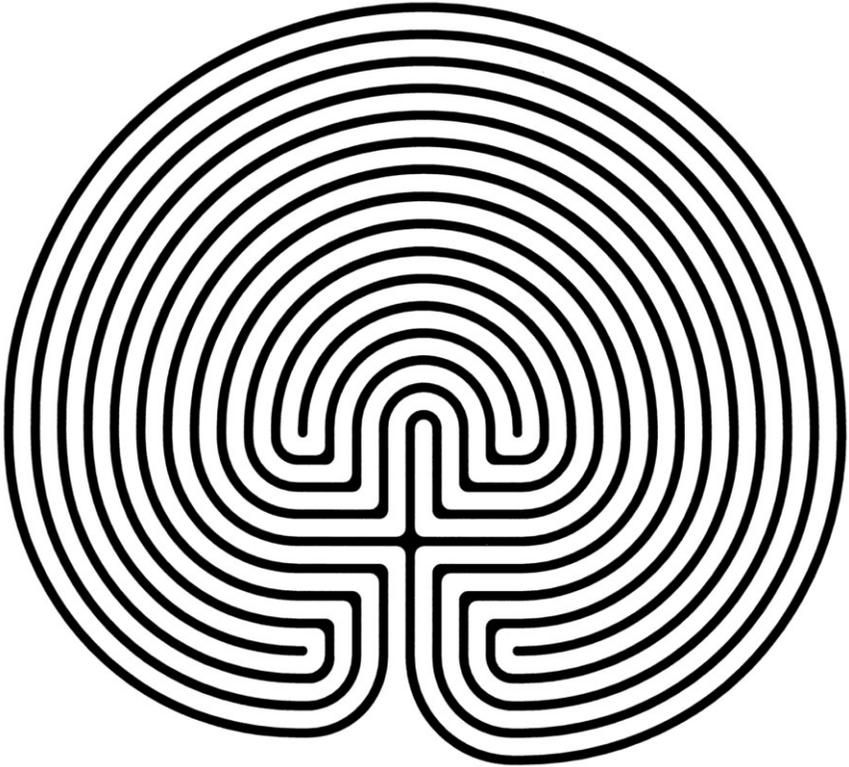


CAERDROIA

THE JOURNAL OF
MAZES & LABYRINTHS



: XXXVII :
CAERDROIA 37

CAERDROIA

The Journal of Mazes & Labyrinths



37th Edition

Established 1980
Published Annually
Produced by and
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Heart in the Park in Tonkawa, Oklahoma, USA is a seven-circuit dual path paver labyrinth built in 2007 to celebrate the state's centennial. Jeff Seward worked with stone sculptor Marty Kermeen to translate the concept of local artist Audrey Schmitz into the finished design. For more details visit www.cityoftonkawa.com

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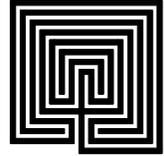
The Journal of Mazes & Labyrinths

March 2008

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Caerdroia 38 is due for publication November 2008, submissions by July 2007 please

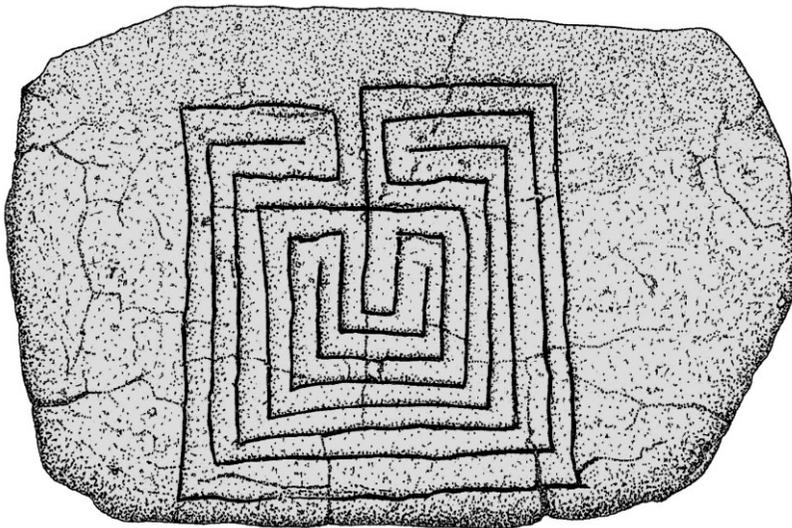


Jeff Saward, Thundersley, March 2008

Welcome to the 37th edition of Caerdroia, considerably delayed by a family emergency in early December last year, now thankfully resolved. This edition contains an article, illustrated with items from the Labyrinthos Archive, looking at early mirror and wooden panel mazes, two varieties of mazes popular in modern times. But where did these forms spring from, and when? We also have a paper on the first occurrences of the word “labyrinth” and the problems deciding what it meant at that time, and a study of the symbolism of the labyrinths placed in the medieval cathedrals of France. Several items in our regular series of mathematical analyses of labyrinth designs and the usual labyrinthine snippets and curios in our Notes & Queries section complete this edition, packed as always with information from our readers and contributors from around the world.

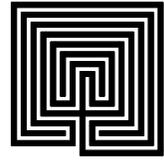
Despite the delays with this edition, Caerdroia 38 is still on schedule for publication in November 2008, and at this stage is scheduled to contain items concerning the occurrence of labyrinths in the American Southwest and news of the exciting discovery of a number of labyrinths in churches in North-eastern Spain, so far overlooked and undocumented in the labyrinth literature. However, there is still space for further material, so if you have an article you wish to submit for inclusion in the next edition, send it to me as soon as possible...

Jeff Saward - E-mail: jeff@labyrinthos.net - Website: www.labyrinthos.net



Linear B inscribed clay tablet from Pylos, Greece, with a labyrinth on its reverse. Dating to c.1200 BCE, it is the only known occurrence of the labyrinth symbol in the Minoan and Mycenaean world where the word “labyrinth” is first recorded - see page 31

The Origins of Mirror & Wooden Panel Mazes



Jeff Saward

During the current revival of popularity of mazes, which has taken place since the 1970's, two important categories of mazes, namely those constructed from mirrors and wooden fence panels, have figured prominently. Numerous examples, of both types, have been constructed at premier tourist attractions worldwide and have proved particularly popular with visitors. However, despite their apparent novelty, both of these maze forms have their commercial origins during a previous episode of enthusiasm for mazes, in this case during the late 19th century.

Mirror Mazes

The potential for large full-length mirrors to produce multiple reflections and trick the perception of those in front of them has been appreciated since they first became available during the 17th century. Indeed, even before this period, Leonardo da Vinci sketched an octagonal chamber of mirrors in which a visitor could see all sides of their body, infinitely reflected, even though the technology for creating such mirrors did not exist in Leonardo's time.¹ The famous "Galerie des Glaces" – the Hall of Mirrors – created by Louis XIV at the Palace of Versailles, France, in 1678, was not a maze as such, although a "House of Mirrors" supposedly constructed in 1651 by Peter Stuyvesant in the newly founded town of New Amsterdam (New York, USA) was probably the first built as an attraction, with an admission fee of one Dutch Guilder.²

While such "Hall of Mirrors," often creating grotesque reflections of the visitor, have long been a familiar fairground attraction, it would seem that the first formal attempt to create a specific arrangement of mirrors designed to form a maze in the strict sense, can be attributed to Gustav Casten of Berlin, Germany. He was first granted a patent for a mirror-maze in France in September 1888. This patent, subsequently also granted in Belgium in the same year, in England in 1889 and in the USA in 1895, contains both a description of the material construction and also plans of the resulting maze.³

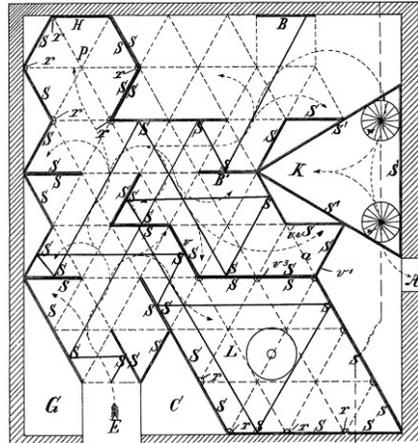
In the words of Casten's patent, "...The primary object of my invention is to provide such an arrangement of mirrors in a room or inclosure as shall cause them, by their reflection of objects suitably located with relation to the mirrors, to present to the vision of a person in the apartment the illusion of a labyrinthian device composed of seemingly endless passages, which appear to him to be freely traversable until he is stopped in his course by an obstructing mirror, from which long passages seem to extend to the right and to the left."

1 Kern, Hermann. *Through the Labyrinth*. New York & London, Prestel, 2000, p.187.

2 Pendergrast, Mark. *Mirror Mirror: A History of the Human Love Affair with Reflection*. New York; Basic Books, 2003.

3 Patented in France, September 8, 1888, No.192868; in Belgium, September 12, 1888, No.83240; in England, October 21, 1889, No.16593 and in the USA, September 3, 1895, (filed January 6, 1891) No. 545678.

The specifications that follow describe how mirrors are to be placed at precise 60-degree angles (or multiples thereof) around one or more sides of equilateral triangles that form various rhombic and hexagonal arrangements, to produce different reflective effects. Of particular interest are his suggestions that one section of the maze is to be decorated with pillars (marked 'r' on his plan of the design) to produce an effect "in imitation of the Lion Court of the Alhambra" (area L on the plan), and in another section (area P) the placing of palms and exotic plants around pillars (r) at the corners of the compartment, combined with a painted representation of the entrance to a Moorish temple placed on the back wall (H), will through



Plan of Casten's mirror maze given in the 1895 USA patent

multiple reflection give the impression of a mosque surrounded by a tropical garden. These features are found in some of the earliest photographs of mirror mazes, leading one to suppose that Casten's patented design was indeed employed in their construction. He also gave plans for an ingenious kaleidoscopic chamber appended to his maze (area K), on a raised level, with entrance and exit via spiral staircases (w). A small group of people entering this section would appear to the visitors to be "an immense crowd."

It has long been assumed that the first mirror maze to be constructed was the example created in Prague, Czech Republic, in a pavilion in the grounds of the Jubilee Exhibition held in 1891. The maze was subsequently moved to Petrin Hill in Prague, where it survives to this day housed in a curious wooden building, said to imitate part of the fortress at Vyšehrad, alongside the Petrin Tower, a small-scale version of the Eiffel Tower in Paris. The maze itself is of a very simple design, quite unlike the floor plan specified in Casten's patent, with only basic ornamentation around the mirror frames. The Petrin mirror maze has recently been extensively restored and is without doubt the oldest surviving mirror maze.



Pillars and mirrors of the Petrin mirror maze, Prague, Czech Republic

However, a photograph exists of a mirror maze labelled “The Labyrinth of Pillars” at the Palace of the Sultan in Constantinople (modern-day Istanbul, Turkey), that is dated 1889.⁴ Two years earlier than the example in Prague, and only a year after the patent was granted, this was surely modelled on Casten’s design, and indeed may be the first example actually built. The photograph, originally published on a stereo viewer card, is sufficiently detailed to show the mirrors with pillars placed at their intersections and ornate decoration, reflected many times to produce the illusions that Casten describes in his patent. Where exactly this mirror maze was installed, and how long it stood for, is currently unclear.

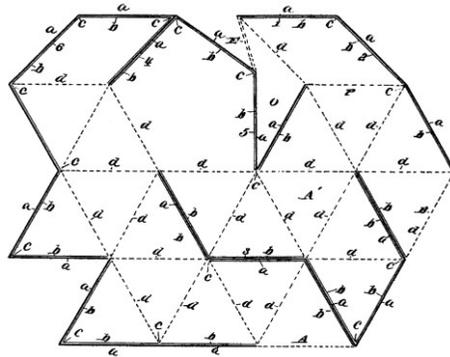
What is certain is that the idea soon spread. Another mirror maze, with almost identical pillars and ornament to the Constantinople example, appears in a photo, dated 1893, of the interior of “The Wonderful Maze,” this time constructed on Wabash Avenue in Chicago, USA,⁵ undoubtedly to coincide with the World Fair held in Chicago during that year. A “Mystic Moorish Maze” at the California Midwinter International Exposition opened in Golden Gate Park, San Francisco, on January 24th 1894, and a mirror maze and “House of Horror” opened in 1895 at Fort Edmonton Park in Alberta, Canada, may also have been of similar design. In 1896, a further impressive example constructed from 90 full-length mirrors was created for the Swiss National Exhibition in Geneva. Subsequently moved and re-installed in 1899 at the Gletschergarten (Glacier Garden) in Lucerne, Switzerland, it survives to this day in excellent condition. Described in a 1903 brochure as the “Orient-Labyrinth,”⁶ built in “Moorish style after the model of the Alhambra Palace at Granada,” it once again bears the distinctive design elements of Casten’s design, including the kaleidoscopic chamber described in his patent.



Early mirror mazes: top - Constantinople, 1889; middle - Chicago, 1893; bottom - Lucerne, 1899

4 On a stereo viewer card, photograph by George Barker, 1889, in the Labyrinthos Archive.
 5 On a stereo viewer card, photograph by George Barker, 1893, in the Labyrinthos Archive.
 6 “Orient-Labyrinth beim Gletschergarten” brochure, in the Labyrinthos Archive.

It would appear that Gustav Casten was not the only designer of mirror mazes active at this time. Although Casten was granted a patent for his design in the USA in September 1895, his application for that patent was originally filed in January 1891. In the interim, Gustav von Prittwitz Palm, who describes himself as “a subject of the Emperor of Austria-Hungary, residing in New York,” filed several patents for mirror mazes between November 1892 and September 1893, resulting in two patents being granted by the United States Patent Office in May and October of 1893.⁷ Although not dissimilar to Casten’s design, Palm utilises mirrors arranged in combinations of 45, 60 and 120 degrees to create specific effects, including the illusion of being able to see other visitors to the maze, but not yourself, in specific mirrors.



Plan of Palm’s mirror maze in his May 1893 patent

Clearly he was familiar with Casten’s earlier installations in Europe, as he refers in his May 1893 patent to installations “well-known under the name of mirror mazes” (and goes on to say) “...this invention belongs to the same class. By it new effects are obtained.” The patent gives a plan of his mirror maze and an ingenious arrangement whereby an object or “attraction” placed at a point (O) near the exit (E) can be glimpsed six times during the process of navigating the maze, apparently just ahead, but not elsewhere in the maze. His October 1893 patent also goes into great detail of construction methods and techniques for prefabricating sections of the maze for easy installation and transportation.

With an eye on a wider market than the major national exhibitions that were popular at the time, he seems to have coined the term “Crystal Maze” for his creations, as evidenced by an announcement in the *New York Times* for the opening of a maze by this name as a public attraction at 38th Street and Broadway in New York on April 19, 1893.⁸ Naming von Prittwitz Palm as the inventor, this may well have been the first maze installed by Palm, after his patents had been filed, but a few months before they were actually granted. Subsequent coverage of vandalism to four of the mirrors in the maze the following month, quotes Adolph Seeman, the manager of the maze as stating that “the mirrors here cost \$25,000 and we can’t afford to have them spoiled.”⁹ This high figure would seem to have been quoted for ‘insurance purposes,’ as another “Crystal Maze” opened on May 14, 1893, at Fairmount Park in Kansas City, Missouri, was built at a cost of \$5,000.¹⁰ Allowing for inflation over the past 115 years, that’s still the equivalent of around \$100,000 dollars today. Clearly then, as now, a mirror maze was an expensive installation!

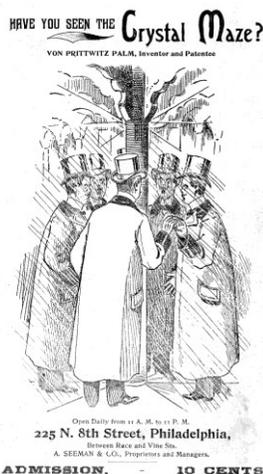
7 Patents granted by the United States Patent Office: No.498524, May 30, 1893 & No.507159, October 24, 1893.

8 “A New Entertainment – Something about the new Crystal Maze that is to astonish us” *New York Times*, April 16, 1893, p.13.

9 “Scratches on the Mirrors” *New York Times*, May 13, 1893, p.9.

10 Ulichne, John M. & Debra Topi. *The Illustrated History of Fairmount Park* – online at www.oldfairmountpark.com/1893.html

A handbill for a “Crystal Maze” in Philadelphia, USA, once again proclaims “Von Prittwitz Palm, Inventor and Patentee”¹¹. Unfortunately undated, but presumably from the mid to late 1890’s, it gives numerous details of the maze - it occupied a space 20 x 60 feet, had 150 feet of actual passageways, 31 mirrors, 35 pillars and 18 electric lights to illuminate it. It also describes the maze as an “entirely new and popular amusement, being open every afternoon as well as each evening, has speedily become a favorite diversion for Ladies and Children (who can visit the Crystal Maze without escort).” Apparently “a visit to Philadelphia is not complete without having seen the Crystal Maze” and for an admission fee of 10 cents, surely plenty did visit this wonderfully marketed attraction, and others that bear his hallmark.



Crystal Maze handbill

Indeed, the success of Palm’s Crystal Mazes can be judged by the numerous examples that appear in early postcards, produced between c.1900 and the time of the First World War, especially at fairgrounds, coastal resorts and other attractions, in the USA, Canada and in Britain.¹² Unfortunately these photographs normally just show the frontage, not the interiors of the mazes. They were often built alongside roller coasters, water chutes, photograph booths and other sideshows, and were presumably constructed under licence from Palm’s design, to judge from the similarity of size and consistency of being named “Crystal Maze” - possibly one of the first examples of successful maze-marketing - although one might imagine that a healthy rivalry still existed between Casten and Palm, as an example named the “Egyptian Labyrinth” built at Brandywine Springs, Wilmington, Delaware in 1903 and the “Mystic Moorish Maze” at Rocky Point, Rhode Island, on a postcard from c.1908, hint at Casten as the designer, in light of his patent specifications.

Ladies stroll past the “Mystic Moorish Maze” at Rocky Point, Rhode Island, USA, on a postcard from c.1908

Above the entrance is a sign that promises “Many Merry Moments”



11 “Have You Seen the Crystal Maze?” handbill in the Labyrinthos Archive.

12 Examples in the Labyrinthos Archive include postcards of “Crystal Mazes” at Canobie Lake Park, Salem, New Hampshire (opened 1902) and Asbury Park, New Jersey (c.1900), in the USA; Dominion Park, Montreal (c.1907) in Canada and at the Bradford Exhibition (1904) and on Skegness Seafrost (c.1907) in England.

Undoubtedly there may have been other designers and builders of mirror mazes working during this time, whose details still lie buried in archived documents from the events and attractions concerned, and some mazes that simply plundered their ideas, regardless of the patents.

Mirror mazes continued to be popular between the World Wars, and indeed after, especially at World Fairs, exhibitions and tourist attractions and simple versions installed on trailers were a common feature at travelling funfairs both in the USA and Europe. In recent years they have undergone something of a renaissance, with the splendid examples created by Adrian Fisher pushing the boundaries of the effects can be created by combining mirrors with modern technology.¹³ Indeed, a number of other builders of mirror mazes are once again actively in competition, especially in the USA, a situation reflecting the time just over a century ago when this art form was first developed.

Wooden Panel Mazes

While it might be assumed that wooden panel mazes, also known as fence mazes or simply as panel mazes, are very much a modern invention, having sprung to widespread popular attention in the 1980's, the reality is that their origin lies much further back in time.

