

# CAERDROIA

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THE JOURNAL OF  
MAZES & LABYRINTHS



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**CAERDROIA 50**

# CAERDROIA

*The Journal of Mazes & Labyrinths*

50<sup>th</sup> Edition



*The tomb of the Marchioness of Waterford in the churchyard  
of St. Michael & All Angels, Ford, Northumberland, England, ca. 1891.  
Photo Jeff Saward, July 2021*

# CAERDROIA 50

## *The Journal of Mazes & Labyrinths*

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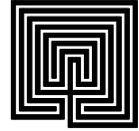
*Caerdroia* 50 was produced during Spring 2021 by Jeff and Kimberly Saward at Labyrinthos HQ. Opinions stated by contributors are not always those of the editors, but *Caerdroia* welcomes open discussion and endeavours to provide a forum for all who are lured by the labyrinth.

**Editor & Publisher: Jeff Saward – Associate Editor: Kimberly Lowelle Saward, Ph.D.**  
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# New Discovery of Stone Labyrinths in Western Maharashtra, India



Sachin Bhagwan Patil & P.D. Sabale

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## Abstract

Stone labyrinths have recently been discovered at four new localities in parts of the Sangli District of Maharashtra in the western-central region of India. Three, situated in Walwa Tehsil and a fourth in Kavtemahankal Tehsil, throw light on an ancient trade route between the early historic settlements and trade centres of Kolhapur and Karad, as well as between Kolhapur and Ter. These suitable routes are discussed in cultural, historical, archaeological, geological and geomorphologic points of view.

The authors argue that these labyrinths, in the south-central Deccan plateau region just after the Sahyadri escarpment, were constructed alongside ancient trade routes in the early historic period, and were used by travellers following them and visiting the Buddhist caves along the roads. The stone labyrinths were constructed at the junctions and passes along these ways.

## Introduction

The labyrinth is one of the oldest contemplative devices known to humankind, and dates back more than 3000 years. In India, the labyrinth has been recorded from Harappan to colonial periods in different forms, from many different locations. These labyrinths are depicted as rock paintings and carvings, as images and pavements in temples, and constructed of stones laid on the ground.

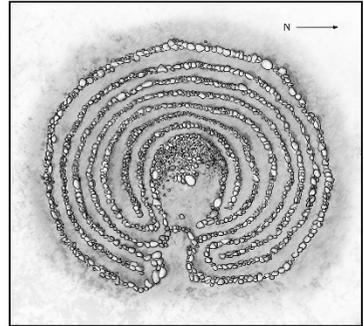
Behind the design, drawing, and construction of these labyrinths lie hidden meanings which vary from place to place. Most of the time, they are connected to the history of that area and well-known stories from Indian literature and mythical epics. The labyrinth was used to illustrate the strategic formation used in warfare known as *chakravayuh*; in ancient epics as *manaschakra*, a symbol used in personal and spiritual growth; as *rangoli*, a symbol used in traditional folk art and in mythology as *yamadwara*. It may also have served as a mark of significance for confusing places and passes on ancient trade routes and the stone labyrinths may be seen as a landmark in these places.

## Study Areas

The study areas of Aitawade Budruk and Vashi are situated in the middle reaches of the Warana river basin and politically in Walwa Tehsil of the Sangli district of Maharashtra, west-central India.

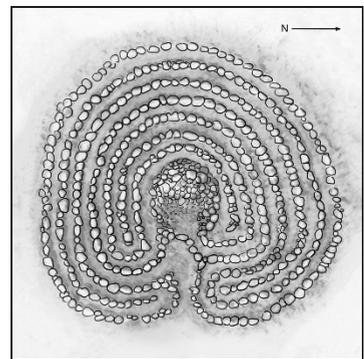
### **i. The Aitawade Budrukh Labyrinths**

The first labyrinth, 11.7 metres in diameter and of 7-circuit classical form, is situated 2.2 kilometres northeast of Dhagewadi, the nearest settlement, on rocky ground in the hilly, scrub forest of the Peth Forest Reserve, on right side of the cart road, near the Khandoba Temple that is located around 25 meters northwest of the labyrinth. Latitude: 16.993755 N, Longitude: 74.206457 E.



***Fig. 1: The first labyrinth (Aitawade Budrukh 1) 2.2 km NE of Dhagewadi and a plan view of the labyrinth***

The second example, 9.2 metres in diameter and also of 7-circuit classical form, is located 1.75 km NE of Dhagewadi and 0.5 km south of the previous labyrinth, in the Aitawade Budrukh reserve forest area, along the south side of the bullock cart road near the Pavatka temple that is located around 20 metres southwest of the labyrinth. Latitude: 16.987677 N, Longitude: 74.207794 E.



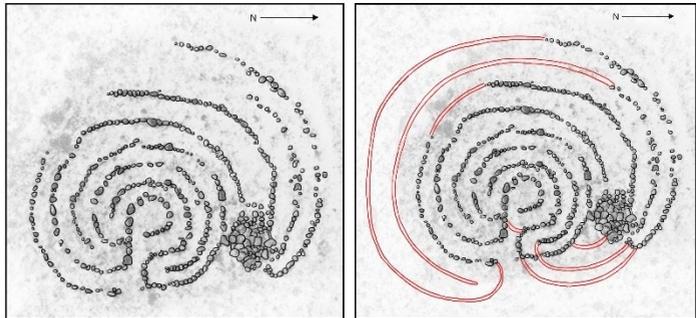
***Fig. 2: The second labyrinth (Aitawade Budrukh 2) 1.75 km NE of Dhagewadi and a plan view of the labyrinth***

## ii. The Vashi Labyrinth

The third labyrinth is located 3.0 km east of the first two labyrinths, 1.1 km SSE of the village of Shivpuri, the nearest settlement, and stands on a rocky surface in a pass in between two hillocks, near the boundary of the Kameri forest reserve. This location is at the remote northern boundary of the Vashi village landholding. The outermost circuits of this labyrinth are somewhat damaged, but the design was originally of 7-circuit classical form. Its current diameter is 10.8 metres, but it would originally have been around 13.5 metres. Latitude: 16.988316 N, Longitude: 74.236290 E.



*Fig. 3: The third labyrinth (Vashi) 1.1 km SSE of Shivpuri, and plan views of the labyrinth as currently preserved and with the missing circuits reconstructed*



This area is bounded by Retharedharan (to the NW); Shivpuri (N); Kameri (NE); Jakraiwadi (E); Ladegaon (SSE); Aitawade Budruk (S); Dhagewadi and Karve (SSW). It is mapped on the Survey of India toposheet map 47 L/1, 1:50,000 scale.

### iii. The Malangaon Labyrinth

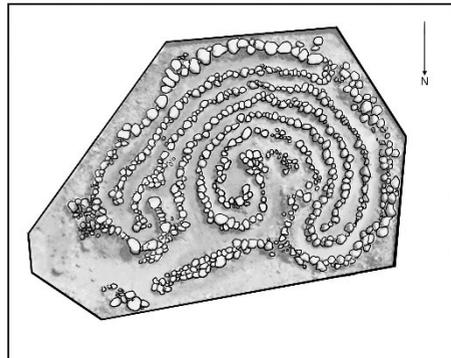
The other study area of Manerajuri is situated in the Agrani river basin and politically in Kavathemahankal Tehsil of the Sangli district of Maharashtra, west-central India, just over 50 km to the east of the other three labyrinths described above.

The fourth labyrinth is situated on a rocky hillock area 4.5 km southwest of Malangaon village, in the area known as Kodyacha Maal, on the north side of the express roadway between Sangli and Solapur, via Kumathe, and under the jurisdiction of Manerajuri, the nearest large village, to the west. The shape and form of this labyrinth is slightly irregular, but is clearly of 7-circuit classical form and 9.9 metres wide. A modern enclosure has been built around the labyrinth to protect it. Latitude: 17.020806 N, Longitude: 74.747338 E.



*Fig. 4: The fourth labyrinth (Malangaon) 4.5 km SW of Malangaon, and a plan view of the labyrinth*

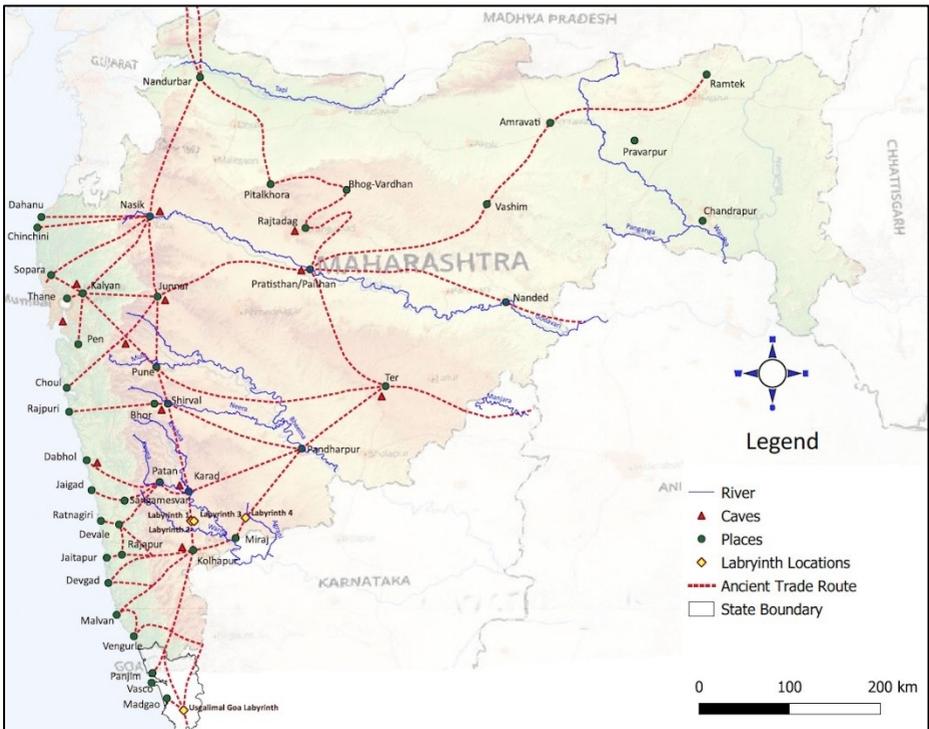
This area is bounded by Bhosalenagar (to the NW) and Manerajuri (W); Yogewadi (SW); Boargaon (E); Malangaon and Gavahan (NE).



## Geology and Geomorphology

The geology of the study area of the Aitawade Budruk and Vashi labyrinths is a low elevation region with circumdenuded and isolated mesa-type features typical of the Deccan volcanic land present on the plateau region of Maharashtra, close to the foothill region of the Sahyadri escarpment. This moderate to deeply weathered hilly landscape with scanty vegetation of thorny plants and seasonal grasses is the source of the Mallikarjun hill stream, a minor tributary of the Warana river in its upper reaches. This hill also acts as a ridgeline separating the Warana basin on its right side and Krishna River on its left. Geologically, the study area belongs to the Southern Deccan Volcanic Province of the Deccan Traps formation of India. It is one of the largest volcanic provinces on the earth and was formed during the upper Cretaceous to lower Eocene period as a result of fissure type lava eruptions [Sabale 2008].

The Aitawade Budruk labyrinths are located on sub-hillock plateaus aligned on the same hills, but on opposite sides of a valley divided by a stream, and along this gully a bullock cart road is present. This road was considered an important junction on an ancient short-cut route, which leads from the Konkan coast of Maharashtra and Goa to the west, linking Kolhapur and Karad.



*Fig. 5: Ancient trade routes in Maharashtra and the locations of the labyrinths*

## **Ancient trade routes and trading centres**

During the Satavahana dynasty (late 2<sup>nd</sup> century BCE to early 3<sup>rd</sup> century CE) control of trade and points of exchange was a main source of revenue. The rulers were responsible for offering protection to the caravans on their journey and were entitled to a fee for the service [Gurukkal, p.264]. This dynasty owed their prosperity to trade, a view justifiably supported by most historians, according to whom the period witnessed a remarkable growth of inland as well as overseas commerce in the Deccan areas. The Satavahana country was well known to the Greco-Roman geographers and navigators as a landscape full of forest goods and the Deccan Plateau was rich in forested mountain and wild animals. Consequently, there were several inland points of exchange acting as feeders for the Satavahana ports along west coast of India. The Greco-Roman merchant mariners were visiting these ports and bartering metals including tin and Italian bronze artifacts and also fine quality coral, as demonstrated by archaeological finds at the domestic site of Kolhapur, which is close to the study area. Karad and Kolhapur were important trade centres at this time, and the port of Dabhol-Khed connected to the Karad route through the Hatlot Ghat, so called because the slope of the ghat was so steep and difficult that the drivers of loaded carts had to get down to push the carts uphill (hatlot meaning hand pushing) [Hebalkar, p.27]. At Brahmapuri, located in vicinity of Kolhapur city, three bronze mirrors were excavated, one an authentic Roman import and two that may be Satavahana copies, along with a figure of Poseidon, the Graeco-Roman god of the sea and a clay bulla prepared from a Roman coin [Sankalia, p.9 & 97]. Similarly, two heavily corroded bronze mirrors, iron implements, bangles, Roman pottery, Satavahana and Roman coins were reported from another Satavahana site at Ter, lying to the northeast of Kolhapur [Suresh, p.127].

