

CAERDROIA

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The Journal of Mazes & Labyrinths

39th Edition



Petroglyph of labyrinth and deer, Chan de Lagoa, Galicia, Spain. Dating from the late Neolithic or early Bronze Age, quite probably one of the oldest labyrinths in the world

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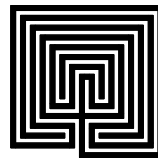
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Back cover : Wier Island Labyrinth; design by Jeff Saward, after Carl Ernst von Baer

Caerdroia 40 is due for publication November 2010, submissions by July 2010 please



Jeff Saward, Thundersley, December 2009

Welcome to the 39th edition of *Caerdroia*, somewhat later than planned, due to my busy travel and lecturing schedules during late 2009, other projects that kept me from my editorial duties, and various print schedule delays. Despite these problems, this edition contains the usual eclectic mix of new discoveries, studies of specific labyrinths and thoughts on matters labyrinthine from our contributors worldwide, as well as the return of our regular Notes & Queries section. This time around, pressure of space has forced us to hold over several book reviews, but these will appear in the next edition, later this year.

Shortly after *Caerdroia* 38 was delivered we heard the sad news that “Our Man in Denmark,” Jørgen Thordrup, had died at the age of 82. A tireless labyrinth researcher for some 50 years and a regular contributor of articles and notes to *Caerdroia*, his ‘back-room’ assistance with research, contacts, distribution and translation will be greatly missed. An appreciation of his life and work appears on page 48 in this edition.

Our next edition, *Caerdroia* 40, is scheduled for publication in November 2010 and will mark the 30th anniversary of the founding of *Caerdroia* back in 1980. A special edition is planned, but as always, if you have a paper or shorter article you wish to submit for inclusion in this landmark edition, send it to me as soon as possible, along the usual labyrinthine snippets and curios that help fill the pages...

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

Correction:

An error occurred in figure 7 of Ellen Galo’s article “Further Thoughts on ‘Perfect’ Labyrinths & How to Create Them” on page 48 of *Caerdroia* 37, showing the six labyrinths that contain 3 round courses - one of the labyrinths was a duplicate of another, and the Chartres labyrinth was mistakenly absent! The correct illustration appears opposite, please refer to this in conjunction with the article - we apologize for any confusion caused!

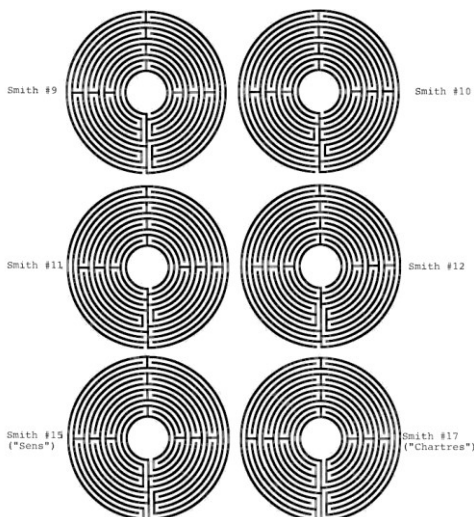
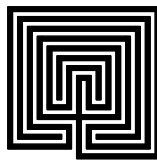


Figure 7: The six ‘canonical’ labyrinths that incorporate 3 round courses

From Troy to Paris: Labyrinth Lore from an Easterly Outpost

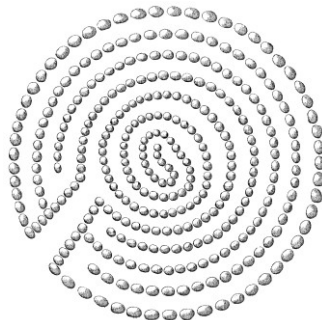


John Kraft

In the summer of 1838 Carl Ernst von Baer, an Estonian scientist at the University of Tartu, was travelling by ship in the Gulf of Finland. Lacking good wind, the ship anchored close to a small uninhabited island called Wier, eight kilometres southwest of the larger island of Hogland (Finnish: Suursaari = Big Island). He went ashore, had a look around and noted that the island was built entirely of cobble stones, ground to a rounded shape by the action of the sea, some of which looked like perfectly shaped cannon balls. The island had no trees, but some grass vegetation on the southern slopes. On this island von Baer found a small labyrinth built of stones, so similar to the natural surface of cobble stones that it was difficult to distinguish the pattern. Fascinated by his discovery, he made a drawing, which he later published and has since been reproduced many times in books and articles dealing with labyrinths. Thus, von Baer became one of the early pioneers of labyrinth research, simply because he wrote down what he saw, made a short speech about it at a scientific seminar a few years later and had it all published, in German, in a scientific periodical in Saint Petersburg.¹

von Baer's drawing of the labyrinth on Wier

The labyrinth was small, only about six ell across (3.6 to 4.5 metres) and, according to von Baer's drawing had eight walls, but was not of the familiar classical design with a central cross and four angles. He also recorded some other traces of human occupation on Wier, including some round cairns, large and small, arranged in two bending lines, the largest as high as a full-grown man. Von Baer also makes the interesting comment that it should not be necessary to describe the labyrinth in detail because most readers were probably familiar with the childhood game of drawing labyrinths with a slate-pencil on blackboards, or on the ground, with a twisting path inside a circle with only one entrance. He also suggests that young boys in Livland (southern Estonia and northern Latvia) might have acquired the game of drawing labyrinths with slate-pencils through Russian influence, but adds that the habit of making stone labyrinths had, to his knowledge, not spread to Livland.²



This was not the first time von Baer had seen a labyrinth. He describes in his article that he had previously seen three labyrinths in the far north, in Russian Lapland. One, similar in size to the labyrinth on Wier, was situated on the shore of the Bay of Wilowata, on the southern coast of Lapland and built of stones with sharp edges on a bare rock surface.³ He had also seen two other labyrinths on the eastern tip of the Kola Peninsula. They were situated on the bank of the river Ponoï, twelve kilometres

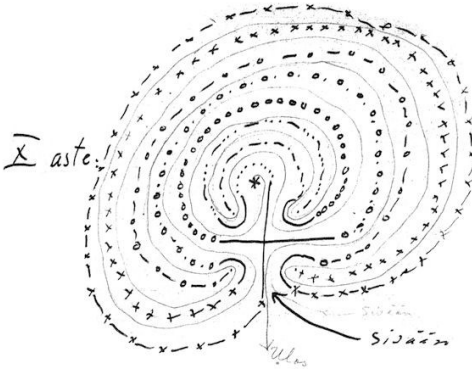
upstream from the mouth of the river. Larger than the examples at Wier and Wilowata, 12-15 ell (7-9 metres) in diameter, one of them had big stones forming the outer circuits. von Baer asked the priest in the village of Ponoï for information about the labyrinths, but all he could tell him was that they were old and no one knew who had built them. However, a citizen from Kem (a town on the west coast of the White Sea) told von Baer that such stone figures were called *Vaviloni* (Babylon).

The big island of Suursaari and the adjoining small uninhabited islands that von Baer visited in 1838 belonged to Finland between 1918 and 1940, and have since been part of the Soviet Union, and now Russia. While I have not been able to visit Suursaari or Wier, the purpose of this article is to record some information on labyrinths from Suursaari, reported prior to 1940. At that time Suursaari had a population of Finnish speaking farmers and fishers, but in 1940 the Soviet Union took over the island and turned it into a fortress to protect the sea entrance to Leningrad. While there do not seem to have been any stone labyrinths on Suursaari, it is obvious that the inhabitants were familiar with labyrinths. Therefore I feel quite convinced that the labyrinth on the uninhabited island of Wier, eight kilometres away, was built by people from Suursaari.

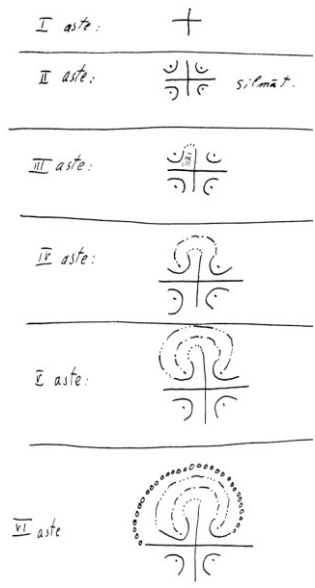
Several years ago, the late Jørgen Thordrup gave me some written records which he had obtained from Mrs. Pade, a woman of Finnish background, then living at Virum in Denmark. He said he wouldn't get round to publishing it and asked me if I was interested. I was, but it has taken me some time to do it! From Jørgen I obtained copies of a report, written in Finnish language at Lahti (a town in southern Finland) in 1919 by Emil Elenius, and translated to Danish by Mrs. Pade.

Elenius, who worked as a school teacher on Suursaari between 1900 and 1920, writes that the people living on Suursaari did not know how old the labyrinths were. They believed they were built by fishermen from Estonia or by shipwrecked seamen. The fisherman Eero Saukko, who had a farm on Suursaari, told Elenius that 50 years ago it was common knowledge among the young men on Suursaari how to build *Ranskanpariisi* labyrinths (Ranskan = French, Pariisi = Paris). Eero heard as a child that in France there was a town called Paris, and that the streets in Paris were built in a very intricate fashion, in order to confuse enemies and facilitate the defence of the town, at the centre was the square (Finnish: *Tori*). An accompanying drawing in Emil Elenius' report shows a perfect classical labyrinth pattern with eight walls and another annotated drawing demonstrates the well-known method to construct *Ranskan Pariisi* from a central cross, four angles and dots. Alongside is an interesting note: "Ranskanpaariisi built in the described way can be found on Itäviirissä, a small island circa six nautical miles SW of Suursaari, two of them."

There is no doubt that Elenius' Itäviirissä, which in other sources is called Itä-Viirike, Itä-Viiri, Viirisaari or Viringer (Itä = east, Viiri = streamer or pennant) must be identical with the small island of Wier mentioned by von Baer. The note by Elenius also confirms, indirectly, that there were no stone labyrinths on the large island of Suursaari, but there was at least one, possibly two, on the little, barren island of Itä-Viiri. This suggests that von Baer could have missed one labyrinth - easy to do, since they were built of cobble stones, resting on similar stones - but it is also possible that the second labyrinth was built after von Baer's visit in 1838.



RANSKAN PARISI
(Täivriisi)

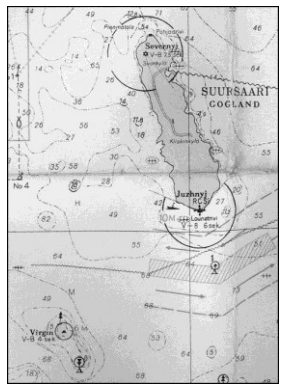


Above & right: sketches of labyrinths in Emil Elenius' 1919 report

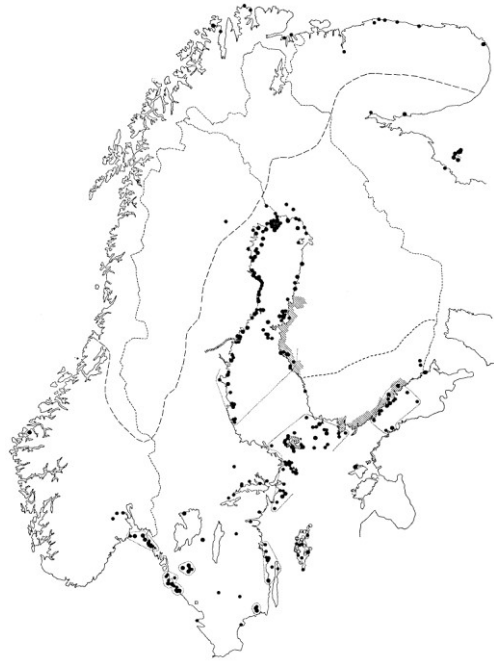
I asked The National Board of Antiquities (Museiverket) in Helsinki for a search in their archives, since Suursaari and Itä-Viiri belonged to Finland before 1940, and the Museiverket has supplied me with copies from a doctoral dissertation by Pirjo Uino on Ancient Karelia (Helsinki 1997). In her short description (in Finnish) of Itä-Viiri she mentions that at the highest point on the islet there is a *Jatulintarha* (Giant's fence, the most common Finnish word for labyrinth used by archaeologists). She refers to Emil Elenius' report from 1919 and stresses that he refers to two labyrinths on this islet. Uino also references Aspelin,⁴ who mentioned a number of cairns, as did von Baer, and to a short report on Itä-Viiri by Aame Europaeus, written in 1909. Europaeus states that on the island of Tytärsaari the residents say that on Itä-Viirike (Viringen), an island 8 kilometres from Suursaari, there is a *Parisin linnoitus* (Fortress of Paris) built by Estonian fishermen, situated on the highest spot of the island.

Kaj Granlund, from Lestijärvi, Finland, has kindly helped me with translations of these documents and also to find sea charts showing the position of Itä-Viiri. The island is only 500 x 150 metres and close to another small island called Virgin, which has a small lighthouse. Virgin is not a Finnish word, and is probably the name of the lighthouse. In an agreement from 1923 with the Soviet Union, Finland "undertakes to maintain and keep in good order" a number of lighthouses in the Gulf of Finland, the last one mentioned is Virgin.

Sea chart of Suursaari (Gogland) and the small islets Virgin and Itaeviiri (Wier), situated SSE of Virgin



- Stone labyrinth.
- More than one stone labyrinth.
- Late copy (Gotland).
- Turf labyrinth.
- ▲ Labyrinth carved in rock.
- Zones of stone labyrinths.
- ▨ Northern boundary of farmers in Sweden at the end of viking age.
- ▨ Swedish speaking population in Finland and Estonia.
- Boundary of Lapp territory today.
- - - Southern boundary of Lapp territory in Finland about 1100 AD.



Distribution of stone labyrinths in Scandinavia

Von Baer guessed that the idea of drawing labyrinths came from the east and had reached Estonia from Russia. That was surely a mistake. We now know that there is hardly any evidence indicating that the art of drawing labyrinths has spread from east to west in northern Europe. Labyrinths were common in Sweden, where they seem to have been introduced long ago (from the south), probably sometime in the late bronze age or early iron age, circa 1000-0 BCE. In Finland and Estonia almost all preserved labyrinths are found along the coasts, in areas dominated by Swedish-speaking farmers and fishermen who probably began to settle there in the twelfth and thirteenth century CE. The labyrinth traditions were probably spread from west to east by these Swedish settlers. The labyrinth(s) on Itä-Viiri are an easterly outpost of the stone labyrinths in the Baltic area. On the Finnish mainland some stone labyrinths are found further east, in areas dominated by Finnish speaking farmers, but they are rather few. Suursaari, with a Finnish speaking population, must have been influenced from the west, by the Swedish speaking farmers and fishermen on the Finnish or Estonian coasts.

It may seem strange to hear that the fishermen on Suursaari built one or two labyrinths on the small, barren islet of Itä-Viiri and none on their own island, where they lived permanently, but this is the common pattern all around the Baltic where stone labyrinths are found. They are almost without exception found on outlying islands, often small rocky islets without permanent settlement, but with traces of seasonal use. For a few weeks in the summer there was an abundance of herring in the waters near many of these small islands in the outer archipelagos, which attracted the fishermen. It was not possible to live permanently on these remote islands and there was no reason to do so. But during the brief herring season, the fishing at some of these islets provided an irresistibly rich harvest from the sea. It is relatively easy to recognize the traces of the temporary settlements of these fishermen - low stone walls and hearths

marking the base of simple huts or tents, small cairns which supported the simple wooden structures erected for drying the nets. And there are labyrinths, often just a few metres from these remains, hearths and cairns.

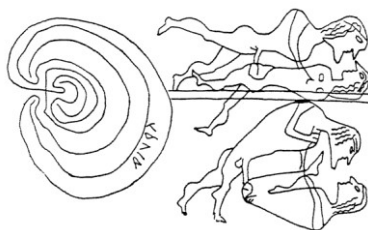
On the other hand, stone labyrinths are almost never found at the farms where these fishermen lived and spent the rest of the year working as farmers. It is obvious that many of them knew the art of drawing labyrinths but as a rule they only built stone labyrinths at their seasonal fisheries some distance away from home. The reason for this pattern is not clear, but there is a lot of evidence from Sweden and Finland suggesting that walking a stone labyrinth was supposed to bring good luck, with the weather or the catch, or both. Maybe this extra 'help' was more desperately needed during the busy weeks spent fishing on the outlying islands, than at home during the rest of the year.

But what could have given the farmers and fishermen on Suursaari the idea that the labyrinth pattern showed the streets, central square and defences of the French capital of Paris? It sounds very far-fetched, and I have never before met a folk tradition in Scandinavia connecting a labyrinth with Paris.

However, the notion that labyrinths represent forts, or fortified cities, that the path represents the streets of that city and the centre is the 'square,' has many parallels and seems to be a very old tradition, maybe as old as the labyrinth figure itself. A considerable number of Roman mosaic labyrinths display city walls with distinctive stonework, towers and gates, showing that the labyrinth represented a fortified city. Some Jewish manuscripts have drawings of labyrinths referring to the city of Jericho, likewise with walls, towers and gates. Similar labyrinth drawings in old manuscripts refer to Jerusalem, King Solomon's palace and Constantinople.

The oldest of these connections go back to the city of Troy. An Etruscan ceramic vessel from Tragliatella, Italy, dated to circa 600 BCE, has a labyrinth drawing of exactly the same type as that recorded on Suursaari in 1919, with the text *TRVIA* (Troya) inscribed on its outer circuit. Numerous labyrinths in Britain, Scandinavia and northern Spain also borrow their names from the famous city of Troy (Troy-town, Walls of Troy, City of Troy, Caerdroia, Trojeborg, Trojajorg, Trojenborg, etc.).