A tantalising reference to a labyrinthine structure “containing recess within recess, room within room, turning within turning,” built by Louis of Bourbourg in c.1195 at Ardres in Flanders “*with a skill in woodwork little different from that of Daedalus,*” was presumably constructed of fencing or trellis-work.¹⁴ Likewise, a record of repairs to a *maison dédalus* at Hesdin, France, in 1338, and several similarly named structures from mid-14th century France give no direct clues to the materials or designs employed, but hint at labyrinths constructed from wood in some fashion.

The recent popularity of mazes formed from either timber panelling or pre-fabricated fence panels slotted between concrete pillars, can rightly be traced to the pioneering construction of a panel maze at Wanaka in New Zealand by Stuart Landsborough in 1973.¹⁵ Wooden panel mazes, based on Landsborough's design concept became extraordinarily popular in Japan during the mid-1980's, and the concept soon spread worldwide with examples built elsewhere in New Zealand and Australia, the USA and Europe. Various examples survive from this initial period of popularity, including the now-historic example at Wanaka, and they continue to be built to this day as stand-alone features, at funfairs and other attractions. Rapidly constructed, they can be opened to the public on completion to get a speedy return on investment costs, unlike traditional hedge mazes that need to grow for some years before the public can be admitted.

However, as with mirror mazes, there were also a number of mazes constructed during the 1890's and early 1900's that employed timber construction and a certain amount of pre-fabrication, likewise usually built at exhibition grounds, funfairs and seaside resorts in both the USA and Europe. As with the mirror mazes, there were several patents granted for their designs and construction, and fortunately a few photographs of the resulting mazes preserved on early postcards to provide us with evidence of their existence.

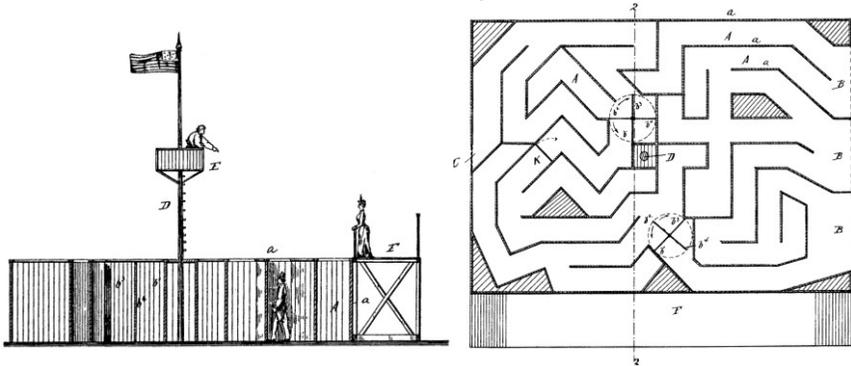
13 Fisher, Adrian. “The Renaissance of Mirror Mazes” *Caerdroia* 37 (2008), p.13-16.

14 Penelope Reed Doob, *The Idea of the Labyrinth from Classical Antiquity through the Middle Ages* Ithaca & London: Cornell University Press, 1990, p.106-107.

15 Landsborough, Stuart. “The Great Maze at Wanaka” *Caerdroia* 25 (1992), pp.14-16.

Two early patents for wooden panel mazes are of particular note. The first, granted to Ferdinand Guth, another subject of Austria-Hungary resident in New York, in May 1893,¹⁶ describes and illustrates a rectangular “labyrinth which affords great amusement and numerous novel complications... constructed with a series of walls forming passages and a number of entrances and one outlet and a series of doors arranged in said passage so as to deceive the person attempting to leave the labyrinth.” The specifications call for the walls of the passages to be constructed from timber planks five to six feet high, and the design incorporates a door that only opens in one direction (K) and two revolving doors that give the appearance of blocked passages when in their closed positions (b). A viewing platform above the three entrances and a pole with a watch-tower at the centre complete the remarkable construction. Despite the ingenuity of the design, to date, a maze of this design actually being built has not been recorded.

Side and plan view of a wooden maze given in Guth’s 1893 patent

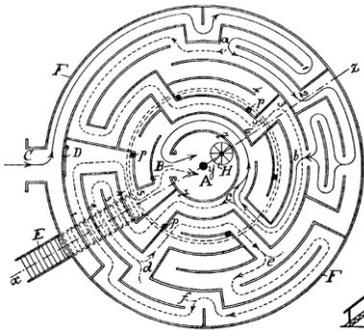


The second patent of interest, issued in Switzerland in January 1896, although presumably also patented elsewhere in Europe around the same time, was granted to the Naamlooze Vennootschap Doolhof-Maatschappij (roughly translated as “The Labyrinth Company”), a limited company based in Amsterdam in the Netherlands.¹⁷ Shares issued by the company in Amsterdam in November 1893 suggest they had already been active for a few years before the Swiss patent was granted, but their product, detailed and illustrated in the patent, is of considerable interest.

The maze design itself draws heavily on the Dutch origins of the company. Its circular form is essentially the same as the hedge maze at Paterswolde, and therefore similar to a number of other hedge mazes in the Netherlands, all of which are based on design of Hampton Court hedge maze, popular in both the British Isles and the Netherlands, as well as elsewhere worldwide since the late 17th century onwards. The construction of the maze from wooden fencing planks, arranged in a series of concentric circles, with a viewing pavilion raised on pillars at the centre reached by a spiral staircase, and with a raised walkway and stairs to provide an exit, is both dramatic and advanced for its time. However, unlike Guth’s patent, it would appear that the capital raised by the Doolhof-Maatschappij allowed them to put their design into production.

16 Patent granted by the United States Patent Office: No.496604, May 2, 1893.

17 Patent granted by the Swiss Patent Office: No.11757, January 21, 1896.



*Plan and side view of the
Doolhof-Maatschappij 1896 patent*



*The "House of Trouble" wooden
maze at Old Orchard Beach,
Maine, USA, c.1902*



*Detail from a 1904 postcard of the
seafront at Roker, NE England,
showing the "House of Many
Troubles" wooden maze*



*The "House of Many Troubles"
wooden maze at Wolverhampton
Art & Industrial Exhibition, 1902*

Once again, postcards from the early 1900's provide tangible evidence of wooden mazes probably built by the Doolhof-Maatschappij, or to their licensed design. To date, four examples have been found, at Wolverhampton and Roker in England, in the Saturno Parque in Barcelona, Spain and another at Old Orchard Beach in Maine, USA. All are essentially of very similar design and three are called "House of Trouble" or "House of Many Troubles"-possibly a trade name for the product. The construction details shown in these early photographs suggests that they may have been partly pre-fabricated and supplied in 'kit-form,' especially the central pavilions and the fence sections forming the walls of the maze.

Although relatively inexpensive and essentially quick and easy to build, their maintenance must have entailed fairly high upkeep costs. Unlike the mirror mazes from the same period, none of these early wooden fence mazes have survived; indeed the example at Wolverhampton was only in place for duration of the Art & Industrial Exhibition during the summer of 1902. Their presence at the seaside attractions of Old Orchard Beach (c.1902?) and Roker (1904), and at the fairground of the Saturno Park (c.1910?), suggests that information on more examples might be found in archival trade directories and publicity literature of the period.



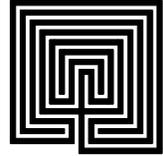
Wooden maze, Saturno Parque, Barcelona, Spain, c.1910

While the popularity of these early wooden mazes appears not to have extended much beyond the first decade of the 20th century, they were clearly the forerunners of the familiar modern wooden fence and panel mazes by the best part of 75 years.

Jeff Saward. Thundersley, Essex, England; February 2008

A revised and updated version of this article is also available on the Labyrinthos website
www.labyrinthos.net/mirrormazes.html

The Renaissance of Mirror Mazes



Adrian Fisher

Renaissance is not a word to be used lightly. It implies an initial vigorous impetus, followed by a long transient period, and only then a sudden and widespread rebirth, re-invention and discovery. In this spirit, it is accurate to state that the turn of the twenty-first century is proving the Renaissance of the Mirror Maze.

The world's first mirror mazes were built in the late 1880's, and within a few years examples were created on both sides of the Atlantic - in the Czech Republic, Switzerland, Canada and the United States. Mirror mazes featured at a number of world fairs and expositions in North America, including the 1901 World Fair at Buffalo, New York State and the 1904 St. Louis World Fair, which had a Temple of Mirth (also called the Crystal Maze) that included over 150 French plate curved mirrors, which gave absurd, grotesque reflections. The 1939 New York World Fair in Corona Park, Long Island, also featured a mirror maze; today part of its site is occupied by the New York Hall of Science. In 1967, one of the most ambitious parts of EXPO '67 in Montreal, Canada, was its 5-storey high "Labyrinthe" pavilion, where 720 visitors at a time moved through three chambers; in the second chamber they moved along walkways set between mirrored glass prisms; it entertained a total of 1,324,560 visitors.

In America, mirror mazes became popular amusement park attractions. In 1923, a mirror maze was created on Venice Pier, Southern California, but was destroyed in 1946 when the pier was damaged by a storm and abandoned. Asbury Park in New Jersey had a Circus Fun House mirror maze, which was taken away in the 1970s when the park relocated. Luna Park on Coney Island opened in 1895, and added a mirror maze in 1941; the Australian Luna Parks in Sydney, Melbourne and Glenelg all had mirror mazes. Dorney Park in Allentown, Pennsylvania, also had a mirror maze.

In the Tivoli Gardens in Copenhagen, Denmark, visitors entering the mirror maze found themselves being laughed at by those leaving; only on the way out did they themselves see the giant angled mirror beneath the entrance walkway, revealing tantalising glimpses of ladies' bloomers beneath their skirts.

There were also travelling mirror mazes constructed on purpose-built trailers by specialist manufacturers such as Hakantorp in Europe, and Hollingsworth in America.

Mirror mazes were also kept alive in the public imagination in movies such as Hitchcock's "The Lady from Shanghai" and the James Bond film "The Man with the Golden Gun".

However, the renaissance of mirror mazes began in 1991, with the opening of the Magical Mirror Maze at Wookey Hole Caves in England; not just a new mirror maze, but conceived to a different scope, scale and quality. In the 1990s, 7 mirror mazes were built. Between 2000 and 2005, another 21 were added worldwide, with the rate now increasing every year. There have probably been less than 100 permanent mirror mazes created in the history of the world; more than a third of these have been created in the past 10 years. In terms of numbers, this is certainly a Renaissance!

Similarly, there has been re-invention in terms of concept, scope, content and quality. In November 2004 I met John Collins, former World President of the International Association of Amusement Parks and Attractions. He had come to see our booth at the IAAPA convention in Orlando, and said:

"I remember when my father operated Mirror Mazes in the 1950s and 1960s. Now I have seen your latest mirror maze product, I did not recognize it as a mirror maze but as a state-of-the-art attraction in our industry. It is a quantum leap forward and is a real pioneering breakthrough. I love your infectious enthusiasm. I don't need to tell you, you are on to such a winner."

The Mirror Maze Experience

The very idea of a Mirror Maze makes most people curl their toes in anticipation. Lights, sound effects, storyline, action! From the inside, a Mirror Maze seems up to six times larger than it really is. Impossible reflections trick the eye, and there appear to be choices in all directions; most of them are just that, apparitions! You never know who you are going to meet, or what is going to happen next.

Creating a storyline in visitors' minds before they enter enhances the experience. Once inside they become heroes of their own adventure, whether as Dream Warriors of the Labyrinth, mermaids beneath the sea or archaeologists exploring an Egyptian temple.

The difficulty in finding your way through a Mirror Maze is not just in the complicated layout, dead-ends and wrong turns, but in the illusions and deceptions of the mirrors. The eye is tricked and the brain deceived - nothing here is what it seems! Children often wander through a Mirror Maze savouring the illusions, sound and lighting effects in a dreamlike trance. All sense of time is lost.

The Fascination of Reflection

Mirrors and our own reflection have held an uncanny fascination for mankind since the dawn of time. The term "mirror image" describes a window into a parallel universe, where everything is reversed from right to left.

No one's face is perfectly symmetrical; our "normal" perception of our own face and appearance is what we see in a mirror, so we only think of our own face as normal in terms of its reverse image! By comparison, whenever we see anyone else in a mirror, their face is reversed, different and somehow transformed.

Nowadays photography and video provide us with normal images of ourselves as well, so we no longer see ourselves, uniquely, only in reverse. Even so, when we keep encountering the full-height mirror image of ourselves hundreds of times in a few minutes, the cumulative effect is overwhelming.

In the Greek myth, Narcissus fell in love with a reflection of himself seen through the reflective properties of a smooth water surface. Lewis Carroll's famous book "Alice Through the Looking Glass" takes us into a second, parallel world where all previous assumptions of normality are turned inside out. In "The Lion, The Witch and the Wardrobe", C S Lewis approached a similar parallel world through the act of entering a wardrobe, closing the door to achieve darkness, and then opening a second door to see the new world beyond. Light or the absence of light was central to the magic in both these stories.

The Renaissance of modern Mirror Mazes

Since 1991, Adrian Fisher Mazes Ltd have pioneered the modern mirror maze, with 13 permanent mirror mazes and 3 temporary ones created across England, Scotland, France, Germany, the Netherlands, China, Thailand and the United States. Half the world's new mirror mazes are now devised in the design studios at our 1830s English manor house in Dorset.

The first definitive modern mirror maze was the Magical Mirror Maze (1991) at Wookey Hole Caves, England. Its scale was unprecedented; the design, colour scheme and lighting complement the magical “gags” that appear and disappear from sight; the soundtrack captures the atmosphere of a seaside pier, with seagulls overhead and a brass band's music wafting across in the breeze. It has entertained over 4 million visitors and its appeal continues as strong as ever.

The Labyrinth of Dragons (1994) at Peaugres Safari Park, France, is themed on the Great Labyrinth of Ancient Egypt, complete with live crocodiles, scorpions, pythons and bats, and vertical tanks of aquarium fish that are reflected by the mirrors. It was followed by A-Maze-N-Mirrors (1997) in Mackinaw City, Michigan, USA.

King Arthur's Mirror Maze (1998) at Longleat House, England, is another pioneering mirror maze. It is the world's first mirror maze with two episodes, created in exuberant 3D castings to achieve an enchanted forest and a ruined chapel. To create the effect of an endless forest, the trees appear planted haphazardly, unlike the regular formations of most mirror mazes, and yet every archway and mirror is precisely the same size. In 2005 its soundtrack and lighting system was upgraded to transform and refresh the experience.

Visitors to the Dream Labyrinth Mirror Maze (2000) in the Grand Gateway Entertainment Centre, Shanghai, China, re-live a traditional Chinese legend in which the forces of evil so darkened the earth that when men slept, they could not even dream dreams. As Dream Warriors of the Labyrinth, visitors avenge the Dark Shadow by overcoming challenges within its labyrinthine web of deceit to reach the boundary of dreamtime. Finally they find the glistening Dreamstone set under a Golden Egg, and set the Enchanted Dragon free.

“A*mazing Chicago” (2001) at Navy Pier, Chicago, USA, is themed on the city of Chicago and its skyscrapers. It contains two distinct mirror maze experiences - dark underground subway tunnels and distinctive architectural landmarks - to celebrate the character of Chicago.

Noah's Ark Water Park in Wisconsin Dells is America's largest water park. Noah's Ark Mirror Maze (2004) portrays the character of the main Livestock Deck of the ark. As the ark settles on Mount Ararat, visitors emerge down a walkway onto dry land, whilst a rainbow appears above them.

The Ripleys Mirror Maze in Pattaya, Thailand (2004), includes a Space Pod with a walkway through an infinity chamber, and a White Room where the walls are formed of Mitre Tiling shapes, whose pastel colours change and evolve.

The Merlin Entertainment group based in Dorset, England, are installing a mirror maze at each of their Dungeons across Europe. The Hamburg Dungeon mirror maze (2004) in Germany portrays that city's notorious House of Corrections, with its cruel and gruesome punishments. The Labyrinth of the Lost (2005) in the London Dungeon, England features a

ghostly lady in black, the spirit of a choir mistress said to have haunted All Hallows Church in Barking. Ancient ruins discovered beneath All Hallows, where the spooky inscription “Werhere” – thought to mean “we are here” – was found, provide the theme for the London maze. In the Edinburgh Dungeon (2005), the mirror maze tells the story of a little Drummer boy who was sent in to explore some castle catacombs, and told to keep drumming so that others could always come in and find him; the drumming got fainter and fainter, and finally nothing could be heard. They searched, but the drummer boy was never found.

A spectacular new mirror maze was opened at Louis Tussaud’s Waxworks in Blackpool (2006). In the style of a Victorian pier and featuring a variety of traditional British seaside attractions, there’s also a history of Punch and Judy Shows through the years within the maze, as well as a family posing panel based on a saucy postcard, distorting mirrors and an old-fashioned bathing tent complete with a giant clam shell seat and coral reef-style pillars.

Our latest installation, the world’s first aquarium mirror maze, was unveiled at the National Sea Life Centre in Birmingham in March 2007. Called “Lost City of Atlantis,” the new attraction is a mind-boggling labyrinth with fish displays among its web of mirrors creating the illusion of colourful shoals on all sides. Visitors begin their journey in the mythical lost city before moving out onto a coral reef maze and finally finding themselves at the Temple of Poseidon, guarded by a giant Pacific octopus.

The renaissance of the mirror maze is now firmly underway, with unprecedented innovation. Upon reflection, the world of mazes has just got six times bigger!

Adrian Fisher. Durweston, Dorset, England; February 2008
Websites: www.mazemaker.com & www.mirrormaze.com



In the Mirror Maze at the National Sea Life Centre, Birmingham. Photo: Adrian Fisher Mazes

Permanent Mirror Mazes open to the public (*Mirror mazes created by Adrian Fisher shown in italics*)

19th Century

Petrin Mirror Maze, Prague, Czech Republic, 1891
Glacier Gardens, Lucerne, Switzerland, 1896

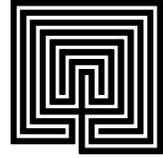
20th Century

Mirror Maze, Trimper's Rides of Ocean City, Maryland, USA
Rockin' Rosie's Fun House & Mirror Maze, Virginia Beach, Virginia, USA
Mirror Maze, Funspot Amusement Park & Zoo, Angola, Indiana, USA
Clownport Glass House, York's Wild Kingdom, York Beach, Maine, USA
House of Oz Mirror Maze, Keansburg Amusement Park, Keansburg, New Jersey, USA
Glass House Maze, Canobie Lake Park, Salem, New Hampshire, USA
Mirror Maze, Frontier Town, Ocean City, Maryland, USA
Big Top Mirror Maze, Casino Pier, Seaside Heights, New Jersey, USA

Mirror Maze Renaissance - 1991 onwards

Magical Mirror Maze, Wookey Hole Caves, Somerset, England, 1991
"Illusionist Labyrinth" Mirror Maze, Liberty Science Center, New Jersey, USA, 1992
Labyrinthe des Dragons, Peaugres Safari Park, Ardeche, France, 1994
Virginia Beach Mirror Maze, Haunted Mansion, Virginia Beach, Virginia, USA, 1995
Mackinaw Mirror Maze, Mackinaw, Michigan, USA, 1997
King Arthur's Mirror Maze, Longleat House, Wiltshire, England, 1998
"Glass Magic" Mirror Maze, Pilkingtons World of Glass, Lancashire, England, 1999
Dream Labyrinth Mirror Maze, Grand Gateway Entertainment Centre, Shanghai, China, 2000
Amazing Chicago, Navy Pier, Chicago, Illinois, USA, 2001
Frankenmuth, Michigan, USA, 2001
Best Western Hotel, Western Ontario, Canada, 2001?
"Amazing Mirrors", Marijka, Black Rock City, Nevada, USA, 2001?
"Impossible" (incorporating "1001 Troubles"), Blackpool Pleasure Beach, Lancashire, England, 2002
Mirror Maze exhibit, Singapore Science Centre, Singapore, 2002
Mirror Maze, Ocean Park, Hong Kong, China, 2003
Rocky Point Haunted House, Salt Lake City, Utah, USA, 2003
Mirror Maze, Scitech, Western Australia, Australia, 2003?
Mirror Maze, Hamburg Dungeon, Hamburg, Germany, 2004
Mirror Maze, Noah's Ark Water Park, Wisconsin Dells, USA, 2004
Wizard Quest, Wisconsin Dells, USA, 2004
Ripleys, Wisconsin, USA, 2004
"Mirror Maze", Oranda Mura, Huis Ten Bosch Holland Village, Nagasaki, Japan, 2004
Mirror Maze, A Maze'n Things, Port Philip Bay, Victoria, Australia, 2004
Ripley's Mirror Maze, Pattaya, Thailand, 2004 (White Room & Space Pod by Adrian Fisher Mazes Ltd)
Mirror Maze, London Dungeon, London, England, 2005
Mirror Maze, Edinburgh Dungeon, Edinburgh, Scotland, 2005
Mirror Maze, Skyline Caverns, Virginia, USA, 2005
Mirror Maze, Amsterdam Dungeon, Amsterdam, Netherlands, 2005
Huis Ten Bosch Mirror Maze, Nagasaki, Japan, 2006
Seibu Park Mirror Maze, Tokyo, Japan, 2006
Louis Tussauds Mirror Maze, Blackpool, England, 2006
Tobu Zoo Mirror Maze, Japan, 2007
Lost World of Atlantis Mirror Maze, National Sea Life Centre, Birmingham, England, 2007
Space Adventure Mirror Maze, Imax Theatre, Hyderabad, India (opening soon)

Dancing Through Time: The Evolution of the Labyrinth into a Symbol for Pilgrimage



Natasha Brandstatter

The mythology surrounding labyrinths is complex and layered - so much so that deciphering their meaning can be next to impossible, and scholarship surrounding the enigmatic Gothic labyrinths of France is often merely educated speculation.