## **Discussion and Conclusion**

To understand the relationship of these labyrinths with the surrounding culture, a detailed site catchment analysis was carried out. Through a systematic village to village survey in and around these locations, we explored a number of sites of different cultural periods. While further research work is required to understand the importance and function of these labyrinths in Maharashtra, as discussed above, the study area of the Aitawade Budruk and Malangaon labyrinths is at a point where two ancient trade routes from Kolhapur divide, i.e., the one going to Karad and another towards Ter. The location of the labyrinths at Aitawade Budruk was at a major junction below the upper shield land, on a medium elevated and dissected ridgeline. From this ideal location, both the sites are visible, accessible by good road connection, and nearly equidistant. Therefore, after looking at such suitable landform characters, it seems they may have selected this location for the establishment of these labyrinths. Likewise, the labyrinth at Malangaon is situated alongside the road linking Kolhapur and Pandharpur. As discussed above, goods from the Konkan ports were loaded on bullock carts and carried through the ghat section of the plateau region to different localities in various directions. Therefore, new travellers can select the proper road to reach their destination and the labyrinths at this junction give proper direction to the travellers to reach their destination. In this process, these four labyrinths in Maharashtra all played a very important role in guiding travellers along these roads. These newly described labyrinths will prove to be important evidence of ancient Indian culture and trade relations. Further research work is required to understand the importance and function of the labyrinths discovered in the region of Maharashtra.

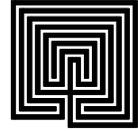
### Acknowledgements

The authors are thankful to Prof. Dr. Vasant S. Shinde, Director General, Maritime Heritage Complex Gujarat, former Vice Chancellor of Deccan College Deemed University, Pune, for his guidance and encouragement during progress of the work. The authors would like to express our deepest gratitude to Jeff and Kimberly Saward of Labyrinthos. The authors are also thankful to Mr. Shahaji Gaikwad and Mr. Tukaram Gaikwad of Aitawade Budruk, Mr. Amrut Patil of Vashi and Mr. Ashish Shinde Sarkar of Malangaon for their help during the area exploration and also kind gratitude for to giving their time. Similarly, we are thankful to Mr. Arvind Asabe, Dr. Shivaji Shirsagar, Mr. Sagar Patil, Miss Komal Patil and Miss Meghana Agarwal of Deccan Collage Pune, for help in reconstructing the material and history of the study area. We offer thanks to Mr. Rajkumarji of WIELDY, Mumbai for providing maps & GIS designs of locations and Mr. Anil Kisan Dudhane and Miss Sayali Ranavade of the Marathidesha Foundation, Pune, for digital sketches. Finally, thanks go to Mr. Aman Sinha of Kolhapur for aerial images.

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# Keeping Kern Current: Locating ‘Lost’ Labyrinths in Medieval Manuscripts

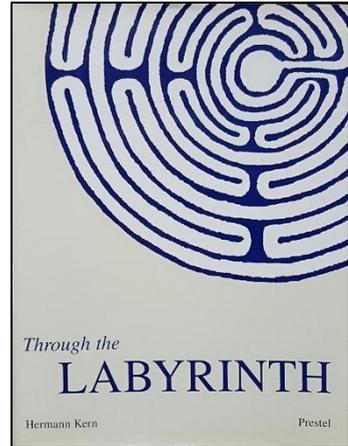


Jill K. H. Geoffrion & Alain Pierre Louët

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## Introduction

First published in 1982, Hermann Kern’s *Labyrinthe*, the catalogue of labyrinths which has become indispensable to scholars, devoted chapter seven to labyrinths found in manuscripts and noted 80 medieval examples. In 2000 an updated English language version of Kern’s book, *Through the Labyrinth*, was edited by Jeff Seward and Robert Ferré, in which they included an additional four manuscript labyrinths. Since that time, many other manuscript labyrinths have been identified by scholars and others have been put on-line, either as part of library digital collections or used as illustrations in books or online articles.



Due to our interest in these labyrinths, we have searched out new examples both using the internet and in-person when possible. We now offer the fruit of these labours, the 38 labyrinths below, with the hope that others will be able to use these examples in their work and research. Whenever possible, we have included images of these labyrinths and links where more information about them can be found.

Below we present these 38 manuscript labyrinths, in approximate chronological sequence, along with a table of their essential details. A note on the terminology regarding the labyrinth designs is in order at this point. In Kern’s original table (2000 edition, pages 107-109) he basically uses six categories to cover the majority of the labyrinths – Cretan, Cretan modified, Otrifrid, Jericho, Chartres and Chartres modified – plus a few that are correctly described as mazes. We have chosen to retain this basic system to allow direct comparison of the entries that follow with Kern’s original catalogue.

Modern readers might be more familiar with the terms “Classical” instead of “Cretan,” and “Medieval” rather than “Chartres,” but we will leave that translation of terminology to the reader. We have added an occasional comment where Kern’s system falls short of adequate description and have been consistent regarding the use of the term “Chartres-style” for those medieval labyrinths that have the same path arrangement as the labyrinth in Chartres Cathedral, and “modified Chartres” for those that have different path arrangements, likewise for “Cretan” and “modified Cretan.” The number of circuits refers to the concentric paths arranged around the central goal.

## Table of Manuscripts

No.	Collection	Folio no.	Labyrinth type	Date
1	Paris	Lat. 12048, fol. 80	Cretan	780-800 CE
2	Paris	Lat. 4416, fol. 35	Cretan	9 <sup>th</sup> century
3	Paris	Lat. 3840, fol. 1r	unknown	9 <sup>th</sup> century
4	Berlin	Lat. 356, fol. 11v	Cretan	9 <sup>th</sup> -10 <sup>th</sup> century
5	Basel	AN IV 11, fol. 77r	Otfrid-style	11 <sup>th</sup> century
6	Orléans	Ms. 16, fol. 252	Chartres-style	11 <sup>th</sup> -12 <sup>th</sup> century
7	Leiden	BPL 92A, fol.182	Chartres-style	12 <sup>th</sup> century
8	Paris	Lat. 5371, fol.240v	Chartres-style	12 <sup>th</sup> century
9	London	Cot. MS Tib. BII, fol. 248v	modified Chartres	1110
10	St. Omer	Ms. 684, fol. 74	Chartres-style	1120-11140
11	Cambridge	Ms. H.11, fol. 124v	Chartres-style	1180-1200
12	Paris	Ms. 711, fol. C	Chartres-style	12 <sup>th</sup> -13 <sup>th</sup> century
13	Leiden	Ms. 100A, fol. 1	Chartres-style	1150-1200
14	London	Add. 15603, fol. 142v	unusual	1175-1200
15	Chantilly	Ms. 0328, fol. 080v	Chartres-style	13 <sup>th</sup> century
16	Geneva	Ms. Gr. 44, p. 674	partial, uncertain	13 <sup>th</sup> century
17	Munich	Clm. 17403, fol. 13	Chartres-style	1241
18	Cambridge	Ms. 0.2.45, p. 001	Chartres-style	1248-1300
19	Paris	Lat. 2809, fol. 153r	modified Chartres	1270-1330
20	Amsterdam	Hs. Ros. 609, fol. 127v	modified Chartres	1290
21	Cambridge	Ms. 0.2.5, fol. 27r	Chartres-style	14 <sup>th</sup> century
22	Paris	Ms. 8530, fol. 175r	modified Chartres	14 <sup>th</sup> century
23	Paris	Ms. Or. Heb. 9, fol. 236v	Cretan	1304
24	Rome	Ms. Or. 72, fol. 6v	Cretan	1326
25	Berlin	Hs. or. 2371, fol. 167v	modified Cretan	1350
26	Berkeley	US-BE m 744, fol. 31v	modified Chartres	1375
27	Hanover, NH	Taj Torah, 290	Jericho	1400-1450
28	Paris	Greek 2055, fol. 53v	Chartres-style	15 <sup>th</sup> century
29	Paris	FR 17001, fol. 2v	complex	15 <sup>th</sup> century
30	Paris	FR 17001, fol. 27r	complex	15 <sup>th</sup> century
31	Paris	FR 17001, fol. 88r	complex	15 <sup>th</sup> century
32	Philadelphia	LJS 226, note 1, side 2	Chartres-style	1410
33	Paris	Or. Per. 62, fol. 322v	Jericho	1410
34	Dublin	Per. 322, fol. 121r	Jericho	1420
35	Den Haag	KB 72 A 23, fol. 21v	modified Chartres	1460
36	Princeton	Ms. 158, fol. 157v	modified Chartres	1471
37	Heidelberg	Cod. Heid. Or. 118, fol. 197v	Jericho	1475
38	Den Haag	KB 128 C 4, fol. 40r	modified Chartres	1512

## The Manuscripts

### 1 - Paris, France, Bibliothèque Nationale de France; Lat. 12048, fol. 80 (780-800 CE)

This 7-circuit Cretan labyrinth is in the form of an illuminated capital in a Gelasian Sacramentary, the so-called *Gellone Sacramentary*, a book of Christian liturgy related to the sacraments from the Diocese of Cambrai or Diocese of Meaux in France.

*1 - Lat. 12048, fol. 80; courtesy of  
Bibliothèque nationale de France*



Labyrinth:

<http://gallica.bnf.fr/ark:/12148/btv1b60000317/f167.image>

Manuscript: <http://gallica.bnf.fr/ark:/12148/btv1b60000317>

### 2 - Paris, France, Bibliothèque Nationale de France; Lat. 4416, fol. 35 (801-900)

This 7-circuit Cretan labyrinth has a doorway at the entrance and is found in the *Epitome Aegidii of the Lex Romana*, a Latin legal treatise, from France.

*2 - Lat. 4416, fol. 35; courtesy of  
Bibliothèque nationale de France*



Labyrinth:

<http://expositions.bnf.fr/ciel/grand/dedale.htm>

General Information on manuscript:

[http://www.leges.uni-](http://www.leges.uni-koeln.de/en/mss/codices/paris-bn-lat-4416/)

[koeln.de/en/mss/codices/paris-bn-lat-4416/](http://www.leges.uni-koeln.de/en/mss/codices/paris-bn-lat-4416/)

### 3 - Paris, France, Bibliothèque Nationale de France; Lat. 3840, fol. 1r (801-900)

This labyrinth, identified in the catalogue of the Bibliothèque Nationale de France, has an unknown pattern and exists in the *Collectio Canonum Dionysio-Hadriana*, a book of canon law, from Saint-Martin of Spanheim, Mainz, Germany. There is no image of this manuscript currently available online.

Description of the manuscript: <https://archivesetmanuscripts.bnf.fr/ark:/12148/cc61807z>

*No image currently available*

**4 - Berlin, Germany, Staatsbibliothek;  
Ms. theol. Lat. 356, fol. IIv (801-1000)**

This 7-circuit Cretan labyrinth was placed on the top of a page in book one of *Homiliae in Ezechielem*, a series of homilies on the Hebrew Testament book of Ezekiel by Pope Gregory I, from Werden in Germany.

*4 - Ms. theol. Lat. 356, fol. IIv;  
courtesy of Staatsbibliothek PK zu Berlin*

Labyrinth: [https://digital.staatsbibliothek-berlin.de/werkansicht?PPN=PPN797391118&PHYSID=PHYS\\_0006&DMDID=DMDLOG\\_0003](https://digital.staatsbibliothek-berlin.de/werkansicht?PPN=PPN797391118&PHYSID=PHYS_0006&DMDID=DMDLOG_0003)

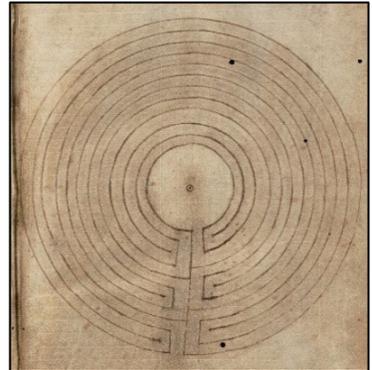


**5 - Basel, Switzerland, Universitätsbibliothek;  
AN IV 11, fol. 77r (1001-1100)**

This 11-circuit Otfrid-type labyrinth with long, sweeping pathways is in a manuscript relating to the *De coniuratione Catilinae* and *De bello Iugurthino*, the best-known works of Gaius Sallustius Crispus (Salluste), a Roman politician and historian from the first century BCE. From the Carthusian monastery of Chartreuse de Bâle, Basel, Switzerland.

*5 - AN IV 11, fol. 77r; courtesy of  
Universitätsbibliothek Basel*

Labyrinth: <https://www.e-codices.unifr.ch/fr/ubb/AN-IV-0011/77r>  
Manuscript: <https://www.e-codices.unifr.ch/fr/list/one/ubb/AN-IV-0011>

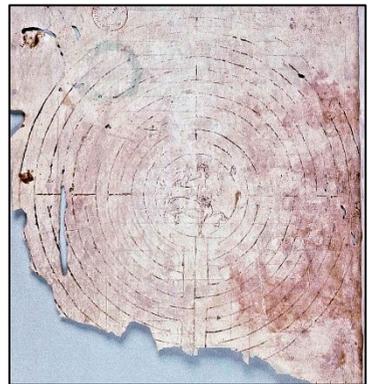


**6 - Orléans, France, Bibliothèque Municipale;  
Ms. 0016, fol. 252 (1001-1200 for the end matter  
including the labyrinth, 901-1000 for the  
manuscript)**

This 11-circuit Chartres-style labyrinth is found at the end in a manuscript of biblical texts from the Hebrew Testament, books of Proverbs, Song of Solomon, Job, Maccabees, and Tobias, from Fleury Abbey, Saint-Benoît-sur-Loire, France.

*6 - Ms. 0016, fol. 252; courtesy of  
Bibliothèque Municipale, Orléans*

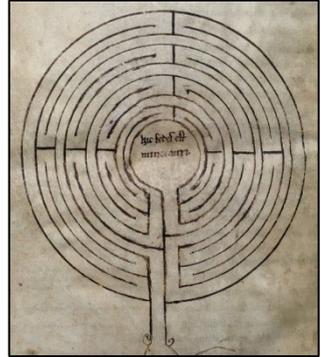
Labyrinth: [https://bvmm.irht.cnrs.fr/consult/consult.php?mode=ecran&panier=false&reproductionId=8853&VUE\\_ID=1272788&carouselThere=false&nbVignettes=4x3&page=1&angle=0&zoom=petit&tailleReelle](https://bvmm.irht.cnrs.fr/consult/consult.php?mode=ecran&panier=false&reproductionId=8853&VUE_ID=1272788&carouselThere=false&nbVignettes=4x3&page=1&angle=0&zoom=petit&tailleReelle)



**7 - Leiden, Netherlands, Universiteit Leiden;  
BPL 92 A, fol. 182 (1101-1200)**

This 11-circuit Chartres-style labyrinth is found in a manuscript of *Octaviani Caesaris Augusti Versus in P. Virgilii Maronis*, a collection of Roman writings which include poetry and grammar by Donatus, Servius Honoratus and Virgil, from Normandy in France.