Labyrinth drawing with loving couples on the ceramic vessel from Tragliatella, circa 600 BCE. The Etruscans wrote from the right to the left. They borrowed their alphabet from the Greeks in southern Italy, but they didn't use the letter O, maybe because they didn't have that phonetic element in their language. In foreign words containing O they used U. This means that TRVIA is the Etruscan way of writing the foreign city name Troia (English: Troy)



Labyrinth names of the Trojeborg-type, and related forms, are especially common in Sweden, but there are also several different names applied to some labyrinths. For example, in northern Sweden a number of labyrinths are locally called *Viborg*, *Viborgs stad*, *Viborgska stan* (the town of Viborg), or *Ritningen till Viborgs stad* (map of the town

of Viborg), all alluding to the important Swedish border fortress at Viborg in Karelia, founded in 1293 and finally conquered by Russia in 1710. Further south in Sweden there are several examples of labyrinths that have borrowed their names from Jerusalem, like *Vandra till Jerusalem* (Walk to Jerusalem), *Jerusalems väg* (Jerusalem's road), *Jerusalems gator* (streets of Jerusalem). There are also two examples known as *Ninive*, after the old Assyrian city, well known through the Bible. Two other reports from Sweden describe the art of drawing labyrinths, mentioning that the figures were called *Konstantinopel* or *Väg in i Konstatinopels stad* (road into the city of Constantinople).

Many labyrinths in Finland are called *Jungfrudanser* (Virgin dances) and only a few of the *Trojeborg* names are recorded, all in the southeast, close to Sweden, but on the south coast there are some examples alluding to other famous cities. In the Swedish-speaking neighbourhood of Helsinki, labyrinths have been called *Jerusalems förstöring* (destruction of Jerusalem), *Jerusalems gata* (street of Jerusalem), *Jerusalemsborg* (fort/castle of Jerusalem) On the south coast of Finland are found *Jerusalemens kyrka* (Jerusalem's church) and *Jerusalemens porttjänare* (gates of Jerusalem's temple). Also in the neighbourhood of Helsinki there were labyrinths called *Ninives stad* (city of Ninive) and *Jerichos ritning* (map of Jericho). Further east along the south coast the name *Lissabon* (Lisbon) is also given for labyrinths.⁵

On the Estonian side of the Gulf of Finland, labyrinths have been called *Jerusalemens linn* (fortress of Jerusalem) and *Türgi linn* (Turkish fortress), the latter name was applied to two labyrinths on Aksi island, close to Tallinn. Maybe it alludes to Constantinople, conquered by the Turks in 1453? A surviving labyrinth at Kootsaare on Hiiumaa was known as *Jerusalem*, and it is recorded that schoolchildren in Estonia used to play *Jerusalemens mäng* (game of Jerusalem) on the blackboard.⁶

This long list of Scandinavian labyrinth names shows that, after all, it is not particularly surprising that the farmers and fishermen on Suursaari somehow got the idea that their labyrinths were representations of Paris, a famous city in a distant land. But why did they focus on Paris? Maybe they heard a lot about Paris in 1789, when the French revolution sent shock waves deep into all European countries. One can imagine that the labyrinth name *Lissabon*, found on the Finnish mainland north of Suursaari, had its origin in the equally shocking news of the devastating earthquake that destroyed Lisbon in 1755. Constantinople was conquered in 1453. Babylon and Ninive were known from the Bible, and just like Jerusalem and Jericho, had also been conquered, sacked and destroyed in the past. The Swedish border fortress of Viborg was besieged several times, and the successful defence of it in 1495 was particularly well-known and remembered in the region.

It seems as if the Swedish settlers, who migrated to the coasts of Finland and Estonia from the twelfth and thirteenth centuries onwards, brought the labyrinth lore with them to their new homes. Gradually the labyrinth ideas were also picked up by some of their Finnish and Estonian speaking neighbours. But the Troy names did not cross the Baltic. They remained common elsewhere in Scandinavia and can be traced as far as the archipelago of Åland, which lies close to Sweden (e.g.: *Trojeborgs slott*, *Trinneborgs slott*), but they are not found further to the east.

In the eighteenth and nineteenth centuries labyrinths in Finland and Estonia were still drawn and built in an unbroken tradition stretching back to the Bronze Age, but the old legend of Troy had faded away when the labyrinth lore crossed the Baltic to Finland and Estonia. This gave freedom to associate the labyrinth figures with other well known cities with a dramatic past: fiercely defended fortresses, conquered cities, places stricken by a terrible fate, such as Lisbon and Paris in the eighteenth century. It is probably not a coincidence that these two, rather late, labyrinth names are found in the easterly frontier zone of labyrinth diffusion in northern Europe.

And finally, a little detail... von Baer wrote that at Ponoï on the Kola Peninsula, he met a citizen from Kem, a town on the west coast of the White Sea, who told him that such stone figures were called *Vaviloni* (Babylon). Can that be confirmed? Yes, in 1910 the Swedish archaeologist Gustaf Hallström visited the famous monastery on the Solovecke archipelago, some 50 kilometres offshore from Kem. These islands have a number of beautifully preserved stone labyrinths. Hallström was guided by a hermit who told him about the labyrinths “that somewhere in the world there was a city called Vabilon (obviously, Babylon) and that these *Vabilons* (labyrinths) were built in memory of that city.”⁷

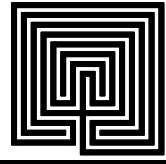
John Kraft; Västerås, Sweden, 2009.



“Great Babylon” stone labyrinth, Bolshoi Solovecke Island, Arctic Russia. Photo: Jeff Saward, 2001

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- 1 *Bulletin de la Classe Historico-Philologique de l'Academie de Sciences de St-Petersbourg*, Tome premier, St Petersburg and Leipzig 1844, p 70-79.
 - 2 Subsequent research has shown that stone labyrinths certainly existed on the islands off the Estonian coast. See Kraft J. & Selirand U. , “Labyrinths in Estonia” *Caerdroia* 23 (1990), pp.32-37 – also posted online at: www.labyrinthos.net/estonia.html
 - 3 This was probably the labyrinth that still survives at Pitkul, near Kandalaksha.
 - 4 Aspelin, J. “Steinlabyrinth in Finnland” *Zeitschrift für Ethnologie* vol.IX, 1877, pp.158-159.
 - 5 All these examples are picked from Kraft, J., “Labyrinthnamn - från Troja till Trelleborg” *Sydsvenska ortnamnsällskapets årskrift* Lund, 1986, p 8-72.
 - 6 The examples from Estonia are picked from “Labyrinths in Estonia” by John Kraft and Urmas Selirand, *Caerdroia* 1990, p 32-37
 - 7 Hallström, Gustaf.. “Ett besök i det solovjetska klostret vid Vita havet” *Hjälp Ryssland* (utgiven av Centrala hjälpkommittén för Rysslandshjälpen), p 26. Stockholm, 1922.
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Completing the Veneto Labyrinth



Richard Myers Shelton

Abstract: The partially hidden labyrinth in Veneto's "Portrait of a Young Man" can be completed in nine distinct ways. Several of these are reasonable candidates for the original design.

One of the tantalizing labyrinth puzzles from older times is the labyrinth portrayed in Bartolomeo Veneto's richly detailed "Portrait of a Young Man," painted circa 1510 (figure 1). The painting is illustrated and discussed in Kern as item 374 (2000 edition), and is also featured there in a full-page colour plate. The labyrinth appears as a design in gold brocade on the gown worn by the subject of the painting - but his fur lapels, hands and sword hilt obscure part of the design (figure 2). Even partially hidden, the labyrinth draws the eye; and the mind quickly follows, wondering how the labyrinth should be completed.



Figure 1: Veneto's "Portrait of a Young Man" photo: courtesy of the Fitzwilliam Museum

The labyrinth is portrayed with gold thread on a black cloth background; but counter-intuitively, the black lanes form the path; the gold areas are the walls. The hope is that enough of the labyrinth is visible that the rest can be deduced. A quick initial reconnaissance is not encouraging: one axis is almost completely obscured, and key information appears to be missing on the others. But close observation of the axes gives more information than is at first apparent.



Figure 2: Detail of the labyrinth

I will label the axes T, L, B, and R, for *Top*, *Left*, *Bottom*, and *Right* (where Left and Right are from the viewer's perspective, not the subject's). T is the main axis, the "throat", where the entrance and exit lie. L is the axis that is almost completely obscured.

The R axis

Figure 3: Detail of the R axis



The first question is how many courses there are. The R axis shows just enough dark area behind the subject's hand to convince us that this is the centre showing: the area is too wide to be another inner course. Counting then out to the edge of the design reveals ten courses. I will label these 1 through 10 from the outside in.

Most of the rest of the R axis is visible (figure 3). Only the outer two courses are hidden. These do not join with course 3, since course 3 goes straight through the R axis. Since courses 1 and 2 are joined at the right side of the T axis, they cannot be joined at R; otherwise they would form a closed loop. Therefore courses 1 and 2 must, like 3, run straight across the R axis. This completely determines the R axis.

The B axis

Figure 4: detail of the B axis



Most of the B axis is also determined (figure 4). Lane 9 is clearly a straight run, so lane 10 must be also (and just enough of lane 10 is visible beneath the man's pinkie to confirm this). Lanes 7 and 8 are joined, and lanes 4, 5, and 6 are straight runs. Lanes 1 and 2 are hidden, and not quite enough of lane 3 is visible to determine whether it joins to lane 2.

As at the R axis, lanes 1 and 2 cannot be joined here, since otherwise they would form a closed loop with the join at the T axis. So, either 1, 2, and therefore 3 are all straight runs, or 2 and 3 are joined. Either way, 1 must run straight through.

So the only question about B is the behaviour of lanes 2 and 3: either they are joined, or they are straight runs. I will call these two variations B1 and B2:

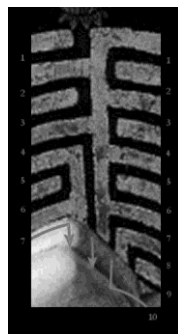
B1: Lanes 2 and 3 are joined.

B2: Lanes 2 and 3 run straight through.

(I suspect that in the original they were joined, since otherwise most of the lanes on this axis would be straight runs.)

The T axis

Figure 5: detail of the T axis



The right-hand side of T is almost completely visible (figure 5), and the hidden portion can be deduced. Lanes 1 through 6 are joined in adjacent pairs, and lanes 8 and 9 are joined. Lane 7 is connected to something farther in. Since there are 10 courses - an even number - the exit to the labyrinth's centre must lie on the same side of T as the entrance, which is visible on the left-hand side of T. So on the right-hand side, 7 cannot also connect to the centre. The only other possibility is that 7 connects to 10, and this completely determines the right-hand side of T.

The left-hand side is more problematic. The visible evidence shows that 1 is the entrance, 2 and 3 are connected, and 5 and 6 are connected. Lanes 4 and 7 each connect to something farther in, while 8, 9, and 10 are hidden. That leaves three possible variations (figure 6), which I will call T1, T2, and T3:

1. If lane 4 connects to the centre, lanes 7 through 10 must connect to each other, and there are two possibilities:

T1: 4 connects to the centre, 7 connects to 8, and 9 to 10.

T2: 4 connects to the centre, 7 connects to 10, and 8 to 9.

2. If lane 4 does not connect to the centre, it must connect to 9. We can see that it does not connect to 7. Connecting to 8 would isolate 7, while connecting to 10 would isolate one of 7, 8, or 9. Thus 4 must connect to 9, which requires connecting 7 to 8 and 10 to the centre. This yields:

T3: 4 connects to 9, 7 to 8, and 10 to the centre.

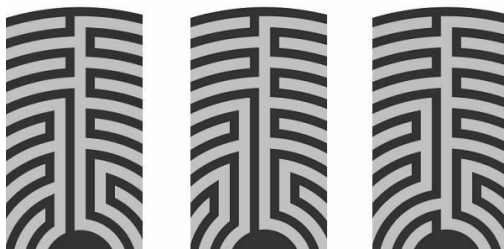
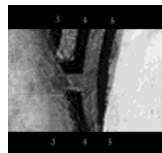


Figure 6: T1, T2, and T3 (possible variations of the T axis)

The L axis

Figure 7: Detail of the L axis

Unfortunately, not much is visible of the L axis: 3 and 4 are connected, while 5 is a straight run (figure 7).



For lanes 1 and 2 there are two possibilities: either they are straight runs or they are connected to each other.

Lanes 7 and 8 are connected at B, so connecting them here would lead to a closed loop. Thus at L lanes 6 and 7, like lanes 1 and 2, are either both straight runs or are connected together.

That leaves lanes 8, 9, and 10. There are three possibilities: they are all straight runs, or 8 connects to 9, or 9 connects to 10.

With two possibilities for lanes 1 and 2, two possibilities for 6 and 7, and three for 8 through 10, there would appear to be $2 \times 2 \times 3$ or 12 variations for the L axis. As it turns out, however, in the context of the rest of labyrinth these choices are not all independent.

Cutting down the possibilities

The most effective approach for enumerating the possibilities is to fix the variations on the other axes and then explore the possibilities remaining on the L axis. The straightforward solution is to take the three T variations and fill in the remaining undetermined turns in all possible ways. But a few observations will cut the possibilities down dramatically:

Observation 1: in T1 and T2, lanes 1 and 2 must go straight at L.

Reason: Connecting 1 and 2 at L leads the path quickly to 4 at T. Both T1 and T2 then connect 4 to the centre, thus bypassing most of the labyrinth.

Observation 2: in T1 and T2, lane 2 must connect to 3 at B.

Reason: By Observation 1, lanes 1 and 2 go straight at L. We already know 1 must go straight at B, which leads then up to the right side of T and back down lane 2 to B. If 2 goes straight at B, this leads back to the left side of T, and as in Observation 1, the path quickly connects to 4 and then to the centre, bypassing most of the labyrinth.

Observation 3: in T1, lane 10 must go straight at L.

Reason: If 10 connects to 9 at L, lanes 9 and 10 form a closed loop between L and the left side of T. So we see that variations T1 and T2 both require B1 (lanes 2 and 3 joined at B). Nothing however seems to prevent variation T3 from working with both B1 and B2. So in addition to T1 and T2 (which we can now call T1B1 and T2B1), we must consider both combinations T3B1 and T3B2.

Observation 4: in T3B2, lanes 1, 2 and 10 all go straight at L.

Reason: If 1 connects to 2 at L, 1 and 2 would form a loop between L and the right side of T. Thus 1 and 2 must go straight at L, and the path must lead from the entrance all the way around lane 1, and then all the way back on course 2. From here the path leads quickly to 4 at T, to 9 along T, and to 9 at L. If 9 connects to 10 at L, the path would reach the centre prematurely. So 10 does not connect to 9 at L and must therefore go straight.

The four templates

Putting this all together leaves the following refined templates (figure 8):

1. T1B1 : lanes 1, 2, and 10 straight at L, and lanes 2 and 3 connected at B
2. T2B1 : lanes 1 and 2 straight at L, and 2 and 3 connected at B.
3. T3B1 : lanes 2 and 3 connected at B.
4. T3B2 : lanes 1, 2, and 10 straight at L, and lanes 2 and 3 straight at B

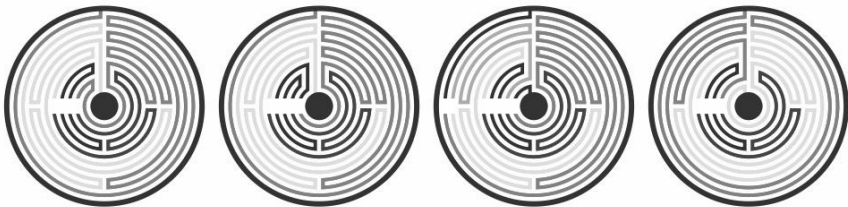


Figure 8: the four templates, left to right: T1B1, T2B1, T3B1 & T3B2

For each of these four cases all turns are determined except a few along the L axis, and the task now reduces to exploring how those remaining turns can be made. All but the third case are easy: at the first point where there is a decision, there are two possible choices, and each choice determines the rest of the path. So each of these three templates gives rise to two solutions, for a total of six. The third case (T3B1) is a little more complex, as fewer alternatives are nailed down. If lane 1 and 2 are straight at L, then the rest of the decisions are determined. But if lane 1 and 2 connect, another

choice arises at lane 9 on L. Here the path cannot connect to 10 (as that goes to the centre), but it can go straight or connect to 8. Either choice leads to a solution. So T3B1 contributes three additional solutions, for a grand total of nine (figure 9).

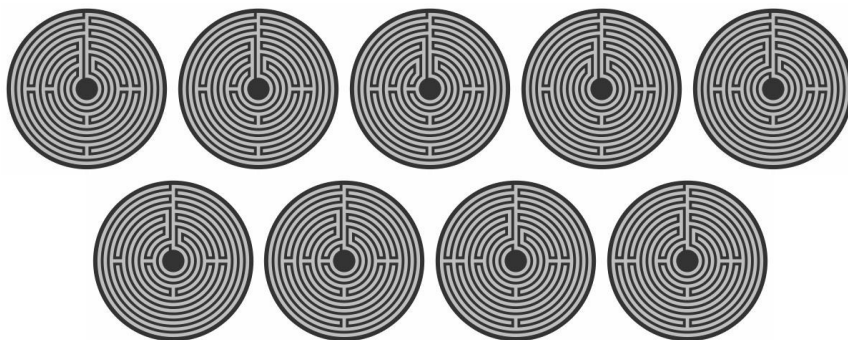


Figure 9: the nine solutions – top row, 1 to r: V1-V5, bottom row, 1 to r: V6-V9

Which to choose?