However, if one assumes that, though rife with intricate meaning, the imagery of the labyrinth has a central message of rebirth and initiation, one can make sense of how they were used by medieval parishioners and clerics. One can also speculate that some inherent elements of the labyrinths' imagery and symbolism naturally led them to be associated with pilgrimage; and even perhaps why they were built at all and included in the particular cathedrals they were placed in.

From the late twelfth century until the early fourteenth century, six labyrinths¹ were constructed on the floors of French cathedrals.² Why these labyrinths were constructed and how they were used is a question that is still a great mystery to scholars who venture to take on the issue (although each nevertheless seems to have his or her own theory). The reason why French Gothic church labyrinths are such difficult puzzles to unlock is in part due to their unique design and location.

Church labyrinths in general are unique in two ways: they are collectively unicursal, or contain a single path throughout the labyrinth to the centre; and they appear (as the name implies) exclusively within religious buildings. This is much different from earlier labyrinths - such as those in Ancient Rome - and later labyrinths from the seventeenth century onward, the majority of which were often placed in gardens or general public areas. Also, these later examples, such as those used for amusement in the royal courts of Europe - and even those in contemporary Medieval manuscripts - were often multicursal, with dead-ends and false turns.³

The French Gothic church labyrinths are unique in that they are generally large (the largest, at Chartres, is over forty-two feet in diameter), and are paved into the floor with either black-and-white or blue-and-white stone tiles or slabs.

1 A quick note on terminology: a labyrinth is technically not the same as a maze - labyrinths are unicursal and mazes are considered multicursal.

2 See W. H. Matthews, *Mazes and Labyrinths: Their History and Development* (New York: Dover Publications, 1970), 58-70; and Janet Bord, *Mazes and Labyrinths of the World* (New York: E.P. Dutton & Co., 1975), 91-97. Note that these are the labyrinths that are still in existence or have been documented, not necessarily *all* the French Gothic mazes that might have existed.

3 Matthews, 46-53, 110-169; Penelope Reed Doob, *The Idea of the Labyrinth from Classical Antiquity through the Middle Ages* (Ithaca and London: Cornell University Press, 1990), 40-43.

This is different from earlier medieval labyrinths found in Italy, which were typically smaller - generally around ten feet. - and laid in either stone or mosaic. Several Italian labyrinths were also incised into the wall, and traced with the visitors' fingers instead of tread upon as the French Gothic church labyrinths were.⁴

The earliest post-Roman labyrinths in France appeared in the archdiocese of Sens: the labyrinth in the cathedral of Sens (fig.1) was probably constructed around the late twelfth century, while Chartres' labyrinth (fig.2), France's most famous, dates to the early thirteenth century; finally, the labyrinth at Auxerre cathedral, which has a fascinating history, was also finished in the late twelfth or early thirteenth century. The archdiocese of Reims also has an unusually high concentration of labyrinths: Arras had its labyrinth laid in the late twelfth or early thirteenth century; while the labyrinths in Amiens (fig.3) and Reims (fig.4) were probably installed a little later, in the 1280's or 1290's.⁵

The last labyrinth in the Reims archdiocese, located in the abbey church of St. Bertin in St. Omer (fig.5), is dated considerably later than the others, at the end of the fourteenth century, and this is reflected by its very unusual construction of yellow and black (or blue) stones; its square shape (the labyrinths in archdiocese of Sens are round, while the other labyrinths in the archdiocese of Reims are octagonal); its location in one of the transepts of an abbey church rather than the nave of a cathedral; and the cross in the centre - one of the few examples of overtly Christian imagery to be found in Medieval church labyrinths.⁶



Figure 1: The Sens Labyrinth



Figure 2: The Chartres Labyrinth

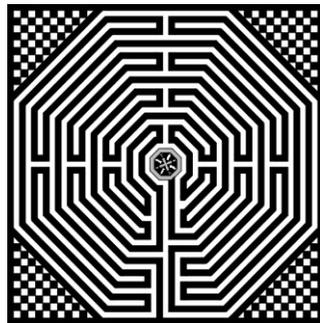


Figure 3: The Amiens Labyrinth

4 Hermann Kern, *Through the Labyrinth: Designs and Meanings Over 5,000 Years* (New York: Prestel, 2000), 143; Matthews, 54-70.
 5 Kern, 143-164; Deanna Dare Evans, "Labyrinths in Medieval Churches: An Investigation of Form and Function" (MA thesis, University of Arizona, 1992), 19-31; Craig Wright, *The Maze and the Warrior: Symbols in Architecture, Theology, and Music* (London and Cambridge: Harvard University Press, 2001), 37-64. Please note that all dates given are suppositions *only*, usually based on the assumption that the pavement would have been laid at the end of the cathedrals' construction.
 6 Evans, 31-32.

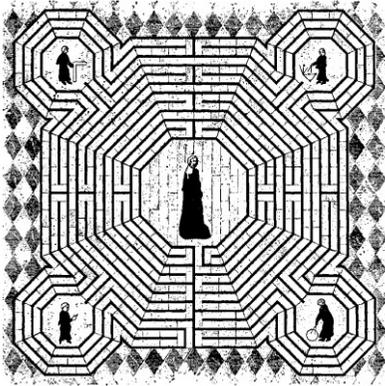


Figure 4: The Reims Labyrinth

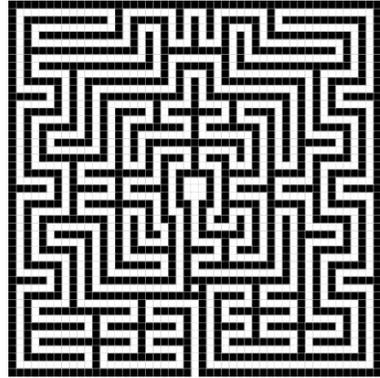


Figure 5: The St. Omer Labyrinth

This is one of the most puzzling things about medieval church labyrinths - they hardly ever contain Christian imagery. In fact, they often contain blatantly pagan imagery such as Theseus, Ariadne, and the Minotaur. Even when not referencing this myth, they may have images of clergy and/or architects - secular subjects. The only regular reference to Christianity are the twists and turns of the circular labyrinths, which seem to form a cross overlaying the circle.⁷

As mentioned before, the French Gothic church labyrinth is the object of some confusion for scholars. First, although it appears in a strictly Christian context, its imagery is generally not Christian. Second, there are only a few records that still survive in regard to these labyrinths, so no one knows who built them or why. Third, the mythology of the labyrinth is so varied and complex that deciding which mythological message was central to the church labyrinth is difficult.

In the nineteenth century, Europe went through a Gothic revival and thus saw the romanticization of all things Gothic - this is when much of the “primary” scholarship of church labyrinths was done, and when the idea of the labyrinth as a virtual pilgrimage emerged. References to Chartres and other labyrinths as “chemin de Jérusalem” and “la lieue” (or “la lieue de Jérusalem”) led late-eighteenth century scholars to believe that walking through the labyrinth was akin to making a pilgrimage to the Holy Land.

This theory has fallen out of favour, however, for as Penelope Reed Doob points out, the term “chemin de Jérusalem” is a post-Renaissance invention; thus she calls the idea that these labyrinths would have served as sites of imagined pilgrimage a “tenacious fantasy”

7 Matthews, 58-70; Doob, 134. Other French church labyrinths are (or were) located on a carved slab in the church of Genainville; as graffiti at Poitiers; on the floor at St. Quentin, St. Omer Cathedral, Caen, Maily-Maillet, Orléans, Sélestat, Chambéry and Guingamp: on tiles in Toussaints Abbey at Châlons-sur-Marne, Mirepoix and Toulouse; and in the chapter house of Bayeux Cathedral. These labyrinths were either created outside of the time period being focused on in this paper, or do not fit into the paradigm of French Gothic church labyrinths; therefore I will focus mainly on the labyrinths mentioned earlier in the archdioceses of Sens and Reims, although these other labyrinths are important indicators of how the labyrinth evolved as time progressed.

without “the tiniest shred of evidence.”⁸ But if these labyrinths weren’t connected to pilgrimage - and let us leave that a big *if* for time being - what did they mean to the people who built them?

In Western tradition, the labyrinth is naturally connected to the myth of Theseus, Ariadne, and the Minotaur, and most of the theories on medieval labyrinths are based upon interpretations of this myth. To summarize: Theseus was a prince who was sent to Crete to be thrown into labyrinth as food for the Minotaur, the monster who lived in its centre. Luckily for Theseus, king Minos’ daughter, Ariadne, fell in love with him and helped him escape his fate by teaching him the dance of life and death that symbolized the labyrinth, as well as giving him a ball of golden thread and a ball of pitch; he thus made his way safely through the labyrinth using the dance while unwinding the ball of twine, then threw the ball of pitch into the Minotaur’s mouth once he reached the centre, which prevented the monster from eating him. After slaying the disabled Minotaur, Theseus made his way out of the labyrinth by following the golden thread back to the exit, where he snatched up Ariadne and returned to his ship. After abandoning Ariadne for reasons unknown, he made port at Delos and celebrated with his friends by dancing the labyrinth dance. Meanwhile, his father, who believed Theseus was dead because of the black sails still on his ship (Theseus had agreed to change them to white if he survived), threw himself from a tower in despair.⁹

Medieval scholars would have been familiar with this myth thanks to the widely circulated translation of Ovid’s *Metamorphoses*. Some Christian scholars dating back to the fifth century, as long as a Christian moral message could be spun out of it, considered the practice of using pagan imagery, acceptable. Medieval scholars may have given the Theseus myth a Christian interpretation in which Theseus is Jesus, the Minotaur is Satan, and Ariadne is the Virgin Mary - or, alternately, Theseus would be the average Christian, who must navigate through the world of sin (the labyrinth) and resist Satan (the Minotaur), in order to reach heaven (either the centre of the labyrinth or exiting out of the labyrinth - exiting would make more sense if the labyrinth represents the world), something a Christian can only do with the help of Jesus and/or the church (Ariadne’s gold thread). The position of most of these labyrinths in the front half of the nave seems to support this theory, as it may have served as a visual reminder to entering parishioners of the dangers in navigating through the world of sin, and the importance of the guidance of the church through life.¹⁰ In another popular retelling, the labyrinth could also stand for the Harrowing of Hell, in which Jesus (played by the heroic Theseus) descends into hell to face Satan (the beleaguered Minotaur) during the time between Good Friday and Easter Sunday. After freeing the elect - Moses, Isaiah, and other Old Testament figures - from Limbo, Christ uses his divinity (symbolized by the golden thread) to escape Hell and take the elect to Heaven.¹¹

8 Matthews, 59-60; Wright, 210; Doob, 118-121; see also Evans, 65-75.

9 For a more poetic retelling of this story, see Doob, 11-13; Wright, 129.

10 Evans, 36-38, 43-58; Erwin Panofsky and Fritz Saxl, “Classical Mythology in Medieval Art,” *Metropolitan Museum Studies* 4, no. 2 (1933): 248-271; Lester K. Born, “Ovid and Allegory,” *Speculum* 9, no. 4 (1934): 363-364; Doob, 35; Wright, 76-78; Kathryn Christine Woodward, “*Error Labyrinthi*: An Iconographic Study of Labyrinths as Symbolic of Submission and Deliverance in Manuscripts and on Pavements” (Ph.D. diss., Bryn Mawr College, 1981), 8; David K. Connolly, “Imagined Pilgrimage in Gothic Art: Maps, Manuscripts, and Labyrinths” (Ph.D. diss., University of Chicago, 1998), 225-227.

11 Wright, 80-86; Woodward, 48.

The problem with the interpretation that French Gothic labyrinths were simply references to the Cretan labyrinth myth is that it seems too simplistic, especially in light of the fact that only one of the French Gothic cathedral labyrinths, Chartres, is said to have contained imagery of the Cretan labyrinth myth.¹² Also, Theseus, Ariadne, and the Minotaur are only one aspect of the Cretan labyrinth myth - there was also the famous builder of the labyrinth, Daedalus. In fact, of the four major ancient labyrinths written about by Pliny the Elder, Virgil, Herodotus, and Ovid, three have known architects and all are celebrated as great works of artistic genius. This, along with the fact that Reims and Amiens both have images of the architects and bishops who built them placed into their labyrinths, leads Doob and others to conclude that the foremost purpose of these labyrinths was to mark the cathedrals as buildings created by great artists, and to celebrate the genius of their construction.¹³

And, as far as Reims and Amiens are concerned, there is plenty of evidence to suggest this theory is correct. The pavement labyrinth in Amiens Cathedral was called “la maison Daedalus,” and the central plaque (fig.6) explains:

In the year of grace 1220 the construction of this church first began. Blessed Evrard was at that time bishop of this diocese. The king of France was then Louis the son of Philip the wise. He who directed the work was called Master Robert, surnamed Luzarches. Master Thomas de Cormont came after him, and after him his son, Renaud, who had placed here this inscription in the year of the incarnation, 1288.¹⁴



Figure 6: The Amiens plaque. Photo: Jeff Saward

In the centre of this inscription, Evrard (or a bishop figure) and three other figures that carry a rule, square, and compass, respectively, surround a cross and are interspersed by angels (a reference that they will find rewards in heaven?). Thus the Amiens labyrinth is very clearly a way for the builders of the cathedral to “sign” their work in a way that both glorifies the artistry of the cathedral and connects them to the great artisans (e.g., Daedalus) of the past. Indeed, Bishop Evrard is buried only a few feet away from the labyrinth beneath the pavement itself.¹⁵

12 Evans, 24, 38-39; Wright, 41. This plaque was melted down for weapons around the time of the French Revolution.

13 Doob, 20-25, 121-123.

14 Wright, 59-60 (translation of inscription is Wright’s; for original French, see Archives départementales de la Somme, Amiens, MS 2975, fol. 247).

15 Doob suggests that signing the cathedral in this way was an act of humility for the architects, as their names were in “the lowly pavement,” 122. Wright suggests that the architects implied

If the Amiens labyrinth has such a clear message, the Reims labyrinth is more difficult to decipher - mainly because the inscriptions on it started wearing off very soon after it was finished; thus the records that exist of the inscriptions are incomplete. In the sketch by Jacques Cellier he writes, "Here is Daedalus which is in the nave and the figures which are in it represent the architects who directed the work of the construction of said church." Pierre Cocquault, who described the labyrinth in the early seventeenth century, transcribed as best as he could the inscriptions surrounding each figure. Starting in the top left corner and moving clockwise, the inscriptions read:

The image of Jean le Loup who was master of the works of this church for a period of sixteen years and who began its portals.

The image of Jean d'Orbais, master of these works who began the upper stories of the chevet of the church.

The image of Gaucher de Reims, who was master of the works for a period of eight years and who worked on the arches and the portals.

The image of Bernard de Soissons, who made five vaults and worked on the O [west rose], master of the works for a period of thirty-five years.¹⁶

As at Amiens, the four periphery figures carry the tools of their trade (apparently Gaucher de Reims merely has to gesture and give orders), and as at Amiens this inscription has been used to decipher who built the cathedral and when. But unlike Amiens, there is much debate over the chronology of the architects - to follow the path of the labyrinth or not to follow it? If one is supposed to follow the path of the labyrinth to decipher the chronology, should one move from the centre of the labyrinth out, or from the entrance to the centre? And who is the central figure - the bishop? Christ? Daedalus himself? The Minotaur? An unknown architect who was central to the entire construction? At this point, it's impossible to say.¹⁷

So in many ways the Cretan labyrinth myth does solve a great deal of the imagery problems of the labyrinth, as it explains the images of Theseus, Ariadne, and the Minotaur, as well as images of the architects and builders of the cathedrals by the way they would have associated themselves with great architects of the past like Daedalus. But the labyrinth must have originally had a greater meaning beyond that of the images placed inside it - after all, as far as scholars know, the majority of French Gothic church labyrinths contained no extraneous imagery at all. One may then surmise that the image of Theseus, the Minotaur, and Ariadne at Chartres; and the depictions of architects and bishops at Reims and Amiens, were put in place to convey an *explicit* meaning that would otherwise not have been understood. Likewise one can then assume that there must be an implicit meaning to the labyrinth not dependant upon the Cretan labyrinth myth.

their work was superior to that of Daedalus' and that Christianity was correspondingly superior to paganism, 71; Wright, 59-60.

16 Wright, 50-56; once again the translation for the transcriptions are Wright's; for a wonderful version of the original French from several scholars (not just Cocquault), see Robert Branner, "The Labyrinth of Reims," *The Journal of the Society of Architectural Art Historians* 21, no. 1 (1962): 19.

17 Robert Branner, "The Labyrinth of Reims Cathedral," 18-25; and Robert Branner, "Jean d'Orbais and the Cathedral of Reims," *The Art Bulletin* 43, no. 2 (1961): 131-133.