*7 - BPL 92 A, fol. 182; courtesy of Universiteit Leiden*



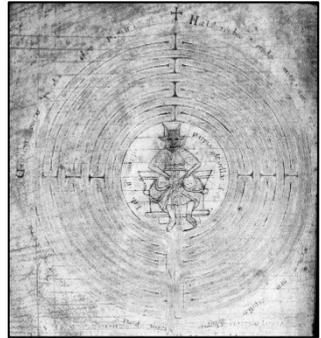
Description of manuscript:

[https://catalogue.leidenuniv.nl/primo-explore/fulldisplay?docid=UBL\\_ALMA2122245570002711&context=L&vid=UBL\\_V1&lang=en\\_US&search\\_scope=special&adaptor=Local%20Search%20Engine&tab=special&query=any,contains,BPL%2092&offset=0](https://catalogue.leidenuniv.nl/primo-explore/fulldisplay?docid=UBL_ALMA2122245570002711&context=L&vid=UBL_V1&lang=en_US&search_scope=special&adaptor=Local%20Search%20Engine&tab=special&query=any,contains,BPL%2092&offset=0)

**8 - Paris, France, Bibliothèque Nationale de France;  
Latin 5371, fol. 240v (1101-1200)**

This 11-circuit Chartres-style labyrinth is found in a collection of texts written by the Christian authors Hincmarus Remensis, Eugene of Toledo and the Venerable Bede, from the Abbey of Notre Dame, Mouzon (Ardennes) in France.

*8 - Lat. 5371, fol. 240v; courtesy of  
Bibliothèque nationale de France*



Labyrinth:

<https://gallica.bnf.fr/ark:/12148/btv1b10721217v/f246.item>

**9 - London, England, British Library;  
Cotton MS Tiberius BII, fol. 248v (1110)**

This 18-circuit modified Chartres labyrinth with a unique pattern is found in a manuscript on the martyrdom and miracles of St. Edmund (king of East Anglia from about 855 until 869) by Abbo of Fleury, from Ely in England.

*9 - Cotton MS Tiberius BII, fol. 248v;  
courtesy of the British Library*



Labyrinth:

<http://www.bl.uk/onlinegallery/onlineex/illmanus/cottmanucoll/l/011cottibb00002u00248v00.html>

Manuscript:

[https://www.bl.uk/manuscripts/Viewer.aspx?ref=cotton\\_ms\\_tiberius\\_b\\_ii\\_f086r](https://www.bl.uk/manuscripts/Viewer.aspx?ref=cotton_ms_tiberius_b_ii_f086r)

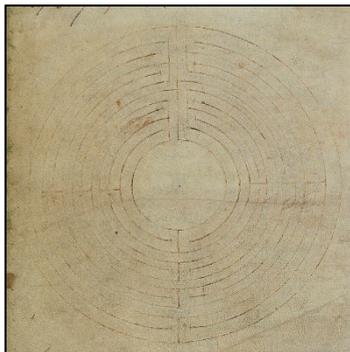
**10 - St. Omer, France, Bibliothèque Municipale;  
Ms. 0684, fol. 74 (1120-1140)**

This 11-circuit Chartres-style labyrinth is found in the *Consolation of Philosophy* by Roman statesman Boethius, from the Abbey of St. Bertin, St. Omer in France.

*10 - Ms.684, fol. 74; courtesy of  
Bibliothèque Municipale, St. Omer*

Ms. including labyrinth:

<https://bvmm.irht.cnrs.fr/iiif/19320/canvas/canvas-1714146/view>



**11 - Cambridge, England, St. John's College,  
University of Cambridge;  
Ms. H.11, fol. 124v (1180-1200)**

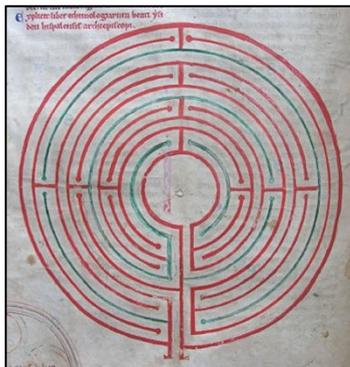
This 11-circuit Chartres-style labyrinth is found in Isidore of Seville's *Etymologies*, from Wigmore Priory, Herefordshire, England.

*11 - Ms. H.11, fol. 124v; courtesy of  
St. John's College, University of Cambridge*

Labyrinth:

[https://www.joh.cam.ac.uk/library/special\\_collections/  
manuscripts/medieval\\_manuscripts/medman/A/Web%20images/H11f124v.htm](https://www.joh.cam.ac.uk/library/special_collections/manuscripts/medieval_manuscripts/medman/A/Web%20images/H11f124v.htm)

Manuscript: [https://www.joh.cam.ac.uk/library/special\\_collections/  
manuscripts/medieval\\_manuscripts/medman/H\\_11.htm](https://www.joh.cam.ac.uk/library/special_collections/manuscripts/medieval_manuscripts/medman/H_11.htm)



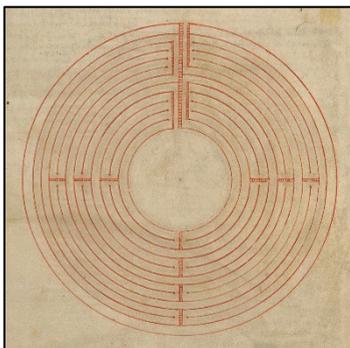
**12 - Paris, France, Bibliothèque de l'Arsenal; Ms. 711, fol. C (1101-1300)**

This 11-circuit Chartres-style labyrinth is found in a Miscellany Collection: Pierre Hélie, Quintilian, Cicero, Seneca, Plato, Aulu-Gelle, Cassiodorus, Celsus (Julius), Macrobe, Mela (Pomponius), Petrone, Plautus, Sallust, Sidoine Apollinaire, Suetonius, Terence, Varron, and Boèce, with texts written in Latin and French, from the Abbey of St. Victor, Paris, France.

*12 - Ms. 711, fol. C; courtesy of  
Bibliothèque nationale de France*

Manuscript, with link to page with labyrinth:

[https://portail.bibliissima.fr/fr/ark:/43093/  
mdatab59677bce97c11750f03df8e0483fe267452145](https://portail.bibliissima.fr/fr/ark:/43093/mdatab59677bce97c11750f03df8e0483fe267452145)



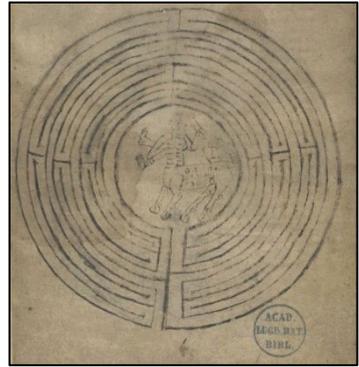
**13 - Leiden, Netherlands, Universiteit Leiden;  
Ms. 100 A, fol. 1 (1150-1200)**

This 11-circuit Chartres-style labyrinth is found in a manuscript of the biblical book of Job, *Liber Hiob ex Hieronymi versione cum Genealogia et commentario*, which includes Jerome's genealogy and commentary, from the Netherlands.

*13 - Ms. 100 A, fol. 1;  
courtesy of Universiteit Leiden*

Manuscript and labyrinth:

<https://digitalcollections.universiteitleiden.nl/view/item/1837299#page/1/mode/1up>



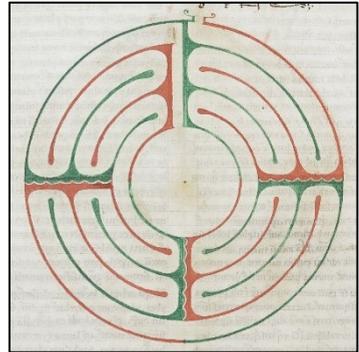
**14 - London, England, British Library;  
Additional 15603, fol. 142v (1175-1200)**

This unusual 5-circuit, 4-quadrant labyrinth is found in a manuscript copy of the *Etymologies* by Isidore of Seville, from Neuville-lès-la-Charité in France.

*14 - Additional 15603, fol. 142v;  
courtesy of the British Library*

Manuscript and labyrinth:

<https://www.bl.uk/catalogues/illuminatedmanuscripts/record.asp?MSID=2482&CollID=27&NStart=15603>



**15 - Chantilly, France, Musée Condé;  
Ms. 0328, fol. 80v (1201-1300)**

This 11-circuit Chartres-style labyrinth with a woman's head at the centre, is found in the *Petrus Hispanus Thesaurus Pauperum*, a collection of writings, remedies, recipes, prayers and hymns to the Virgin, from Spain.

*15 - Ms. 0328, fol. 80v;  
courtesy of Musée Condé, Chantilly*

Manuscript and labyrinth:

<https://portail.bibliissima.fr/fr/ark:/43093/mdataacddd44cf088d4b30ad70500ec23f46af1dc9ebc>



**16 - Geneva, Switzerland, Bibliothèque de Genève;  
Ms. Gr. 44, p.674 (1201-1300)**

This partial labyrinth of simple, but uncertain design, is found in a manuscript copy Homer's Iliad, from Constantinople (Istanbul), Turkey.

*16 - Ms. Gr. 44, p. 674;  
courtesy of Bibliothèque de Genève*



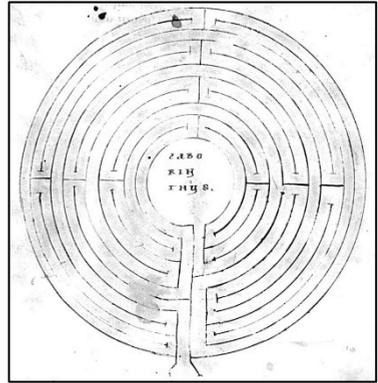
Manuscript and labyrinth: <https://www.e-codices.unifr.ch/en/list/one/bge/gr0044>

**17 - Munich, Germany, Bayerische Staatsbibliothek;  
Clm. 17403, fol. 13 (1241)**

This 11-circuit Chartres-style labyrinth is found on the first page of the *Glossarium Salomonis sive Mater verborum. Herbae pictae cum explicatione*, a glossary that includes illustrated herbs, from the monastery of Scheyern, Germany.

*17 - Clm. 17403, fol. 13;  
courtesy of Bayerische Staatsbibliothek*

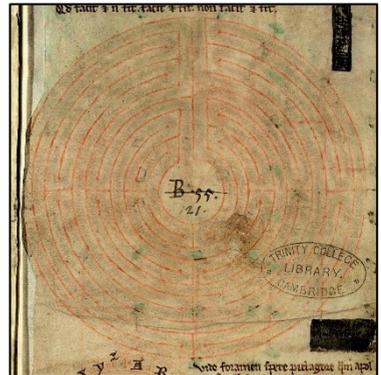
Labyrinth and manuscript: <https://daten.digital-sammlungen.de/~db/0011/bsb00110824/images/index.html?seite=13&fip=193.174.98.30>



**18 - Cambridge, England, Trinity College;  
Ms. 0.2.45, page 001 (1248-1300)**

This 11-circuit Chartres-style labyrinth is found in a bound miscellany of various manuscripts that includes music and writings in Latin, French and Middle English, from Cerne Abbey, England.

*18 - Ms. 0.2.45, page 001;  
courtesy of Trinity College, Cambridge*



Manuscript and labyrinth: <https://mss-cat.trin.cam.ac.uk/manuscripts/uv/view.php?n=O.2.45&n=O.2.45#?c=0&m=0&s=0&cv=8&xywh=-51%2C0%2C3840%2C2777>

**19 - Paris, France, Bibliothèque Nationale de France; Latin 2809, fol. 153r (1270-1330)**

This 11-circuit modified Chartres labyrinth (similar to the design of the Sens labyrinth) is found in a manuscript of *Gregorius Magnus, Dialogi; Sententiae Patrum* a text that includes Gregory the Great's Dialogues and Tyrannus Rufus's treatise on monks and the Holy Fathers, from Narbonne, France.

*19 - Latin 2809, fol. 153r; courtesy of Bibliothèque Nationale de France*



Labyrinth:

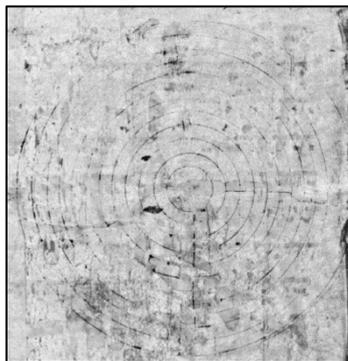
<https://gallica.bnf.fr/ark:/12148/btv1b105157339/f309.item.r=MS%20LATIN%202809>

Manuscript: <https://gallica.bnf.fr/ark:/12148/btv1b105157339#>

**20 - Amsterdam, Netherlands, Bibliotheca Rosenthaliana, Amsterdam University Library; Hs. Ros. 609, fol. 127v (1290)**

This 11-circuit modified Chartres labyrinth is placed in the *Esslingen Mahzor*, a festival prayer book for Yom Kippur and Sukkot, from Germany.