All nine of these completions are consistent with Veneto's painting, so strictly speaking any one of them might have been the original design that the Young Man was actually wearing as he posed for posterity before the artist that day, half a millennium ago. As I indicated above, however, V5 and V6 (the two solutions with straight runs in lanes 2 and 3 on the bottom axis) aren't likely candidates, since they have only a single turn along that entire axis. Likewise V4, with only one turn on the L axis, is unlikely to represent the original.

The choice among the other six is largely a matter of taste. Modern taste prefers the long run into the centre, frowning on V7 through V9 (although V7 does provide a *deflected* long run). Exits from inner lanes were common in Veneto's time, however, so these shouldn't be discounted as possibilities for the true historical version - and they are not actually *unattractive*. Indeed, a shallow exit is somewhat easier to accept since the entrance is also shallow. If a full circuit along course 10 were matched by a symmetric full circuit along course 1, such a solution might even prove compelling. Alas, these three give us a full circuit along the innermost *or* the outermost circuit, but not both simultaneously.

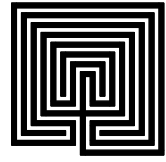
Any one of V1 through V3 would make an attractive solution. V1 has the best balance among the internal axes, and that would probably be my choice. V3 has a deeply nested turn on courses 8 and 9, ordinarily not ideal; but this nicely mirrors the not-quite-so-deep nesting on the other side of the main axis, and on balance this would be a good choice too.

Richard Myers Shelton; Roseville, MN, USA, June 2009

Reference:

Kern, Hermann. *Through the Labyrinth*, tr. Abigail H. Clay, ed. Robert Ferré and Jeff Saward, Prestel, Munich, 2000, ISBN 3-79132-144-7.

A Switching Labyrinth



Sam McElhinney

Introduction

My switching labyrinth was part of a body of work that examined how we explore and inhabit space. It was constructed in a warehouse near Euston, London in June 2009 as part of University College London's 'Bartlett' School of Architecture end of year show and as a framework for experimentation. It has since been dismantled for storage until I can find a site where it may be reformed and the research continued.

Architects regularly use hypothetical models to 'test' a particular design. Often they assume that a building's occupant has particular values, such as certain stylistic tastes or a desire for daylight. In aggregating these assumptions, they (knowingly or not) create an internal 'user model', generally based upon their own likes or dislikes. Architects are, after all, often markedly egotistical people.

The explicit fashioning of this *user-construct* has provided significant debate in the field of movement research; or how we make decisions during our occupancy of spaces and the extent to which these are predictable. Having become fascinated by this field, it occurred to me it could be well re-informed by an understanding of the interrelation between the polar topologies of *labyrinth* and *maze*.

Two Different Users

A labyrinth-user accepts and internalises a route presented in symbol form. As they follow this, they are freed to engage in abstract, introvert and reflective thought, 'wandering' in their mind whilst they trace with their body. Given a predetermined external bodily path, the labyrinth walker seeks out novel internal thought paths.

This occupant, despite apparently being wholly predictable (walking a set path) is more likely to develop novel internal thoughts or solutions. This may be expressed through an abrupt, unanticipated change of behaviour or direction; even departure from the 'thinking-space' of the labyrinth.

In a labyrinth, movement expresses an internalised, abstracted thought process.

Conversely, a maze-user is not provided with a solution. Instead they must attempt to 'find their way' by engaging in a dialogue with their surroundings. This continual assessment of their environs uses simple decision making mechanisms; response to experienced stimuli or pre-learnt social constructs. In this way, 'dead ends' are spotted, or possible exits favoured. The commonality of these basic level responses means that a maze user is quite predictable.

In a maze, movement expresses an externalised, embodied thought process.

As a maze occupant explores, their successful movements form a continual route or emergent 'solution'. This gradual 'labyrinthisation' of the previously unknown enables our subject to increasingly behave as a labyrinth-user.

It is well worth noting at this stage that we are implying a fundamental relationship between the labyrinth and the maze; the former is contained and awaiting discovery inside the latter. At a broader level this resolves otherwise contradictory elements of our topic; for example it means that the Classical labyrinth and key patterns can be read as symbolic solutions that guide us through the otherwise maze-like descriptions of the Minotaur's prison in classical literatures.

A Wider View

What if we extrapolate this model of two users? Architectural space could be classified in terms of labyrinth or maze and our user-constructs could thus refer to more general occupant movements and spatial understandings. This is not a simple division; such distinctions would be coincident, overlapping and fluctuating as the environment modulates and the user's comprehension changes.

Unexplored spaces can be considered as initially maze-like. Their occupants would gather delight in the same way as in a maze; gradually constructing understanding. This does not preclude labyrinthine activity within these spaces; architecture is formed from identifiable components such as arcades, stairways or corridors and these familiarities are reinforced by learnt social constructs. Recognition of such patterns provides opportunity for reflective thoughts.

Places where deep introspection and reflection occur tend to be highly personal and intimately known or constructed in isolation from real-world activity. These labyrinthine spaces include religious or cultural buildings or private gardens. Within these, prompts are found that help create 'novel constancy' - rhythmic choral chants, the work of a particular artist, even the repetitive movement of digging. These reflect the labyrinth path, aiding meditative reflection.

As a space is learnt, its labyrinthine aspect grows, but the high activity of real-world environments means that maze space is nearly always present. This explains why we are often predictable; the noise of continually changing stimuli through which we walk causes reversion to simple maze-navigation behaviours.

My premise is that all space is found and experienced in a state of 'switching' flux between the diametric topologies of maze and labyrinth.

It could be argued that we fashion spaces that aid mediation between these forms of movement and spatial comprehension. Perhaps we constantly seek to move from one to the other. In navigating our built environment we perceive different spatialities by switching from movement in a maze-like mode to a labyrinthine one and back; this fluctuation is something that has not yet been explored in architectural research.

Inbetween Space

I am thus primarily concerned with what it means for users to engage a path that *switches* from a labyrinth into a maze (or vice-versa). Diagrammatically this switch is not between typologies. (Ben Nicholson has already done fantastic work in this regard) Instead I am interested in a topological shift, fully or partially collapsing labyrinth paths to create maze situations.

Such an actively ambiguous space poses questions. How might it be constructed? What might be the experiential ramifications of inhabiting it? What might we learn from observing its occupants? If the environment somehow could 'learn' about its occupants then might the interaction between the two produce recognisable emergent architectural elements or labyrinth forms? From here I set out upon two lines of experimentation.

Experiment One: A Maze-Agent Ecology

An 'in-silico' system was developed using the open source coding language known as 'Processing'. It consisted of a matrix of 'doors' set out on a triangular grid, each capable of taking one of three states; closed, primed or open. Using a simple cascade algorithm, doors were induced to open sequentially, creating coherent routes through the maze. As these routes crossed a series of spaces were created; some being 'roomlike' whilst others were 'corridors'. As a whole, the matrix had an inherent 'desire' to exist in a 'resolved' state, with stable path structures. It tended to remain like this until disturbed by a door being opened; this triggered the cascade to restart and produced new path configurations.

Digital agents were introduced to the maze; they had the capability to open doors at will, prompting the maze to reconfigure. Each agent also had 'desires' which compelled it to seek out or construct particular 'spatialities' - either 'rooms' or 'corridors'. Although the agents cannot 'think', with the right desire sequences they were able to successfully explore. Many navigations of the maze were recorded and gradually it became possible to categorise these into types (see figure 1).

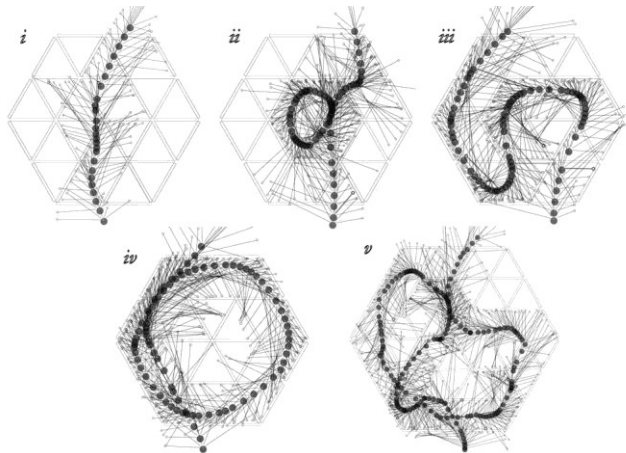


Figure 1: Maze Movements - i) trans-type movement: sustained and direct path seeking and following. ii) interrupted trans-type movement: periods of path seeking/following are punctuated with phases of room seeking/occupancy. iii) meander movement: room seeking and occupancy desires outweigh those of path seeking; a turning, 'exploratory' path evolves. iv) orbital movement: the two systems' desire sets are equally weighted. v) complex knot movement: allowing continual variation of desire priorities results in hybrid combinations and linkages of path types. Larger matrices increase the scope for this.

Each distinctive pattern is an external expression of internal desires. Different movement typologies were repeatedly caused by certain modulations of these exploratory desires of the agents. Some of the types seem directly equitable to forms that have long been established as elements of labyrinth construction; the meander and orbit became particularly prevalent. This is intriguing; it suggests that different labyrinths have evolved to accommodate distinct patterns of human *desires*. Thus a labyrinth intimately reconciles the wanderings of the mind and the abilities of the body.

Experiment Two: A Switching Labyrinth

This full scale built installation consisted of approximately 250 metres of black fabric curtains hung from a suspended space-frame; these formed numerous fragmentary pathways that wrapped around two small ‘room’ spaces (see figure 2). Each ‘room’ contained a total of four sliding curtain ‘doors’ animated by small microchip controlled motors. Periodically these doors shifted to offer alternative entrance and exits; as they opened and closed, different combinations of labyrinthine path were created.

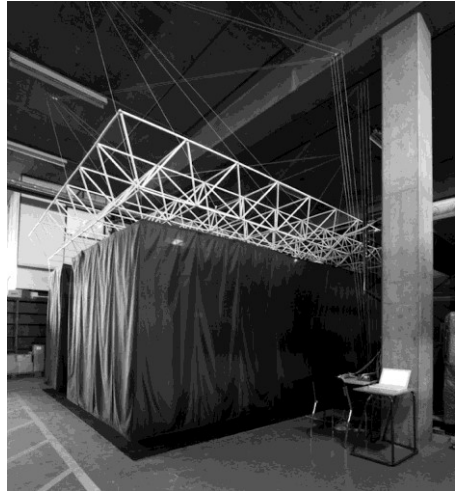


Figure 2: the switching labyrinth installation, UCL warehouse, Euston, London, June-July 2009

Over time, the installation sought to construct coherent labyrinth routes within itself by using an algorithm similar to that employed by the previous ‘in-silico’ mazes. It observed its inhabitants through an array of pressure sensors and recorded their movement in a rudimentary memory (see figure 3). Whilst they followed the stable labyrinth path offered, the installation remained dormant, but as they deviated from this (engaging in novel exploration) the sliding curtains began to selectively move, reactively collapsing the labyrinthine form and producing periods of fragmentary, ‘maze-like’ configurations.

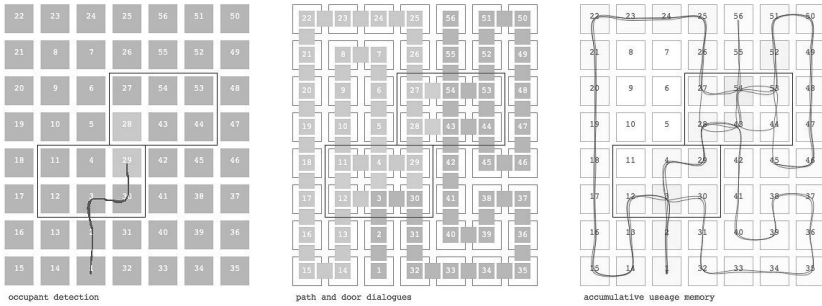


Figure3: switching labyrinth plan, showing occupant tracking (left), self generating proto-labyrinth routes (centre) and rudimentary system memory map (right)

In occupation this system operated as a ‘trialogue’ between the desires of occupant, individual doors and the overall path configuration. It became apparent during user interviews that this complexity stimulated high levels of reflective engagement; subjects anecdotally described ‘unexpectedly’ extended periods of time spent ‘wandering’ within the installation. As the occupant and installation ‘learnt’ and remembered one another’s expected behaviours, negotiated labyrinth routes tended to evolve. Key typologies began to recur frequently. Following from the agent-based work, this again suggests that key labyrinthine forms, or *familiar architectures* emerge from the spatial recurrence of common desires.

Archaeological Co-incident?

After this initial body of research ended I was invited to give a lecture at Cambridge University Architecture Department that outlined the work. As is often the case in these situations, a member of the audience (a rather astute classics undergraduate) made a connection that, until that time, I was blithely ignorant of. Here I quote her directly:

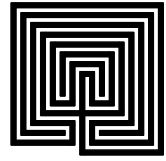
“we find in the archeological record for Minoan palaces rows of blocks with appropriate notching in them for doors. They are called polythyra systems or pier-and-door partition systems, each door in the line being a polythyron.”

A brief investigation corroborated her point: that these *polythyra* ‘doors’ probably allowed continual re-configuration of the circulation paths of the Minoan palaces. Crucially this modulation must have been to accommodate the needs (or *desires*) of the ceremonies of the day and would have set up a subtle interplay between labyrinthine and maze-like understandings of the palace plan. It would seem that I am come full circle; in the birthplace of the labyrinth there may be fascinating corroborative evidence for my position. I hope I get the opportunity to research this further in the near future!

Sam McElhinney, London, England; August 2009
Email: sam_mcelhinney@hotmail.com

Welcome to the Blind Alley!

Towards a philosophical theory of labyrinths



Jørgen Rasmussen

Several experiences and ideas can be inferred from a labyrinth these days. Besides the experiences of amazement, confusion, hesitation, the doubtful moment, the sidelong look, the sudden retrospect, and the continual striving for clarification, all these features somehow seem to resemble present phases of modernity, perceived with its accelerated and virtual ways of human movement. And yet, could all these characteristics actually be contained inside what is, after all, the relatively simple configuration of the labyrinth?

The aim here is to launch some philosophical thoughts about the labyrinth, because it urges us to pose some open and far-reaching questions, for which scientific and religious answers often seem either too vague or, paradoxically, too polished. Labyrinth traditions should therefore be kept alive, so to speak, because they are capable of telling us something very important about human existence in the present world, as well as in other historical periods of humankind. In this way the labyrinth can represent human ways of being and thinking. Many cultures around the globe employ several symbolic and metaphorical uses of the labyrinth. The variety of these beautiful labyrinths is remarkable (whether they have been used for magic, ritual, sport, play, or other unknown purposes) and full of insight from their magical and seemingly inscrutable design, puzzling most people at first sight. And it is exactly this glorious fact that invites us to explore the development of a philosophical approach.

Here we will focus on the labyrinth as an essential philosophical research approach, being useful for vital knowledge about human orientation, thinking, and perhaps even as a way of creating a deeper understanding of reality. Therefore we must ask, *what happens if we create a specific philosophical context of the labyrinth?*¹

A key characteristic of the labyrinth has always been its indeterminate character and radical adaptability, which makes the question of an actual labyrinthine *method* a hard one: Are we able to compare aspects of labyrinths from different historical periods at all, in an effort to detect some kind of common, cultural practice, that is, interaction between man and labyrinth? In this article, the approach to this broad question will be made by researching “prototypical” labyrinths from four different ages in the history of consciousness. At the same time, this research aims to uncover *the interaction between the historic context* (in which a certain practice and significance has occurred) *and an “over-historic” kind of identity* (in which labyrinth-patterns have been transforming). The idea in this approach is especially to avoid a one-sided evolutionary dimension, risking an exclusion of earlier stages, as these are absolutely necessary for the possibility of an integrated point of view as well as a process of comprehensive thinking. In other words, we need to elaborate a dynamic relationship between the historical layers of meaning and the philosophical form of understanding.²

Labyrinths in pre-philosophical ages

The analysis of labyrinths in the evolution of human consciousness must be taken back to the Palaeolithic age (50,000 – 10,000 BCE) - no less! The inhabited caves of this period can be perceived as fantastic labyrinths of sound. I see no problem with the absence of actual labyrinth-figures on this magical level of consciousness, where the primary sense organ is the ear. This prehistoric origin is far from being empirically consolidated, which problematically increases the risk of appearing speculative. There is, however, reasonable support for the idea that human communities have long displayed a sort of cognitive process in this practice, confirming the parameters of human consciousness at that time.

According to J. Gebser, there is a pointlike unity of reality in which human beings are interweaving with nature. They are performing a “doing without knowing,” that is “willing” towards their world, where nature for the very first time becomes nature for them. In their rituals, human beings return back to the cavities of the earth, to experience, through the range of their consciousness, tele-hearing, tele-knowing and tele-vision (practices which we would probably now describe as parapsychological). In this context the practice of the sound-rituals in the spatial labyrinthine medium transcends the awakened agenda to a kind of actual trance, which constructs the fundamental tradition of experience and knowledge in the tribe. We are, here, very far from abstract concepts such as “the way” or “the centre!” The function of the labyrinth remains enveloped in unanswered questions, but the interpretation from the actual context points toward a social and cultural formation, which confirms the fundamental anchorage of the tribe to the earth as the paramount labyrinth.

The breakthrough of the mythical consciousness in the 2nd Millenium BCE is represented by the famous archetype of the Trojaborg in Northern Europe, as well as various significations of Troy in the Mediterranean region. The mythical level involves a discovery and exploration of the inner world of man and of the soul as a dynamic polarity (light/dark; good/evil etc.). The myths are made possible by the speaking mouth (which was absent on the pictures of the magic human in the caves), reflecting the image-creating activity of man, the ability of *imagi*-nation in the tale, which also points towards the subsequent mental level of consciousness. The inward-turned focus on the soul takes place with eyes closed (the very word myth means: *I close my eyes in order to see better*), but afterwards the mouth is opened to tell the external common world about the inner experiences in a dynamic fluctuation of silence and speech.