As mentioned earlier, there is little primary evidence relating to the use of these labyrinths at the time of the Middle Ages - and indeed the only evidence known relates to a *jene de balle* dance (or occasionally simply a dance) performed in the labyrinths on Easter at Auxerre, Sens, Chartres, and possibly Reims and Amiens. At Auxerre (for which there are the most complete records), the canons would gather in the nave at vespers. The dean would then take a ball in his left hand and dance in the centre of the labyrinth while the other canons danced “circa daedalum” (whether this meant around the outside of the labyrinth or through the labyrinth while the dean remained in the centre is unknown). Everyone would sing *Victimae Paschali laudes* while the ball, or *pilota*, was tossed back and forth between the dean and the canons; and afterward they would adjourn for a celebratory meal. At Sens, they would sing *Isti sunt agni novelli* while processing from the west end of the cathedral to the baptistery; then, returning to the church, they would play “the game on the labyrinth” in the nave while singing *In exitu Israel de Egypto*, after which they would of course adjourn for a celebratory feast. At Chartres, there is no record what they sang; however, they did “reenact the dance of shaking and fear” of the souls in Limbo when they saw Jesus coming to take them to heaven during his Harrowing of Hell, and would then naturally adjourn for a celebratory feast.¹⁸

The role of the ball in the *jene de balle* interlaced Christian symbolism with the traditional (re: pagan) symbolism of the labyrinth. Interpreting the dance via the Cretan labyrinth myth, the ball would symbolize the golden thread that led Theseus out of the maze, and/or the ball of pitch he shoved down the Minotaur’s throat. In the Christianized version of the tale that features Christ’s Harrowing of Hell, the ball of pitch symbolizes Jesus’ humanity, which tricked the devil into believing him capable of original sin; the golden thread (as mentioned earlier) was a sign of his divinity, which allowed him to leave the labyrinth of hell. Doob argues that this is the meaning of the ball in the ceremony, but it seems more logical that the ball would symbolize the “Sun of Righteousness,” a.k.a. Christ, as that term has been in use by the church since the third century and naturally references His victory over death.¹⁹

The Easter dance is clearly the key to unlocking meaning of these labyrinths, because once this ceremony stopped, the labyrinths lost their central purpose and meaning.²⁰ These dance ceremonies seem very strange and pagan to the modern mind - and they did to the Medieval mind as well, for all the records of these ceremonies come from complaints and arguments to stop them; some canons even went so far as to go to a secular court to have the dances banned. While participation in these rituals was not considered entirely orthodox, the canons generally seemed to enjoy them and repeatedly fought for the right to continue the *jene de balle*; but in the Reformation age, when the Catholic Church was trying to clean up its act, the *jene de balle* didn’t stand much chance of surviving.

18 Doob, 123-127; Wright, 48, 132-151; Kern, 146-147. See also Doob’s article on the dance at Auxerre, “The Auxerre Labyrinth Dance,” *The Proceedings of the Eighth Annual conference of the Society of Dance History Scholars* (1985): 132-142. For a musical score of *Victimae Paschali laudes*, see Wright, 143. The suggestion that Reims and Amiens had these ceremonies as well, though intriguing, appears to be based on rumor.

19 Doob, 125-126; E. Louis Backman, *Religious Dances in the Christian Church and in Popular Medicine*, trans. E. Classen (London: George Allen & Unwin Ltd., 1952),71.

20 See the inscription from Reims, which demonstrates confusion over the purpose of the labyrinth even though at the time it was in existence and probably being enjoyed by the populace (Wright, 230-232).

The dances at Auxerre and Sens were both suppressed in the early sixteenth century by a combination of church authority and civil courts - a canon of Auxerre at the time even took the issue all the way to the Parisian civil courts before the canons in favour of the ceremony were ordered to stop performing the ritual.

The ceremony at Chartres, however, appears to have gone on for a bit longer - well into the later half of the sixteenth century, though definitely not into the seventeenth. By the mid-seventeenth century, the Easter dance was still remembered by locals in Chartres and Sens, although its exact nature was obscured by time; and by the end of the seventeenth century going into the eighteenth, writers do not mention the dance in relation to the maze at all, but simply focus on the apparently mysterious fact that there a labyrinth was in the church and what this might mean.²¹

As the dance was apparently central to meaning of the labyrinth, one has to ask oneself what it symbolized. Obviously, taking place as it did at Easter, the dance would relate to life and death - rebirth, resurrection, etc. This fits in beautifully with pagan uses of the labyrinth going back as far as Ariadne, who (as mentioned earlier) taught Theseus the dance of life and death, which was supposed to symbolize the Cretan labyrinth.

At least two of the other three major ancient labyrinths mentioned by Pliny the Elder and Virgil also relate to life and death: the oldest and most illustrious was in Egypt - probably the mortuary tomb of Amenemhet III - and contained the mummies of kings; the Etruscan labyrinth marked the tomb of Lars Porsenna; and the mysterious Lemnian labyrinth, the exact purpose and nature of which is unclear, was at least *in the style of* the Egyptian labyrinth - so it could possibly have been a tomb of some sort, as well.²²

Troy is also connected to labyrinths, which were often called "Troy towns;" and indeed Troy was supposed be labyrinthine in design, which was what made it so difficult to siege. In Virgil's *Aeneid*, Aeneas organizes a labyrinthine equestrian ballet of youthful descendants of Troy in order to honour a fallen hero - so here again we see a commemorative or resurrecting aspect to a labyrinth dance, which was carried on in Ancient Rome and Greece (Nero was known to have participated in the so-called "Trojan Game," for example, and one was performed in 46 BCE in honour of Julius Caesar's military conquests).

The fact that this dance, which was performed on foot as well as horseback, reproduced the Cretan labyrinth was first remarked upon by Virgil; and subsequent observers make such a point of the labyrinthine nature of the dance that it seems clear the Trojan Game was more closely related to the labyrinth than to Troy per se.²³

21 Wright, 132-151. See Auxerre, Bibliothèque Municipale, MS 215, fol. 33v; Abbé Jean Lebeuf, *Mercur de France* (1726), 923; Charles Challine, *Recherches du Chartres, transcrits et annotés par un arrière-neveu de l'auteur*, ed. Roger Durand (Chartres), 193; all quoted in Wright, 47, 49, and 151, respectively.

22 Doob, 17-26; Matthews, 6-16, 37-41.

23 The very word "Troy" seems to have a "chicken-or-the-egg"-type problem, in that it is unclear whether Troy was named for being labyrinthine or the labyrinth was named for resembling the design of Troy; the original name for both is the same - *trua*. Doob, 26-29; Wright, 10-13; Backman, 69; W. F. Jackson Knight, *Virgil: Epic and Anthropology*, ed. John D. Christie (New York: Barnes & Noble, Inc., 1967), 202-214, 226; John L. Heller, "Labyrinth or Troy Town?," *The Classical Journal* 42, no. 3 (1946): 126-130.

But the labyrinth is not only an apparently universal symbol of death and regeneration - it is also a site of initiation going as far back as the Trojan Game, and probably even earlier. Negotiating the intricate path of the dance while wielding weaponry was proof of necessary skill and bravery for the young boys participating; and in recreating the labyrinth with their movements, they crafted an enclosed space that the uninitiated could not cross. They also reconstructed, metaphorically (maybe even magically), the dead city of Troy itself. And by teaching Theseus the dance of life and death, Ariadne initiated him into the secrets of the labyrinth. Throughout the Mediterranean, in fact, labyrinths were used in an initiatory connection to the so-called cave or mystery religions - which of course was what Christianity originally was.²⁴

How perfect, then, that at Easter - also a time of initiation in the church - the canons dance in the labyrinth. By performing the labyrinthine dance on Easter, the Christian is taught the central mystery of his or her religion: that of resurrection from dead and Christ emerging from the cave, not dead but alive. The octagonal labyrinths of the churches in the archdiocese of Reims also reiterated this idea by referencing baptism, also a ritual of rebirth and initiation. Baptismal fonts have been octagonal since their beginnings because the number eight was thought to symbolize regeneration and resurrection, and several of the Italian church labyrinths are placed either in the baptistery or near the baptismal font; thus eight-sided mazes reinforce their inherent symbolism within the theology of church doctrine.²⁵

This relationship between initiation and the church labyrinth is important because it tells us why labyrinths became symbols of pilgrimage in the eighteenth century, after people forgot their original purpose. As Victor and Edith Turner have shown, rites of passage are the primary purpose of pilgrimage in tribal societies. This was not the case in pilgrimages of Medieval Europe - in tribal societies, these pilgrimages are compulsory, while in Western society pilgrimage is completely voluntary. However, the Turners argue (and I would agree) that initiatory overtones are still a part of pilgrimage in the West, because the Christian pilgrim enters a new, deeper understanding of the religion; along the way, the Christian pilgrim is also faced with the rite of passage trifecta: separation, margin, and aggregation - which in many ways can be seen as a metaphor for walking through a labyrinth.²⁶

The dance in the labyrinth also appears to reflect or recreate (or share?) certain aspects of the experience of pilgrims at the Holy Sepulchre. During the Easter dance, as hinted at previously, the canons re-enacted facets of the Resurrection - the canons at Chartres played the part of the souls in Limbo, and recreated the shouting match between Christ and Satan. But for the most part they sang hymns (especially after some of the canons started complaining about the shouting), and the song at Auxerre was *Victimae Paschali laudes*, in which the people dancing sing, "Tell us, Mary [Magdalene], what have you seen on the way?/I have seen the grave of the living Christ, the glory of the Resurrection!/To this testify the angels, his napkin and clothes./Christ, my hope, has risen, he goes before to Galilee."

24 Wright, 49-50, 56-57, 110, 11, 133; Knight, 239, 266-269, 252-257; Matthews, 54-58; Philippe Borgeaud, "The Open Entrance to the Closed Palace of the King: the Greek Labyrinth in Context," *History of Religions* 14, no. 1 (1974): 21.

25 Wright, 49-50, 56-57, 110.

26 Victor and Edith Turner, *Image and Pilgrimage in Christian Culture: Anthropological Perspectives* (New York: Columbia University Press, 1978), 8-9, 2.

At Sens, the chant was *Isti sunt agni novelli*, which went, “These are the new lambs of God who sang alleluia, even as they came to the fountain, they are filled with purity, alleluia, alleluia. In the sight of the lamb they are dressed in white garb and hold palms in their hands.” They also chanted at Sens, *In exitu Israel de Egypto*, known as the Pilgrim’s Psalm, and this psalm was referenced in Dante’s *Divine Comedy* when Christ liberates the elect from Purgatory.²⁷

What do all these songs and chants have in common? There is an element of *seeing*, of experiencing the moment when Christ comes back to life and effectively defeats Hell and Satan, which is similar to that of pilgrim’s tokens found in the Holy Land. On lead or clay ampoules, which were filled with oil and given to pilgrims at the Holy Sepulchre, the three Marys are often pictured with their hands raised, proclaiming, “He is risen,” much like the song *Victimae Paschali laudes*. Descriptions of the pilgrim’s experience at the site are similar as well: one said it “opened the eyes of the heart,” and another described that the moment the Holy Cross was brought out and the ampoules were created, the “oil instantly bubbles over, and unless it is closed very quickly it all spills out,” which is similar in concept to the *Isti sunt agni novelli*. Even *In exitu Israel de Egypto* has parallels with pilgrimage, for pilgrims are marked as the elect in the next life. Cynthia Hahn also points out that pilgrimage was viewed as being similar to baptismal rebirth and initiation, which as we’ve already seen are central elements in the symbolism and mythology of the labyrinth.²⁸

But we also must investigate the symbolism of the labyrinth completely removed from the Easter dance, as this ceremony was performed without the benefit of a labyrinth as well. Is there something inherently pilgrimage-esque in the mere *image* of a labyrinth? There may be a connection between pilgrimage and the apotropaic nature of the labyrinth, for pilgrimages do have a cleansing, healing, and protective aspects in tribal societies; and, as seen previously, the confusion of the labyrinth was connected with Troy and its invincibility, which may have led to the labyrinths to being used in part as apotropaic devices in the front of churches to protect the church from evil spirits.²⁹

Also, as mentioned previously, in the Trojan Game the young warriors created an enclosed space with their movements that the uninitiated could not penetrate; and labyrinths are generally seen as being inextricable (while one is inside it) or impenetrable (to one on the outside of the labyrinth). Dancing or walking the path of the labyrinth, however, allows a person to cross this liminal space and become liminoid - just like a pilgrim. There is also in some sense a confluence at these labyrinths (just as there is at pilgrimage sites), for during the Easter Dance, records indicate the whole community would participate; and indeed that outsiders were allowed to dance with the canons - namely clerics, choirboys, and (most threateningly) women - was an oft-sited reason as to why the Easter labyrinth dance should be suppressed. This seems similar to problems faced at pilgrimage sites, where the mixing of women with men, as well as different classes and nationalities, was seen as problematic.³⁰

27 Wright, 48, 108-109, 116, 124, 139-140, 142-145, 155, 234-236; Backman, 66-68.

28 Cynthia Hahn, “*Loca Sancta* Souvenirs: Sealing the Pilgrim’s Experience,” in *The Blessings of Pilgrimage*, ed. Robert Ousterhout (Urbana and Chicago: University of Illinois Press, 1990), 86-91, 93. Quotes of the pilgrims come from Hahn, pages 89 and 91, respectively.

29 Turner, 11-12; Doob, 23, 25, 81.

30 Wright, 11, 147; Doob, 72-75; Turner, 2-3, 34, 249-251; Bonnie Wheeler, “Models of Pilgrimage: From *Communitas* to Confluence,” *Journal of Ritual Studies* 13, no. 2 (1999): 27-28;

The most successful French Gothic cathedral maze, and the only one to remain intact since its creation, also offers - coincidentally or not - the most perfect example of how a labyrinth could visually relate to the idea of pilgrimage in the Middle Ages. The labyrinth at Chartres Cathedral (Fig. 4) has four segments, which numerically symbolize the four rivers of Paradise, the four Gospels, etc.; and eleven rings (twelve if one includes the centre), which implies a wealth of symbolism both in Christian theology and secular Medieval thought. Twelve of course could stand for the twelve tribes of Israel, the Twelve Apostles, and the twelve signs of the zodiac; it is also a symbol of totality and completeness. If one doesn't include the centre, the labyrinth then has eleven levels, a Christian symbol of sin and incompleteness. The rosette in the centre of the Chartres labyrinth, meanwhile, has six petals, the number of perfection; and this design is reflected in the west wall of the church, where the Rose window depicts a scene of Judgment.³¹

So what does this number symbolism mean? The labyrinth itself is earth, imperfect and sinful; while the centre rosette, just like its twin on the west wall of the cathedral, is heaven. But, unlike the rose window, the centre of the labyrinth cannot be completely perfect, because otherwise a person wouldn't be able to enter it.

And, just as on a pilgrimage, a person must turn back around and follow the labyrinth to the exit, as all pilgrimages are round-trips. There is further evidence that medieval scholars saw the labyrinth as a symbol for the world, in that *mappa mundi* and labyrinths are often depicted on the same page in medieval manuscripts, suggesting that they may represent parallel views of the world.³²

The connection which French Gothic church labyrinths have with the idea of pilgrimage also explains why there is no visual paradigm between Medieval church labyrinths and Medieval manuscript labyrinths - the manuscript labyrinth's central message, being viewed from above and therefore not as a liminal space, *is* one of complex artistry and genius in a much more complete way than a labyrinth on a pavement, which can never really be viewed in full, could be.³³

As these examples show, the labyrinth in both mythology and practice shared common aspects with pilgrimage - it symbolized resurrection and initiation, as well as the crossing of boundaries and the confluence of people to one place and time for a single purpose just as pilgrimage does in tribal societies and (to a lesser degree) in Christianity. The ceremony of the Easter dance and the *joue de balle* recreated the moment of seeing Christ emerging, triumphant, from Hell, and marked the participants as members of the elect - in much the same way as imagery taken from the Holy Land by pilgrims did. Visually, the labyrinth represents a liminal space and apotropaic space which can only be crossed by one who follows its path, much as a pilgrim acted as a liminoid figure by crossing boundaries to reach the pilgrimage site.

Jonathan Sumption, *The Age of Pilgrimage: The Medieval Journey to God* (Mahwah, NJ: HiddenSpring, 2003), 369-372.

31 John James, *The Traveler's Key to Medieval France: A Guide to the Sacred Architecture of Medieval France* (New York: Alfred K. Knopf, 1986), 74-75; Wright, 23; Doob, 131-132.

32 Wright, 23; Doob, 131-133; Connolly, 223.

33 Doob, 39-41.

Finally, the way in which the labyrinth builders created these church labyrinths reflected a vision of the labyrinth as earth and the centre as heaven. All of these elements, consciously or not, combined to make the labyrinth *something like* a virtual pilgrimage, even though that was not its original purpose. Thus, when the central ceremony of these Gothic church labyrinths, the Easter Dance, was stopped, the use of labyrinths as a metaphorical pilgrimage naturally arose to fill in the gap.

The fit was not perfect, however. Because the Easter dance was no longer being performed, there was no longer a parallel between walking the labyrinth and actually witnessing the resurrection. Fortunately for the future of the church labyrinth, however, the loss of the Holy Land and the growing reluctance of abbots to allow their monks to go on pilgrimage developed a practice of going on imagined pilgrimages to the Holy Land. As David Connolly shows, monks would often utilize tools to help them do this: items such as *mappa mundi* and - he proposes - labyrinths.

Thus the later labyrinths in France are adapted to fit this purpose: they are smaller, and thus more useful for personal contemplation; and, since they are not part of church ceremony any longer, they are not found in the nave but in out-of-the-way corners of the church or even side buildings of the church - such as the transept, in the case of St. Bertin, or the chapter house of Bayeux. Meanwhile, the large labyrinths of the Gothic cathedrals became sources of popular amusement among the parishioners (Fig. 29), and the idea of the maze or labyrinth as an amusement park-like feature spread to the royal courts, producing hedge mazes at Hampton Court and Versailles, among other places.³⁴

No longer appearing to have any significant theological value, the large church labyrinths survived, nonetheless - at least until the real nail in the coffin of these church labyrinths came in the mid-eighteenth century, in the form of open grilles replacing the traditional rood screens which separated the choir from the nave (and correspondingly the clergy from the parishioners). This subjected the clergy to all the noise coming from people playing on the labyrinth and, when coupled with a more neoclassical style being in fashion, prompted many Gothic churches to remove their labyrinths completely and have them replaced with gleaming white floors.³⁵

As we have seen, the labyrinth developed from a place of initiation and celebration into one of contemplation and metaphorical, virtual pilgrimage. The only mystery that remains for one to ask is why did people start building these French Gothic church labyrinths in the first place; and why is there such a high concentration of them in the archdioceses of Sens and Reims? Connolly, unknowingly, may provide part of the answer. As he points out, the view of the labyrinth as a whole, or a kingdom on a wall map (Connolly views these two images as interchangeable) is traditionally the province of kings. The Carolingian king, Charles the Fat, for example, had a vision in which he descended into hell with a clue of thread and saw his father, as well as his uncle and son; his uncle then told him that the Empire must pass to Charles' cousin, and "Louis the child appeared before us.... Untying the [clue of] thread from the thumb of my right hand, I gave him, through this thread, the whole of the imperial monarchy."

³⁴ Connolly, 1-13, 240-248.

³⁵ Wright, 230-232.