*20 - Hs. Ros. 609, fol. 127v; courtesy of Bibliotheca Rosenthaliana, Amsterdam University Library*



Information on the manuscript:

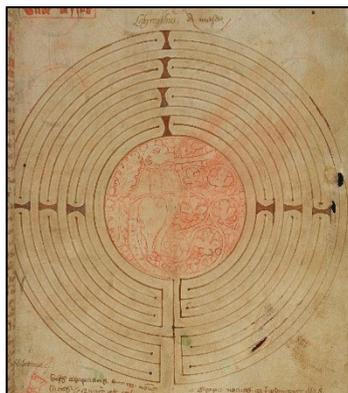
<https://lib.uva.nl/discovery/fulldisplay?>

vid=31UKB\_UAM1\_INST:UVA&docid=alma990033567910205131

**21 - Cambridge, England, Trinity College; Ms. 0.2.5, fol. 27r (1301-1400)**

This 11-circuit Chartres-style labyrinth is found in a miscellany with canonical, astronomical texts and medical treatises, of unknown provenance.

*21 - Ms. 0.2.5, fol. 27r; courtesy of Trinity College, Cambridge*



Labyrinth and manuscript: [https://mss-cat.trin.cam.ac.uk/manuscripts/uv/view.php?](https://mss-cat.trin.cam.ac.uk/manuscripts/uv/view.php?n=O.2.45&n=O.2.5#?c=0&m=0&s=0&cv=70&xywh=897%2C2260%2C2521%2C2054)

[n=O.2.45&n=O.2.5#?c=0&m=0&s=0&cv=](https://mss-cat.trin.cam.ac.uk/manuscripts/uv/view.php?n=O.2.45&n=O.2.5#?c=0&m=0&s=0&cv=70&xywh=897%2C2260%2C2521%2C2054)

[70&xywh=897%2C2260%2C2521%2C2054](https://mss-cat.trin.cam.ac.uk/manuscripts/uv/view.php?n=O.2.45&n=O.2.5#?c=0&m=0&s=0&cv=70&xywh=897%2C2260%2C2521%2C2054)

[70&xywh=897%2C2260%2C2521%2C2054](https://mss-cat.trin.cam.ac.uk/manuscripts/uv/view.php?n=O.2.45&n=O.2.5#?c=0&m=0&s=0&cv=70&xywh=897%2C2260%2C2521%2C2054)

**22 - Paris, France, Bibliothèque de l' Arsenal;  
Ms. 8530, fol. 175r (1301-1400)**

This 11-circuit, Chartres modified labyrinth (with several errors) is found in an Italian manuscript of Dante's *Divine Comedy*.

*22 - Ms. 8530, fol. 175r; courtesy of  
Bibliothèque Nationale de France*

Labyrinth and manuscript:

<https://gallica.bnf.fr/ark:/12148/btv1b52507439j>



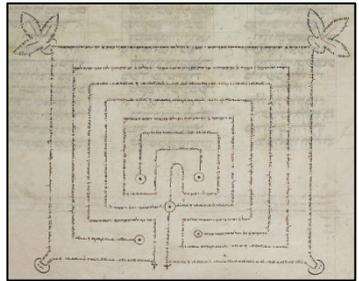
**23 - Paris, France, Bibliothèque Nationale de France;  
Ms. Orientaux. Hebreu 9, fol. 236v (1304)**

This 7-circuit classical rectangular text labyrinth, with corner embellishments, is found in a Hebrew language manuscript of the Hebrew Bible, from Germany.

*23 - Ms. Orientaux. Hebreu 9, fol. 236v;  
courtesy of Bibliothèque Nationale de France*

Labyrinth:

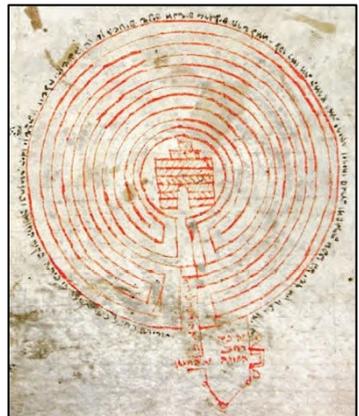
<https://gallica.bnf.fr/ark:/12148/btv1b10548441n/f481.item>



**24 - Rome, Italy, Biblioteca Angelica; Ms. Or. 72, fol. 6v (1326)**

This 11-circuit Cretan labyrinth, depicting Jericho, is in a manuscript of the biblical prophets, opposite the initial folio of the biblical book of Joshua, from Frascati, Italy.

*24 - Ms. Or. 72, fol. 6; courtesy of  
the Ministry for Arts and Culture, Biblioteca Angelica*



Labyrinth illustrated: [https://www.academia.edu/1965828/The\\_Jericho\\_Labyrinth\\_The\\_Rise\\_and\\_Fall\\_of\\_a\\_Jewish\\_Visual\\_Trope](https://www.academia.edu/1965828/The_Jericho_Labyrinth_The_Rise_and_Fall_of_a_Jewish_Visual_Trope)

**25 - Berlin, Germany, Staatsbibliothek zu Berlin - Preußischer Kulturbesitz;  
Hs. Or. 2371, fol. 167v (1350)**

This 8-circuit Jericho labyrinth is found in an Iranian manuscript of *Muğmal at-tawārīḥ wa-l-qisas*, a compendium of histories and stories.

*25 – Berlin; Hs. or. 2371, fol. 167v;  
courtesy of Staatsbibliothek PK zu Berlin*

Labyrinth and manuscript:

[https://digital.staatsbibliothek-berlin.de/werkansicht/?PPN=PPN744890942&PHYSID=PHYS\\_0344](https://digital.staatsbibliothek-berlin.de/werkansicht/?PPN=PPN744890942&PHYSID=PHYS_0344)



**26 - Berkeley, California, USA, University Library;  
US-BE m 744, fol. 31v (1375)**

This 11-circuit modified Chartres labyrinth which includes musical notations set on its paths is found in a manuscript of the Treatises of Arezzo, Guido and Goscalcus, from Italy.

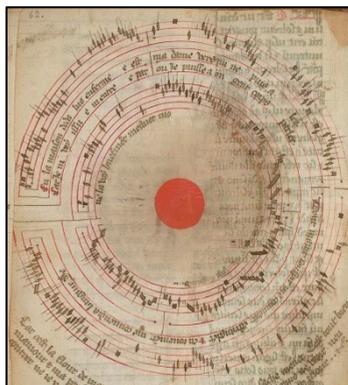
*26 - US-BE m 744, fol. 31v;  
courtesy of Berkeley University Library*

Labyrinth on YouTube:

<https://www.youtube.com/watch?v=dO56v7qltNoD>

Description of manuscript:

<https://www.diamm.ac.uk/sources/845/#/>



**27 - Hanover, New Hampshire, USA, Rauner Library,  
Dartmouth College; Ms. 290 (1400-1450)**

This 6-circuit Jericho labyrinth is located in a copy of the *Taj Torah*, from Yemen.

*27 - Taj Torah, Ms.290;  
courtesy of Dartmouth Library*

Labyrinth and manuscript:

<http://sites.dartmouth.edu/library/author/dz99690/page/3/>



**28 - Paris, France, Bibliothèque Nationale de France;  
Greek 2055, fol. 53v (1401-1500)**

This 11-circuit Chartres-style labyrinth is found in a Greek philosophical miscellany, including works by Aphrodisienis Alexander, Isidorus Hieromonachus, Ephesiu Michael and Michael Psellus.

*28 - Greek 2055, fol. 53v; courtesy of  
Bibliothèque Nationale de France*

Labyrinth (p.62) and manuscript:  
[https://gallica.bnf.fr/ark:/12148/  
btv1b107222589/f5.image](https://gallica.bnf.fr/ark:/12148/btv1b107222589/f5.image)

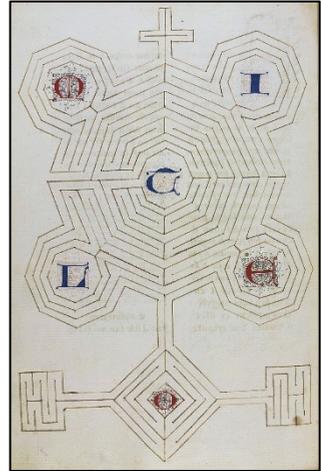


**29 - Paris, France, Bibliothèque Nationale de France;  
FR 17001, fol. 2v (1401-1500)**

This complex labyrinth, which resembles a modified octagonal Chartres-style labyrinth, with 'bastions' at the four corners, a cross on top and a further section below formed of a diamond and two rectangles, is found in a French compilation by Jean Miélot of literary and historical texts, with translations of Cicero, Jean Boccace, and Jean d'Udine.

*29 - FR 17001, fol. 2v; courtesy of  
Bibliothèque Nationale de France*

Labyrinth and manuscript: [https://gallica.bnf.fr/ark:/12148/  
btv1b10463342b/f12.item](https://gallica.bnf.fr/ark:/12148/btv1b10463342b/f12.item)

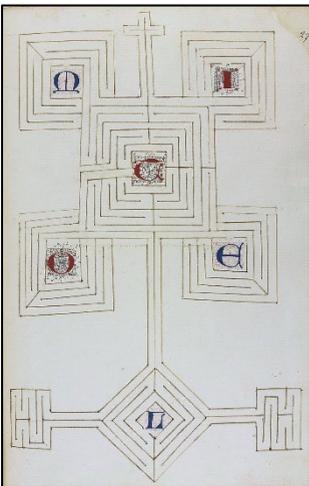


**30 - Paris, France, Bibliothèque Nationale de France;  
FR 17001, fol. 27r (1401-1500)**

This complex labyrinth with eight segments in two large groupings (one with five squares and one with a diamond and two rectangles) is found in a French compilation by Jean Miélot of literary and historical texts, with translations of Cicero, Jean Boccace, and Jean d'Udine.

*30 - FR 17001, fol. 27r; courtesy of  
Bibliothèque Nationale de France*

Labyrinth and manuscript:  
<https://gallica.bnf.fr/ark:/12148/btv1b10463342b/f61.item>

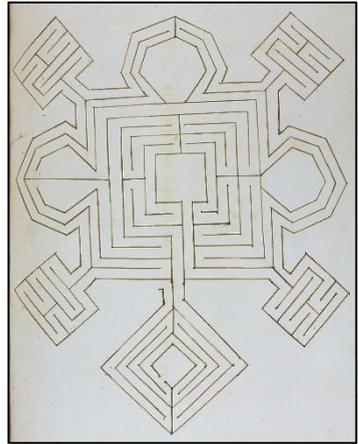


**31 - Paris, France, Bibliothèque Nationale de France; FR 17001, fol. 88r (1401-1500)**

This complex labyrinth with a pattern with nine compartments, eight arranged around a central square, is found in a French compilation by Jean Miélot of literary and historical texts, with translations of Cicero, Jean Boccace, and Jean d'Udine.

*31 - FR 17001, fol. 88r; courtesy of Bibliothèque Nationale de France*

Labyrinth and manuscript:  
<https://gallica.bnf.fr/ark:/12148/btv1b10463342b/f183.item>



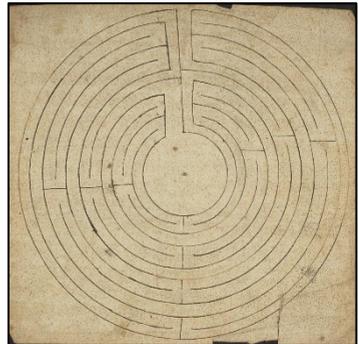
**32 - Philadelphia, PA, USA, University of Pennsylvania Library; LJS 226, loose note 1, side 2 (1410)**

This 11-circuit Chartres-style labyrinth is located in a manuscript of astrological and astronomical texts, originally from England and Spain.

*32 - LJS 226, loose note 1, side 2; courtesy of the University of Pennsylvania Library*

Labyrinth:  
[https://openn.library.upenn.edu/Data/0001/ljs226/data/web/0193\\_0016\\_web.jpg](https://openn.library.upenn.edu/Data/0001/ljs226/data/web/0193_0016_web.jpg)

Manuscript: <https://openn.library.upenn.edu/Data/0001/html/ljs226.html>



**33 - Paris, France, Bibliothèque Nationale de France; Orientaux Persian 62, fol. 322v (1410)**

This 9-circuit Jericho labyrinth is found in an Iranian manuscript of *Muğmal at-tawārīḥ wa-l-qisas*, a compendium of histories and stories.

*33 - Orientaux Persian 62, fol. 322v; courtesy of Bibliothèque Nationale de France*

Labyrinth and manuscript:  
<https://gallica.bnf.fr/ark:/12148/btv1b10091886t/f341.item.r=persanlabyrinthe%20labyrinthe>

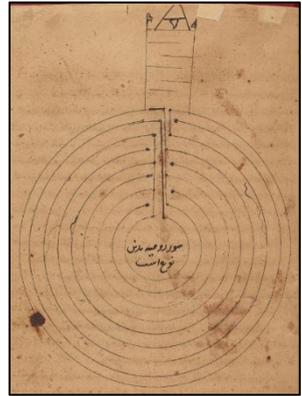


**34 - Dublin, Ireland, Chester Beatty Library;  
Persian 322, fol. 121r (1420)**

This 8-circuit Jericho labyrinth is found in an Iranian manuscript of *Muğmal at-tawārīḥ wa-'l-qisas*, a compendium of histories and stories.

*34 - Persian 322, fol. 121r;  
courtesy of the Chester Beatty Library*

Labyrinth: [https://viewer.cbl.ie/viewer/image/  
Per\\_322/245/LOG\\_0007/](https://viewer.cbl.ie/viewer/image/Per_322/245/LOG_0007/)



**35 - Den Haag, Netherlands, Koninklijke Bibliotheek National;  
KB 72 A 23, fol. 21v (1460)**

This 11-circuit modified Chartres labyrinth, with the Minotaur at the centre, is found a manuscript copy of Lambert of St. Omer's medieval encyclopaedia, *Liber Floridus*, from Lille in France and Ninove in Belgium.