But how does the labyrinth emerge as a significant image on this level? The Greek myth of the labyrinth on Crete commands a substantial status, but unfortunately it can't be immediately explained at a literal level - it is too complex for that purpose.³ However different perspectives point to a possible interpretation on a more general level. First, researchers of religion have characterized the Minoan culture of Crete as a labyrinth-culture because of three parameters: the labyrinth, the bull-cult and the Goddess.⁴ The labyrinth is a subterranean, carved cave, a transformation of the Palaeolithic, magic cave and its natural structure.⁵ The bull-cult takes place as a youth initiation where the initiate (probably) somersaulted between the horns and over a charging bull. The bull is a holy animal, yet subordinated to the Goddess.

And the Goddess herself is, with the ritual double-axe, the centre of this matriarchy. Princess Ariadne is thus moon-priestess and the Great Mother; she is also the labyrinth in a magical sense, that is, she is one with the mystery of life in the womb. This implies that there is a highly complex relationship between Ariadne and the Minotaur, the half-human monster. He is the bull-human, and she is his half-sister and maybe his bride.

In Gebser's analysis this myth depicts an emergence of the ego. Prince Theseus, an *I*, awakes a) through the meeting with another human, a thou, that is, Ariadne; b) through his descent to hell, where the myth anticipates the coming of the mental level; and c) most clearly, in the mythical picture of the abilities of the truly rational thought to break with the magic of the night and see through the hidden and formerly unseen.⁶ The myth of Theseus, the hero, and his "divine wrath" depicts the encounter with the matriarchy and is reminiscent of the magic aspect of the great Goddess and the killing of her priest-king.

On a shifted level of significance, the myth also presents the tale of King Minos and the inventor Daedalus' construction of the labyrinth. The name Minos means "law" and it heralds a mental breakthrough in the lawgiver, which upsets the old equilibrium of the mythical polarity. A new equilibrium must now be established with laws that were unknown and unnecessary for the old mythic level of consciousness. Daedalus, as an inventor, is the prototype of the artisan, the artist and workman in one person. With Daedalus, the concept of *techné* is complete. His inventions go beyond human possibilities in a new form of subtle mentality with this brilliant example of the labyrinth and its secret which must not be revealed.

In the context of mythical consciousness, with its property of spacelessness, the labyrinth is a genuine enigma. We are actually told nothing about how the labyrinth really looks.⁷ Its riddle seems insoluble, unimaginable in its mythical orientation, maybe because it somehow holds its solution within itself. The myth of the labyrinth quivers around its own blind spot; it is an inscrutable image, which points at a foul place holding no possibility for an irrational, spaceless orientation. But the hero's crucial ball of yarn short-circuits the mythical, closed circle, and heralds the force of mental, linear thinking, with its inherent possibility of turning back, which the dawning of time understood as abstract duration.

So much for the traditional story. There is obviously a considerable enigma in the fact that the origin of the labyrinth figure in prehistoric rock carvings and its archetypal design, also found on Cretan coins, apparently contrast with the story as a starting point in the basic relationship of myth-telling and the storyteller and the listeners' own phantasms about this horrifying place. However, maybe the mythical level, with its weak conception of space, corresponds with the need for re-imagining the horror into a rather different and harmless metaphor? In any case, this is where the crucial tension between two basic points of view of the labyrinth is established: the Daedalus (and Icarus) point of view *from above* (flying over the labyrinth, thus creating an overview) versus the Minos (and Theseus) point of view *from inside* the labyrinth, exploring the present moment (walking around, down in the labyrinth, creating a here-and-now singular view).

Labyrinths in the rational age

This tension of the two basic points of view becomes decisive for the labyrinth on the level of mental and rational consciousness, which gradually emerges in the 7th to 6th century BCE as abstract, philosophical thinking. On this level it gains a new freedom, but also becomes a way of thinking with a direction and purposefulness towards its objects, implying that the world gradually becomes instruments for the human *I*. This development achieves its final phase in the rational phase from about 1250 CE, where the idea of the *world as space* is connected to the purposive thinking. And this concept of space is furthermore established by the development of the perspective in the 15th century.

The focus on a general quantification of things increases a separation with qualitative values, such as the common idea of moderation and balance with nature. The sense of the whole becomes extremely difficult to retain in this atomizing process.

The labyrinth survived the fall of ancient cultures and was adapted by Christian culture. Then in the Renaissance, with its transformation of space into perspective, metaphors arose, which to a significant extent still exist today. It is as if the labyrinth represents the scientific idea of space, a kind of space without any restrictions, which can always be turned into something else without serious consequence.

Furthermore the central perspective, the symbolic form of the Renaissance, investigates its boundaries in a perceptive game with the human *I* inside the labyrinth.⁸ At the same time, this human *I* is gradually emancipating itself from the earlier religious world-order. The previous holy centre is empty, and the real game now takes place between the *I* and its acting in a re-enchanted magical, but rather chaotic space.⁹ Finding one's way becomes crucial, and later during the Baroque period the *I* makes still larger demands on mobility within the general cultural agenda.

This obsession of space in rational consciousness stages the *I* in its visual search for perspective in the maze, with its chaotic structure of "right way" versus "delusion." The relationship between the maze and the accelerating secularization of the world amounts to an optimum correspondence, but this correspondence is deceptive with its reduced understanding of the game. The concrete presence becomes a continuous fluctuation between rational choices and the irrational coincidences in the *I*'s sidelong look, which are mobilized in the moments of doubt. Here one is forced to take bearings by insights of the lateral possibilities, that is, from an unexpected quarter. And the true direction becomes acknowledged only afterwards, in the ongoing process of trial-and-error.

On this stage the irreversibility of time is challenged, and time becomes further related to an insight in the mystery of the blind alley. Therefore, this kind of labyrinth becomes a medium for insight into the limitations of rationalism.¹⁰

Labyrinths in modernity

Finally, in modernity, with its multiple forms of consciousness, the labyrinth has embraced the consequence of the emancipations which began with the Age of Enlightenment during the 18th century. To a large degree, we still live in the aftermath of the rationalistic obsession of space, but we can point out certain features that have perpetuated the labyrinth form and kept it up to speed with the essential parameters of modernity.

In general, the labyrinth is let loose in modernity, both in new and dynamic forms, as well as in its rediscovered classic forms. In its present forms, the labyrinth has detached itself from the earlier firmness of the spatial obsession, and has become *alive*. These forms occur often as twisted kind of passages, where the subject is confronted with his own possible destruction in various dramatic stagings by sudden implosion, as in fragile rooms etc.¹¹ The French philosopher M. Serres has described the North-West Passage and its labyrinth of ice-masses, where the necessary passage finds itself in a structure which incessantly moves about as organic matter, with possible fatal consequences. Not only navigationally, because *“the map shrinks... assumed open views close”*, but also optically; *“the delusion consists in a binding of this - at the same time - white, foggy, transparent and crystalline landscape...The solid and the liquid are mixed up.”* In this slow and dangerous chaos, space explodes into a kind of inferno without any practical chance of orientation at all.¹² A cruel maze!

Moreover, the well-known art of designing mazes has been rediscovered in the fascinating and important idea of upturning the Baroque idea of a metaphorical relationship between the world and the labyrinth. In this new perspective, the blind alley, where everyone finds themselves, is the rule, where the exceptions (and the purpose of the labyrinth) are the entrance and the exit, which is death. The human challenge of (everyday) life thus becomes to inhabit ones blind alley and its errors.¹³ In a sense we are always led astray by something in life. This radical wisdom could make us more humble, and free at the same time!

In the context of modernity, labyrinths of varying duration are permanently formed. Cities, especially, with their amorphous refinements of lifestyles and accelerating pace, focus on humans and their patterns of movement in these transient and intangible labyrinthine patterns. The task is now to recognize the numerous dynamic figures of labyrinths, which can emerge unexpectedly anywhere. That the virtual medium moves in labyrinthine patterns is a triviality, as it is a technical fix. An interesting fix, but still a fix, which much too often overshadows the concrete and social cultural patterns.

By integrating the earlier stages of magical, mythical and mental-rational orientation, as well as exploring the social lifestyles (and their interaction with virtuality) of modernity, an actual philosophical theory of labyrinths is developed in order to acknowledge present labyrinthine forms and experiences. In fact, most modern labyrinths don't draw attention to themselves. They have, in a certain way, 'left the ground' and been internalized as a usable method for reflection, or in other ways made 'invisible' in an abstract way of mapping human life and movements.¹⁴

A further aspect of the criticism on the virtual medium could be that the aforementioned abstract mappings take place precisely everywhere else, rather than right here. There are instantaneous virtual within everybody's personal computers, for instance, but these virtual mazes exist without any real duration, so to speak.

And it is probably here that a philosophical field of labyrinths emerges. An abstract mapping with real, continuous duration can be seen by focusing on the present claim of a sustainable kind of cultural formation. This claim needs, first of all, visibility and tangibility. No wonder that the classical forms still have a huge appeal!

Conclusively, it must be realized that the forms in which labyrinths have unfolded through history cannot be explained sufficiently by a single, absolute continuation of mythical and metaphorical concepts. In a thoroughly postmodern way, the labyrinth is left to itself as an entity with a form, structure and dynamic which has remained unchallenged by scientific attempts to reduce it to some sort of formula. It has, on the contrary, maintained an open mode and has thus been able to develop a kind of labyrinthine practice of knowledge in which certain philosophical ideas have been flourishing up through the 20th century.¹⁵

But it is not until recent years that these perspectives seem to be gathering pace and becoming independent as an actual field, which could work toward bringing the labyrinths and their philosophy alive in a seemingly Palaeolithic manner once again. In this way, we have arrived at another turn in the spiral. The labyrinth is just as prosperous as ever before, and a philosophical theory of labyrinths must begin to unfold its symbolic potentialities in this new 21st century. A temporary and suitable conclusion could be, *we think, therefore we are a part of the labyrinth!*¹⁶

Jørgen Rasmussen, Island of Omø, Denmark; September 2009
 Email: mail@levendetanker.dk

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- 1 To my knowledge very few classical philosophers have focused on labyrinths as such, even though beautiful statements have arisen now and then; e.g. F. Nietzsche's (1844-1900) one line quote: "If our thinking manifested itself in the shape of a city, then we should of necessity come to the labyrinth." For contemporary philosophers see note 15 below.
 - 2 The theoretical context here is essentially based on the original theories of Jean Gebser (1905- 73). His abundant and poly-historic theories of culture focus on the development of human consciousness from its origins to the present. See J. Gebser: *The Ever-Present Origin* (Ohio University Press, 1984). Some key concepts in Gebser's theory of culture are:

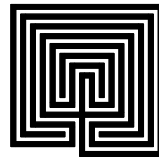
Consciousness Level:	Magical	Mythical	Mental-rational	Present-Integral
Rationality:	pre-rational	irrational	rational	a-rational
Perspective:	pre-perspectival	un-perspectival	perspectival	a-perspectival

Gebser's concepts aim at the designation of a renewed whole. On this integral form of realization there is an a-rational mode, where the pre-rational magic, ir-rational myth and rational modes are integrated into a transparent-attentive status with time- and space-free intensity.

- 3 There are other developed labyrinth-myths, but this classic tale is chosen for its rich possibilities for understanding the complexity of mythical consciousness.

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- 4 In this context, the historian of religion Mircea Eliade: *Historie des Croyances et des Idées Religieuses*. Vol.1 (Paris, 1976), and the Danish philosopher Susan Roed: *Visdommen Sophia* (1995) (The wisdom of Sophia)
 - 5 No such actual labyrinthine cave has been found on Crete, and the question is, whether it would make any difference, since its support probably cannot account for the conditions of the Cretan labyrinth-culture
 - 6 Gebser enumerates five main so-called *mythologemes* - mythologies of consciousness-emergence: The mythologemes of the sea voyage, of Narcissus, of the sun, of the descent into Hades, and of the birth of Athena.
 - 7 That is, in the mythographical version of Robert Graves: *Greek Myths* (1966). Interpreted entirely as text, it is very rewarding to carry out a narrative analysis of the myth, especially in relation to the roles of Theseus and Daedalus interpreted as a thematic drama about *chaos vs. order*, and *intelligence (metis) vs. insoluble difficulty (aporia)*, such as it appears within the concept of the unlimited (apeiron).
 - 8 Is it a coincidence that the first graphic evidence of *the maze* occurs simultaneously with the emergence of the central perspective about the year 1414? (see H. Kern: *Labyrinthe* (1982) p.203 concerning the drawings of Fontana).
 - 9 And with a magic of the eye, not the ear, as in the Palaeolithic age.
 - 10 The aim here becomes to find a solution to the maze, but we seem to be left with the two traditional methods (recorded by W.H. Matthews in his classical study "Mazes and Labyrinths" (1922/1970): "Branching with nodes" and "hand following hedge" respectively, are insufficient in two ways. The latter method is defenceless to incidents of looping-the-loop, but even worse, both methods are unable to fulfil the ambition of a rationalistic ideal of a formula. No effective deductive strategy seems possible. Instead, slow (but entertaining) induction of knowledge is at hand, which could be described as another magical feature still in action.
 - 11 The study-objects of the mathematical discipline of *topology* has gradually become a science of deformation, a discipline which creates a very interesting relationship between the pure and the metric in traditional form *vs.* the need for "*an intuitive treatment of spatial objects*" and a "*science of the qualitative*" in the words of Michel Serres.
 - 12 See M. Serres: *Hermes V, Le Passage du Nord-Ouest* (1980)
 - 13 This turn is found in the writings of the Danish poet and writer Per Højholt (1929- 2004) whose novel "Auricula" (2001) deals with a philosophy of the labyrinth in a literary form, quite similar to the style of Samuel Beckett and others.
 - 14 Compare with the complex statement of the 20th Century French philosopher Merleau-Ponty: "We must imagine a labyrinth of spontaneous steps, which continue each other, sometimes cut, sometimes confirm each other, but after an infinity of side leaps, through oceans of disorder - and the whole undertaking pays for itself."
 - 15 Besides the already mentioned French philosopher Michel Serres (b. 1930), who has developed profound passages connecting different areas of human knowledge, other outstanding thinkers should be mentioned here: first and foremost George Bataille (1897-1962), Walter Benjamin (1892-1940) and Gaston Bachelard (1889-1962), each of whom has focused on several limitations of present rationality in favour of different kinds of (indirect) labyrinthine methods of knowledge. A probably even more modernistic and labyrinthine way of thinking can be found in the works of Gilles Deleuze (1925-1995).
 - 16 This last sentence being a slightly altered quotation of the Danish poet and essayist Inger Christensen (1935-2009).
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The True Design of Sens



Richard Myers Shelton

Abstract: *Neither of the two received designs for the vanished labyrinth in Sens Cathedral in France has enough historical support to be accepted as the historically correct one.*

The old labyrinth at Sens probably dates back to the late 12th century when the cathedral was built. It thus predates Chartres, but not the basic Chartres pattern, which was well known by that time. Unlike Chartres, the labyrinth at Sens has not survived: in 1768 the old floor of the cathedral, in poor repair and cluttered with ancient gravestones, was replaced with a new marble floor at enormous expense. With an implacable broom, the medieval encrustations were swept away. The labyrinth, and its unwelcome association with practices long fallen from favour, disappeared with the rest. No attempt was made to preserve the design in the new floor, and no *definitive* record of the old design seems to have survived.

Sens (1), the first design given here, was the only design for Sens reported in labyrinth-related books such as Matthews (1922) and Kern (1982, 2000), until the discovery of an alternate design, Sens (2), by Craig Wright in 1996 [Wright 2001]. Our source for the first design is a drawing accompanying an 1847 paper by Abbé Chauveau, published by the Congrès Archéologique de France in 1848 (some 80 years after the labyrinth had vanished). I have not seen this paper, but nothing seems to be known about Chauveau's source.



Sens 1

Wright discovered Sens (2) in a manuscript housed in the municipal library of Auxerre. Like Chartres, Auxerre lay in the medieval archdiocese of Sens, and likewise its cathedral had a round labyrinth in the nave - both evidently following the example of roundness set by their common metropolitan cathedral at Sens. (Similarly, the labyrinths at Amiens and St. Quentin in the archdiocese of Reims to the north both shared the *octagonal* layout of the metropolitan cathedral at Reims).



Sens 2

Of the specific design at Auxerre we know nothing except that it was large enough to be walked (descriptions survive of the ceremonial Easter dance performed by the canons on the labyrinth), and that it comprised “interlocking circles in the same manner as at Sens.” These words appear in an article about Auxerre from the *Mercur de*

France in 1726 - published after the destruction of Auxerre's labyrinth in 1690, but while the Sens labyrinth still remained. The *Mercur*e does not say that the design was the same as the design at Sens, just that it was a design "in the same manner."

Wright describes the manuscript that he found in Auxerre - his source for Sens (2) - in the following terms:

... a miscellany collected by the publisher and antiquarian of Sens, Théodore Tarbé, around the turn of the nineteenth century.

Wright gives no details supporting the age of the manuscript. The drawing Tarbé provides of the Sens labyrinth (reproduced by Wright) includes text that refers to the destruction of the labyrinth, so it must have been made after 1768. Wright argues (citing no evidence) that the diagram predates the Revolution of 1789. There is no indication of its source.

Where does that leave us? I would argue that the textual evidence alone does not definitively favour one design over the other. Wright points out that we don't know the source of Chauveau's design; but neither do we know the source of Tarbé's drawing. Wright argues that Chauveau knew of Tarbé's collection, since Chauveau's paper includes information we know otherwise only from Tarbé's illustration. But Chauveau clearly had other sources unknown to us, including, obviously, the source of Sens (1); he may have had at hand a common source known also to the artist of Tarbé's drawing. And one must ask: if Chauveau *did* know of Sens (2), whether through Tarbé's work or some other source, why did he choose to use the other design? Wright calls Sens (1) "bogus"; but if Chauveau had indeed known of Sens (2), he would have had no need to invent a new design. If he did not make it up on the spot, his design too must have had an earlier source, and whether it came from before the destruction of the labyrinth is now impossible to say.