Thus possession of Ariadne's thread, the key to the labyrinth, is an initiation into the secrets of kingship. Philippe Borgeaud has speculated that knowledge of the Cretan labyrinth was also the key to the passage of kingship on Knossos, and there are some writings that hint the labyrinth was believed to hold the secrets of monarchy into the Middle Ages.³⁶

While the argument that kingship and labyrinths are connected is still in a developmental stage, it does bring up an interesting idea that it was the kings of France who prompted the creation of the French Gothic church labyrinths. After all, Reims was the place where St. Rémi himself baptized King Clovis, the first Christian king of the Franks and nearly all the French kings were crowned at Reims starting in the late twelfth century. Before that, the French kings were crowned in the cathedral at Sens. Even without the aforementioned implications that knowledge of the labyrinth is attached to the right to rule, it seems like more than a coincidence that the first French mazes appeared in archdioceses linked to the crowning of kings - a symbolic passing of authority, just as Ariadne's thread was in Emperor Charles' vision. Nor does it seem like a fluke that the vast majority of labyrinths in the archdiocese of Reims, which is historically linked to the baptism of a significant French king, happen to be octagonal. While this theory is certainly incomplete (one of the problems being why there were no major labyrinths found in the Ile de France, the symbolic stronghold of the French monarchy, for example), it does offer a tantalizing clue as to the beginning French labyrinths - not only why they were made to begin with, but why they were placed in cathedrals and why they were found in the particular cathedrals they were.³⁷

Following the path of the labyrinth has thus shown us that the labyrinth has had a complex mythic structure and multiple symbolic meanings since ancient times. The foremost mythology for the labyrinth in the West is the tale of the Cretan labyrinth, which medieval people would certainly have been familiar with. This myth equates the labyrinth to great artistry, descending into the underworld, and overcoming sin, among other things. Its central meaning, however, is of the labyrinth as a place of rebirth and initiation; this made church labyrinths the perfect places to perform Easter dances reminiscent of the Trojan Game or the Cretan labyrinth dance. When these dances were suppressed, however, the pilgrimage-esque elements of the maze already in existence through myth and design turned the labyrinth into a good, if not perfect, site for imagined pilgrimage at a time when actual pilgrimage was becoming more difficult.

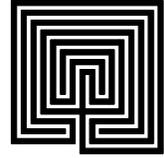
Although no one knows exactly why these French Gothic church labyrinths were built when and where they were, a possible connection between the labyrinths and the French monarchy can be guessed at. Thus, the labyrinths of the French Gothic cathedrals embrace all their potential meanings as beautiful, mysterious reminders of the tail end of a time in Christian theology when the lines between paganism and Christianity were not yet firmly set.

Natasha Brandstatter. Pueblo West, Colorado, USA; September 2007

36 Connolly, 254-262; Borgeaud, 14-16. For Charles the Fat quote, see Eileen Gardiner, *Medieval Visions of Heaven and Hell: A Sourcebook* (New York: Garland Publishing, 1993), 129, quoted in Connolly, 258-260.

37 Dominique Naert, *Le Labyrinthe de la Cathédrale de Reims: La Signature des Bâtitseurs* (Fountainay-sous-Bois, France: Sides, 1996), 17; Wright, 49. Another interesting coincidence is that the cross in the original central plate at Amiens had a fleur-de-lis at the top, a symbol often connected with the Capetians (Kern, 149).

The Cretan Labyrinth: Palace or Cave?



Giulia Sarullo

What did the Ancients mean with the word 'labyrinth'? To this very problematic question two answers have been proposed: a building of stone (according to many scholars, the Palace of Knossos), or a natural cave. The problem is strictly connected with the location of the Cretan labyrinth, the labyrinth *par excellence*. Actually, the location of Knossos as the place where the labyrinth stood was anything but certain; no traces of the Cretan labyrinth remained in the 1st century BC. The presence of many natural caves on the island led to the hypothesis that one of these could have been the prison of the Minotaur. As a matter of fact, the inhabitants of Gortyna, the capital of Crete in the 1st century AD, showed their visitors an ancient cave transformed into an underground quarry, that they called *labyrinthos*.¹

Among later scholars, the first thesis that imposed itself considered the *labyrinthos* to be a tortuous building. This possibility was supported by the early coins from Knossos and representations of the myth of the Minotaur on the Attic vases. The figures on the coins from Knossos (5th - 2nd century BC) seem to refer to the stylized plan of complex buildings, whereas some of the Attic vases portray Theseus coming out from a door adorned with columns, capitals and meandering decoration. To these iconographic traces we can add the testimony of the Ancients, who used the word *labyrinthos* to refer to notable stone buildings (see later). The interpretation of *labyrinthos* as "House of the double axe" suggested by Sir Arthur Evans, the discoverer of the Palace of Knossos, follows this thread.

In the 1930's, on the basis of the etymology proposed by Güntert (see later), that connected the word *labyrinthos* to some roots associated to 'stone', some theories get a footing that define the labyrinth as 'tunnel', 'quarry' or 'cave', with a function as a cult place. These theses are supported by the presence of numerous caves on Crete, some of which were consecrated to the cult of divinities, as the archaeological finds testify. The deciphering of Linear B by Ventris in the early 1950's and the consequent interpretation of the inscription *da-pu2-ri-to-jo po-ti-ni-ja* as *Labyrinthoio Potnia*, 'Lady of the Labyrinth', seemed to re-propose the location of the labyrinth in the Palace at Knossos. At the same time, the cultic essence, intrinsic to the labyrinth since its origin, was confirmed. A few years later Michelangelo Cagiano de Azevedo dedicated an essay to the labyrinth in which he maintains that the cave-labyrinth would have been the most ancient form.² This form would have given way to the building-labyrinth for a certain period, but recovers its strength in the Roman epoch and in late antiquity. According to Cagiano, the Cretan labyrinth is a very ancient *locus religiosus*, consecrated to a *Potnia* ("Lady"), constituted by natural or artificial caverns, in which an ancient tradition placed the Minotaur.

¹ This denomination still identifies a cave complex near Ampelouzou, a few kilometres from Gortyna, see Paul Faure. *Fonctionnes de caverns crétoises*, Paris: de Boccard 1964, p. 168.

² Michelangelo Cagiano De Azevedo. *Saggio sul labirinto*, Milano: Società editrice "Vita e Pensiero" 1958, p. 17.

When the legend imposed itself as the principal factor in the story of the labyrinth, the memory of the real location of the labyrinth got lost and then became only a symbol. Cagiano affirms that probably all the sacred caves in Crete were called 'labyrinth', that is 'holy hypogeum', and that the name radiated from Crete around the Mediterranean area as a consequence of the spread of Minoan culture.³ The archaeologists also support the hypothesis that the labyrinth was a cave. In a study by Paul Faure, dedicated to the Cretan caves,⁴ the French archaeologist affirms that the word 'labyrinth' indicated a complicated ensemble of (natural or artificial) tunnels with religious functions. Furthermore, Faure gives the cave of Skotinos, about 12 km from Knossos, as the location of the labyrinth in which the Minotaur was imprisoned. Many reasons support this identification: the cave is a complex of tortuous galleries in which "un culte de grande déesse"⁵ is testified, but the most relevant element is the presence of what Faure defines as "une figure du Minotaure", that is, the image of the son of Minos carved in the stone.

However, Hermann Kern⁶ argued strongly against the identification of the labyrinth in a cave. The German scholar refutes the hypothesis of locating the labyrinth at Gortyna, maintaining that this city could not be the seat of the mythical labyrinth, as all the ancient sources locate it at Knossos. Furthermore, Kern asserts that the identification of the labyrinth as a cave is the fruit of the Hellenistic era. To support this thesis, he affirms that the role of the architect Daedalus in the building of the labyrinth would turn out to be less evident if it was a cave. Nevertheless, it seems notable that Daedalus supposedly 'built' a cave in Selinus, in which the vapors of a subterranean fire emerge and could heal illnesses⁷. Actually, it is possible that the Mycenaeans borrowed the Minoan word indicating the complex caves (so widespread on Crete and so important in the Minoan religion) and applied it to something more familiar to them, probably a building, a structure with articulated plan, as the Palace of Knossos should have been. If it is so, Daedalus could have been the architect of labyrinthine buildings in a remote epoch.

In fact, the first mention of the term *labyrinthos* in alphabetical form appears in Herodotus' *History* in the 5th century BC.⁸ The historian uses this word to define a monumental building that he visited in Egypt, near Lake Moeris. According to his description, the structure was all built in stone and had 1,500 rooms on the ground floor and as many on the underground floor, to which the access was forbidden to visitors. After Herodotus, Diodorus Siculus also describes the Egyptian labyrinth⁹ and says that Daedalus drew his inspiration for the Cretan labyrinth from this monument, although it is interesting to notice that Herodotus never mentions the Cretan labyrinth, nor the myth associated with it. Other information about the Egyptian labyrinth is found in the works of Strabo¹⁰ and Pliny the Elder.¹¹ The latter inserts a description of the Egyptian structure in a list of labyrinths comprising the Cretan labyrinth, the labyrinth of Lemnos and the tomb of Lars Porsena in Clusium (Tuscany).

³ Cagiano 1958, pp. 48-52.

⁴ Faure 1964.

⁵ Faure 1964, p. 169.

⁶ Hermann Kern. *Through the Labyrinth. Designs and Meanings over 5000 Years*, Prestel 2000.

⁷ Diodorus Siculus, IV, 78, 3.

⁸ Herodotus, II, 148.

⁹ Diodorus, I, 61.

¹⁰ Strabo, XVII, I, 37.

¹¹ Pliny the Elder, XXXVI, 19, 84-86.

The ancient sources used the word 'labyrinth' to designate buildings of articulated and complex plan that shared a subterranean character and, probably, a funerary function. In the classical time, then, the primary notion of the labyrinth as a cave was lost, but some traces of it remained in the association of this name with complicated structures, possibly characterized by a hypogeal space. We must not forget that a thousand years separate Herodotus from the epoch of the Cretan Palaces (15th century BC), a thousand years in which the Greek culture went through the so-called Dark Ages, as a consequence of which, all that remained of the history became myth.

In order to understand the real referent of *labyrinthos* - palace or cave - it could be useful to analyse the word itself and try to identify its meaning, but it is anything but easy to find a way through the labyrinth of etymologies that have been proposed. At the end of the 19th century, the first hypotheses suggested an Egyptian origin of the word, but they were soon left aside in favour of a derivation of *labyrinthos* from *labrys* 'double axe',¹² this proposal was made by Maximilian Mayer,¹³ who explained *labyrinthos* as a distortion of *labryntbios*, an adjectival form from *labrys* and assigned to *labyrinthos* the meaning of "house of the double axe". Paul Kretschmer reached a similar conclusion in his monumental *Einleitung in die Geschichte der griechischen Sprache*, where he considered *labyrinthos* to be a Cretan corruption of the Carian *Labraundos*.¹⁴

In the year 1900, when the excavations of Sir Arthur Evans brought to light the ruins of the Palace of Knossos, attention immediately focused on the presence of several double axes carved on the pillars of the palace. Evans¹⁵ assumed that the symbol was somehow attached to the cult of a divinity and related it to the Carian shrine of Labranda, a name that could be interpreted as "the place of the sacred *labrys*"; this shrine was consecrated to the cult of Zeus Carius, also known as *Labrandeus* because the god holds a double axe in his hand. These reflections, joined to the fact that the Palace of Knossos presented itself as an inextricable tangle of rooms, passages, stairs, apartments on different levels, brought Evans (who in the meantime had become acquainted with Mayer's work) to the conclusion that he had found the *labyrinthos*, "The House of the Double Axe". The Palace of Knossos, then, was not only an administrative centre, but a sanctuary as well, consecrated to the symbol of the double axe incised on its pillars, a cult place for Cretan Zeus. Mayer's and Evan's theories made quite a stir and started a heated debate in the first decade of the 20th century.

A further step forward into the explanation of the derivation of *labyrinthos* from *labrys* was achieved by Güntert,¹⁶ who reaffirmed the concept, previously asserted by Rouse,¹⁷ that the *Labraundos* was not the god armed with an axe, but the god of a Carian locality, whose

12 Plutarchus, *Quaest. Graec.* 45.

13 Maximilian Mayer, *Mykenische Beiträge. II. Zur mykenischen Tracht und Cultur*, in "Jahrbuch des Kaiserlich deutschen archäologischen Instituts", VII (1892), p. 191.

14 "Mayer hat die Vermutung ausgesprochen – und mir ist unabhängig von ihm derselbe Gedanken gekommen – daß kret. *Labyrinthos* dem karischen *Labraundos* entspreche", in Paul Kretschmer, *Einleitung in die Geschichte der griechischen Sprache*, Göttingen: Vandenhoeck und Ruprecht 1896, p. 404.

15 Arthur Evans, *The sacred tree and the pillar cult and its Mediterranean relations*, in "Journal of Hellenic Studies", XXI (1901), pp. 106-112.

16 Hermann Güntert, *Labyrinth. Eine sprachwissenschaftliche Untersuchung*, in *Sitzungsberichte der Heidelberger Akademie der Wissenschaften. Philosophisch-historische Klasse*, Heidelberg: Winters 1932.

17 William H. Rouse, *The double axe and the labyrinth*, in "Journal of Hellenic Studies", XXI (1901), pp. 268-274.

hellenized name was *Labraunda*.¹⁸ This word would share with *labyrinthos* a root *labr-* or *lavr-*, apparently connected with the concepts of ‘quarry’, ‘mine’, ‘building work’ and similar; so *labyrinthos* would then indicate a cave, a rocky meander and, metaphorically, the ruins of Knossos as well. Finally, Güntert affirmed that the word *labra* or *lavra* would mean ‘stone’ in the languages of Asia Minor and that the same meaning is found in the root *laua* of the Aegean pre-Greek dialects. The scholar then listed some possible comparisons of these roots with Greek terms such as *la(n)as* and *laos*, but also with the Latin goddess *Laverna* and with the forms *Laurentes*, *Lavinates*.

However, these hypotheses were all called into question by the deciphering of the Linear B text by Michael Ventris in 1952. On three of the Linear B tablets from Knossos the sequence *da-pu₂-ri-to-jo* can be read. In 1955, Leonard Palmer proposed to interpret this word as *labyrinthoio*, with an archaic genitive ending *-oio* of a nominative *labyrinthos*. In the first edition of their *Documents in Mycenaean Greek* (1956), Ventris and Chadwick¹⁹ considered the possibility of this interpretation quite doubtful because of the different initial consonant. As a matter of fact, the alternation *d/l* is anything but exceptional, as the couple *laphne/daphne* or the various rendering of the name *Odysseus* (*Olutens*, *Olusens*, and the Latin *Ulixes*) demonstrate. The Sabine Varro²⁰ had already noticed this alternation in a few terms of the Latin lexicon, but it was Quintilian²¹ who first associated it to the name of Ulysses. There are many examples of this alternation in Latin, the most famous are *lacrima-dacrima* and *lingua-dingua*. On the basis of a testimony of Paulus ex Festo, *dacrimas pro lacrimas Livius saepe posuit*, it is possible to set a *terminem ante quem* at the 3rd century BC, the epoch in which Livius Andronicus worked, the author of the *Odusia*, a translation of Homer’s *Odyssey*. Although the Latin authors considered this phenomenon of Sabine origin, this is anything but certain, in that the alternation *d/l* is widespread from the Iberian peninsula to Asia Minor, as the couple *Labarnas/Tabarnas* in the Anatolian dynastic name of the Hittite kings of the Old Kingdom also shows. From what has been said so far, it seems clear that the alternation *d/l* is not a hindrance to the identification of *da-pu₂-ri-to-jo* as the antecedent of *labyrinthos*, in that it is a phenomenon widely present in the Mediterranean area.

One of the main reasons for the interest of the glottologist in *da-pu₂-ri-to-jo* is actually the presence of a doublet of the syllabogram AB 50, *pu*, that is, AB 29, *pu₂*, mostly used to represent *phu* and *bu*. As a matter of facts, *da-pu₂-ri-to-jo* seems to be the only occurrence in which *pu₂* represents *bu*; it must be noticed, though, that the fact that two out of three testimonies of the word present the form with *pu₂* and only one presents the form with *pu* might be due to the accident of preservation and does not allow us to affirm that the most common form was surely that with the doublet *pu₂*. According to Carlo Consani,²² this sign graphically indicates the oppositions of voicing and of aspiration among the stops, a characteristic, the latter, that the syllabary B doesn’t have. The alternation of use between *pu₂* and *pu* is set at the level of the graphic system and not of the individual use, in that the scribes that know the specialized sign use it coherently.

¹⁸ Herodotus V, 119, ii. Kretschmer had already suggested the possibility that the placename *Labraunda* was the primary form from which the theonym derived, Kretschmer 1896, p. 304.

¹⁹ Michael Ventris & John Chadwick. *Documents in Mycenaean Greek*, first edition by Michael Ventris and John Chadwick; with a foreword by the late Alan J. B. Wace. Second edition by John Chadwick, Cambridge: Cambridge University Press 1973, p. 310.

²⁰ *Lingua Latina*, V, 26, 3.

²¹ *Institutio Oratoria*, I, 4, 16.

²² Carlo Consani. *Per uno studio complessivo dei segni ‘fuori sistema’ della Lineare B*, in “AION”, VI (1984).

An important step forward into the comprehension of the value of the sign AB 29 is achieved by José Melena,²³ who clarifies that pu_2 is used to indicate the aspirated /phu/ in forms such as $ze-pu_2-ro$ and $pu_2-te-re$ and the voiced /bu/ in forms of Minoan origin, such as $da-pu_2-ri-to$, $da-pu_2-ra$ and others. Melena reconstructs a whole series p_2- , constituted by AB 29, AB 22 and AB 56, respectively pu_2 , pi_2 and pa_2 , to which the values of /bu/, /phu/, /bi/, /phi/ and /ba/, /pha/ are given.

Melena goes even further, suggesting the possibility that at the time of the adoption of the Linear B script by the Mycenaeans, the aspirated stops still preserved their Indo-European voiced character (/bhu/, /bhi/, /bha/). The coexistence of the signs pu_2 , pi_2 , pa_2 and pu , pi , pa , rendering the same sounds, belongs then to a recent phase, the tablets phase, in which the Indo-European aspirated stops were already devoiced. For this reason, in the tablets the signs that rendered the voiceless stop /p/ were used to write the new voiceless stops as well, while still remaining in use the traditional rendering with the p_2- series.

The work of Witczak²⁴ proceeds from the theories expounded by Melena, assuming the existence of a $b-$ series in Linear B. To support this hypothesis, Witczak exposes more than an argument, but not all of them are sound. Although one could agree with some of his considerations, this is not true for some others.

This is the case of the evidence that Witczak gets from the lexicon; among other examples, he also cites $pu_2-te-re$, generally interpreted as *phuteres*, and transcribes it as **busteres*. Yet, it is not always possible to establish the value of a sequence of signs for sure, because the rules of the syllabary (originally created for a non Indo-European language) are very restrictive for a language such as Greek.

Witczak's statement that the exact value of AB 29 would be /bu/ and not /pu/ nor /phu/ is astonishing, in that it is true that the words analysed by the scholar provide evidence of a possible voiced character of the p_2- series (on which no doubt is left), but this is not its exclusive character. Such a statement cannot be based on the acrophonic principle either.

Witczak takes this from Neumann,²⁵ the first one to suppose a derivation of AB 29 from the Cretan hieroglyph H 29, which represents a lyre. Neumann admits that the signs in Linear A and B are not immediately recognizable as stringed instruments; nevertheless, they were not modified to the point that the recognition of their derivation from H 29 is prevented. At this point, Neumann, gives to H 29 the value of pu_2 given to AB 29, assuming that a denomination for 'lyre' beginning with /phu/ or /bu/ should have existed in Minoan.

A gloss by Hesychius exists, *burte: lyra*; if *burte* is a Minoan word, connected with the value of the hieroglyph H 29, then the value /bu/ could be acrophonically attributed to AB 29. Unfortunately, there is no proof that *burte* was a Minoan word, in that the Hesychian gloss does not provide any information on the origin of the term, nor it is possible to obtain any indication from linguistic comparison.

²³ José Melena. *On untransliterated syllabograms *56 and *22*, in *Tractata Mycenaea: Proceedings of the Eighth International Colloquium on Mycenaean Studies*, Skopje: The Macedonian Academy of Sciences and Arts 1987, pp. 203-231.