*35 - KB 72 A 23, fol. 21v; courtesy of  
Koninklijke Bibliotheek National*

Labyrinth: [https://www.europeana.eu/en/item/9200122/  
12803B456A21AED6A02F976E4B6D86F4CCF596  
F1?start=1&query=title%3Alabyrinth%20manuscript&startPage=1&rows=24](https://www.europeana.eu/en/item/9200122/12803B456A21AED6A02F976E4B6D86F4CCF596F1?start=1&query=title%3Alabyrinth%20manuscript&startPage=1&rows=24)  
Manuscript: <http://manuscripts.kb.nl/show/manuscript/+72+A+23>



**36 - Princeton, New Jersey, USA, Garrett Library,  
Princeton University; Ms. 158, fol. 157v (1471)**

This 11-circuit modified Chartres labyrinth is found in Giovanni Marcanova's *Collectio Antiquitatum* on the monuments and places of ancient Rome, probably from Bologna, Italy.

*36 - Ms. 158, fol. 157v; courtesy of  
Garrett Library, Princeton University*

Labyrinth: [http://visualoop.com/blog/12030/  
vintage-infodesign-35](http://visualoop.com/blog/12030/vintage-infodesign-35)  
Manuscript: [https://library.princeton.edu/visual\\_materials/garrett/garrett\\_ms\\_158.final.pdf](https://library.princeton.edu/visual_materials/garrett/garrett_ms_158.final.pdf)



**37 - Heidelberg, Germany, Universitätsbibliothek;  
Cod. Heid. Orient 118, fol. 197v (1475)**

This 9-circuit Jericho labyrinth is found in an Iranian manuscript of *Muğmal at-tawārīḥ wa-'l-qisas*, a compendium of histories and stories.

*37 - Cod. Heid. Orient. 118 fol. 197v;  
courtesy of Universitätsbibliothek Heidelberg*

Labyrinth: <https://digi.ub.uni-heidelberg.de/diglit/codheidorient118/0400/image>  
Manuscript: <http://digi.ub.uni-heidelberg.de/diglit/codheidorient118>

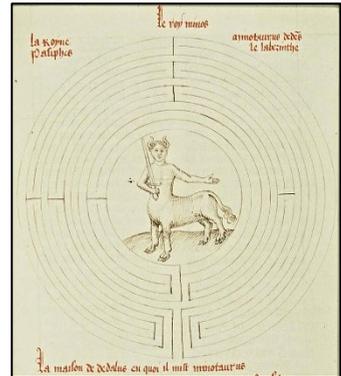


**38 - Den Haag, Netherlands, Koninklijke Bibliotheek  
National; KB 128 C 4, fol. 40r (1512)**

This 11-circuit modified Chartres labyrinth, with the Minotaur at the centre, is found in a manuscript copy of Lambert of St. Omer's medieval encyclopaedia, *Liber Floridus*, from Enghien, Belgium.

*38 - KB 128 C 4, fol. 40r; courtesy of  
Koninklijke Bibliotheek National*

Labyrinth: [https://manuscripts.kb.nl/zoom/BYVANCKB%3Amimi\\_128c4%3A040r\\_afb](https://manuscripts.kb.nl/zoom/BYVANCKB%3Amimi_128c4%3A040r_afb)  
Manuscript: <https://manuscripts.kb.nl/show/manuscript/128+C+4>



### Conclusion

As libraries across the globe continue to make their manuscript collections available in digital formats other labyrinths will come to light. We have found it useful to recheck digital collections regularly and encourage others who are searching for manuscript labyrinths to do the same. If you become aware of other manuscript labyrinths that are not included here, we would be eager to learn of them, and together continue to study the development and meanings of the labyrinth images used in medieval manuscripts.

Alain Louët, Chartres, France; April 2021. Email: [alainpierre.louet@gmail.com](mailto:alainpierre.louet@gmail.com)  
Jill K. H. Geoffrion, Wayzata, MN, USA. Email: [jill.geoffrion@gmail.com](mailto:jill.geoffrion@gmail.com)

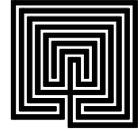
### Acknowledgment & References

We would like to gratefully acknowledge the assistance of Jeff Saward in locating quality images for this article and generally helping us to present this material in the most helpful way, and also the many libraries and institutions that have provided images and information from their manuscript collections online for research.

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# Hedge Mazes in Portugal: A Brief History



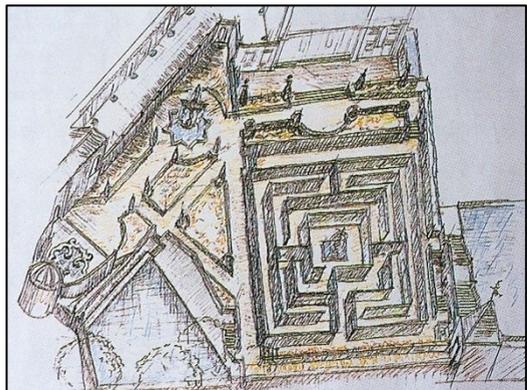
Carlos Soreto

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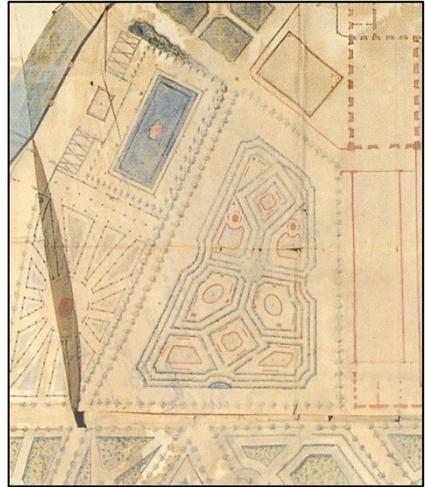
Gardens are amazing places where our senses enjoy the magical atmosphere created by the aesthetics of art together with the energy of nature. The art of building gardens is very ancient yet the inclusion of a mystical symbol like the labyrinth only began around the 14<sup>th</sup> century in private European gardens, and in public parks a few centuries later. From the Iberian Peninsula to Scandinavia, they flowered into a multitude of forms inspired by medieval labyrinths and more recently by classical designs.<sup>1</sup> As playthings of the rich and noble, or amusement places for children, the thrill they give has captivated and continues to puzzle many generations in search of a goal that, like our inner core, proves difficult to reach.

It seems that the taste for hedge mazes in the private gardens of aristocratic Portuguese families begins in the 1670s, according to a notarial record from 1673<sup>2</sup> where there is mentioned 'an external walkway connecting to the oratory house which overlooks the labyrinth' and describes the 'building resting on four stone columns covered by a grove of trees and a small fountain and a pond' at the centre of the maze that would have embellished the gardens at the Palácio dos Marqueses de Fronteira.<sup>3</sup> Five years later the French intellectual Alexis Collotes de Jantillet, who lived and worked at the royal court at Lisbon, visited the palace of Fronteira and in his book published in 1679<sup>4</sup> he describes the 'beauty and elegance of the place,' and mentions the centre of the labyrinth as a shady spot featuring 'four elegant columns... with water spouting from a pyramid... originating from a lake...; near which lies a bed... where you can have a nap...'<sup>5</sup> This evokes the 'Caza Armada en quatro Colunas de pedra Cuberta do mesmo Aruoredo' (four stone columns shelter) mentioned in the record of 1673, and suggests that a bower, still in vogue in the 17<sup>th</sup> century as in the Oude Doolhof in Amsterdam (ca. 1610),<sup>6</sup> was a prominent feature of the baroque garden maze of this 17<sup>th</sup> century palace with the largest collection of Portuguese tiles in situ, located a few kilometres from downtown Lisbon.

*The maze at the Palace of Fronteira,  
plan by the architect  
Rodrigo Alves Dias, 1995*



About 10 kilometres from the palace of Fronteira, on the road from Lisbon to Sintra, at the royal palace of Queluz there was a fresco painting on a wall (recorded in 1772, but now lost), depicting a game of Blind's Man Bluff, whose diverting scenes, according to Simonetta Luz Afonso and Angela Delaforce 'once faced across to a labyrinth' likely linked with the 'idea of hiding in the complex puzzle of the maze.'<sup>7</sup> About 20 years after the Great Lisbon earthquake of 1755,<sup>8</sup> Richard Twiss, a British traveller who visited the palace, wrote 'There is a large garden behind this palace, with a labyrinth, and orange and lemon groves.'<sup>9</sup> Additionally, several financial records (from 1767 to 1782) and the existing ground plans of the palace kept at the Biblioteca Nacional do Rio de Janeiro, Brazil, attest to the existence of a hedge maze in the gardens of the royal palace at Queluz in the 18<sup>th</sup> century. Although the name of the garden, *Jardim do Labirinto*, still remains as a memory, the maze unfortunately has not survived, it was probably destroyed at the start of the 20<sup>th</sup> century.<sup>10</sup>



*Palace of Queluz, ground plan of the lower level of the gardens (detail, mid-18<sup>th</sup> century). Garden of the Labyrinth (maze, bluish rectangle). Biblioteca Nacional do Rio de Janeiro, Brazil*

Several other documents (both in paper and epigraphic inscriptions) from the 17<sup>th</sup> century onwards, mainly from nobility villas from northern Portugal, mention the word 'labyrinth' (*labarint(h)o*, *labyrintho*), but as with those mentioned above, all of those mazes have disappeared over time. The only survivor, from the 18<sup>th</sup> century, is to be found at the Quinta da Prelada in Oporto, and in the same city there is another hedge maze at the Parque de S. Roque, although it is of modern construction, from the second half of the 20<sup>th</sup> century.

### **Prelada**

Quinta da Prelada is a baroque villa located in northern Oporto, a few kilometres from the city centre. Between 1743 and 1748 its owners, the Noronha e Menezes family, commissioned the Italian architect Niccolo Nasoni to create a plan for building a house and a garden including a box labyrinth (technically a maze). The maze was probably planted at that time because it is mentioned in *Diccionario Geographico* in 1758, as a 'box labyrinth with 72 feet and three quarters in side... with a good-looking symmetry.'<sup>11</sup> It was perhaps inspired by a design in a book about agriculture by a Catalonian friar from 1617 that features a similar square labyrinth,<sup>12</sup> whose figure 'may be worthwhile to those who are curious, and inclined to similar things.'<sup>13</sup> In the middle of the 18<sup>th</sup> century João José, the first Oporto municipal gardener, modified the gardens at Quinta da Prelada but no mention is made of the box hedge maze.<sup>14</sup> We have neither visitors' accounts, as in Lisbon, nor detailed descriptions of the role of the labyrinth in the romantic leisure atmosphere of the Quinta, but we can surmise that according to the Christian and pious stock of the Noronha e Menezes family, it was probably used merely as a playground for family entertainment.



*A maze (without solution) that could have inspired the maze at Prelada, in a book on agriculture by Fray Miguel Agustín, originally published in Catalan in 1617 (reproduced here from the 1722 Spanish edition)*



*The maze at Prelada, plan by A. Alvão, 1917. Photo: João Baptista*

The hedge maze, of rectangular shape, measures 24.5 by 32 metres and is to be found at the rear of the house. It has three visible entrances, though initially there should have only been one, from which the circular centre containing a 30 metres tall *Araucaria* tree, was reached. We don't know when the tree was planted, and according to a description published in 1909 by someone who was lost in the (already neglected) maze some decades previously, the central clearing would have featured some iron benches and also a rustic table surrounding the trunk of the tree.<sup>15</sup> The maze is formed of four concentric circles around the central point, leading into rectangular circuits of box shrubs ca. 1.2 metres high, with a path 90 centimetres wide and a 650 metre total length to the centre and back out. Over the years it has undergone some alterations, and according to João Baptista its present layout does not match the plan drawn in 1917 by A. Alvão,<sup>16</sup> an employee of Santa Casa da Misericórdia do Porto (the present owner of Prelada), and published in an Oporto newspaper article in 1943, where the solution of its path drawn by a puzzle enthusiast is shown.<sup>17</sup>



*The maze at Prelada, following restoration in 2013. Photo: Santa Casa da Misericórdia do Porto*

After the death of the last owner of the Noronha e Menezes family, in 1903, the aesthetic and joyful side of the Quinta was neglected as were the maze shrubs, but now, after undergoing a restoration process before its official re-opening in 2013, it is a pleasant place that deserves to be visited, and the maze is fully grown and once again looking splendid, waiting to be threaded... all for free.

### **S. Roque**

Not too far from Quinta da Prelada there was another villa, that once belonged to the wealthy Port wine traders Ramos Pinto and Calem family, the Parque de S. Roque. The palace-like house built in 1792, and the rest of the park, was acquired in 1978 and 1979 by the Oporto municipality and on 20<sup>th</sup> July 1979 the park was officially opened to the public. Arranged in a series of stepped terraces with an area of 45,000 square metres, it is located on a steep hill facing the Douro river, near the train station of Campanhã.



*The circular box hedge maze of S. Roque. Photo: João Baptista.*

The luxuriant box hedge maze, that according to some testimonies would have been planted around 1985,<sup>18</sup> is to be found near the main park entrance, on Rua de São Roque da Lameira, on a formal garden platform that provides its rectangular shape, bordered by camellias. The maze is of concentric type with a granite pillar surmounted by a teardrop shape ornament at its centre and measures ca. 30 metres in diameter with well-tended shrubs ca. 60 centimetres wide and 1.5 metres high. The path, approximately one metre wide, can be entered at two different points. The park of S. Roque is open daily and can be visited in winter from 8 a.m. to 7 p.m. and in summer from 8 a.m. to 8 p.m., with the free admission.

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## Acknowledgments

I would like to take this opportunity to thank João Baptista, architect and labyrinth enthusiast whose correspondence exchange has awakened in me an old wish that finally came true. Moreover, such an elaborate article would not have been possible without his invaluable help. My thanks also to Eng. Paula Aleixo of Santa Casa da Misericórdia do Porto who kindly put at my disposal the photograph of Casa da Prelada hedge maze.