Which writer is more trustworthy? Chauveau was an archaeologist publishing in a scholarly venue; Tarbé was a self-published local antiquarian. We need suspect neither of embroidering the truth, but at the same time neither inspires unimpeachable confidence. Certainly standards of historical accuracy were more lax in the nineteenth century than they are today. Professionals and amateurs alike were known to manufacture data when required information was missing. Authors tended to accept hearsay evidence less critically, and Tarbé's compendium as described by Wright suggests a tendency to include whatever scrap of information may have come his way, from whatever source. And while Tarbé insists that he copied his sources "avec soin" (with care), there is no indication that he vetted his sources for accuracy.

Even with care, nineteenth-century sources are notorious for careless transmission of detail. As just one example, consider the set of exquisitely executed engravings of church labyrinths reproduced in the work of Edmond Soyez in the late 1800s. The set includes an engraving of Sens (1), which Kern reproduced in preference to Chauveau's diagram. While we cannot check this engraving for accuracy against the original labyrinth, other engravings included by Soyez beautifully illustrate *existing* labyrinths - with some inaccuracy of detail, despite the evident skill of the engraver [Saward 2009].

My point here is that we need to be carefully suspicious of both of these designs for Sens. On the one hand, Chauveau appears to have left no record of his source, and we

have no idea how early or late it may have been, or where it came from. On the other, Tarbé has left us a physical drawing; but again, we have few clues regarding its provenance. The style suggests late eighteenth or early nineteenth century. While it appears in a volume that Tarbé labelled “before the revolution,” it is not clear whether that refers in this case to the drawing or to the labyrinth itself. While Tarbé’s collection predates Chauveau’s article, we have no idea whether Tarbé’s source predates Chauveau’s source. Of the veracity of either source we know nothing whatever. While the preservation of his source is a strong point in Tarbé’s favour, it must not tempt us into forgetting to ask the relevant historiographic questions. Absent further evidence, I think we must regard the true design of Sens as still uncertainly known.

What catches our attention is that *neither* design is the same as the Chartres labyrinth. Both designs are in fact unique, appearing nowhere else among surviving medieval labyrinths. Along with Reims, Sens in either version would be the only other early cathedral labyrinth not deriving from the canonical medieval design used at Chartres or its clear antecedents - and that in itself is of interest.

Among the early medieval designs - those appearing before the Gothic cathedrals - the prominence of the Chartres-style design is remarkable. A quick survey of the early medieval designs in Kern shows various categories: several of the classical family (including the Jericho manuscript labyrinths modified to conform to the belief that Jericho had seven walls, and hence only six courses); a couple of holdovers from Roman times; a few experiments at expanding the classical labyrinth into a Christian symbol; and then suddenly Chartres itself - which left several manuscript copies and which promptly began to appear in some Italian churches.

The message from Kern is fairly clear: in the development of the medieval labyrinth, Chartres appeared early, spread swiftly, and became, if not universal, at least a clear favourite.

Only two other significant designs survive from before the time of the Gothic cathedrals: Abingdon [Appendix item A, p. 141 of Kern, 2000], a simple composite of two meanders reminiscent of Otfrid, but with four axes; and the Lambert labyrinth (Kern 191). Lambert, like Chartres, is a round, four-axis labyrinth that does not fill its courses by a simple repetitive scheme, but unlike Chartres it has neither symmetry nor method: it starts from an organized, but not quite symmetric, main axis, but then fills in the eleven courses in a haphazard, brute-force fashion.

The designs built into early churches tell a similar story: apart from the early Roman design at Al-Asnam [Kern 117], the installations whose designs we know all use the Chartres pattern until the appearance of Reims around 1300. So the possibility that Sens, built even earlier, was also not Chartres is certainly notable.

Wright and others would prefer to believe that the highly symmetrical Sens (2) is the true design of Sens. It together with Chartres and Reims are the only known historical examples of what Hébert calls “canonical labyrinths” conforming to strict (but arbitrary) rules of symmetry [Hébert 2004]. Wright argues that this high order of symmetry was an essential part of the medieval understanding of labyrinths, and that (once the Chartres design had been discovered) nothing exhibiting a lesser degree of symmetry would have been acceptable in the cathedral naves. It is also argued that

Sens (1) exhibits misfeatures not found in Chartres or Reims, such as component arcs running through three-quarters or through the full circle of a course (though such features do appear in other medieval labyrinths).

I do not find such arguments persuasive. Were it not for the surviving Reims design, I would discount them entirely; but Reims does suggest that some clerics *were* aware that Chartres is not the only highly symmetrical design. Hébert points out [www.labyreims.com/e-mod-ch-html] that Sens (2) differs from the basic pattern of Chartres only in how the main axis connects to the rest of the pattern; so Sens (2) could well have been discovered by accident. This argument, however, is reversible: the artist of Tarbé's diagram might simply have gotten the entrance connection wrong without realizing it; the original Sens might have been nothing other than Chartres. Indeed Robert Ferré [Ferré 2001] argues that such a mistake almost certainly lies behind Sens (2), though I think more doubt is warranted.

But the argument that Sens (2) *must be* the correct design *because* it illustrates that “super-symmetry” was important to the medieval clerics is at best circular. There is a danger of becoming convinced by our own modern inclinations, and of reading those into the intentions of the ancients. I am more struck by the *absence* of other examples (not to mention the later burgeoning of manifestly non-symmetric designs). If something like Hébert's criteria for canonical labyrinths were recognized in the 12th century, and if the builders of Reims and Sens decided deliberately to use canonical labyrinths that differed from Chartres, why did some enterprising monk not find other examples of the genre?

Chartres remained by far the most popular design (it is admittedly the best, even among the canonical designs); but if the *idea* of such symmetry was so important, it surprises me that more of Hébert's twenty possible canonical designs - or some of the far more numerous symmetric or palindromic ones - were not recorded; or indeed that Reims and Sens (2), once known, were not more widely copied.

It is also worth pointing out that Sens (1) illustrates a construction principle well-known to the medieval monks: it is a *composite* labyrinth formed by layering smaller labyrinth components (two in this case) from the outside in. Otfrid [Kern 176] is perhaps the earliest and best-known example; others include Bayeux [Kern 255] and the Abingdon manuscript. Bayeux indicates that such labyrinths could get built into church floors (even with a symmetry-breaking error that violates the alternation property) - though admittedly Bayeux is in the chapter house, not in the cathedral nave.

The specific components of Sens (1) are not known directly from other surviving medieval examples, but they are suggestive. The outer component is simply “Inner Chartres,” the five innermost lanes of Chartres with the last two quarter turns joined together in a half turn (where the full Chartres design branches out to embrace its outer courses). The earliest representative I have found of this as a labyrinth in its own right is the Compiègne Relief from the 1600s [Kern 354].

The inner component is more interesting and appears nowhere else. It illustrates a technique used to fill an even number of courses — perhaps not a deliberate strategy but found in many labyrinths from San Vitale in Ravenna to the modern Santa Rosa labyrinth. I call it a *broken composite*, on analogy with “broken plurals” in Arabic, words

that form the plural by inserting an extra syllable into the stem. One takes a component occupying an odd number of courses, like the standard 3-course meander:

1 1 – 2 1 2 1 2 – 1 1

and then interrupts this by inserting another component, also with an odd number of courses. Typically the original component is rearranged to accommodate the interruption. For example, in the case of the Santa Rosa labyrinth, the added component is a simple full circuit, and the initial 1 1 is shifted to the end:

– 2 1 2 1 2 – 1 1 – (4) – 1 1

In the case of Sens (1), the initial sequence is

1 1 – 3 2 3 – 1 1

and the inserted sequence is the 2 2 – 4 – 2 2 from the Abingdon manuscript, yielding the following broken composite:

– 3 2 3 – 1 1 – (2 2 – 4 – 2 2) – 1 1



Broken composite from Santa Rosa
–21212–11–(4)–11



Broken composite from Sens (1)
–323–11–(22–4–22)–11

I'm not arguing that this strategy was common or even conscious in the Middle Ages; Ravenna is the only clear surviving example, and that a late one. What I do argue is that it is a *natural* strategy: it arises easily while experimenting with components familiar from other designs. In this sense, Sens (1) can be constructed in simple steps from smaller pieces; it lies well within the possibilities that a monk might have put together. Whether it would pass muster for inclusion in a metropolitan cathedral nave is a question we cannot now answer with certainty without bringing our own prejudices to bear on the argument.

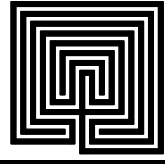
Richard Myers Shelton; Roseville, MN, USA, August 2009

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An Unusual Papago Labyrinth

Jeff Saward



While lecturing at the Museum of International Folk Art in Santa Fe, New Mexico, in October 2009, I was kindly invited to visit the collection of Native American artefacts housed in the Indian Arts Research Centre at the School for Advanced Research, also in Santa Fe (visit: www.sarweb.org for further details). My particular interest was to look through the extensive collection of Native American basketry in the collection, including a number dating back to the time when the SAR was founded in 1907, as a center for the study of the archaeology and ethnology of the American Southwest. With kind assistance from the staff at the IARC, a total of four “Man in the Maze” baskets were located within the collection, and two of these are of particular interest.

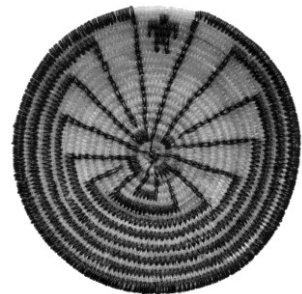
The first, a miniature basket, only 4 centimetres (1.6 inches) in diameter was made by Tu Moonwalker of the Western Apache tribe in the 1970's. It features a curious “Man in the Maze” pattern with only four walls, or five if you count the partial outer circuit attached to the wall issuing from the centre. In many ways, the design is rather unsatisfactory, and the artist was surely struggling to adapt the traditional design, with a full complement of eight concentric walls, to the restricted space provided at this size.



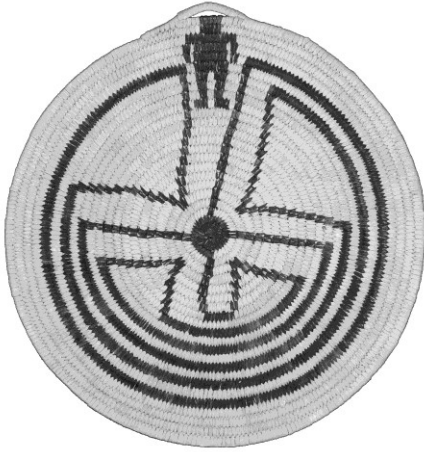
Above: Western Apache basket. School for Advanced Research, Cat. No. SAR.1982-16-14

Below: Tohono O'odham horsehair basket. Photo: Labyrinthos Collection

However, miniature baskets with correct representations of the design do exist. They are both rare and a splendid demonstration of the basket weaver's skill. Illustrated opposite is an example of a miniature basket, 4.3 cm (1.7 inches) in diameter and woven entirely from black and white horsehair. Made by Lyda Thomas of the Tohono O'odham tribe, the basket is undated, but to judge from the accompanying label, probably dates from the 1980's. A total of 18 coils, each less than 2.5 mm (a tenth of an inch) in width, spiral outward from the centre, with alternating use of black and white horsehair forming the lines of the labyrinth.



The second basket of note in the IARC collection is somewhat larger, 35 cm (13.75 inches) in diameter. Woven as a flat plaque, with a small loop at the top edge (designed to be either hung on a wall or used as a “hot pad,” a style first created in the early 1900's to cater to the collector market), the artist is unknown, but it is known to be of Tohono O'odham origin and was acquired (and presumably, therefore woven)



sometime in the 1920's. While the "man" hovers at the entrance as usual, the labyrinth design itself has only six walls, and therefore five paths, and is constructed from a "seed pattern" that lacks the usual dots in the four 'corners.' As a consequence, the resulting labyrinth has no direct path to the centre, a series of closed path sections and expanded 'dead-ends.'

*Tohono O'odham Plaque.
Photo: School for Advanced Research,
Cat. No. SAR.1999-9-205*

It might be assumed that this particular design was the result of a mistake by the maker, or a trial piece by an inexperienced weaver getting to grips with the complexity of the "Man in the Maze" design. This is highly likely, but this particular variant of the labyrinth is by no means unknown in Native American culture in the Southwest [Saward, 2008]. Two very similar examples exist; the first, a petroglyph at Arroyo Hondo, near Taos, New Mexico, is drawn from a regular seed pattern, likewise lacking the four dots, and has exactly the same path configuration (albeit not of the inflated form found on the basket as a consequence of the concentric, spiral construction). It is dated to the late 17th or early 18th century and is probably of Navajo or Apache origin. The second example, inscribed on the inner adobe wall of Montezuma Castle, in the Verde Valley, Arizona, probably dates to the 18th or early 19th century and may also be of Apache origin. This time the dots are added, but they are by-passed during the subsequent construction of the concentric walls, to leave them marooned within the dead-end loops



Six-wall labyrinths in the Southwest: above: Arroyo Hondo, New Mexico (photo: Jeff Saward); below: Montezuma Castle, Arizona (photo: John Schroeder)

While both of these early examples may likewise be considered mistaken attempts to draw a 'correct' labyrinth, the very deliberate nature of their construction - carefully pecked into the rockface at Arroyo Hondo, and with no attempt to correct the obvious 'error' in the case of the Montezuma Castle inscription - might alternately suggest that

these labyrinths with dead-ends and enclosed paths had another specific meaning to the unknown artists? The fact that they clearly knew the seed pattern process, but then chose to create a labyrinth with dead ends, possibly requires some explanation.

And likewise, maybe the Tohono O’odham basket from the 1920’s is more than a simple mistake. Possibly it was an experiment, an attempt to produce a different version of the ‘regular’ design (which, in fact, was only first created on the woven baskets somewhere around 1915). A similar ‘experiment’ on a Pima basket, likewise from somewhere around 1920 [Saward, 2001], has a ten-wall, nine-circuit labyrinth derived from a five-fold seed pattern – i.e. starting from a five-pointed “star,” rather than a “cross.” Admittedly, the resulting labyrinth (depicted opposite) is rather more successful in overall appearance, but at this early point in the history of the “Man in the Maze” pattern on native basket weaving in the region, a few creative design adventures might be expected, especially among the young women who were said to be the makers of the majority of the “Man in the Maze” baskets [Breazeale, 1923].



Ten-wall labyrinth on Pima Basket, c.1920

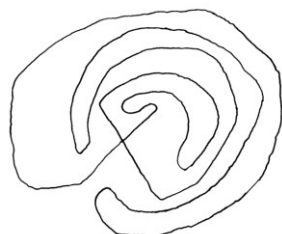
Of course, just when one thinks that something novel has been discovered or created within the field of labyrinths, along comes the realisation that someone has tried it before. And such is the case with these six-wall labyrinths with dead-ends that seem to be relatively widespread amongst ‘early’ Native American inscriptions and artefacts in the American Southwest. Similar labyrinths are in fact found elsewhere in the world, and in some surprising locations.

The first certain example, chronologically, is on a silver coin from Knossos, Crete, and was probably minted around 300-270 BCE [Kern, 2000, p.54]. The square labyrinth on the reverse has exactly the same design as previously discussed - six walls and five paths, constructed from a ‘seed’ lacking the corner dots. This is one of several design variants encountered on these coins, some deliberate, others, such as this example are possibly errors of the die engraver, although the majority are rendered as ‘regular’ eight wall labyrinths.



*Six-wall labyrinth on coin from Knossos
Graffito from Pompeii*

The second example, in the form of a graffito on the south wall of the passage behind the small theatre at Pompeii, was presumably scratched not too long before the destruction of the city in 79 CE. It is one of two labyrinths alongside each other [Lundén, 1996, p.36]. The first, around 26 cm in diameter, is drawn essentially correct, although part of the design is damaged. To its right is a smaller labyrinth (depicted



here), 14 cm in diameter, with the six wall configuration. This labyrinth appears to have been drawn in haste, with just the central cross as the ‘seed,’ and then starting from the top right arm, one line has been scratched, looping back and forth to join to the top left arm, then another line leaves the bottom right, loops back and forth to join the bottom left.

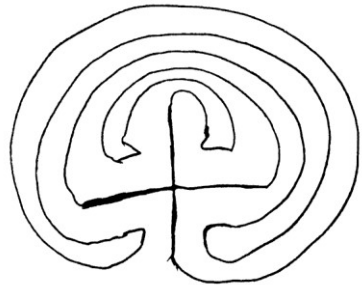


The third example is to be found on a Tantric manuscript from either Rajasthan or Gujarat in India [Kern, 2000, p.294]. Dated from around 1750, it accompanies an *Abhyumani Yantra*, a magical charm to ease labour pains and ensure successful childbirth. Labyrinths are commonly found in such manuscripts, indeed the charm calls for the drawing of such a device, with saffron on a metal plate, which when rinsed and drunk by the expectant mother will especially alleviate labour pains.

Six-wall labyrinth in Tantric manuscript

The House of Shamali

A fourth and final example for now (although, surely, others exist), is from a more recent context. A drawing collected in Sutan, Eastern Afghanistan in the mid-20th century, shows another six-wall labyrinth, again drawn with a cross and angles, but no dots in the corners [Kern, 2000, p.296]. The illustration is titled *The House of Shamali, its entrance was hidden, only Shamali knew it*. An accompanying story tells how the hero, Jallad Khan, is smuggled inside a statue (in an echo of the Trojan Horse story) into the house of Shamali, the daughter of King Khunkhar. Thus, Jallad Khan becomes the first suitor to catch sight of Shamaili in her palace (and many had failed before) and win her hand in marriage.