²⁴ Krzysztof T. Witczak. *A b-Series in Linear B*, in "Kadmos", XXXII (1993), pp. 162-171.

²⁵ Günter Neumann. *Zum kretischen Hieroglyphenzeichen H 29*, in "Kadmos", XXI (1992), pp. 5-8.

On the attribution of the value /bu/ to AB 29 on the basis of acrophony, Mario Negri has given his opinion many times. He considers this possibility “highly probable”,²⁶ in that both in Linear A and B, ideograms exist that are based on the acrophony of the word, of non-Greek origin, they represent. Yet, Negri does not maintain that /bu/ is the exclusive value of AB 29, in that it would be quite difficult to deny that *pu2-te-re* means *phuteres*. In a recent work,²⁷ Negri comes back to the question and affirms that AB 29 represents /bu/ and /phu/ (and in few cases maybe /pu/) whereas AB 50 represents /pu/ and sometimes /phu/.

This distribution can be explained by assuming, as Melena does, that at the time of the adapting of the Linear A to the writing of Greek, the aspirate was still voiced. The term *da-pu2-ri-to*, of Minoan origin, contained the bilabial voiced non-aspirate sound, that at that time was probably absent in Greek and that consequently the Mycenaeans assimilated to their voiced aspirate. When the voiced aspirates were devoiced, AB 29 had the value /phu/, but preserved the value /bu/ in the non-Greek words that did not undergo devoicing.

As a consequence of the interpretation of *da-pu2-ri-to* (that we can now read *daburito*) as *labyrinthos*, the *labrys* hypothesis, based on a formal similarity, definitively fell, in that the Mycenaean form for labyrinth, *daburito*, which begins with a dental consonant, shows little resemblance with *labrys*. Furthermore, the Mycenaean word for ‘axe’ was identified in the sequence *pe-re-ku2*, corresponding to the Greek *pelekys*.

No alternative proposals emerged that could give a definite answer to the question and the interest in the etymology of the word began to diminish, only to resurface in the 1990’s. In these years, a very interesting study was performed by Francesco Aspesi²⁸, who compares the Mycenaean word for labyrinth, *daburito*, with the Hebrew word *ḏbîr*, that is “the inner recess of the Solomonian temple in which the ark was preserved”. According to Aspesi, both these words share the characteristic of being “a sacred recess almost inaccessible”, which is true for *ḏbîr* (the internal hall of the Temple of Solomon) and for the double meaning of the Greek word (cave as cult place and building realized around a centre which houses a cult).

Aspesi also maintains that the Palace of Knossos could have been named *daburito*, but he also assumes the existence of many labyrinths on the island of Crete, or rather, he hypothesizes that *daburito* did not designate only one building but a kind of cult place, cave or building, that provided a secret inaccessible recess. Aspesi closes his essay hinting the possibility that in some inscriptions in Linear A, applying the values of the Linear B, the sequence *(-)du-bu-re* could be read²⁹, very similar to the Linear B *daburito*.

²⁶ Mario Negri. KRHTIKA GRAMMATA, in “Minos”, n. s. XXIX–XXX (1994–1995), p. 88.

²⁷ Mario Negri & Giovanna Rocca. *Considerazioni sulla posizione linguistica del macedone rispetto al greco: il trattamento delle Medie Aspirate*, in *Fonologia e tipologia lessicale nella storia della lingua greca*, Atti del VI Incontro Internazionale di Linguistica Greca, Bergamo, settembre 2005, edited by Pierluigi Cuzzolin and Maria Napoli, Milano: Franco Angeli 2006, pp. 210–211.

²⁸ Francesco Aspesi. *Greco labyrinthos, ebraico ḏbîr*, in KRHTH TIS GAI ESTI. *Studi e ricerche intorno ai testi minoici*, Roma: Il Calamo 1996, pp. 147–181.

²⁹ Although Aspesi uses the reading *(-)du-pu2-re*, here we prefer to use the reading *(-)du-bu-re*, proposed in Carlo Consani & Mario Negri, *Testi minoici trascritti, con interpretazione e commento, con la collaborazione di Francesco Aspesi e Cristina Lembo*, Roma: CNR, Istituto per gli studi micenei ed egeo-anatolici 1999.

The possibility that Mycenaean *daburito* could derive from Minoan *dubure* seems probable: the evident formal likeness between the two terms is supported by the fact that both seem to refer to the same referent: a sacred cave which houses religious cults.

As we have said, the documentary evidence of the word *daburito* is found on three tablets from Knossos, KN Gg 702, KN Oa 745+7374 and KN Xd 140.³¹ In the first of these texts the scribe reports an offering of honey to all the gods and an identical offering for the *Labyrinthoio Potnia*, “Lady of the Labyrinth”. The fact that this tablet indicates that the same quantity of honey was offered to all the minor gods and to the “Lady of the Labyrinth” seems a sign of the great importance that this divinity would have had in the Mycenaean pantheon. Unfortunately, the only information about Mycenaean religion comes from the meagre texts of the tablets, from which emerges how the Mycenaean cults of Indo-European origin joined the Minoan Cretan reality generating a religious syncretism. In this view, the relevant role of the Potnia in the above mentioned tablet could be explained as a heritage of the Minoan religion, in which the female divinity surely played the leading role.

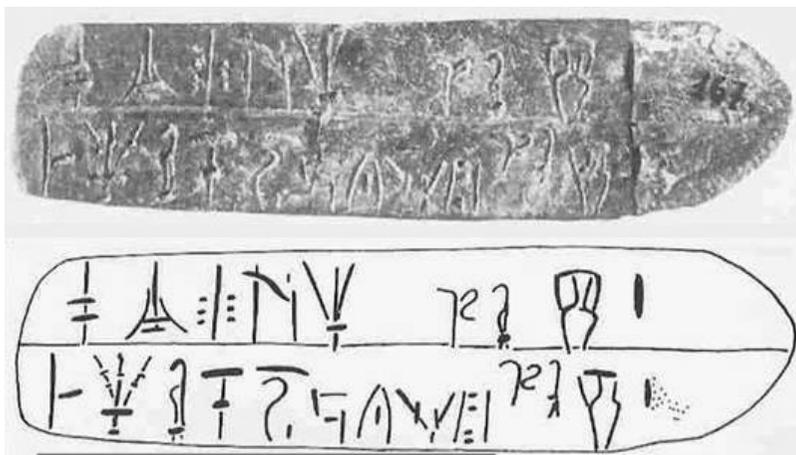


Figure 3: KN Gg 702, picture and transcription (CoMIK I).
The sequence da-bu-ri-to-jo-po-ti-ni-ja is underlined

In another tablet (KN Gg 705) from the same series of that in which the Lady of Labyrinth is mentioned, we found an interesting entry: “In Amnisos, to Eileithya a jar of honey”, that is the same offering given to the “Lady of the Labyrinth”. This tablet confirms a verse of the *Odyssey* (XIX 188), in which Homer says that there was a cave dedicated to Eileithya in Amnisos, one of the port of Knossos. Eileithya seems to have a predominant position in the Minoan Crete of the II millennium, which surely weakened when the matriarchal religion of the Old Europe gave way to the patriarchal Indo-European pantheon. As a consequence, in the classical period the origin and the functions of this divinity are not clear. Not by chance, Eileithya then became an epithet of Artemis.

³¹ The text of the Linear B tablets is taken from John Chadwick, Louis Godart, John Killen, et al. *Corpus of Mycenaean Inscriptions from Knossos*, Cambridge, Roma: Cambridge University Press, Edizioni dell’Ateneo 1986–1999 (CoMIK).

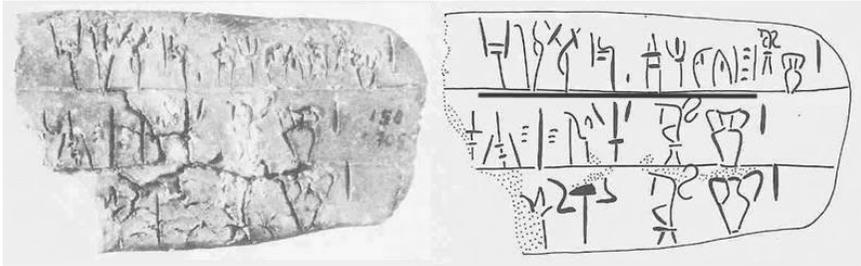


Figure 4: KN Gg 705, picture and transcription (CoMIK I).
The sequence a-mi-ni-so e-re-u-ti-ja is underlined

In the light of what has been said, it seems possible to propose the hypothesis of the identification of Eileithya with the “Lady of the Labyrinth”, the goddess of the caves as cult places. Actually, there are many points of contact between these two divinities:

The cave of Eileithya is in Amnisos, one of the port of Knossos, a few kilometres from the Palace, and in Amnisos, probably, was the *Daidaleion*, mentioned in a another tablet from Knossos (KN Fp 1).

Eileithya and the “Lady of the Labyrinth” get the same offering of honey in tablets from the same series.

Assuming the labyrinth was a cave, both are connected to cult places excavated into the mountains.

Among the scholars, the most widespread interpretation remains that that considers Athena as the “Lady of the Labyrinth”. At the basis of this interpretation are the equation “labyrinth = palace”, established by Evans and the attribution to Athena of the qualities of protectress of the royal palace, carried out by Nilsson³². The Swedish historian of religions observed a continuity of cult that manifests itself in the presence of a temple of Athena on the ruins of the royal seats of almost all the ancient Achaeon centres.

The identification of the “Lady of the Labyrinth” with a precise divinity of the classical pantheon appears to be strictly connected with the interpretation of the actual referent of the labyrinth: if the labyrinth is identified with the Palace of Knossos, it seems almost inevitable to consider Athena, protectress of the Palace, as *Labyrinthioio Potnia*; on the other hand, the equation “labyrinth = palace” is anything but certain.

Going back, then, to the possibility that the word *daburito* indicates the caves as cult places, the grounds on which the interpretation of the “Lady of the Labyrinth” as epiclesis of Athena is based, fail and give way to divinities much closer to the context of the Minoan religion. In this view, the comparison above established between the “Lady of the Labyrinth” and Eileithya becomes a very interesting possibility.

³² Martin P. Nilsson. *The Minoan-Mycenaean Religion and its Survival in Greek Religion*, second revised edition, Lund: C. W. K. Gleerup 1950, pp. 98.99.

From the analysis of the data, especially in the light of the new testimonies coming from the archive in Linear A, it seems clear that the original referent of *labyrinthos*, or better, of the Minoan *dubure*, were the caves that housed the cult of local divinity. Only subsequently did the word come to also indicate the complex buildings, or a part of them, strictly connected with religious rites performed in hypogeal spaces. It is probable that with the breakdown of the palatial society the memory of a building called 'labyrinth' got lost and once more the word began to indicate only the intricate caves of Crete.

Giulia Sarullo. Istituto di Scienze dell'Uomo, dell'Ambiente e del Linguaggio,
Libera Università di Lingue e Comunicazione IULM, Milano, Italy; February 2008

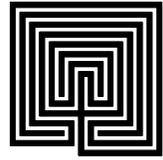


Figure 5: Entrance of the Cave of Eileithya at Amnisos, Crete. Photo: G. Sarullo



Figure 6: Stalagmites inside the Cave of Eileithya at Amnisos. Photo: G. Sarullo

Sigmund Gossembrot's Labyrinth: A Very Special Design



Andreas Frei

In Hermann Kerns fundamental book *Labyrinth* a series of labyrinth sketches are depicted which first appeared in a manuscript compiled around 1480 by Sigmund Gossembrot, humanist and lord major of Augsburg.¹ Among the nine sketches shown in Kern's book, the one depicted in image 238 deserves particular attention. This is a labyrinth with five arms and seven circuits, and a pentagram drawn in the centre. Image 243 shows an unfinished draft that was rejected and overwritten with text in the upper area. As far as can be recognized, this is also a labyrinth with five arms and looks very similar to image 238. It possibly documents a failed attempt to draw the labyrinth shown in image 238.

Figure 1: Sketches of a five-arm labyrinth by Sigmund Gossembrot ca. 1480 (from Kern)



*complete design (image 238)
243)*



1a:

1b: rejected sketch (image

This labyrinth looks well balanced and is a rare example of a historical labyrinth with more than four arms. Moreover, the arms are shaped in a manner completely different from most other previous labyrinths with multiple arms. This particularly holds for all arms other than the central axis. All of these four side-arms are similar - between the turns of the pathways there are two axial segments where the pathways skips two circuits.

*Figure 2: Pattern of the
labyrinth shown in figure 1a*

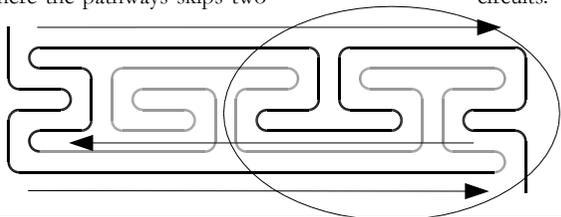


Figure 2 presents the pattern of this labyrinth.² The pattern reads from top left to the bottom right. Thus the pathway starts at the above left and ends at the below right side. A closer look at the pattern confirms that Sigmund Gossembrot's labyrinth design is fundamentally distinct from other well-known labyrinths. It is neither a Roman sector labyrinth, nor has it any similarities with medieval labyrinth designs such as Chartres, Reims, Sens, Ravenna, etc.

In a sector labyrinth the pathway traces out the entire course of the first sector, then the second, and so on until it reaches the centre. However, in medieval labyrinth designs the pathway may enter a sector before it had completed the previous sector. This may result in a composite movement with a wavy line describing a pattern with multiple changes of direction.³

The labyrinth designed by Sigmund Gossembrot is based on another principle yet. The pathway follows three principal directions marked by the arrows in figure 2: forward (black) backward (grey), and forward (black). In each of these directions it passes through all five sectors (sector 1 to 5 from left to right). The pathway enters axially along the central axis into the labyrinth and is directed to innermost circuit. It follows the whole inner circuit and then turns backward. On the way back (highlighted in grey) it passes through all sectors. In sectors 5 – 3 it has the shape of a modified serpentine, to which in sector 2 a meander is connected. In sector 1 it moves to the outer circuit and turns forward again. On the outermost circuit in the third sector it enters the space left by the grey pathway turns out again and finally wraps around the grey path before it reaches the centre. The course of the pathways in this area is particularly different from the meander just to the left of it.⁴ Even if in its basic form the labyrinth looks well balanced, the pattern shows that it is not symmetric.

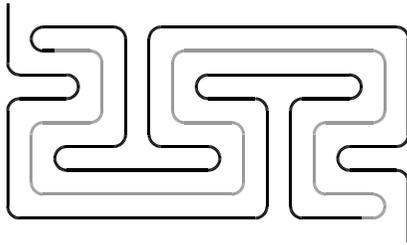
In Sigmund Gossembrot's labyrinth a category of novel labyrinth designs is hidden. This is illustrated in figure 3. The pattern shown in figure 3a is made up of the modified serpentine found in the sectors 3 – 5 of Gossembrot's design. This is marked in grey and shows the pathway on its direction backwards from sector 3 through sector 1. It has the shape of a serpentine but at every turn the pathway also skips two circuits. This leaves room for uncovered areas. These areas are traced out by the pathway from outside when moving in the other direction. The pattern of this three-arm labyrinth is symmetric and has nine circuits.⁵ Figure 3b shows the three-arm labyrinth in the basic form.

This pattern can be extended by adding segments of two sectors as shown in figure 3c between the interrupted lines. In this manner labyrinths with any odd number of arms can be generated, each nine circuits large. Figure 3d shows the example of a five-arm labyrinth in basic form.

With the same pattern it is also possible to create labyrinths with an even number of arms. This would require the pattern to terminate at the point marked by the vertical line.⁶ However such a pattern would not be symmetric.

Figure 3e shows a symmetric pattern of a labyrinth of the same type and an even number of arms. In this pattern the shape of the middle arm is different from the patterns with odd numbers of arms. All pathways axially skip to another circuit but they do not change the direction alongside the circuits.

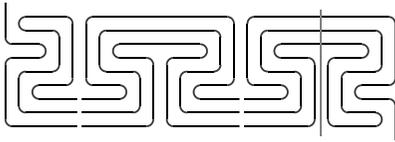
Figure 3. A novel category of labyrinth designs



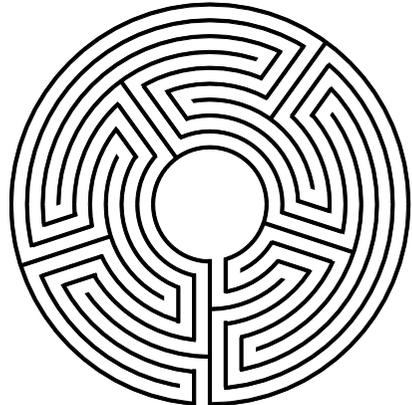
3a Three arms



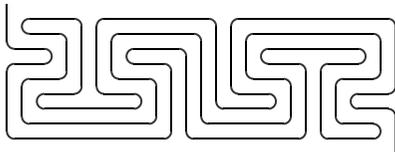
3b



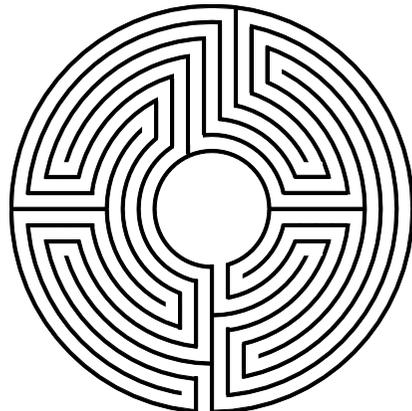
3c Five arms



3d



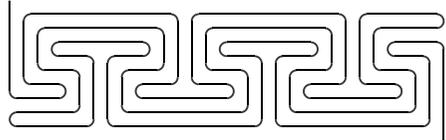
3e Four arms



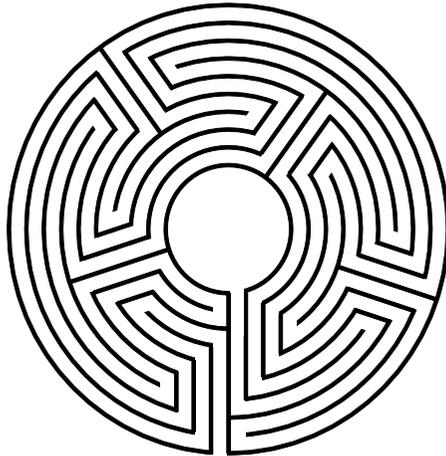
3f

Another category of labyrinths exists that are very closely related to the labyrinths shown in figure 3. The patterns of these labyrinths are based on the same principles. However they are vertically mirrored. Thus, the situation where the pathway enters into the labyrinth is different in that the way is directed to the outermost circuit after having entered axially. Thus the first principal way forward is on the outer circuits. The way back is in the middle and the last way forward on the inner circuits. Finally the situation at the end where the pathway reaches the centre is symmetric to the beginning.

Figures 4a & b: Example of a five-arm labyrinth with 9 circuits



The labyrinth by Sigmund Gossebrot has a special and unprecedented design. A closer look at his simple drawing reveals that in this labyrinth a novel principle for the design of labyrinth patterns can be found and new labyrinths were designed by generalizing and then applying this principle, resulting in two series of labyrinths with simple, regular and symmetric patterns.