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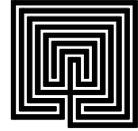
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## Notes

1. For instance, the design of the hedge maze planted in 1981 at Cawdor Castle, Scotland, is inspired by the most famous of the four labyrinths found on the Roman mosaics at Conimbriga, Portugal [Soreto 2003].
2. Transcribed in Carita & Cardoso, 1990, p. 107-108.
3. '... uma baranda de passeio descuberta que fica sobre o Labarinto que uaj entestar na caza do oratorio...'. (Tombo de 1673, fol. 93).  
'... e no mejo do labarinto de [árvores de] espinho ha huma Caza Armada em quatro Colunas de pedra Cuberta do mesmo Aruoredo e huã fonte pequena Com seu tanque tudo embrexado...'. (Tombo de 1673, fol. 95).

4. Extract transcribed in Carita & Cardoso, 1990, p. 110.
5. ‘... Um lugar umbroso tecido de frondosos e sempre verdes raminhos e abobadado sôbre quatro agradáveis colunas de elegante fabrico; uma priâmide feita de fragmentos de vidro e de louça chinesa, espécie de ornato coberto de conchas, conchinas e pérolas entre outras cousas, expele água em forma de coroa aberta, dando origem a um lago que é ornamentado de várias côres; perto está um leito preparado onde te deitarás se te apetecer dormir a sesta em dias de Verão, conciliando o sono com o som da água caindo lentamente’. (Extract of Alexii Collotis de Jantillet *Horæ subsecivæ*, Ulyssipone: ex typographia Joannis a Costa, 1697, originally translated and published by José Cassiano Neves in his book *Jardins e Palácio dos Marqueses de Fronteira*, in 1941).
6. Saward, 2003, p. 159.
7. Afonso & Delaforce, 1989, p. 33.
8. This devastating earthquake occurred in 1755 was known everywhere in Europe and as a reminiscence of the confusion at that time, in the neighbourhood of Viborg, Finland, one of the names by which stone labyrinths were known was ‘Lissabon’ [Matthews 1970].
9. Twiss, 1775, p.22.
10. Afonso & Delaforce, 1989, p. 33.
11. ‘Pegado ao segundo Jardim ha um Labarinho de buxo, que tem setenta e dois pez e tres quartos por lado, a arte lhe fez com alguas figuras do mesmo buxo, mais vistosa a symmetria’. (*Diccionario Geographico*, tom. 31, fol. 25, transcribed in Viterbo [1904, 192]).  
In the same folio of the manuscript (transcribed in Viterbo [1904, 193]), is mentioned another villa (*Quinta do Viso*) not too far from Prelada, with ‘a good garden and labyrinth’ now disappeared, also designed by Niccolo Nasoni, the architect who planned the Oporto’s landmark *Torre dos Clérigos*, among many other secular and ecclesiastic emblematic buildings of baroque architecture in northern Portugal. According to Sousa Viterbo (*A jardinagem em Portugal: Apontamentos para a sua história*. Coimbra: Imprensa da Universidade de Coimbra, 1906, p. 48) this villa was a replica of Quinta da Prelada.
12. The design is reproduced side by side with Prelada’s in Carapinha, 1995, Vol. II, p.76.
13. ‘... pondremos aqui una figura, de la qual traza se pueden valer los que son curiosos, è inclinados à cosas semejantes’. Fray Miguel Agustín, *Libro de los secretos de la agricultura, casa de campo y pastoral*, 1617.
14. Carita & Cardoso, 1990, p. 296.
15. ‘A meio do labyrintho havia uma clareira, ao centro da qual se erguia uma arvore rica de boa sombra, cujo tronco era rodeado por uma meza rustica, em anel’.  
‘Alguns bancos de ferro em redor, pareciam convidar-nos [...] ao descanso de tão penosa aventura’. (O Tripeiro 1909, Série 1, Ano 2, Nº 37, p. 15).
16. Personal communication.
17. *O Primeiro de Janeiro*, Nº 227, 1943, p. 1.
18. *Campanhã: estudos monográficos*. Porto: Junta de Freguesia de Campanhã, Câmara Municipal, 1991.

# The Surroundings of the Rösaring Labyrinth



Heather Robertson

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Rösaring is one of Sweden's most impressive stone labyrinths and probably the oldest. Although quite near Stockholm, its surroundings are unusually intact and may have much to tell us about the earliest uses and dating of stone labyrinths. Börje Sandén (1928 - 2020) was official guide for many years and introduced thousands of people to this labyrinth. As nearby discoveries unfolded over the decades, he also introduced visitors to a remarkable cult site adjacent to the labyrinth, and to an ancient settlement immediately below. His enthusiasm was catching – only he could inspire a hundred visitors to crowd around and stare at a flat piece of green grass just because it was once the site of a bronze-caster's workshop. There was so much to see there, he would say, that no guided tour could cover it all – and none of his tours was like any other. His main paper<sup>1</sup> and other writings<sup>2</sup> convey a detailed knowledge of the unique surroundings of Rösaring, along with his deliberations over rites that once took place there.

*Fig. 1: In 2008 the Nordic Museum awarded Börje and Gudrun Sandén the Hazelius Medal for many years of local heritage work, including setting up a research institute in 1987. Photo: Kjell Nilsson/Ledungen*



Börje Sandén first visited Rösaring in August 1952, a week after he and his wife Gudrun (figure 1) moved to the district to begin work as teachers. Back then the cult road close to the labyrinth was still undiscovered, hidden by extremely slow-growing pine forest. The labyrinth itself was only just discernible, but later it was cleared of

vegetation and a fence erected to protect it. In 1968 Börje was appointed local representative by the Swedish National Heritage Board. His long association with Rösaring provided continuity as many different researchers, amateurs, officials, and sign-writers came and went. He developed three original ideas which may eventually lead to a better understanding of this enigmatic and only partly investigated archaeological site.

- 1) The cult site was better suited to fertility rites, such as the “goddess in wagon” ceremonies described by the Roman writer Tacitus about 98 CE, than to Viking Age burials as first thought. His interpretation agrees with legends associated with Swedish labyrinths and with the labyrinth being an integral part of the cult site.
- 2) There may be a connection to a large 4000-year-old hilltop cult site to the north, suggesting two stages of construction at Rösaring and an even earlier date for the labyrinth.
- 3) Interaction was likely between the settlement below Rösaring and the nearby Viking Age proto-town of Birka, where Christianity was first introduced to Sweden.

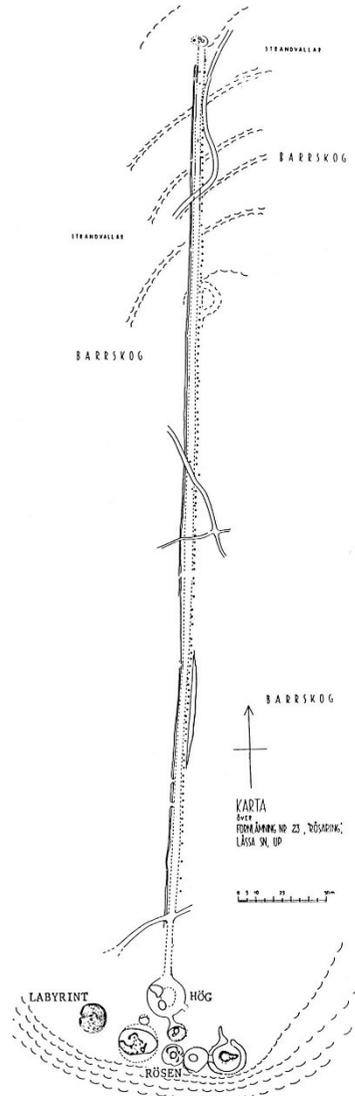
## The Labyrinth, Cult Site, and Settlement at Sanda

The Rösaring labyrinth (figure 2) differs from most of Sweden's 300 stone labyrinths in several ways. It has 16 circular walls, rather than 12 or 8, and is not situated on a beach or near a church. It has the earliest documentation<sup>3</sup> and may belong to a special group of about 21 labyrinths that once were focal points for communities in the oldest agricultural districts of Sweden.<sup>4</sup> Most unusual of all is the cult site (figure 3) found in its surroundings, recently named "The Rösaring Complex."



*Fig. 2: The Rösaring labyrinth. Drawing by John Kraft, 1977*

The cult site has unexcavated mounds and cairns, and a 540 metre long, 3 metre wide, ridge-top road, edged on both sides with stones and topped with clay. The road was discovered in 1979<sup>5</sup> and was thought to have been used for funeral processions.<sup>6</sup> A large mound close to the labyrinth marks one end of the road, which runs north along the ridge and ends at the base of a small building. The road is flanked on its west by a ditch that provided gravel for building it up level. Along its east side are approximately 100 shallow round depressions 1 metre wide and 4 to 5 metres apart, for which no explanation was found. The only carbon sample came from the south end, a few metres from the base of the large mound and was dated to 9<sup>th</sup> century CE. About 400 metres from the labyrinth, on fertile land below the ridge, was a settlement at Sanda that lasted from the Late Bronze Age to Viking times.<sup>7</sup> It covered an area of at least 30,000 m<sup>2</sup> and included a bronze-caster's workshop, uncommon in Sweden and indicative of high status. Today the land is used for farming. Both the cult site and settlement may hold clues to the original purpose of the labyrinth, as well as its age.

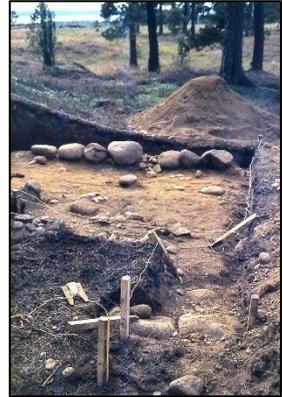


*Fig. 3: The Rösaring Complex. Drawing from Löthman and Winberg, 1981*

## A Cult Site for Burials or Fertility Rites?

Whether the Rösaring Complex was designed for funeral processions may become clearer if the large flat-topped earth mound near the labyrinth is excavated. Funerals were suggested by graves to the south, and by the southern end of the cult road seeming to “disappear” into the mound (figure 4), as if a departed chieftain had been conveyed in state along the road to his final resting place. The building in the north has been interpreted as a mortuary where funeral processions began. A Viking Age burial in the mound and a related role for the labyrinth, such as assisting transition to the afterlife, would suggest an age of up to 1200 years. Signboards at Rösaring have long featured funeral processions, some taking the interpretation to unlikely lengths, showing the cult road lined by fires, posts, and statues, none of which is supported by archaeological findings. No charcoal was found in the round depressions, and the soil under them was undisturbed at a depth of 100 to 200 mm. This means no posts or other tall objects ever stood in them.

*Fig. 4: Excavation of the south end of the cult road, flat-topped earth mound at left. Photo: Börje Sandén*



Börje Sandén’s own interpretation of the site is no less colourful but takes account of local geology as well as archaeological findings. He questioned the burial explanation, pointing out that the clay-silt (*mjåla*) topping the mound is known to slump readily, due to a very fine particle size. With centuries of rain, the finest material would drift down and spread out, giving an impression of the road entering the mound. He noted that the mound resembled another at Old Sigtuna,<sup>8</sup> that was found not to contain a burial, but rather it was a thing (*ting*) mound, with a flat top for speakers at open air courts. Further, he pointed out that the carbon sample might not indicate the road’s construction date, but the last time it was surfaced. Abandoning both burial and Viking Age themes, Sandén based his interpretation of the Rösaring Complex on descriptions of *Germania* by Tacitus, writing about 98 CE.<sup>9</sup>

Customs of the powerful, seafaring *Svione*, the Svear people from whom Sweden takes its name, were said to include the earth goddess Nerthus travelling about in a covered wagon drawn by cows to bring peace and a good harvest. This interpretation agrees with the long-standing association of Scandinavian labyrinths with goddesses and fertility rites.<sup>10</sup> The ceremony ended with ritual cleansing of the wagon, covering and “the goddess herself,” carried out by slaves at a “secret lake” in which they were later drowned. A possible connection with such a ceremony is strengthened by the cult road pointing north to a geological feature that would have served such a purpose. The unusually steep sided valley of Djupdal is just over a kilometre away. Due to land elevation, it is now a valley on the Mälars Lake shore, but 2000 years ago when Tacitus was writing it was a semi-enclosed bay of the Baltic Sea, which to observers on land would appear as a lake. A fertility ceremony might have started at the cult road’s northern end, with the rectangular enclosure (4.8 x 6.4 metres) serving as a wagon shed, rather than a mortuary. A procession would then move south towards the labyrinth – perhaps the focal point of the main ceremony – afterwards, returning north to the secluded bay for cleansing, then back to the shed ready for next year.

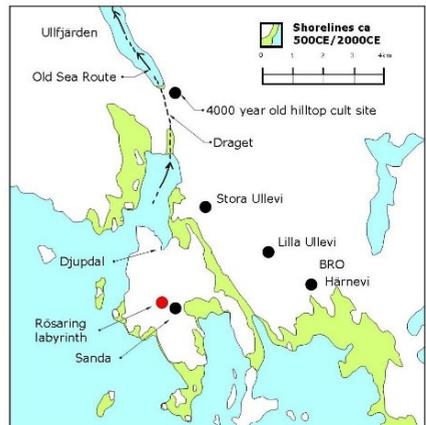
Sandén noted that unclear points in Tacitus' text made such a place hard to locate, but his proposal for the Rösaring Complex agrees well with its layout. It also agrees with deities indicated in place names typically found near older stone labyrinths, such as the earth goddess *Härn* or *Njård* (called Nerthus by Tacitus) and the sky god *Ull*, and with the idea of their union in spring bringing fertility to the land. “*Vi*” means a sacred place, and the names *Härnevi* and *Ullevi* are found just a few kilometres from the Rösaring labyrinth. Near *Härnevi* and *Stora Ullevi* are rock outcrops with cup marks,<sup>11</sup> while amulet rings (figure 5) were found near *Lilla Ullevi*.<sup>12</sup> The labyrinth was still used by young people in 1717 for dancing in summer,<sup>13</sup> more likely an echo of old agricultural customs than of burials. If fertility rites with wagons at the time of Tacitus were once the purpose of the Rösaring Complex, the labyrinth would be an integral part of the cult site constructed together with the road, with an age of just over 2000 years. This would mean that nearby *Sanda* had already been settled for several hundred years when the cult site was built.