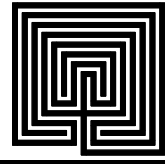
While this unusual six-walled labyrinth design may be little more than a mistaken or derivative form of the regular classical design, drawn either as an experiment, in error or in haste, its occurrence worldwide, from Arizona to Afghanistan and India, proves it to be a widespread and relatively common variant.

Jeff Saward, Thundersley, England: November 2009

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 Lundén, Staffan. “The Labyrinth in the Mediterranean” *Caerdroia* 27 (1996), pp.28- 54.
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A Catalogue of Historical Labyrinth Patterns



Andreas Frei

Introduction

There are a limited number of historical labyrinth designs. Hermann Kern documented most of them in his monumental book, which has become the universal reference and also classified the labyrinths according to historical and geographical aspects and forms of manifestation.¹

What unequivocally distinguishes one labyrinth from another is the pattern. It is therefore possible to classify all labyrinths using the pattern as a single criterion of classification. For this purpose I have carried out a survey of all patterns found in documented historical labyrinths, grouped labyrinths with the same patterns together and arranged the patterns in order, from the simplest to the most complex. In this paper I describe the methods and present some initial results of this project.

Material and method

I systematically went through the inventory of labyrinths in Kern's book (the English 2000 edition, which includes some labyrinths not documented in the original German edition) and also included some other historical labyrinths, not documented in Kern. I have only included historical labyrinths documented in a way that the labyrinth was fully recognizable and limited the catalogue to unicursal labyrinths. This also included figures with errors in draftsmanship, if they could obviously be corrected to a unicursal labyrinth.

Analysis of the pattern

I have analyzed the pattern for each labyrinth. Depending how the labyrinth was presented, a number of preparatory steps had to be carried-out before the pattern was obtained. These preparatory steps are summarized in figure 1.

Figure 1: Preparatory steps

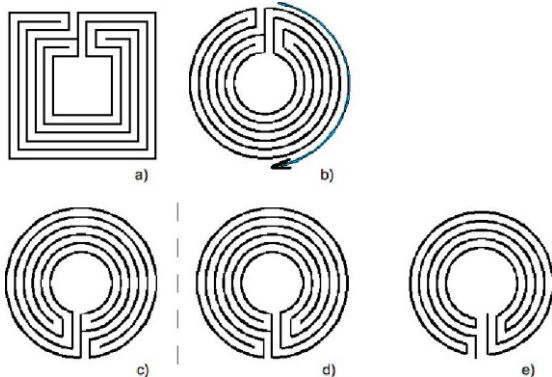
a) *labyrinth on non-circular layout - transcribe*

b) *if entrance is not from below - rotate*

c) *if labyrinth rotates anti-clockwise - mirror horizontally*

d) *labyrinth in basic form in circular layout with entrance from below and clockwise rotation*

e) *Ariadne's Thread*

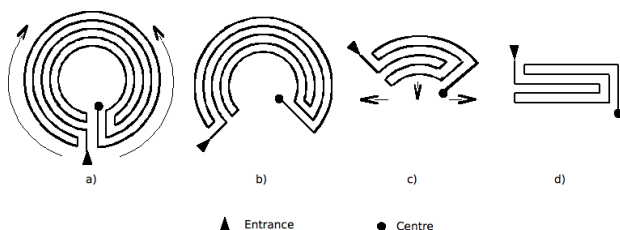


First, if a labyrinth is not presented in a circular layout, it is transcribed accordingly. In accordance with the terminology of Tristan Smith, I call this the *script version*.² Second, if necessary, the labyrinth is rotated so the entrance is from below. Third, if the first rotational path of the labyrinth is anti-clockwise, it is mirrored; resulting in the same labyrinth rotating clock-wise. As a result, all labyrinths now present themselves as circular, with the entrance from below and the first path following clockwise rotation. From this baseline form, the pattern of the pathway, the Ariadne's Thread, is derived.

Next, the resulting Ariadne's Thread is transformed into a rectangular form, as illustrated in figure 2. For this transformation the basic form is dissected from the centre to the bottom edge, along the wall at the middle of the lower arm. Then the Ariadne's Thread is uncurled symmetrically on both sides, by half the arc of a circle, and the resulting form is straightened-out. The concentric rings are thus transformed to horizontal lines, with the inner circle becoming the bottom line of the diagram and the outer circle the top. This results in the rectangular form of the Ariadne's Thread with the entrance consistently at top left and the way into the centre at bottom right. The pattern thus reads from top left to the bottom right.³

Figure 2: How the pattern is obtained

- a) Ariadne's Thread in basic form
- b) separate along central axis
- c) unrolled to segment of circle
- d) straightened-out to rectangular form, the pattern

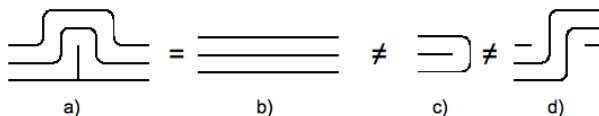


Of course, in the process of deriving the pattern for certain labyrinths some issues may be encountered. Some of the labyrinths are composed of a core-labyrinth, with added features such as closed circuits or spirals, either outside or within the labyrinth. Such composed labyrinths were also included and were classified based on the core-labyrinth.

Some labyrinths show peculiarities in their layouts; pathways that do not follow the usual straight or circular course, circuits that are diverted axially and bent back to the original course again without the pathway changing rotation (clockwise or anti-clockwise) or skipping over to another circuit. For example, the famous labyrinth of Reims with its four bastions (and similar examples) shows such axial deviation, but they are effectively equivalent to parallel lanes and do not affect the overall pattern, so are straightened-out.

Figure 3: Axial deviations

- a) axial deviation, can be straightened-out to b)
- b) parallel lanes
- c) change of direction
- d) skip to another circuit



Labyrinths can be very complex figures. Therefore simplicity and order are essential properties of excellent labyrinths. In such labyrinths there is no unnecessary complexity. With respect to the number of axis or arms, if the turns of the pathways can be aligned along an arm of a labyrinth, they will be aligned. This leads to the minimal number of arms needed to draw the labyrinth. However, there are a number of labyrinths that show an unnecessary high number of arms simply because the turns of the pathway are not aligned, but arbitrarily distributed. Consequently, they look more complex than they really are. When I derived the pattern I have adjusted the number of arms, if appropriate, so that it shows the pattern in its simplest and most orderly version.

Naming the patterns

Where several labyrinths have the same pattern, the question arises which individual labyrinth should give its name to the general pattern? Kern, for instance, named some of the labyrinth designs found in early manuscripts after the name or author of the original text where the labyrinth is first encountered. But many of the labyrinths depicted in Kern's book have not been attributed a specific name. Therefore I have attributed a name to each individual labyrinth form. For this process I applied the following guidelines:

If the designer is known, the name of the designer.

If there were several labyrinths from the same designer, they were further discerned by the source, if possible, or otherwise numbered consecutively.

If the designer was unknown, the site of origin, or location of the labyrinth.

If more than one labyrinth had to be named with the same site, they were numbered consecutively.

Where only one example of a specific labyrinth existed, it was named after the location of the labyrinth.

For patterns with multiple examples, the labyrinth that was first published was chosen for giving name to the pattern.

If the date of first appearance could not be sufficiently evaluated, labyrinths preserved on site were preferred over labyrinths documented, either as plans, later copies or reconstructions.

However, I have left unchanged some of the most common names, already in widespread use, particularly for the "Cretan," "Chartres" and "Ravenna" type labyrinths, even though these patterns should have been given other names according to the above-mentioned criteria.

Classification of patterns

I have classified the patterns according to the number of arms and subsequently by the number of circuits. For those patterns with multiple examples, I have only included about 6 - 8 examples of individual labyrinths that best represent the whole range of variation of layout, artwork and forms of manifestation.

Some results

The collection is not yet complete, there remain some 10 - 20 labyrinths still to be analyzed, but at the time of writing I have completed 75 labyrinth patterns and grouped them into five categories:

- Labyrinths with one arm and a range of 2 to 15 circuits - 17 patterns.
- Sector labyrinths, i.e. labyrinths with more than one arm, where the pathway always traces out the entire course of each sector before it passes to the next - 13 patterns.
- Labyrinths with four arms and 11 circuits, among which are the Chartres pattern and five very similar patterns, either because the first or second half of their pathway exactly follows the same pattern as that of Chartres - 16 patterns.
- Labyrinths with four arms and less or more than 11 circuits - 20 patterns.
- Labyrinths with three arms - 2 patterns, or more than four arms - 7 patterns.

The most frequent pattern is the “Cretan,” with some 60 individual labyrinths. Second most frequent is the Chartres pattern with about 40 individual labyrinths. Much less frequent are the patterns of Filarete with 12 labyrinths, Hesselager (11), Ravenna and Otfrid (6 each) and Pont Chevron (5 labyrinths). Some 40 patterns are recorded where only one labyrinth is documented and a number of other patterns with between two and four historical examples recorded.

Interesting examples

In the following sections I will present some of the patterns of labyrinths that seemed of particular interest, for various reasons. The entire collection of patterns can be accessed on my website: www.labyrinth-muster.ch

In some cases it is not so easy to derive or classify the pattern of a labyrinth. Indeed, the first type of labyrinth in my collection is an example that illustrates such issues: the Tholos labyrinth from c.360-320 BCE, shown in figure 4a. There is only one historical example of a labyrinth with this pattern, so I have named it after the location, the Tholos of Epidauros, the only preserved building from antiquity that may be denoted as a true labyrinth. It consists of six concentric rings of walls (shown in grey). The outermost and third wall support columns and the labyrinth is located within the inner ring of columns. Attached to the ring of columns is a circuit interrupted by a wall, so the circuit ends at both sides of this wall. From this circuit the pathway enters into the labyrinth, which consists of only two circuits.

Thus, the first issue is: should this figure be considered a labyrinth at all? If we look at the definition provided by Kern (p. 23), the Tholos is not a labyrinth in a strict sense, as it does not meet all the criteria listed there. The pathway does not change direction (from clockwise to anti-clockwise) continually, but only once and it does not repeatedly lead the visitor past the centre. However it folds back on itself, fills the entire space, inevitably ends at the centre and the same route must be followed back out. Therefore, at least for the two innermost circuits, the Tholos may be regarded as a labyrinth.

The second issue is distinguishing between the core-labyrinth and additional ‘detail.’ The outermost circuit is a closed circle that is interrupted by a wall. On this circuit the pathway ends in two dead ends (figure 4b). This contradicts with the definition of a unicursal labyrinth. From this circuit, there is no further progress possible. Thus, this circuit can be interpreted as representing the ‘surround’ of the labyrinth, with the core-labyrinth beginning only inside this circuit (figure 4c). To summarize: the Tholos is the simplest historical labyrinth, but this does not exist in a pure form with two circuits (figure 4c), only as a core-labyrinth with a closed circuit added on the outside (figure 4b). There is no other historical labyrinth with the pattern of the core labyrinth alone. Such a labyrinth would look like the script version shown in figure 4d.

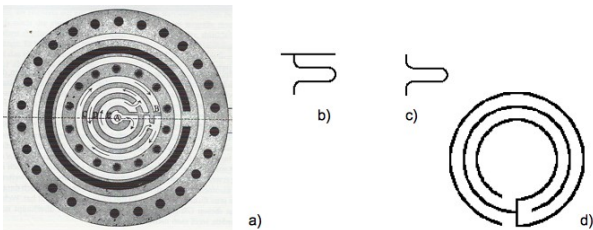
Figure 4: The Tholos of Epidauros

a) layout of the Tholos of Epidauros. The labyrinth lies inside the inner ring of columns. The outer circuit is closed and interrupted by a wall. On this circuit the pathway ends on each side of this wall. From this circuit the pathway turns into the core-labyrinth, consisting of only two circuits

b) pattern with the added circuit. From this circuit there is no way out, it may be considered as representing the surround

c) pattern of the core-labyrinth

d) script version of the core-labyrinth



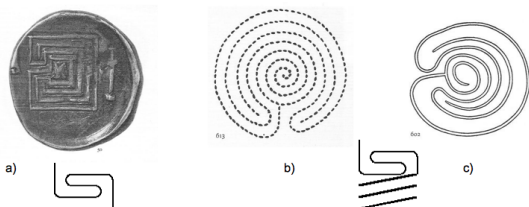
A labyrinth that first appeared on a silver coin from Knossos c. 300-270 BCE has three circuits. The pathway first enters axially into the labyrinth and then follows a serpentine from the innermost to the outermost circuit from where it turns back to the centre (figure 5a). Thus the pattern is similar to a single meander (there are other serpentine forms, running from the inside to outside that are not meanders, e.g. the labyrinth of Annaba below). In addition to the Knossos coin labyrinth with the pure pattern, there exist two historical labyrinths that have the same pattern to which a spiral is added inside the core-labyrinth (figures 5 b and c). Historically and geographically these Indian labyrinths have nothing in common with the one depicted on the coin from Knossos, but their patterns are the effectively same.

Figure 5: Knossos type labyrinths

a) Labyrinth on a silver coin from Knossos, Crete

b) Labyrinth near the ruined city of Kundani, India

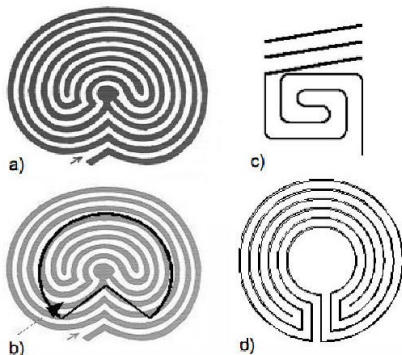
c) Labyrinth on a stone relief at the Hoysleshvara temple in Halebid. Both have the same pattern: a Knossos-type core-labyrinth with a spiral added inside



Another example of a labyrinth where the core is enclosed by an additional spiral is the turf labyrinth from Rockcliffe Marsh (figure 6a). The date of its creation and disappearance are unknown, but it was figured in a report from 1883 and two similar turf labyrinths existed nearby, according to a report from 1815. This labyrinth has a unique layout; the axis is opened and the labyrinth uncurled to a segment of a circle. The core-labyrinth has five circuits and its pattern is a two-fold meander (figure 6b). The core-labyrinth with the pure pattern would look like the script version shown in figure 6d. There are no known historical examples of this core-labyrinth.

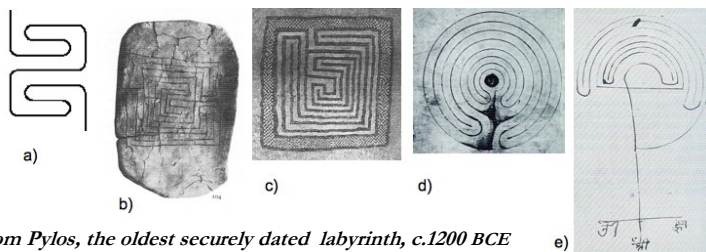
Figure 6: Rockcliffe Marsh labyrinth

- a) the labyrinth design
- b) core-labyrinth with layout opened along the axis and unrolled to segment of a circle
- c) the core labyrinth, with five circuits and a two-fold meander, with external spiral added
- d) script version of the core-labyrinth alone



The pattern most frequently encountered in historical labyrinths is the “Cretan” type. This pattern (figure 7a) was found in some 60 historical labyrinths analysed. Applying my criteria for naming the patterns described in the methods section would have resulted in naming this type of labyrinth “Pylos” (figure 7b), after the first known historical example of this type [Ed: or perhaps “Galician,” in light of recent revision of dating of the petroglyphs in this region of Spain]. Some of the examples shown in figure 7 illustrate the broad range of individual varieties that can exist for this type of labyrinth. These may differ with respect to the layout (circular, square or otherwise, concentric or not) or form of appearance (coin, clay tablet, mosaic, drawings etc.). All these examples, along with many others not shown here, have the same pattern with 7 circuits. The pathway enters on the 3rd circuit and then encounters the circuits in the sequence of 3,2,1,4,7,6,5. The pattern is made up of two single meanders, connected by a circuit between them.

Figure 7: Cretan-type Labyrinths

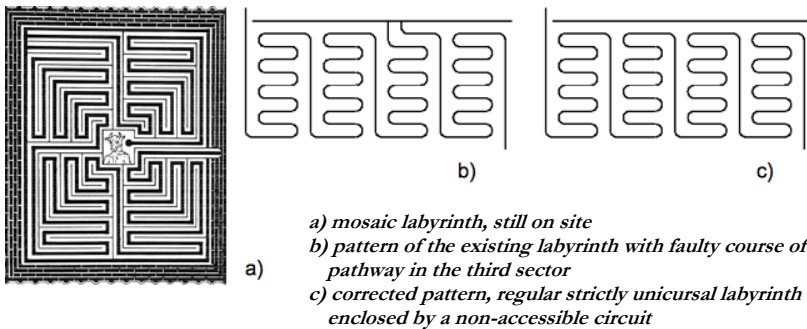


- a) pattern
- b) clay tablet from Pylos, the oldest securely dated labyrinth, c.1200 BCE
- c) Roman mosaic labyrinth from Nimes, France, late 1st century CE
- d) Wandalbert of Prüm. Parchment manuscript c.850 CE
- e) Abhuyumani Tantra. Drawing from Rajasthan, 19th century

A special layout - most of the labyrinth is unrolled to almost a semi-circle, except for the turn from the first to the fourth circuit that covers the whole quadrant on the low right hand. The remaining quadrant on the low left side is not covered by the layout of the labyrinth

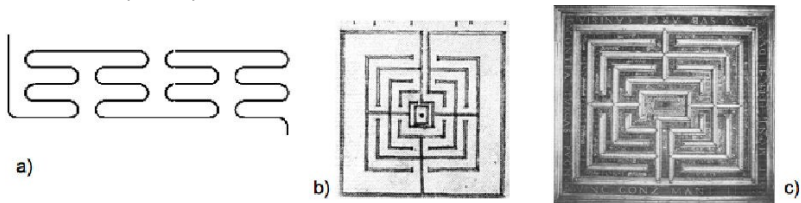
The mosaic labyrinth of Annaba, Algeria, that dates from 150-200 CE is one of those examples with an apparent error in construction. This labyrinth is still in-situ and there is no other historical labyrinth with the same pattern of four sectors with 10 circuits. Besides the walls it also has the Ariadne's Thread inscribed. In the third quadrant there is a flaw (figure 8a), the pathway deviates from the third to the outermost circuit and from this there is another junction to the second circuit. The pathway also ends in two dead-ends on the outermost circuit (figure 8b). Due to these flaws, this is not a unicursal labyrinth in the strict sense, but a maze. However, these errors can easily be corrected (figure 8c) and then the labyrinth turns out to be unicursal with four similar sectors, each having nine circuits and a pathway following a serpentine form, from the inner to the outer circuits. The outermost circuit is an additional circuit that is not encountered by the pathway, but is interrupted to let the pathway enter the labyrinth. (Comparing this pattern we can also see the difference between a simple meander and a serpentine from the centre to the periphery.)