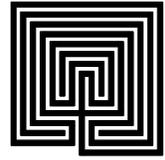


Andreas Frei. Pratteln, Switzerland; May 2007. Website: www.labyrinth-muster.ch

Notes:

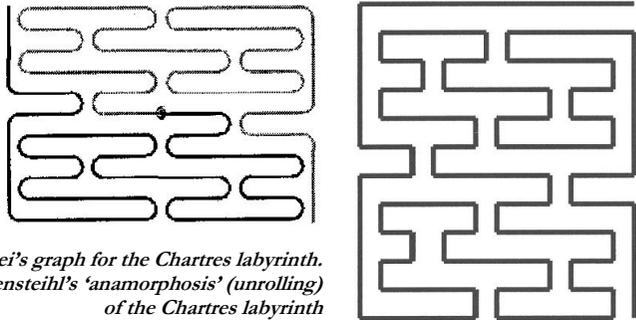
- ¹ Kern, Hermann. *Labyrinth – Erscheinungsformen und Deutungen 5000 Jahre Gegenwart eines Urbildes*. 2nd edition, München, Prestel, 1983, p.205.
- ² This transformation has been described elsewhere, e.g.: Lonegren, Sig. *Labyrinth Zweitausendeins*, Frankfurt 1993; Ferré, Robert. “The Sens Labyrinth” *Caerdroia* 32 (2001), p.36-38; Saward, Jeff. *Labyrinths & Mazes*, Gaia, London 2003. These all show the walls of the labyrinth transformed to a rectangular form. For reasons of simplicity and clarity I prefer to use “Ariadne’s Thread”. For the transformation I have used a mirrored version of the labyrinth shown in image 1 in order to make the pattern comparable. Whereas the original labyrinth rotates anti-clockwise, the mirrored version rotates clockwise. Transforming the original version of the labyrinth would have resulted in the same pattern but mirrored horizontally. The pathway would then have entered on the right top and reached the centre at the left bottom.
- ³ See also: Frei, Andreas. “The Cascading Serpentine” *Caerdroia* 35 (2005), p.19-26.
- ⁴ Precisely this is the case in the 3, 4 and 5 sector and only on circuits 1-6, but not on the 7th (innermost) circuit.
- ⁵ The serpentine is the simplest pattern that can be used in a labyrinth. It requires three circuits. As the pathway follows this pattern three times, this labyrinth has nine circuits.
- ⁶ This is achieved by connecting the second and third circuit and directing the pathway axially from the first circuit to the centre (numbering the circuits top down).

Further Thoughts on 'Perfect' Labyrinths & How to Create Them



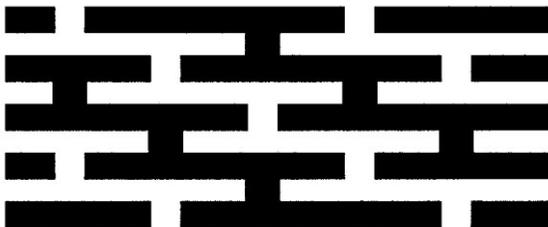
Ellen Galo

I read with interest the articles in *Caerdroia* 35 by Andreas Frei¹ ("The Cascading Serpentine") and Tristan Smith,² ("A Daedalus for the 20th Century"), along with information on Hebert³ and Smith's⁴ respective websites and Pierre Rosenstiehl's article "How the Path to Jerusalem at Chartres Separates the Birds from the Fishes."⁵ The "cascading serpentine" path so aptly explained and exhibited in Frei's piece is clearly related to the "stretched H-array" mentioned by Rosenstiehl as essential for generating a labyrinth with alternating turns and straight runs - figure 1a shows Frei's graph of the Chartres thread side by side with Rosenstiehl's 'anamorphosis,' figure 1b. Both display the "stretched H-array": turn them sideways to see the outline of a series of diagonally connected "H's.". The top horizontal line in Rosenstiehl's figure is actually the labyrinth centre, not a circuit, so it can be ignored.



*Figure 1a, above: Frei's graph for the Chartres labyrinth.
Figure 1b, right: Rosenstiehl's 'anamorphosis' (unrolling)
of the Chartres labyrinth*

It is actually the thread of the Chartres labyrinth that divides the area of the labyrinth into two equal areas of the same shape (they are 'congruent'). That is, there is a white H-array, and a black H-array, interlocking, and the thread is the border between them! Here is an example of a stretched H-array (not Chartres). The edges that connect the levels (the "frame") have been cut off.



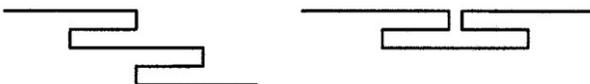
*Figure 2: Stretched H-array
(no frame)*

This same H-array property is also exhibited by just six of the twenty labyrinths discovered/generated by Hebert and Smith, specifically those with three repetitions of a “round course”: Daedalus’s labyrinths #9, 10, 11, 12, 15, and 17,⁶ of which number 17 is Chartres itself. The other labyrinths have only one round course plus two folded motives.

Perfect vs. Canonical

Rosenstiehl speaks of Chartres as the only ‘perfect’ medieval labyrinth of depth 12, i.e. 11 circuits with the centre being termed the 12th level. His criteria include both a stretch H-array as well as a throat pattern consisting entirely of nested turns. Hebert prefers a less stringent definition and posits the 20 ‘canonical’ labyrinths⁷ found by himself and Smith which have reversible paths, a symmetrical/inverted throat pattern, and 3 repetitions total from the two types of ‘motifs’: round course or folded version (see figure 3). But the folded ‘motifs’ do not create a cascading serpentine path.

Figure 3:
(left) round course
(right) folded ‘motifs’



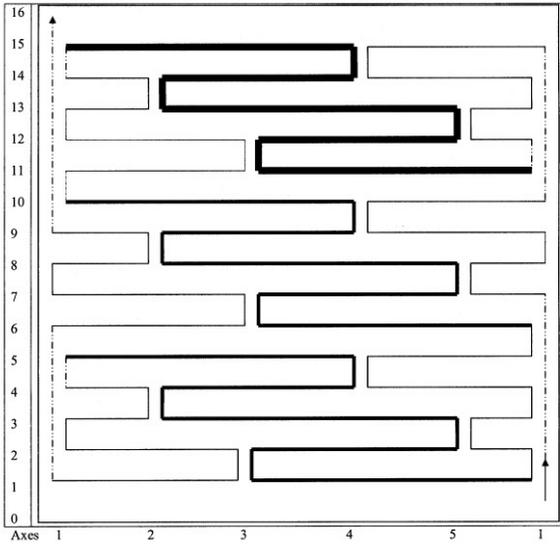
Andreas Frei greatly simplifies the work in designing a labyrinth by using a ‘cascading serpentine’ path on a rectangular graph, which can then be transferred to a circular version with the ‘goal’ in the centre. This method has the advantage that it can be generalized to labyrinths of any size, meaning greater or fewer numbers of circuits (levels) or semi-axes (arms). Since the cascading serpentine corresponds to the stretched H-array, the only difference between Frei’s definition and Rosenstiehl’s is the throat pattern, which shows up on the rectangular graph as the extreme left-hand and right-hand connections between levels. This is the “frame” which Rosenstiehl “cuts off” to end up with the H-array (see figure 2).

Creating new labyrinth designs

How does knowing all this help us to create new labyrinth designs? Drawing on the ideas of both Hebert and Frei, we can do the following:

- 1) Choose a motive, which will determine minimum depth and # of arms. For example, a 5-step motive going forward 3 units (arms), back 2, forward 3, back 2 and forward 3. The minimum depth would be 5, the number of arms 5 (add: $3 - 2 + 3 - 2 + 3 = 5$). In Frei’s terms, this would be a 3-2 pathway sequence.
- 2) Repeat the motive an odd number of times (say, 3) to set up a cascading serpentine path. That will create a labyrinth of 15 circuits (depth 16 when the centre is included) and 5 arms.
- 3) Fill in the open areas of the Frei-style graph to make a complete path. Make sure to do this symmetrically, or the path will not be reversible!
- 4) Make symmetrical connections between the motives to complete a reversible path. To be symmetrical, opposite corners and sides would be inversions of each other. Tony Phillips’ website⁸ also helps us here by noting that odd and even levels alternate in the level sequence. The path must exit on the opposite side from the entrance to be symmetrically reversible, and similarly, the first half of the thread will be the inversion of the second half. Figure 4 shows the result.

Figure 4: Frei-style graph for a 15-circuit, 5-arm labyrinth using a cascading serpentine pattern



The bold line shows the original 3-2+3-2+3 round course. The medium bold lines show the repetitions of the round course. The regular lines show the rest of the circuits filled in, and the dotted ---lines show the connections made between levels to complete the path (the frame). Each side of the throat contains a 6-nest and an 8-nest (right & left sides of Axis 1). Axis = Arm.

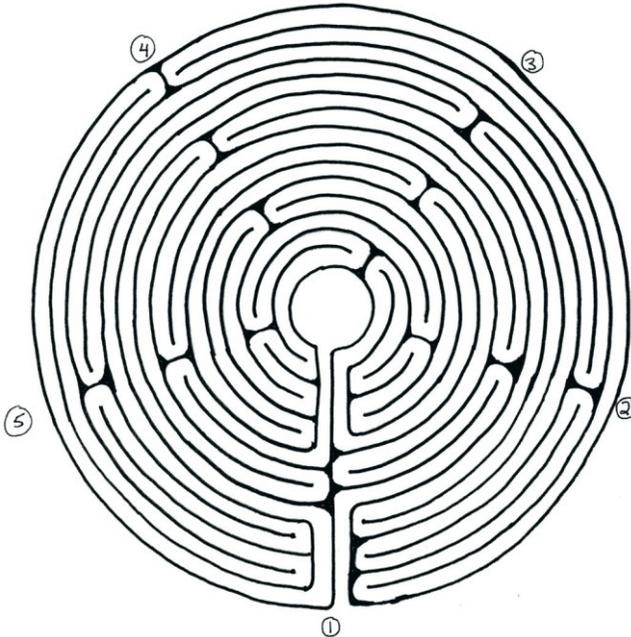


Figure 5: The resulting labyrinth

Classification/Ranking of Labyrinths

There is still work to be done on comparing the labyrinths, similarities and differences: All of the six labyrinths listed above have the same pattern on the top semi-axis (arm). Using S to indicate Straight run (Single level) and T to indicate Turn (Two levels connected by turn) the top axes are all T S T S T S T. In addition, all of them have the same or inverted pattern on the left and right semi-axes (using Daedalus numbering, and reading across the labyrinth from left to right):

Labyrinths 9, 15 & 17: S T S T S T S S Centre S T S T S T S S

Labyrinths 10, 11 & 12: S S T S T S T S Centre S S T S T S T S

Thus they differ mainly in the throat pattern, see figure 6. They can be further ranked according to how internally symmetrical (inside to outside) each side of the throat pattern is, from inside to out. For purposes of nested levels and turns, the entrance and centre are counted as levels 0 and 12.

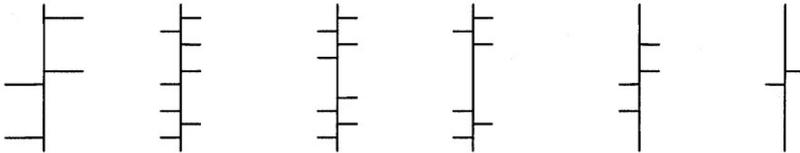


Figure 6 (above): Throat patterns (walls, not thread)

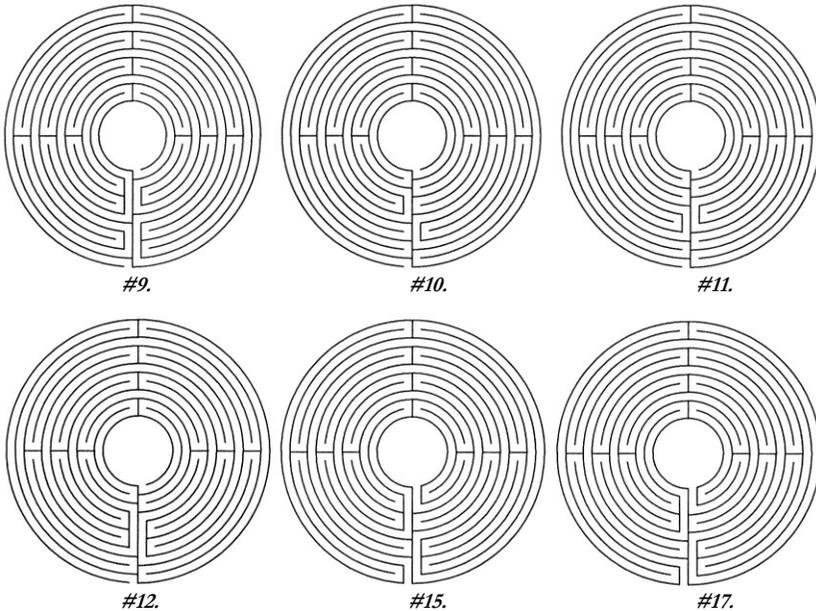


Figure 7: The six 'canonical' labyrinths that incorporate 3 round courses

Comparison of the six labyrinths that incorporate 3 round courses

- #9: Each side holds a 6-nest and a 4-nest.
- #10: Each side has a 4-nest.
- #11: Each side has a 4-nest, like #10, but close to the centre of the throat (more symmetrical).
- #12: Each side has one 6-nest.
- #15: Each side has a 6-nest and a 4-nest, but the 4-nest is weaker, includes the outside & centre.
- #17: Chartres: each side has *two* 6-nests!

Chartres (#17) has essentially a cross within the throat, dividing it into four sets of nested turns (each set is what I will call a ‘6-nest’). Only #11 has comparable symmetry, but with a 4-nest (4 levels/2 turns nested) halfway into the centre, surrounded by two non-nested turns on each side (inward side and outward side). None of the other four have this internal symmetry within a side, however, 9 and 15 both have a nest in each quadrant of the throat, but it's a 4-nest balanced against a 6-nest. In #s 10 and 12, each side has only one nest, not centred, though 12 comes closest.

In Conclusion

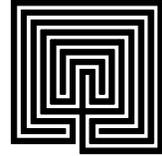
So, since there is currently no accepted definition as to what constitutes a ‘perfect’ or canonical labyrinth, I suggest it might make sense to rank them on degrees of symmetry: 1 degree for left and right axes being identical or reversed left to right; 1 degree for having left and right throat being identical or inversions of each other, and 1 degree for internal throat symmetry, inside to outside. By this reckoning, labyrinths #11 and #17 would have 3 degrees, labyrinths #9, 10, 12 and 15 would have 2 degrees, and the others (#s 1-8, 13, 14, 16, 18-20) only 1 degree of symmetry.

I hope these thoughts will be a useful tool for thinking further about these medieval labyrinths!

Ellen Galo. St. Lawrence University, Canton, NY, USA. July 2007
Email: egalo@stlawu.edu

References

- 1 Frei, Andreas. “The Cascading Serpentine” *Caerdroia* 35 (2005), pp.19-26.
- 2 Smith, Tristan. “A Daedalus for the 20th Century” *Caerdroia* 35 (2005), pp.27-33, with forward by Jacques Hebert.
- 3 Jacques Hebert’s website: www.labyreims.com
- 4 Tristan Smith’s website: www.otsys.com/~tsmith/labyrinths
- 5 Rosenstiehl, Pierre. “How the Path to Jerusalem at Chartres Separates the Birds from the Fishes” in *M.C. Escher: Art & Science*, Proceedings of the International Congress on M.C. Escher, Rome, Italy, 26-28 March, 1985. Elsevier, Holland.
- 6 All 20 are given at: www.otsys.com/~tsmith/labs.startWith1/pic.11.hebert.pdf
- 7 See: www.labyreims.com/e-annexe2.html
- 8 Tony Phillips’ website: www.math.sunysb.edu/~tony/mazes



Our regular round up of matters labyrinthine brings together short contributions and notes from Caerdroia readers, also items from the Archives that need further research, or simply deserve recording. Similar notes, and queries, are welcomed for future editions.

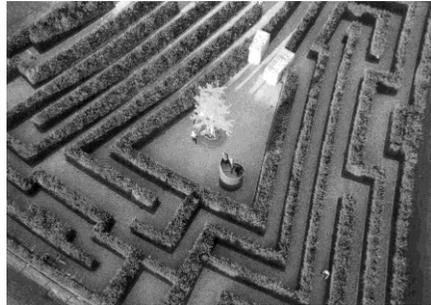
A New Hedge Maze in Berlin

Ralf Thiele

We all know of the symbolic hedge mazes created by Randall Coate (1909-2005), the first at Lechlade Mill in England in the shape of a giant's footstep, but with his passing, has the symbolic hedge maze come to an end? In June 2007 a new hedge maze planted in yew opened to the public surely continues this tradition. It is located in the "Erholungspark Marzahn" park in the east of Berlin, Germany. Covering 1885 square metres (ca. 55 x 45 metres), it was planted with 1225 bushes, has a total path length of c. 600 metres at a total cost of 710,000 Euro. Thomas Michael Bauermeister, a German landscape architect and member of "Gruppe F," based in Berlin, designed it.

While it is a 'copy' of the well-known Hampton Court design - the trapezoid shape has been maintained and with it the pattern of junctions and dead ends - the whole maze has been artfully transformed. A small metal tower (2.5 metres high) and a ginkgo tree adorn the goal, at the entrance to which, the visitor passes between two massive stone pillars of rough granite. Metal fences protect the hedges and the paths, wide enough for wheel chairs, are completely paved. At the entrance an enlarged copy of the Chartres labyrinth pattern, set in paving, embellishes the space.

In Germany only three old hedge mazes of importance had survived: Altjessnitz (1735), Mosigkau (1757), and Aschaffenburg (1829). The new maze in Berlin will, after a long period, now continue the tradition of artful, formal hedge mazes in Germany.



*Above: overhead view of the maze. Photo: Jürgen Hohmuth/www.zeitort.de
Below: the labyrinth and hedge maze. Photo: Gruppe F, Grün Berlin Park & Garten GmbH*



As a collector of all things labyrinthine, one occasionally discovers an item that while quite clearly unique, is also very difficult to ascribe with any accuracy. Such was the case with a carved wooden plaque I recently acquired from an antiques dealer. Hand carved from two roughly joined pieces of mahogany off-cuts and coated with varnish, the plaque is 20.5 cm wide and 25.5 cm tall (approx 8 x 10 inches).

Unsigned, or marked in any other way, it is very difficult to know how old or where this item may have been made, but there are some clues to be gleaned. The relatively crude carving and construction suggests that this is a piece of ‘amateur’ woodworking, rather than an item produced for sale, and the ornament that fills the upper triangular panel is of a style commonly known as a “Glasgow Rose.” This design element is quite common on arts and crafts woodwork from the Glasgow area of Scotland, and further afield, from the 1890’s onwards, when the work of Charles Rennie Mackintosh inspired many amateurs to try their hand at woodworking, often at special schools and evening classes set up during the late 19th & early 20th centuries to train and educate working men and women in various handicrafts within the Arts & Crafts ethos.

The labyrinth design on the lower panel is of the familiar ‘classical’ form, but with a ‘spot’ at its centre and a small arrow indicating the entrance. This bears a close resemblance to the published plan of the turf labyrinth formerly at Stuartfield, Aberdeenshire, in Scotland (see “A Scottish Turf Labyrinth,” *Caerdroia* 32 (2001), p.39-40), which likewise has a similar central spot and arrow arrangement, although the labyrinth is reversed, with the entrance to the right. Possibly the creator of the plaque had seen this plan or had lived or worked in the Aberdeen area?