*Fig. 5: Some of 65 amulet rings found at Lilla Ullevi.  
Photo: Matthias Bäck/RAÄ*

### Oldest Possible Date for the Labyrinth

Cairns near the labyrinth may show the cult site was in use even earlier if they contain Bronze Age burials, which were typically made on high rocky places, not farmland. An older date may also be indicated by a slight change of direction in the cult road one third of the way along its length. This was disregarded by others,<sup>14</sup> but Sandén noted it could mean the road was built in two stages. Its northern part points to the “secret lake,” but its southern part points to the 4000-year-old cult site of “*Draget*,” at *Ullfjärden* (figure 6). Assuming two construction stages, the labyrinth is closest to a likely first stage near the cairns. This part of the road might have been oriented to connect with the larger site by a line of fires in fireproof dishes in the round depressions, pointing to two sacred fires either side of *Draget*'s entry portal. The fine detail is yet to be checked,<sup>15</sup> but if the line passes exactly between them, Sandén's theory would gain ground and raise the possibility that the labyrinth was associated with earlier rites than the ceremonies described by Tacitus. A new cult may have developed from the old one. Assuming the labyrinth was built together with the roadway, it could be almost as old as the cult site of *Draget*, quite possibly over 3000 years old. If so, the Rösaring cult site may have been established at the same time as *Sanda* or even before.

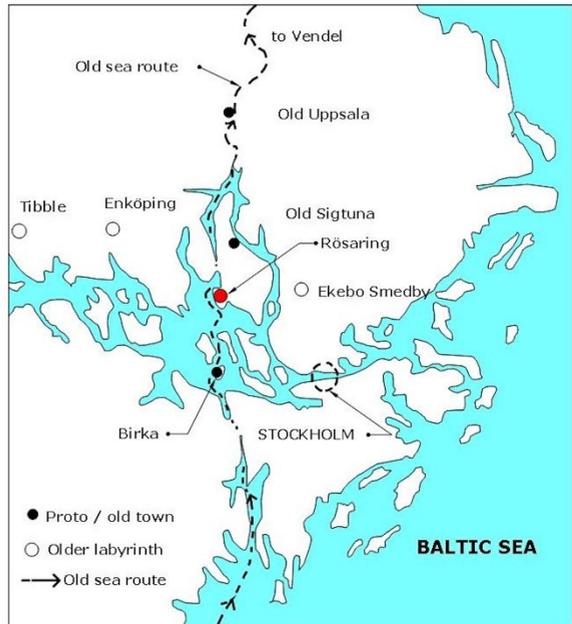


*Fig. 6: Map of Rösaring and near surroundings. Drawing by H. Robertson*

## Strategic position of the Rösaring labyrinth

For thousands of years the Rösaring Complex overlooked a major sailing route in the Baltic Sea that passed many important places (figure 7). In the Bronze Age, open water led past Draget,<sup>16</sup> the largest hilltop cult site in Uppland. By 800 CE the route included the Viking Age proto-town of Birka, once a powerful trading centre and nowadays an important Swedish archaeological site. Sandén noted that Birka would have been visible from Rösaring and that there must have been interaction between the two settlements. Each had a bronze-caster's workshop, probably established earlier, and for longer at Sanda, and only two other places in Sweden, Sigtuna and Lund, had such workshops. It was in Birka's early years that the cult road may have been surfaced, perhaps prompted by increased travel and knowledge of roads in other lands. Christianity was introduced to Sweden at Birka, while there are several indications that people living near Rösaring kept to the old pagan ways longer than usual.<sup>17</sup> Sanda continued for a few hundred years after Birka's role was taken over by Old Sigtuna. Around 1200 CE the sea route began to develop strong currents and former harbours disappeared due to land elevation. Rösaring became increasingly remote from both sea and road traffic, which may account for its good state of preservation today.

*Fig. 7: Rösaring on the old sea route. Drawing by H. Robertson*



## A Legacy of Ideas

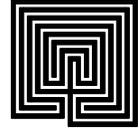
By pulling together many apparently unlikely threads – combining old writings, local geology, and modern archaeology – Börje Sandén has left us with new ideas for research that may help shed more light on the stone labyrinths found in the earliest agricultural districts of Sweden. The Rösaring labyrinth appears to have been given pride of place on the highest part of a major glacial ridge, suggesting that it was intended as an important element of the cult site right from the start. We still do not know for sure when that start took place, but the surroundings point to a time well before the Viking Age. Further study of mounds and cairns, the cult road, old settlements and shorelines, and the cult site Draget may complete the picture.

Heather Robertson, Wensleydale, Victoria, Australia; May 2021  
Email: h@robertson.as

## Notes

1. Börje, Sandén. "Fifty Years with the Cult Site of Rösaring." *Viking Heritage Magazine*, 3/2002. Gotland University, online at: <http://ukforsk.se/nya/vhm.htm>
2. For example, see [www.ukforsk.se](http://www.ukforsk.se) – Börje Sandén. *Excursions to Rösaring ridge in 2019* (6 pp.), *The Rösaring Complex*. Guided tour 19 May 2019 (16 pp.), and *Arkeologidagen 2009 – Lilla Ullevi* (5 pp.), also excerpts from his book *Det Hände i Upplands-Bro*.
3. John Kraft. "Built in Honour of Odin and Danced Around." *Caerdroia* 46 (2017), p. 9-16.
4. John Kraft. "Trojeborgar, kultplatser och städer." *Östergötland, Meddelanden från Östergötlands och Linköpings Stads Museum*, Linköping. 1980, p. 75-105.
5. In 1979, a small boy walking on the ridge spotted a line of stones and his grandfather, a farmer, then saw a parallel ditch and asked why it was needed on such a well-drained, porous site on a glacial ester. An official report followed. Börje Sandén, as told to Heather Robertson in 1998.
6. David Damell. "Rösaring and a Viking Age Cult Road." *Archaeology and Environment* 4, in Honorem Evert Baudou, 1985, p. 171-185.
7. Peter Bratt and Kjell Andersson. *Arkeologiska undersökningar vid Rösaring, Sanda och Stora Ekeby. Låssa Socken, Upplands-Bro kommun, Uppland*. Rapport 2000:11, Stockholms Läns Museum, 2000.
8. Old Sigtuna was ca. 4 kilometres west of present day Sigtuna, at the manor of Signhildeberg in Upplands-Bro, as revealed in documents found by Sandén when researching folk music. This led to five summers of archaeological excavations and a revised history of Sigtuna.
9. Tacitus. *The Agricola and the Germania*. Chapter 40. Penguin Classics, 1970. Relevant passage quoted in Sandén's main paper, see note 1.
10. For example, John Kraft. *The Goddess in the Labyrinth*. Religionsvetenskapliga skrifter nr.11. Åbo: Åbo Akademi, 1985.
11. Cup marks up to 10 cm wide and 2 cm deep, cut into rock outcrops, are typically Bronze Age, and occur in the garden of a house near Härnevi. Such marks are said to have been greased and used for metal offerings by "wise old women" into modern times. In 1981 a coin from 1718 was found in a cup mark near Stora Ullevi, under lichen and moss. See note 2.
12. Ullevi occurs twice here, combined with *Stora* (large) and *Lilla* (small). At Lilla Ullevi in Bro township, no cup marks were found but excavations in 2007 yielded 65 iron amulet rings dated to the Vendel period (ca. 540-790 CE). These appeared to have been hung on poles in a specially marked area, possibly linked with swearing of allegiance to Ull.
13. Johannes Arenius. *Fjärdhundra*, Dissertation, Uppsala, 1717, p. 68.
14. Emília Pásztor, Curt Roslund, Britt-Mari Näsström and Heather Robertson. "The Sun and the Rösaring Ceremonial Road." *European Journal of Archaeology*, Sage Journals, Vol. 3 Issue 1, 2000, p. 57-61.
15. Sandén had planned to check the alignment in detail using GPS during 2020.
16. "Draget" is where boats were dragged across land into a seaway north of Rösaring called "Ullfjärden," when the route was no longer fully covered by water, around 400 or 500 BCE.
17. At Härnevi, cup marks were found at 15 metres elevation, but at 20-25 metres elsewhere in Uppland. By the late 1100s, the Christian parish had been given the neutral name of "Bro" rather than the local village name of Härnevi, perhaps because a competing pagan cult was still in existence. See note 2.

# Historic Turf Maze Sites in Wales



Jonathan Mullard

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In the introduction to his article on the Llwydiarth Hall Labyrinth in *Caerdroia* 49, Jeff Saward mentions that, until its discovery in 1995, there were no locations known for turf mazes in Wales. This despite numerous early references to the topic in general. Perhaps many of these mazes, “*sometimes cut out in the turf by shepherd boys whilst they are tending their flocks on the mountains of Wales,*” were just too ephemeral to be recorded [Lowe 1924]. Leaving aside the question, which has never been properly addressed, as to whether shepherd boys really had enough time, the tools and motivation, to cut relatively complex patterns in the turf, it is possible, as has been done elsewhere, to identify likely sites in Wales through place names.

Surprisingly little work has been done on this aspect to date, but one of the great benefits of the internet is the easy availability of information that could only previously be extracted through the slow exploration of libraries and archives. Today the researcher interested in Wales, and Welsh affairs, is well served by several websites, not least the three excellent sites curated by the National Library of Wales: Welsh Journals, Welsh Newspapers and Welsh Tithe Maps. Welsh Journals, for instance, provides access to journals relating to Wales published between 1735 and 2007. Titles range from academic and scientific publications to literary and popular magazines and it is possible to instantly search over 450 journals, in both English and Welsh; a total of some 1.2 million pages.

While I have been using these websites for a number of years, in connection with my natural history interests, it is only recently that I have started searching them for references to turf mazes in Wales. Exploring the Welsh Newspapers website, for instance, I found an interesting item in the ‘Archaeological Notes and Queries’ section of the issue of *The Weekly News and Visitors' Chronicle for Colwyn Bay, Colwyn, Llandrillo, Conway, Deganwy and Neighbourhood* for 17th February 1899. Here the Rev. Meredith J. Hughes, F.R. Hist.S, is replying to a previous enquiry from ‘G.P.J’ about turf mazes.

*“The ancient Welsh regarded Brutus, a Prince of Troy, as the original founder of their nation. It is curious to note that they sought to propagate their tradition by cutting a plan of Ilium, the chief city of Troy, in the greensward and on mountain sides. The Welsh for Ilium is Caerdroia - The City of Troy, and it is conjectured that the suffix-droia, which in Welsh means ‘to circle’, suggested to them the interesting plan showing in the accompanying diagram. These plans of Ilium were very common in the Principality [that is Wales] some few centuries ago. The second diagram shows the remains of one of these mazes and may be seen at Mynydd Merci, about a mile to the S.W. of the new Church now being built by Mrs. Frost, at Bryn-y-maen. I have previously traced here the lines of an extensive British hill-camp, and my conjecture is that some of these lines were made use of in delineating the geometrical design of Ilium. It is to be regretted that some of the lines cannot be accurately traced owing to various causes, chiefly the fact that much of the land is under cultivation.”*

**Fig. 1: The ‘interesting plan’ referred to by the Rev. Meredith J. Hughes together with his sketch showing ‘the remains of one of these [turf] mazes’**

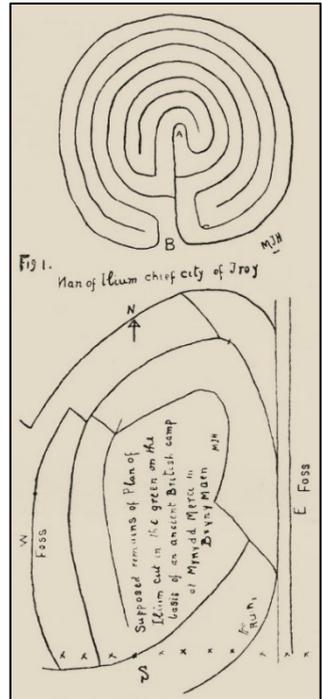
The Reverend’s assumption of a ‘British hill-camp’, what we would now call a hillfort, appears to be mistaken but the sketch of a possible turf maze (figure 1) is the only one found so far in Wales (OS Grid Ref: SH 82523 76108). Intriguingly, Reverend Hughes goes on to say that:

*“Mr. Venables Kirk writing to the Arch. Cam. mentions a similar labyrinth not far from his beautiful home - Nantyffrith, near Wrexham. That instance, however, is much more elaborate and complete, than the one under notice.”*

‘Arch. Cam.’ is *Archaeologia Cambrensis*, the long-running Welsh antiquarian or archaeological journal and ‘Mr Venables Kirk’ is actually Richard Venables Kyrke of Nant y Ffrith, Wrexham. Nant y Ffrith Hall was originally built as a hunting lodge in 1850, with successive owners enlarging the building and creating landscaped gardens. It eventually became derelict and was demolished between 1947 and 1950 (OS Grid Ref: SJ26515418). Kyrke, although “an authority on the Roman roads and British Camps of his district” apparently published nothing except a single letter in *Archaeologia Cambrensis*. There are in fact two letters in the journal from Kyrke, but neither refer to a labyrinth (Kyrke 1871/1879). In his second letter of 27 December 1878 though he mentions that near the Hall “is a place which puzzles me very much.” Referring to “a number of parallel trenches” he states that they are “on comparatively level ground, and wind round in a kind of an arc of a circle, following the hill above.” Since they were “3 or 4 feet deep” and the largest “would be wide enough for a cart to go along” they were certainly not the remains of a maze. This maze was possibly the result of the Reverend Hughes’ imagination, unless of course there is another record which has not yet come to light.