Figure 8: The Annaba mosaic labyrinth



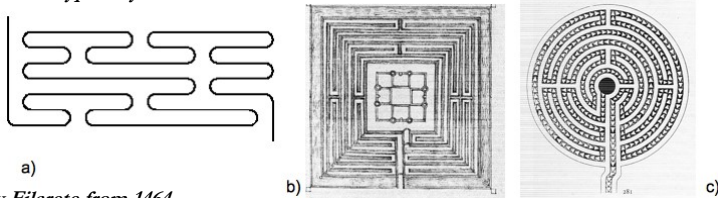
The most frequent pattern found in sector labyrinths is not of Roman origin, but dates from the year 1464. This type of labyrinth has four arms and five circuits as shown in figure 9a. It was first published by the Florentine architect Antonio Averlino, alias Filarete (figure 9b). One of the most famous examples of this type, dating from the 17th century, can be found on the ceiling of the Sala del Labirinto, in the Palazzo Ducale at Mantua (figure 9 c). It has a minor flaw, as the outer wall is closed where it should be interrupted to let the pathway enter the labyrinth.

Figure 9: Filarete-type labyrinths



Filarete also seems to be the original designer of the “Ravenna” type labyrinths. Ravenna is not a sector labyrinth, but of medieval style, with four arms and 7 circuits. The earliest example of this type of labyrinth was published in the same publication of Filarete from 1464. The labyrinth laid out in the church of San Vitale in Ravenna, which gave name to this type, dates from the 16th century.

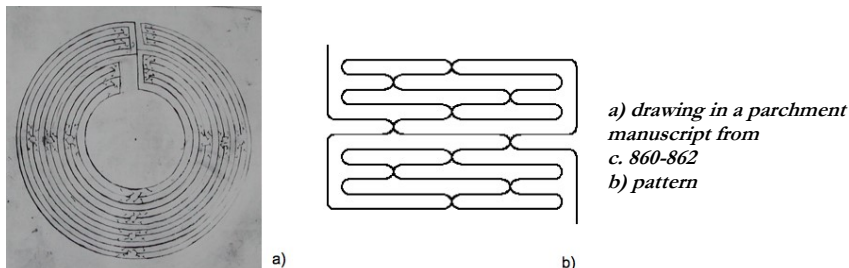
Figure 10: Ravenna-type labyrinths



a) pattern
 b) drawing by Filarete from 1464
 c) plan of the labyrinth laid out in San Vitale, Ravenna.

As with the “Cretan” and “Ravenna” type labyrinths, the name of the “Chartres” type does not indicate the designer, or the first historical example of this type. It is named after the labyrinth laid out in Chartres Cathedral, although this type has several predecessors. What most fascinates about the pattern of this labyrinth is the strange association between a unicursal labyrinth and a multicursal maze that can be found at the origin of this design. I refer to the enigmatic drawing included in a parchment manuscript from 860-862 CE shown in figure 11a. This drawing looks very much like a prototype of the Chartres-type labyrinth - the arms are recognizable as interruptions of the pathway, laid out exactly at the same places as the turn points of the pathway in the Chartres-type - however, these are not designed as turns of the pathway, but as slanting obstacles that can be negotiated in the manner of a slalom. These obstacles seem to have been drawn freehand and they all have the same shape. On the side arms, they are designed as a sort of crossroads (figure 11b). In effect, this labyrinth turns out to be multicursal, so we can also see in this drawing a predecessor of a maze. This appears far ahead of the first true mazes that date from around 1420. It is striking to see the Chartres-type labyrinth, so often deemed as the most perfect labyrinth design, so closely associated with the idea of a maze. In the 15th century, Sigmund Gossembrot deliberately transformed the Chartres-type labyrinth into a maze, as he has done with another type of a medieval labyrinth designed by Hartmann Schedel. This was at the time when the designs of mazes began to evolve.

Figure 11: Prototype of Chartres

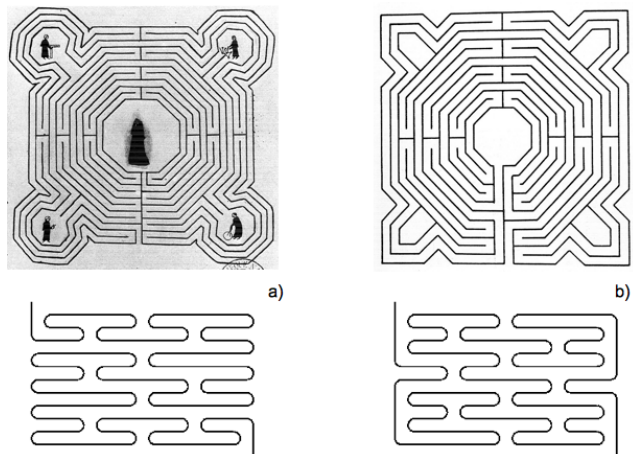


a) drawing in a parchment manuscript from c. 860-862
 b) pattern

My analysis patterns are not determined by the layout of a labyrinth, although it may still have influence. Classifying labyrinths based on their layouts alone can lead to confusion. For instance, the most important characteristic of the Reims labyrinth seems to be its bastions. At first glance, these bastions seem to characterize both labyrinths shown in figure 12, but it is the pattern that unequivocally makes a distinction between them. Relying on the bastions alone one would attribute both labyrinths to the Reims-type, but analysis of the pattern clearly shows that only the left labyrinth is truly a Reims-type (figure 12 a), whereas the other is in fact a Chartres-type, with bastions (figure 12b). Only two historical labyrinths have the Reims-type pattern, but some 40 are of the Chartres-type.

Figure 12:
Reims compared
to Chartres

- a) *Reims type*
- b) *Chartres type*



A labyrinth from a parchment manuscript of the 15th century, written by Valturius, is the only historical labyrinth with three arms. These arms, however, are not evenly distributed, but aligned along the axes of a four-arm layout. The distances to the first and the second arm are one quadrant wide, whereas the distance between the second and the third is two quadrants. In basic form this labyrinth looks rather more like a four-arm than a three-arm labyrinth. From analysis of the pattern, when the distances between all arms have been equalized, it becomes clear that it is a three-arm labyrinth.

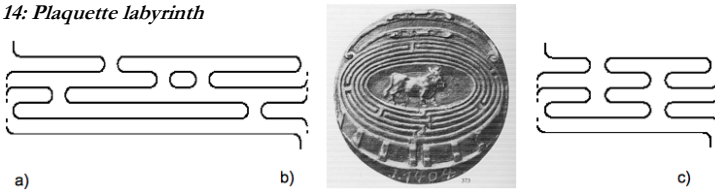
Figure 13: The Valturius labyrinth



It requires a special effort to find the pattern and define the number of arms of a labyrinth on a 16th century plaquette from Italy. This labyrinth with six circuits, at first glance seems also to have six arms, unequally distributed on the circular layout (figure 14 b). The analysis of the pattern shows a flaw between the third and fourth arm, where there is an enclosed section of pathway that is not accessible (figure 14 a). The

pathway circulates on the second and third circuit, but has no connection with the pathway that leads from the entrance to the centre of the labyrinth. The way through the labyrinth wraps around this enclave. For the labyrinth to be correctly designed this has to be removed, which results in the two arms separating it being transformed to one arm. With this correction the pattern would then have five arms. Then the pattern shows that four turns of the pathway can be aligned in pairs, to form two arms instead of four. Thus, the correct and most orderly design of this labyrinth would have three arms (figure 14c). Another particular feature of this labyrinth is that the pathway also crosses the central axis three times.

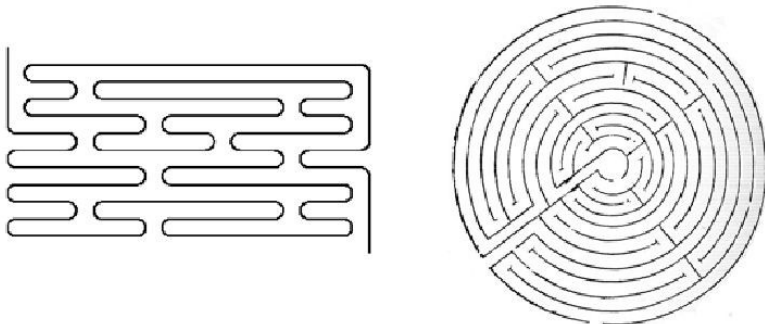
Figure 14: Plaquette labyrinth



a) Pattern; b) Labyrinth; c) Corrected pattern

Another interesting labyrinth was first published by Sebastian Münster in 1541 and there are several historical examples of this particular type. As with the labyrinth by Valturius, the arms of the Münster labyrinth are distributed on a layout with four quadrants. However, there is one single turn of the pathway that lies between the two arms delimiting the third quadrant. This produces an irregularity in the four-arm layout. Even though there is only one such irregularity, the pattern requires that this type of labyrinth have five arms. So this is a five-arm labyrinth that rather looks like one with four. There is only one other historical labyrinth with five arms, that was designed by Sigmund Gossembrot as a unique, dedicated five-arm labyrinth.

Figure 15: Münster labyrinth



Summary

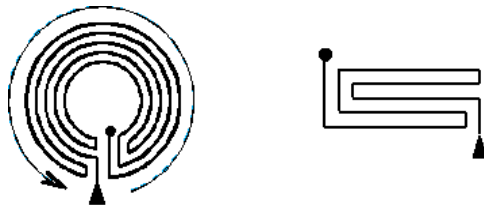
This study looked at some 200 historical unicursal labyrinths that have been handed down to us in various forms; in manuscripts, mosaics, carvings, church, stone or turf labyrinths. Among these labyrinths some 75 different patterns were found.

The most frequent pattern was the Cretan-type with some 60 examples, followed by the Chartres-type, with around 40. Four other patterns occur with a frequency of 6 - 12 labyrinths for each pattern, and there are around 40 different patterns of which only one labyrinth exists. Based on the pattern it is possible to set up a typology of labyrinths that is complete, consistent and unequivocal.

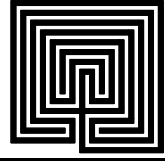
It is not always easy to find the pattern of a given labyrinth. Three main difficulties may be encountered when trying to abstract the pattern. First it is necessary to distinguish between pure labyrinths and composed figures, where a pure core-labyrinth is combined with a non-labyrinthine addition to the design. Second, the layout of a labyrinth may show axial deviations of the pathway, without the pathway changing direction or skipping over to another circuit. These two issues can be clearly identified and solved graphically. A third issue is that the turns of the pathway may be arbitrarily distributed over the area of a labyrinth, even if it would be possible to align them along the arms and thus reduce the number of arms the labyrinth can have. There are a number of post-medieval labyrinth designs that have this feature. This makes them look more complicated than necessary. Aligning the turns of the pathway of such labyrinths when deriving the pattern requires some discretion, but results in the simplest, most readable form of the pattern.

Andreas Frei, Pratteln, Switzerland; July 2009
Website: www.labyrinth-muster.ch

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- 1 Kern, Hermann. *Labyrinth – Erscheinungsformen und Deutungen, 5000 Jahre Gegenwart eines Urbildes*. 1st edition, Prestel, 1982. *Through the Labyrinth*. 1st English edition, Prestel, 2000.
 - 2 Tristan Smith. "A Daedalus for the 21st Century" *Caerdroia* 35 (2005), pp.27-33.
 - 3 There are other ways to obtain the rectangular form, e.g.: Lonegren S. *Labyrinth*. Zweitausendeins, Frankfurt 1993; Ferré R. "The Sens Labyrinth" *Caerdroia* 32 (2001): pp.36-38; Saward J. *Labyrinths and Mazes*. Gaia, London, 2003. These all show the walls of the labyrinth transformed to the rectangular form. In addition, in these transformations the lower left side was kept unchanged, and only the lower right side was uncurled, bending it back by a whole arc of a circle as show in the figure below. As a result in the rectangular form, the entrance is from the bottom right side and the centre lies on top left. It is the same pattern as shown in figure 2, but rotated by 180 degrees, so that it reads from bottom right to top left.



On a Danish website - www.lavigne.dk/labyrinth - the rectangular form is shown rotated by 90 degrees so that the circuits are represented by vertical lines and the arms are arranged horizontally. I prefer my method of transformation for reasons of simplicity, clarity and because it reads as we are used to from top left to the bottom right.



One of the joys of following the labyrinthine path is the fellow travellers one meets along the way, but one of the consequences of the length of the journey is the inevitable sadness of losing those companions. Here we remember the contribution of the remarkable Jørgen Thordrup, Denmark's foremost labyrinth researcher.

Jørgen Thordrup : 1926-2008



The death of Jørgen Thordrup on 8th December 2008, at the age of 82, was a great loss to the world of labyrinths. A great friend to many of his fellow researchers and colleagues, his tireless work from his small and rather cramped apartment in Bagsværd, Denmark, was a major influence in the documentation, preservation and revival of labyrinths and mazes in his native Denmark, and much further afield.

Growing up in Nakskov, Denmark, where his father worked for the local newspaper, he was educated in Hannover, Germany, where he obtained his fundamental knowledge of German language and culture. Always curious and keen to travel, on a visit to Switzerland, he was inspired to become a Rudolf Steiner teacher. After graduation, Jørgen worked as a teacher at the Vidarskolen School in Gentofte near Copenhagen. He then began teaching evening classes at the *Folkeoplysningen* (Peoples' Educational Association), lecturing on archaeology and historical monuments. Jørgen continued to travel every summer, always taking photographs and basing his evening classes on his slides and knowledge gained from his summer travels. Definitely a night owl, he was never pleased if someone called him on the telephone before noon!

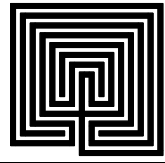
Jørgen was a true enthusiast who lived for his ideas and ideals. He always wanted to share his knowledge with others and so it was with labyrinths, a subject he started to research following a visit to Rocky Valley in Cornwall in 1959. From the mid-1970's onwards, often in connection with his educational work, he started building labyrinths in Denmark, and performing dances and processions in them – and thus he created a new generation of labyrinth enthusiasts. Between 1976 and 2005 he built around a dozen permanent labyrinths in Denmark and at least 40 more temporary installations for specific events and festivals, often from his 'trade-mark' materials of strawberry boxes and candles, in his home country and also in Norway, Sweden and Germany.

In 1997, Jørgen heard about a wooden panel maze under construction at Rodelund, Denmark. Hurrying over to visit and speak with the owners, then busy in the construction process, about some weird labyrinths that they had never heard of before, he also insisted that they build a stone labyrinth to accompany the maze. At that time, too busy to cope with Jørgen's enthusiasm, they agreed to meet again later when the maze building project was complete. So it was that in 2000, Jørgen constructed an 11-circuit boulder labyrinth and helped in the process of making posters that explain the history of labyrinths and mazes at Labyrinthia. His help in those early years led to the evolution of the attraction into a labyrinth theme park. Now, the history of labyrinths, which meant so much to Jørgen, plays an important role at Labyrinthia. School classes are told about the ancient labyrinths before entering the park and in 2008 a new tradition of celebrating summer solstice by performing a maypole dance on the stone labyrinth, exactly as Jørgen taught, has been inaugurated. Since the owners had never heard about labyrinths prior to Jørgen's visit, his influence on the development of Labyrinthia is obvious. In just a few years, many ideas gained from his lifetime of labyrinth knowledge have been implemented and it is with honour that his collection of labyrinth-related books and notes, entrusted to and housed at Labyrinthia, can still be available to people with a particular interest in labyrinths and mazes.

Jørgen also had another, more scholarly, attitude to the subject. With restless energy he collected information on the history and use of labyrinths in Denmark, and the rest of the world. His first published article on the subject, in 1976, led to many others, in newspapers and journals, including a number of items in *Caerdroia*. Of particular importance was his documentation of the labyrinth frescos in Danish medieval churches and the early Danish hedge mazes, and he was always searching for place names which might reveal the places of old, now vanished turf labyrinths.

In 2002 he wrote up his findings and published it all in a book, *Alle Tiders Labyrinter* (Labyrinths of all Times), thereby handing over much of his life's work to future generations. Published to coincide with a major exhibition of labyrinth-related art and artefacts held in Silkeborg (which he helped stage and curate – yet another of his many diverse talents), it is a beautiful book, full of facts and information that were virtually unknown before he started his research work. As always, Jørgen put a lot of effort into his book, and he was as critical and reserved in this academic work as he was enthusiastic and warm-hearted when showing others how to play with labyrinths.