Although this item could conceivably date from anywhere between the 1890’s to the early 1930’s, the combination of style and the specific labyrinth design might suggest a date from somewhere around the middle of this range, and it was surely made in Scotland, perhaps in Glasgow, but maybe in Aberdeenshire?

*Hand-carved wooden plaque
with labyrinth and “Glasgow
Rose” design.
Labyrinthos Archive*



The Tofte Manor Labyrinth an announcement from Suzy Castleman

The labyrinth at Tofte Manor is set in five acres of beautiful, English countryside in the lovely Bedfordshire village of Sharnbrook. Its design faithfully copies the layout of the labyrinth at Chartres Cathedral in France that dates at around 1200, during the time of the Crusades, and was used during this period as a prayer tool for those that could not afford to make the journey of pilgrimage to the Holy Land.

The Tofte Labyrinth was conceived with the help and guidance of the Universe and brought into being by Suzy Castleman. It was built by Haywood Landscapes of Canterbury, with input and advice from Jeff Saward and Kimberly Lowelle Saward, and was completed in October 2004.



The Tofte Manor Labyrinth, Sharnbrook, England

The labyrinth here at Tofte holds unique qualities, incorporating all four of the elements in its design, earth, air, fire and water. Earth and air lovingly surround and support us. Fire is represented by the stainless steel mirrored tetrahedrons that surround the site. Water runs through six hundred metres of copper piping below the earth, creating a replica of the labyrinth pattern underground. A large celestial smoky quartz crystal is buried in the centre of the labyrinth.

Samples of water entering and leaving the Tofte Labyrinth were sent to Professor Masaru Emoto's Hado Life Laboratory in Lichtenstein for freezing and photographing. They show a definite change in the ice crystals before (above opposite) and after passing through the pattern of the labyrinth (below opposite). Professor Emoto has discovered that good, healthy energized water when frozen will always create a hexagonal shape, a snowflake and that polluted or un-energized water forms a chaotic crystal with no geometric structure.



It is this geometric pattern in water crystals that creates the circuitry through which the subtle electromagnetic energies in our bodies can flow. Our bodies are made of 70% water and our brains 90%. If the water in us has broken circuitry we have a reduced circuitry through which the subtle energy - sometimes referred to as *prana* or *chi* - can flow. By walking the labyrinth you allow the energy circuits in your bodily fluids to return to a geometric form that enables you to 'plug' into the Universal Energy fields. The energised water can be drunk from the tap at its entrance.

Surrounding the labyrinth's outskirts are five steel tetrahedrons and five box cones. These are anchor points for the energetic form that surrounds the labyrinth, which is a three-dimensional twelve-pointed star, the Solar Star. The Tofte logo represents the two-dimensional form of this star. It is made up of two pentagrams, one pentagram represented by dots, the box cones, and the other, by triangles, the tetrahedrons, at the outer points of the stars. These stars overlay each other, and represent the fusion and blending of opposites - the blending of spirit with matter, male with female, electric with magnetic, in with out and above with below.

By using the labyrinth, (which creates balance), to blend and fuse these elements, we form the Sacred Union, the Sacred Marriage within us. All is blended in perfect harmony. During this union a third powerful force is created, love.

The energy of love opens a portal of creation in the heart of the labyrinth, as it does in us, connecting another two points, above and below the centre, to make the twelve points of the Solar Star.

It is with this in mind that this labyrinth has been created. Open your hearts and enjoy!

Labyrinth Retreats

If you are drawn to labyrinths and wish to explore them more deeply then join us for a day, a night or more at Tofte Manor. Give yourself some time to slow down into the rhythm of life and experience your inner self through this wonderful symbol of the pattern of creation. A 'Labyrinth Retreat' or workshop offers you the chance to work with the labyrinth by yourself or with the help of a mentor, through guided walks and meditations. We provide beautiful accommodation and healthy organic food. If you wish to cater for yourself this is also possible. Please contact for information on prices or see our website.

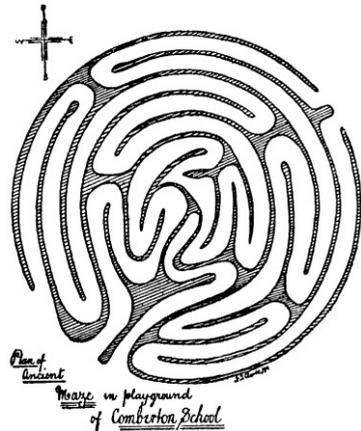
Tofte Manor Labyrinth and grounds are open to the public every last weekend of the month on Saturday and Sunday from 10am-5pm during the month of May, June, July and September. Closed all of August. Visits can be arranged by special appointment outside of these dates, Please call 01234 781924 for details. Tea and cakes are also available.

Tofte Manor & Labyrinth
Souldrop Road, Sharnbrook,
Bedfordshire, MK44 1HH, England



Website: www.toftemanor.co.uk - Email: enquiries@toftemanor.co.uk

The village of Comberton, near Cambridge, England, was formerly home to a turf labyrinth known as the “Mazles.” Situated in the grounds of the village school at the centre of the village, 50 feet (15.2 metres) in diameter, it was of the ‘mediaeval’ design, very similar to the surviving turf labyrinths at Hilton and Alkborough. First documented in 1835 in Thomas Wright’s *History of Essex*, when it was already considered to be of considerable antiquity, a plan of the Mazles published in 1892 shows a confused pattern, undoubtedly due to excessive wear from the children of the village. Another plan, preserved for many years at the village school, but now missing, recorded the design as it appeared prior to its eventual destruction. This tallies well with a photograph of the Mazles taken in 1921.



Above right: plan of the Comberton Mazles, by J.S. Clarke of Cambridge in 1892



Left: photograph of the restored Mazles taken by W.H. Matthews in 1921

During the 18th and 19th centuries the Mazles became an integral part of the village Easter fair and feast, and was apparently re-cut and restored every third Easter. In 1846 a school was built upon the common and the labyrinth was now within the school ground, situated just outside the front door of the school. This led to much damage and wear to the ridges (probably accounting for the confused 1892 plan), until in 1908 a sum of 20 shillings was paid for the construction of a faithful copy a few yards away in the southwest corner of the playground.

In 1910 a railing was erected around this labyrinth to protect it, but by the late 1920's the Mazles was again falling into disrepair, and in 1929 the maze was destroyed and the site was subsequently covered with tarmac. Although the Mazles has been lost, the old school still stands and now serves as the village nursery school.

While the later history of the Mazles is well documented, its origin remains a mystery. It has been plausibly suggested that the original Mazles may have been constructed sometime shortly after 1660, as a copy of the example at Hilton; it was of similar size and of the same basic design. Furthermore, its original location on Comberton village green was adjacent to land owned by Barron Britton, who in 1654 married Martha Sparrow of Hilton, presumed to be the sister of William Sparrow, the creator of the Hilton turf labyrinth in 1660. Certainly the circumstances and timeframe would be correct for a mid/late 17th century construction date, although it could be argued that the Hilton labyrinth was copied from an earlier example at Comberton.

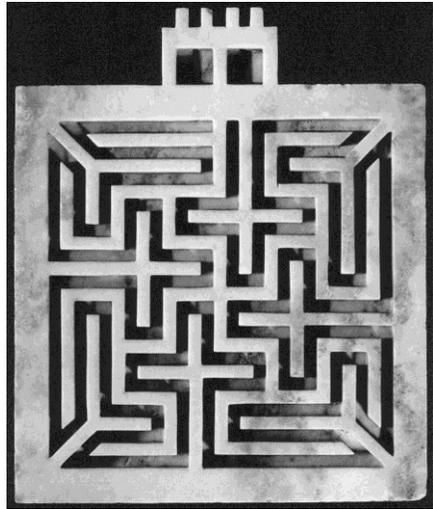
Early in 2006 a proposal was put forward in Comberton to create a replica of the Mazles, on the playing field of the Meridian School, the new school that now stands on the edge of the village, as the original site was clearly unsuitable for the project. Coordinated by Kate Armstrong, with funding gathered from the National Lottery, the Greening our Villages program and the Meridian School PTA, the layout, and design consultation was provided by Labyrinthos and construction by carried out by the strong lads from Sylvia Newman Garden Design of Cambridge.

Despite the inclement weather that constituted the early summer of 2007, the first half of May saw the ground prepared and the trenches of the labyrinth cut and back-filled with pea shingle over a weed-proof membrane. Many of the school children were involved in the project, documenting the construction progress, and occasionally wielding a shovel. With time allowed for the grass to grow back and the shingle to compact, the new Mazles, 15.3 metres (50 feet) in diameter and a close replica of the original, was officially opened at the School Summer Fair on June 9th 2007. With a long-term maintenance program now in place, hopefully the new Comberton Mazles will provide entertainment for the school children of Comberton for many generations to come!



*The Mazles, Meridian School, Comberton, at its official opening, June 2007.
Photo: Jeff Saward/Labyrinthos*

Mention was made in Caerdroia 36 ("Labyrinths in Western India," Jeff & Kimberly Seward, p.62) of a carved water maze from Rajasthan, Northern India, in the form of a swastika-meander. This unusual and finely carved square marble water maze, illustrated opposite, with a radiating geometric design through which the water flows, is 60.5 x 72.6 cm and 8.2 cm in depth. Originally from Rajasthan, and now in a private collection, it is of the Mughal period and dated to c.1800. At the top can be seen the carved channels of the neck through which the water enters and leaves the maze. The pattern itself, with its interlocked crosses, sharp angles and clean lines, makes an abstract pattern whose angularity can be enjoyed in itself or softened by the gently flowing water that courses through its channels.



In the Islamic garden, the control of nature by man is a parallel to the order given by Allah to the world, and a similar water maze (one of a pair flanking an octagonal fountain) can be seen in a watercolour painting of the Maharana Sangram Singh celebrating the spring festival of Holi in his garden, painted by an unknown artist in Udaipur, India, c.1715-1720.



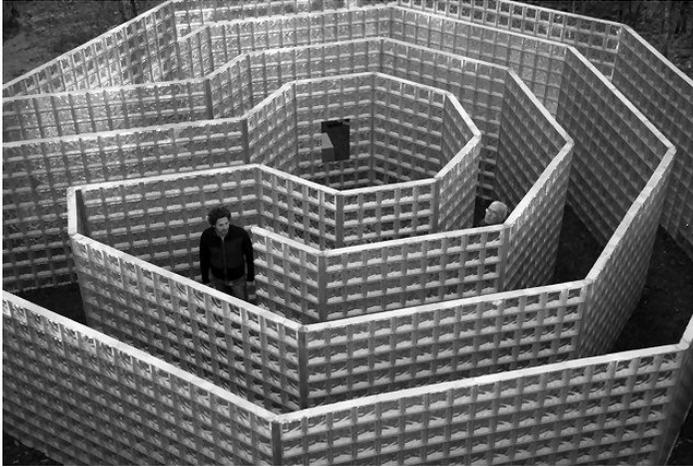
Recently I have commissioned a number of reproductions of the original marble water maze, likewise in the finest white marble from the quarries used for the Taj Mahal, some with decorative inlays and some with Persian calligraphy, that are now available for sale, email: bowden@royalmarble.co.uk for details.



*Above top: the water maze from Rajasthan
Above: detail from the painting of Sangram Singh
Left: a reproduction water maze with inlaid floral border – other finishes are available*

Two New Labyrinths in Europe

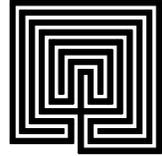
A labyrinth created of glass bricks at the Chianti Sculpture Park, north of Siena, Italy, in 2007. Designed by Labyrinthos and built by Seves, the suppliers of the construction materials, it is set in woodland and lit from below in the evenings, when the pale blue glass bricks appear to glow amid the trees. Photo courtesy of Piero Giadrossi. For more details visit: www.chiantisculpturepark.it



Christa and Dieter Wendling created this beautiful Lavender Labyrinth in Kastellaun, Germany. It is open all year but is certainly most exciting to visit during the summer months when the lavender plants are in bloom. Photo courtesy of Dieter Wendling.



The Labyrinth Society



Kimberly Lowelle Saward

The Labyrinth Society, affectionately known as TLS, was founded in 1998 to support all those who create, maintain, and use labyrinths and to serve the global community by providing education, networking, and opportunities to experience transformation. Though it is based in the USA, it is an international organization with members all over the world. Membership in the Society not only connects labyrinth enthusiasts to a worldwide community, but also supports websites and other labyrinth projects that provide information and resources to the world at large. As founding members, Jeff and I have long believed that TLS is an excellent community for labyrinth enthusiasts the world over, and would recommend membership for anybody working with, or interested in labyrinths.

TLS stages an annual Gathering and Conference in the USA each autumn. These gatherings are an opportunity to meet fellow enthusiasts from around the world and participate in a weekend of labyrinth-related presentations, workshops and activities. The 2007 Gathering was held in Kansas City, Missouri and the 2008 event will be held on November 7-9, in Atlanta, Georgia. Additionally, smaller regional events are held from time to time to support local enthusiasm and networking.

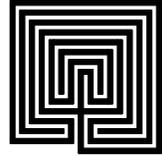
The ties between Labyrinthos and TLS are increasing. Caerdroia is now offered as a member benefit and Labyrinthos has been commissioned to publish an annual journal, focusing on the labyrinth from a perspective of Spirituality, Health, and Art. This new journal, titled *Labyrinth Pathways*, made its debut in spring 2007, with a new edition out in summer 2008. Copies are available from both Labyrinthos and The Labyrinth Society.

The Worldwide Labyrinth Locator Website, a joint project between TLS and Veriditas in San Francisco, provides information about labyrinths, new and old, around the world. While donations are encouraged to defray costs, the service is free to the public. This user-friendly database can be searched by anyone with access to the Internet, and allows individuals to upload information about their local labyrinths, both public and private. The locator now lists more than 2500 labyrinths, with more being added each week, and recent upgrades to the software have made it more searchable and useful than ever. It can be accessed through the websites of either organization: www.labyrinthociety.org or www.veriditas.net

The TLS website is currently undergoing an extensive redesign, but meanwhile it continues to offer an amazing array of labyrinth resources. An online directory of labyrinth related products and services was launched last autumn; with new advertisers joining all the time, it has become the place to find all things labyrinthine. Sig Lonegren is now administering the Online Forum where TLS members can dialogue about their labyrinth questions, ideas, and events and the website also boasts an extensive bibliography and other information which is free to the general public. To learn more about The Labyrinth Society, visit their website **www.labyrinthociety.org** for full information and details, or write to:

The Labyrinth Society, PO Box 736, Trumansburg, NY 14886-0736, USA.

Kimberly Lowelle Saward Ph.D; TLS President



Review copies of maze and labyrinth related books, publications, software and CD's, etc., are always welcome for inclusion in future editions of Caerdroia.

The Amazing Book of Mazes : by Adrian Fisher. Thames & Hudson: London, 2006. ISBN 0-500-51247-7. Hardback, 264 pages, over 450 colour illustrations throughout.

This chunky new book from Adrian Fisher, without doubt the most prodigious builder of mazes the world has ever known, is a visual feast for the maze enthusiast. With colour photos and plans of mazes, and some labyrinths, on practically every page, the text that runs alongside is a concise and accurate thread, guiding the reader through brief histories of various maze categories and then on to notable examples of those types from around the world. From turf labyrinths, to mazes built of hedges, mirrors, wooden panels and a multitude of other materials, they are all contained within the covers. As one might expect, the examples featured are often those created by the author himself, and why not when he has so many to choose from!

A great book for adults and children, the mildly curious and the enthusiast alike, for those of us that have followed Fisher's career and for researchers of maze design and evolution, this book also provides a valuable illustrated catalogue of the remarkable output from the Adrian Fisher Mazes stable over the last quarter century. Particularly interesting are the numerous plans of his Maize Mazes, which due to their ephemeral nature might otherwise go unrecorded in labyrinthine literature. The final section of the book allows the author to present a number of his colour-mazes and conditional-movement mazes, and in a final flourish, a multi-layer maze that extends over eight fold-out pages, complete with punched-out portholes that link one side of a page to another. Without doubt, the most colourful book on mazes ever produced, it also stands as a record of Fisher's amazing ingenuity and imagination.

Jeff Saward

Labyrinths for the Spirit : by Jim Buchanan. Gaia Books (Octopus): London, 2007. ISBN 1-85675-261-5. Paperback, 144 pages, colour photos and illustrations throughout.

This is a book for the creative-at-heart. From small personal doodles to dimensional constructs to vast outdoor installations, the author instructs and encourages the reader in making labyrinths wherever and whenever. Many of the author's own labyrinth installations and projects are featured in this well-illustrated book, but he also takes care to give a sampling of labyrinths from around the world and throughout time. The attention to detail and careful step-by-step instructions for making labyrinths of various designs make this a valuable resource for anyone beginning the process of making a labyrinth. A glance through the book reinforces the idea that there are really no limits on what you might use and how you might fit the labyrinth, whether temporary or permanent, into the chosen setting.

A significant part of the book speaks to the intended use of the labyrinth. Careful consideration is given to creating a good fit between location, material and design so that the end result will be as useful as it is aesthetically pleasing. By outlining his own projects, the author shows by example the foresight needed in addressing crucial questions such as material quantities, optimal orientation, site preparation, and maintenance requirements. Deciding to build a labyrinth is an exciting decision, and those new to the task will find this book to be a great inspiration and an essential reference guide. Experienced labyrinth builders, as well, might well find themselves pushing beyond their former limits as they play with new ideas for what might be possible.

Kimberly Lowelle Saward

Doolhoven en Labyrinten in Nederland : by Fons Schaefer & Anne Mieke Backer. De Hef Publishing: Rotterdam, 2007. ISBN: 9069060396. Paperback, 128 pages, colour photographs and illustrations throughout. Details from: www.doolhoven.nl

This is the book of the website: and a welcome publication it is, too, not only for its intended Dutch audience but for the many people, myself included, who make a point of seeking out mazes and labyrinths when visiting The Netherlands.

To whet your appetite there are more than 20 splendid colour photographs right at the front. The book itself is in two parts. It begins with a history of the labyrinth and maze, and particularly its development in The Netherlands. I was both fascinated and sad to read about (and sometimes see pictures of) mazes that no longer exist, but the section on modern developments - 'De grote comeback' - is encouraging. The second part of the book is a guide to extant examples that you can go to visit, in Province order. Each entry gives a description and history of the maze or labyrinth, its location, and opening hours, often with a reference to a website. Also included is a useful map and comprehensive index - and a list of less important mazes and labyrinths that are not given full entries in the guide. There is also a bibliography; more than half of the books mentioned are in English and will be well-known to readers of *Caerdroia*, particularly those by our own Editor, who also supplied some of the photographs used in the book.

The text of the book is in Dutch, but don't let that put you off: there is a summary in English at the back, and a translation of the all-important word 'onbeperkt' which indicates that the site in question is open all the time. And even if you find it impossible to get the gist of the Dutch descriptions, the book is worth it for the pictures alone.

I bought and used the book on a recent visit to The Netherlands, and was delighted to discover two 'new' labyrinths with its help. But I would have welcomed fuller directions as to how to find the various sites and if it is possible to travel there by public transport. I realise that these details would go out of date (though in The Netherlands the public transport network tends to be on the increase rather than going into reverse as in many parts of the UK) but it does mean that to get the most out of the guide you have to have internet access. I also noticed one or two typos, mainly of Dutch spellings creeping into English. The Stichting Doolhof en Labyrint is to be congratulated on its initiative, both in maintaining the website and in producing this useful and fascinating book.

Penny Granger



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*Caerdroia is an independent
journal for the study of
mazes & labyrinths*

*Established 1980
Published annually*

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