photo: Ole Jensen)



Conditional Movement Mazes

Long established as a theoretical concept, mazes with rules, or "Conditional Movement Mazes," have become a reality since the 1980s. The next move is dictated by the overall rules or by instructions given at the visitor's current position, allowing extremely complex puzzles to occupy a very limited space. Constructed in modern materials and not always aesthetically pleasing, these mazes offer an entertaining intellectual challenge and have proved popular in educational contexts, particularly to illustrate mathematical and scientific concepts.

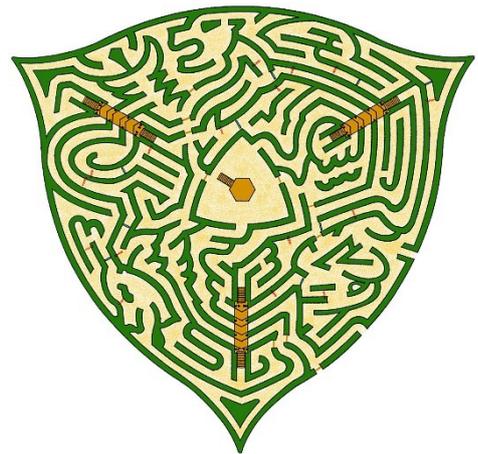
The object of Steve Ryan's "Freeway Maze" is to enter the intersection and exit on the opposite return carriageway without making any U-turns and avoiding the stalled cars (red spots) blocking a number of routes (© Steve Ryan)



Interactive Mazes

High-tech mazes where the design responds to the actions of visitors are an increasingly common feature at amusement parks and other tourist attractions. They incorporate computer-timed barriers and other innovative devices such as motion sensors and mechanisms that determine the physical characteristics of the walker. Interactive mazes first appeared in the closing years of the twentieth century and undoubtedly herald the direction of future leading-edge maze design in the twenty-first century.

A modern maze with interactive features at Drielandenpunt near Vaals in the Netherlands, designed by and © Adrian Fisher 1991



Jeff Saward, Thundersley, England; March 2017

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