Jeff Saward, John Kraft & Ole Jensen



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 16th Century Labyrinth Jeton

Jeff Saward

In a previous edition of *Caerdroia* ("The Labyrinth on Coins & Tokens" *Caerdroia* 36, pp.4-9) I described several coins and tokens decorated with labyrinths contained within the Labyrinthos Archive, including a jeton (a 'coin' created for political or promotional purposes) with a depiction of Theseus and the Labyrinth on its reverse, issued in Burgundy, France, in 1678. Recently added to the Labyrinthos collection is another similar jeton, minted in the Spanish Netherlands in the late 16th century.

29 x 28 mm in diameter, the jeton was fairly crudely minted on a thin, soft copper flan, and as a consequence has some corrosion and wear on the high points of the designs on either side. This is a common feature of jetons of this type, but the designs and inscriptions can be clearly determined. The obverse depicts the head of King Philip II of Spain, accompanied by the inscription DOMINUS.MIHI.ADIVTOR - The Lord is my helper - his personal motto.

The reverse bears the inscription FATA.VIAM. INVENIENT - fate will find a way - with the date 1591 and a small device in the shape of a hand, the mint mark of Antwerp. This surrounds a labyrinth of distinctive design, with a worn depiction of a small tree at its centre.

This jeton, issued in 1591, was surely an item of political propaganda, a symbol of support for Philip II's campaign to retain ownership of the Spanish Netherlands, modern-day Belgium and the southern half of the Netherlands itself. Antwerp, now the capital of the Belgian province of Flanders, was at the time on the northern frontier of the Spanish Netherlands and an important port and centre of Spanish trade in spices, textiles and other commodities from the Far East and the Americas.



1591 Jeton: Labyrinthos Collection

In 1579 the Union of Utrecht declared the provinces in the north of the Netherlands an independent Protestant state, free from the control of Philip's Catholic regime. Antwerp, almost destroyed by the Spanish in 1576 in earlier hostilities, was on the front line, becoming the capital of the so-called Dutch Revolt. It fell into Philip's hands again in 1585 following a long siege and over half of its population, the Protestants, fled to the north. It was not until 1609 that a truce was finally brokered between the Spanish and the United Provinces of the Netherlands, and hostilities did not cease entirely in the region until 1648.

As with the labyrinth-inscribed jeton issued in Burgundy nearly a century later, these items were also popular in the Netherlands in the late 16th and early 17th centuries and issued by supporters on both sides of the conflict. Their subjects ranged from patriotic depictions of their leaders and celebration of military victories to political commentary and satire. With the complex political circumstances in Antwerp at the time, it is surely no wonder that the labyrinth was employed as a statement upon the situation.

But the labyrinth on the reverse of this jeton is rather unusual. Although slightly worn, it is not difficult to determine the full design (depicted opposite). Superficially similar to a medieval design, albeit with only nine walls, eight circuits, it turns out to be a simple maze, of sorts, with several breaks in the walls and the outermost circuit in particular.

The design of the labyrinth on the reverse of the jeton



This design was clearly copied directly from Claude Paradin's *Devises Héroïques*, a book of personal symbols, technically known as impresas (see Kern, 2000, pp.199-205 for full details), first published in Lyon, France, in 1551, subsequently expanded in 1557 and reprinted many times, including Paris in 1571 and London in 1591. Likewise accompanied by the inscription *Fata viam inuenient* (a quote from Virgil's *Aeneid*), the impresa is presented as the emblem of Boisdauphin de Laval, who became the Archbishop of Embrun, France, in 1553 until his death the following year. The accompanying text alongside the device in the book explains that the labyrinth should be viewed as symbolic of finding the true path through worldly life, by the grace of God and through adherence to the Ten Commandments.

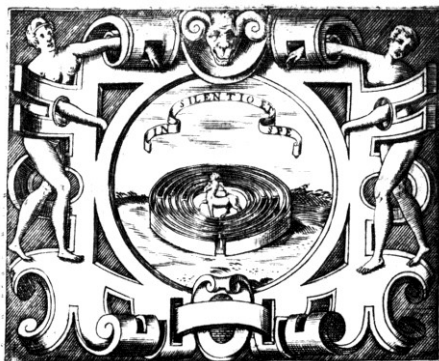


The impresa of the Archbishop of Embrun, as depicted in the 1557 Lyon edition of Paradin's Devises Héroïques

The only addition to the basic design in the book, seen on the jeton, is the inclusion of a small tree at the centre. Similar trees appear in the centre of labyrinths in other books of impresas from this time, but whether this addition has further symbolic meaning in this specific example, or is merely decorative embellishment is debatable. The tree, a symbol of eternal life or paradise, combined with the motto and the inherent symbolism of the labyrinth, could be seen as indicating that there is a way to be found, either to heaven or to hell, but God alone will help find the right path.

The use of the *Fata viam invenient* motto in connection with a labyrinth can be found in several other instances from this same time period: as a relief moulding on the ceiling of the palace at Dampierre-sur-Boutonne in France (from c.1550) and beneath the small inset depiction of a man standing at the centre of a small turfed labyrinth on the English painting of Lord Russell from 1573. It was also subsequently used on a series of labyrinth decorated medals, issued by Queen Kristina of Sweden, c.1650 (see *Caerdroia* 36, p.4).

Another connection, and possible source of inspiration for the use of the labyrinth on the 1591 jeton, can be found in another impresa, this time in Girolamo Ruscelli's *Le imprese illustri*, published in Venice in 1566 and again in 1584. This depicts a simple labyrinth with the Minotaur (actually a Centaur) at the centre and is captioned *In Silentio et Spe* (in quietness and confidence) and was the emblem of Gonzalo Pérez, secretary and advisor to Philip II. Clearly these impresas featuring labyrinths and the connection between the symbol and the motto, were popular and well-known within the circles surrounding the Royal court of Spain (and elsewhere) during this period, so it should come as no surprise to find one appearing on a patriotic jeton issued by Philip's supporters at this turbulent time, in a city at the epicentre of the conflict.



Impresa of Gonzalo Pérez, published 1566

Labyrinth News from Estonia

Urmas Selirand

Hiiumaa (Dagö) is the second largest island on the coast of the Estonia, about 1000 km² in area. Thanks to Swedish settlers, who lived on the island from around 1300 until the end of the 1700's, Hiiumaa has a long tradition of stone labyrinths, first documented in 1844 by Karl Ernst von Baer, but largely forgotten until the late 20th century when a new tradition of labyrinth building developed on the island.

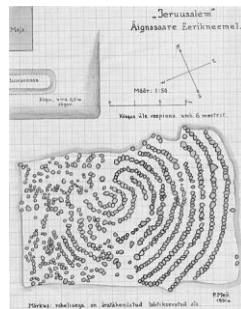
The first of these modern stone labyrinths was constructed in 1997 at Tahkuna, on the northernmost point of the island, the former location of an old labyrinth long since destroyed. Unfortunately, tourists spoil it by rebuilding the original classical labyrinth, 8 metres in diameter, into a vast spiral of stones. In 2006 the labyrinth was rebuilt with

larger stones, close to the lighthouse. From the top of the lighthouse, 42 metres high, it looks very fine and is popular with visitors. Today there are around a dozen newly built stone labyrinths, of various different patterns, around the coast of the island, including some in private gardens built for healing purposes.

Early in 2009, an interesting discovery was made on the small island of Aegna, on the north coast of Estonia, not far from the capital of Tallinn. A stone labyrinth on this island, known locally as *Jeruusalam*, was first documented in 1931 by Peeter Mey, who carried out an excavation of part of the labyrinth and deposited a plan of his work and photographs at the national archive. His notes record that it had been damaged during the building of adjacent artillery works in 1917 and subsequent to the partial excavation of 1931, despite the protective fence erected around it, it soon became overgrown again and was presumed to have been destroyed sometime in the late 1930's.



Peeter Mey's 1931 photo and plan of the Jerusalem stone labyrinth on the island of Aegna, Estonia



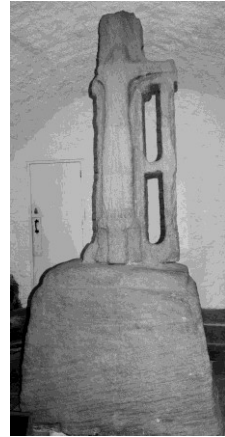
In January 2009, two residents on the island started a search for the site of the lost labyrinth and soon discovered the lines of stones still buried in the ground. With local assistance they started to excavate the labyrinth, although parts of it were obscured by the roots of several young pine trees that had grown on the site since Mey's initial excavation. Ten metres in diameter, it was clearly of the classical pattern with 12 walls, 11 paths, and made of large rocks, 12-20 kilograms in weight. With much of the labyrinth uncovered, archaeologists from Tallin visited the site in May 2009 to complete the work and remove the encroaching trees. Despite some disagreement between the islanders and the authorities concerning plans to restore the labyrinth back to its original form, local residents have already gathered boulders from nearby beaches for the rebuilding of the labyrinth and it is hoped that it will soon be an attraction for visitors to the island. For the latest information visit - www.aegna.ee

Below: Archaeologists working on the labyrinth, and the cleared site, May 2009

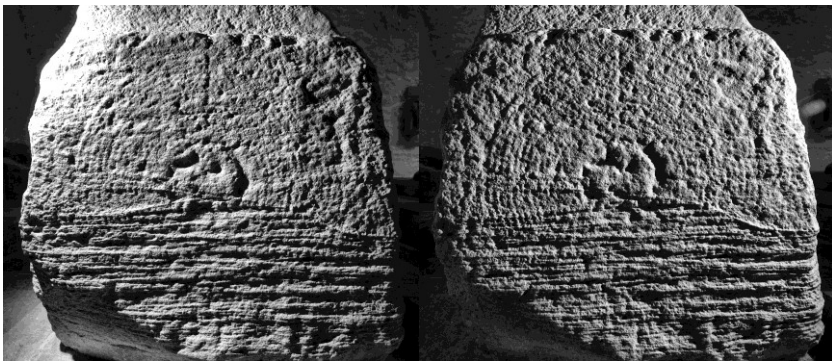


First noted in 1998 by Peter Harbison [Harbison 1998], the labyrinth carved on the north side of the base of St. Patrick's Cross at the monastic complex on the Rock of Cashel in Co. Tipperary, Ireland, has so far eluded mention in the labyrinth literature. It is, however, an important early example of a complex mediaeval labyrinth design, and located on the very western edge of Europe. Moved into the Hall of the Vicars' Choral at the monastery for protection in the early 1980's (a moulded concrete replica now stands on the original location), the seriously weathered inscription on the base was originally interpreted as a series of concentric circles and can only be clearly seen when lit from a favourable angle.

Right: the weathered remains of St. Patrick's Cross, now on display in the Hall of the Vicars' Choral at the Rock of Cashel. The labyrinth is on the left face of the base, out of view in this photo



During my visit in January 2009, the staff at the Rock of Cashel kindly allowed me to photograph the labyrinth on the cross base with controlled lighting. Even then, the uneven surface of the rock and damage to the carving allows only small sections of the design to be glimpsed and captured in any one image, and the lower third of the design has almost completely weathered away. However, enough survives to determine that the original labyrinth carving was 29 inches (73 cm) in diameter and consists of sixteen concentric incised grooves, defining a 15-circuit mediaeval form, with the entrance to the left. A small carved figure at the centre of the design is difficult to see clearly, but is probably a representation of the Minotaur, depicted as a quadruped centaur with its head looking backwards (towards a raised tail?). A similar centaur (armed with bow and arrow and hunting a lion) is depicted on the tympanum of Cormac's Chapel on the rock, built 1127-1134.



The labyrinth carved on the base of St. Patrick's Cross, Cashel, Ireland, lit from top left and top right. Much of the lower half of the labyrinth has completely eroded, but it is clear that the design is of mediaeval-style, with four quadrants, 15 circuits and the entrance on the left side. Path-turns and the minotaur/centaur at the centre are also visible. Photos: Jeff Saward

The monastery at Cashel was founded in 1101, and assuming that the labyrinth carving is contemporary with the construction of St. Patrick's Cross, a dating from somewhere in the first few decades of the 12th century is likely. This is nearly a century before the influential labyrinths were laid in the floors of the Gothic Cathedrals of France, but at the same time they were first appearing as architectural details in Italian churches and cathedrals. Of course, they were widespread at this time in many manuscripts that were circulating around the monasteries of Europe and indeed, the form of this labyrinth at Cashel, although impossible to fully reconstruct with any confidence, strongly suggests influence from the depiction of a labyrinth in a contemporary copy of the *Liber Floridus* of Lambert of St. Omer [Kern 2000], likewise created in the early 12th century. Both have a similar arrangement of paths and a minotaur/centaur at their centres, although the original manuscript (and various later copies) all show the same unusual labyrinth with 12 walls and 11 circuits.

*The labyrinth in the original Liber Floridus
manuscript by Lambert of St. Omer,
completed 1121*

However, the labyrinth at Cashel clearly has 15 circuits - probably the first example, so far recorded, of a mediaeval-type design with more than the regular complement of 11. Whether this design was copied from a contemporary manuscript, now lost, or originated at Cashel is debatable. Harbison points out a possible connection between the Christ figure on the Cashel Cross and the *Volto Santo* statue at Lucca, Italy, which has its famous 11-circuit (standard mediaeval)



labyrinth inscribed on the wall. However, the labyrinth at Lucca probably dates to the late 12 century, and he wisely concludes that a manuscript, especially the *Liber Floridus*, was a more likely source of inspiration for the labyrinth inscription on its base.

Harbison also suggests a plausible explanation for depicting a labyrinth, complete with Minotaur at its heart, on the cross base at Cashel (a feature unknown on similar crosses in Ireland or Western Scotland). The Synod of Cashel held in 1101, to coincide with the founding of the monastery, set out to reform the excesses of the Irish church at that time - the sale of privileges, married priests and permitting consanguineous marriage amongst the lay population. The Minotaur, itself the monstrous offspring of an unnatural union, might have been seen as illustrative of the sinful practices the reformers at Cashel sought to outlaw. Its appearance on the cross base would, perhaps, have served as a reminder of the danger of returning to the old ways.

References:

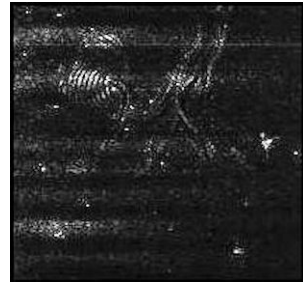
Harbison, Peter. "A labyrinth on the twelfth-century High Cross base on the Rock of Cashel, Co. Tipperary?" *Journal of the Royal Society of Antiquaries of Ireland*, vol.128 (1998), pp.107-111.

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The “Secrets of the Sunken Ships” survey project was started in St. Petersburg, Russia, in the summer of 2002 with sponsorship from Gazprom. Over the next few years an extensive underwater radar (ascid) survey was carried out in the Gulf of Finland and Lake Ladoga to locate and document shipwrecks, aircraft crash-sites, and any other objects detected by this technology. Many of the ships and aircraft discovered were visited by divers to identify the remains, but one particular find in the southern part of Lake Ladoga will be of particular interest to labyrinth researchers.

At a point some 14km. NE of Shlisselburg, near the middle of the southern ‘bay’ of Lake Ladoga, an ascid scan revealed the remains of a structure some 14 metres in diameter, consisting of at least nine concentric circles, partially obscured by the sediment at the foot of the lake. At a depth of 5.5 to 6.0 metres below the surface, the site was not visited by divers, but the survey team concluded that this was presumably the remains of a stone labyrinth, although they did not rule out other possibilities: ice flow or anchor chain scours, for example.



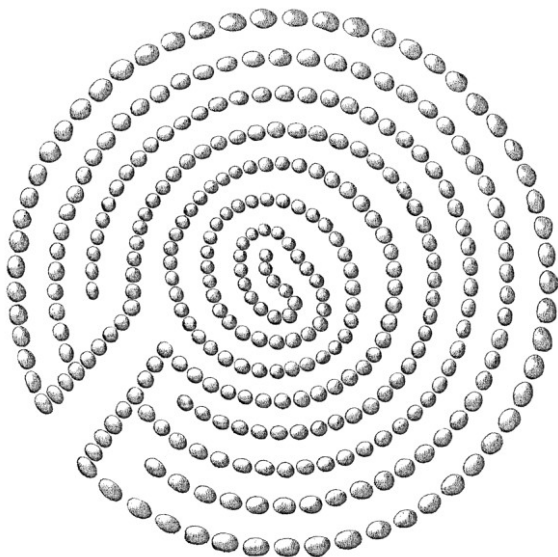
The ascid scan of the presumed stone labyrinth

With this caution in mind, the ascid scan certainly looks like the familiar circuits and coils of a large “classical” stone labyrinth, of the type that is widespread in Scandinavia and Arctic Russia. If its identity could be confirmed, it poses several interesting questions for further research. Situated some 53 km ENE of St. Petersburg, this would surely be the most easterly example of a stone labyrinth so far discovered in this part of ‘Karelian’ Russia. Submerged beneath Lake Ladoga, which has a complex history of water level changes over the last few thousand years, if it could be determined when this location was last on dry land (because it surely wasn’t constructed underwater!), a possible terminal date for the construction of this labyrinth might be determined. Anybody knowledgeable on these matters may wish to pursue this matter further...

The Labyrinth Society

The Labyrinth Society, affectionately known as TLS, was founded in 1998 to support all those working with, or interested in labyrinths. Although 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, including the Worldwide Labyrinth Locator website that now lists over 3300 labyrinths worldwide - www.labyrinthlocator.org

The Labyrinth Society Annual Gathering 2010, will be held November 7-9, in the historic town of New Harmony, Indiana - to learn more about The Labyrinth Society and for details of the 2010 gathering, visit their website - www.labyrinthociety.org



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