One of the documents located on the Welsh Journals website is a paper by John Hobson Matthews on *The Placenames of the Cardiff District*, which was read before the Archaeological Section of the Cardiff Naturalists Society and published in their Report and Transactions for 1900-1901. In this paper Matthews notes that:

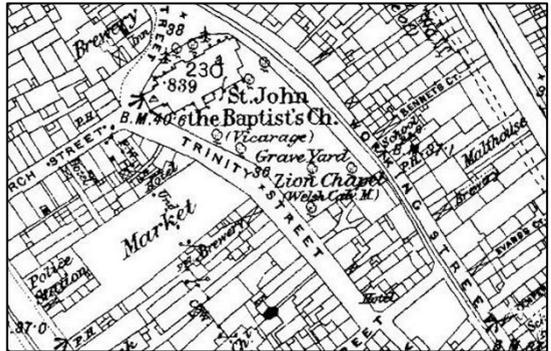
*“Many of us remember the tumble-down cluster of old cottages which stood on the site of this Free Library and Museum. Those small houses, and the old Calvinistic Methodist Chapel, were built on a piece of ground which was known as ‘Little Troy’. A volume might be written on the English placename ‘Troy’; but it will be sufficient to say that it meant a maze, and that mazes were commonly found in the precincts of parish churches. They had a symbolic significance. Sometimes a pictorial maze was represented in painting or mosaic upon the walls of the church. It is possible that the maze was identical with the whole or part of the Trinity garden already referred to.”*



*“Trinity Street received its name from the Guild of the Holy Trinity, which, previous to the Reformation, was attached to Saint John’s Church, and held a good deal of house and land property close by – among them the Trinity Garden, the site of which is now covered by the flagged space in the Hayes and by the building in which we are now assembled [the Free Library and Museum].”*

Furthermore, Matthews goes on to say; *“‘Hays’ I need hardly remark, means an open tract of grassy land. The Hayes... was a place of that sort down to a hundred years ago.”* So, we know that before 1800 there was a grassy area right in the centre of Cardiff that had the name ‘Little Troy’ and was owned at one time by the Guild of the Holy Trinity. Today the area is still ‘flagged’ and pedestrianised; and known for its open-air snack bar. Although it now seems an unlikely location, at one stage in the area’s history there was probably a turf maze here (OS Grid Ref: ST18374 76484).

**Fig. 2: An extract from an 1880 map of Cardiff showing St John’s Church and the old Calvinistic Methodist Chapel, together with a number of small houses, on the site of a possible turf maze**



In the Middle Ages, Cardiff, like other towns, possessed Guilds of various kinds, of which the most important were those of the merchants and traders. King Edward II, on the same day that he gave a Charter to Cardiff, on 4 March 1323/4, granted rights and privileges *“to the burgesses of the arts or crafts of Cordwainers and Glovers of the town of Cardiff and to their successors for ever.”* ‘Cordwainers’ were shoemakers and are noted as one of the most significant Guilds in Cardiff at this date. The various Shoemakers Guilds have an intimate connection with a number of turf mazes, not least the Shoemakers’ Race that once existed on Kingsland in Shrewsbury – and which I uncovered as part of my researches nearly 40 years ago [Mullard 1983]. Similarly, there are numerous mentions of the Shoemakers’ Hall, which was located on the, once important, thoroughfare known as Shoemaker Street, which formerly came out into Saint John’s Square, near to the site of the possible maze.

John Speed’s Plan of Cardiff (1610) depicts individual buildings including the castle, town hall, churches and former priories, together with the old walls and gateways, and names streets but there is no indication of a maze on what became known as The Hayes. Neither do other, later, maps include any reference to a maze, but large-scale maps of towns were commonly focused on buildings, so a turf maze may not have been thought worthy of recording. The church dedicated to St John the Baptist is the oldest building in Cardiff still in continuous use, apart from the nearby castle. Like many churches it was heavily restored in the Late-Victorian Period, but, at heart, it remains essentially a medieval building. An initial exploration a few years ago unfortunately did not reveal *“a pictorial maze... in painting or mosaic upon the walls of the church,”* but there might possibly be a representation somewhere in the Cardiff archives.

*Fig. 3: A photograph of the possible maze site in the centre of Cardiff in 2013, showing what is now the Old Library, which houses the tourist information and exhibition centre, and the snack bar. To the left is the parish church of Saint John the Baptist. Copyright Robin Drayton and reused under the Creative Commons Licence*



There are doubtless other possible Troy references, and turf maze sites, to be found by searching the Welsh language journals; although many of these references relate to the legend of Troy and links with Wales.

As an example of what can be found elsewhere, a search of the Welsh Tithe Map database reveals, on an 1841 map, *Caer-droia Cottage and Garden*, tenanted by Ebenezer Evans, in *Llanfair Orllwyn*, near Horeb. Tantalisingly, the large garden (Field 476, covering 2 Roods and 30 Perches – approximately 0.7 acres) is recorded as ‘pasture.’ Was there a turf maze cut into this pasture? Was it cut by shepherd boys tending their flocks? We may never know. Sadly, the Cottage has long disappeared, along with the nearby field boundaries, but the shape of other boundaries can still be traced on the Ordnance Survey map, which enables the location to be confirmed (OS Grid Ref: SN38277 42661). It is surprising that only one such reference has been found to date but it indicates perhaps that the name was only used in relation to turf mazes.



*Fig. 4: Extract from the Tithe Map for Llanfair Orllwyn in the County of Cardigan, now Ceredigion, showing Caer-droia Cottage and Garden*

Yet more potential maze sites can be found by searching The Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) List of Historic Place Names of Wales; which is the first statutory catalogue of such names in the world. The Historic Environment Wales Act 2016 requiring Welsh Ministers to compile and update the list on a regular basis. The database is still being added to but a search for ‘maze’ reveals, on the Ordnance Survey Second Edition six-inch to the mile map, not a turf maze but a former hedge maze at Highmead House in *Llanwenog*, in the old county of Cardiganshire. (OS Grid Ref: SN 49995 43162).



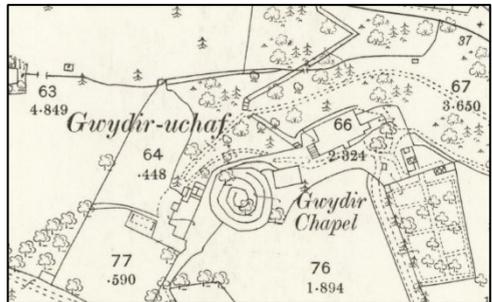
*Fig. 5: Extract from Ordnance Survey Second Edition six-inch to the mile map showing a now destroyed hedge maze at Highmead House*

A similar hedge maze was once associated with Allt-y-ferin in Llanegwad. A mansion built around 1860, it was demolished in the 1950s (OS Grid Ref: SN 51939 22771). Finally, there was a maze site in the grounds of Gwernyfed Park in Tregoyd and Felindre (OS Grid Ref: SO 17798 36783). This last site, in what used to be Garden Wood but is now just open grassland, is not pictured on the map like the other two, so could just possibly have been a turf maze. Here at Old Gwernyfed are preserved the unusually extensive earthworks and architectural remains of an Elizabethan-Jacobean terraced, formal garden so it is likely that any maze was associated with these. Unfortunately, from aerial photographs it is clear that none of the mazes associated with these large houses survive today.

A more definite turf maze site is suggested by a field called the Race Piece in Kerry, in the former county of Montgomeryshire, since this is a name associated with turf mazes just over the border in Shropshire (OS Grid Ref: SO 14405 88402). ‘Troy’ is not a common field name in Wales, so Cae Troy, a field in Glascwm, in the former county of Radnorshire, recorded in 1841 may well indicate another site (OS Grid Ref: SO 13027 53978). Similarly, Troy Piece, a field in Llananno, Radnorshire is also a likely candidate for a turf maze (OS Grid Ref: SO 08235 76479). I have ignored the seemingly obvious candidate in Wales for a turf maze, the village of Mitchel Troy in Monmouthshire, since there is good evidence that the English name derives from the name of the river which passes through the settlement, the Welsh ‘Troddi,’ becoming ‘Trothy’ and then ‘Troy.’

Although it is not a turf maze, to complete this initial survey of Welsh labyrinths it is worth mentioning the curious ‘maze’ at Gwydir Uchaf on the edge of Gwydir Forest in Snowdonia (SH 79507 60975). Constructed in the 1600s, it consists of a spiral hedge running around a mound and is part of the garden associated with the nearby Gwydir Castle. The feature used to be overgrown, but was restored in 2003. The nearby chapel is a Cadw site.

**Fig. 6: Extract from Ordnance Survey Second Edition six-inch to the mile map showing the spiral hedge feature next to the Gwydir Chapel.**



Further research will obviously be necessary on all the turf maze sites mentioned and indeed the hedge mazes. Since initial explorations can be done from the comfort of your home, I would be interested to hear of further discoveries readers may make in Wales using the websites I have described. As well as these historic turf maze sites there are a number of modern examples in Wales and it is proposed to cover these in a later article.

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Jonathan Mullard is the author of a small booklet, *Caerdroia Salopia*, published in 1983, which first revealed the existence of former turf mazes in Shropshire. He is now updating this publication, while also researching a larger work on similar features in Wales.

## Provisional List of Historic Mazes and Labyrinths in Wales

Type	Name	Location	OS Grid Reference
Turf	Merci Maze	Mynydd Merci, Conwy	SH 82523 76108
Turf	Little Troy	City of Cardiff	ST18374 76484
Turf	Caer-droia	Llanfair Orllwyn, Ceredigion	SN38277 42661
Turf	Race Piece	Kerry, Powys	SO 14405 88402
Turf	Cae Troy	Glascwm, Powys	SO 13027 53978
Turf	Troy Piece	Llananno, Powys	SO 08235 76479
Hedge?	Llwydiarth Labyrinth	Llanfihangel, Powys	SJ 05980 16630
Hedge	Highmead Maze	Llanwenog, Ceredigion	SN 49995 43162
Hedge	Allt-y-ferin Maze	Llanegwad, Carmarthenshire	SN 51939 22771
Hedge?	Gwernyfed Maze	Tregoyd and Felindre, Powys	SO 17798 36783
Hedge	Gwydir Uchaf Maze	Llanrwst, Conwy	SH 79507 60975

NB: Grid References are taken from the Ordnance Survey online map. Coordinates for turf mazes are taken from the approximate centre of the relevant, historic, field.

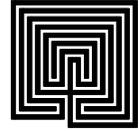
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*The spiral maze at Gwydir Uchaf was originally planted in the early 1600s and restored in 2003. Thanks go to Stephen Shaw for spotting this one. Photo from Google Earth, 2015*



# From Jerusalem to Troyborg: The Labyrinth Name Change of the North



Christina Fagerström

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The names of the stone labyrinth monuments found in northern Europe could help us to understand their use, typology, wide area of distribution and timeframe. The labyrinth names I will focus on in this paper are *Jerusalem* and variations on the theme of *Troyborg*. In Scandinavia these names are understood to refer to the same typology used for outdoor stone monuments; but a Jerusalem and a Troyborg would seem to refer to widely different cultural ideas and legacies.

As the heading ‘From Jerusalem to Troyborg’ implies, I am suggesting that the name *Jerusalem* for a stone or turf labyrinth precedes the name *Troyborg* or *Troytown* (and other names indicating known historical or legendary cities). The alternative use of names for the stone or turf labyrinths would, to my understanding, relate to a major switch in the power structures in northern Europe when the kings of the Northern states broke with the supremacy of the papacy. The Reformation of the Catholic Church, taking place in Northern Europe almost simultaneously in the 1520-40s, meant that the king would now be the head of the Lutheran and Protestant Churches, and instead of being elected, their sons would now be hereditary princes to the crown.

## Jerusalem

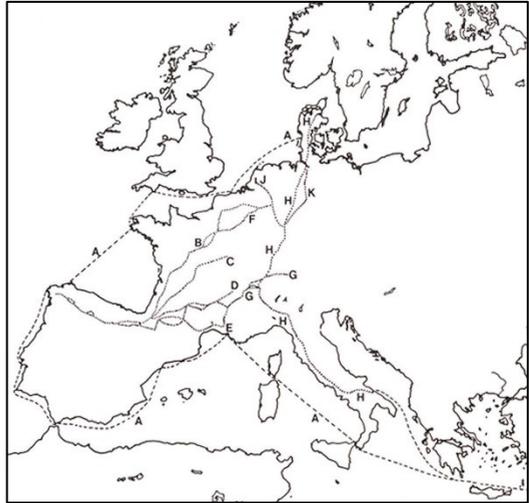
A Jerusalem appellation would likely indicate a Christian Catholic use of the labyrinth, laid out on the ground in a classical- type layout of stones, or on the Continent and in England, more often in turf, due to a lack of stones as building material. In Ireland, the Hollywood stone, a boulder incised with a labyrinth of classical type was found on the pilgrim path to Glendalough Abbey, has been described as a pilgrim route marker by Dr Rachel Moss of Trinity College, Dublin, in a personal conversation with the author in 2019: “With regard to the Hollywood stone, it marked the start of the pilgrim route across mountainous terrain to Glendalough. Pilgrimage is recorded here from the 10<sup>th</sup> century, but flourished from the early 13<sup>th</sup>. However, earlier carved stones were sometimes repurposed by the Church in Ireland, so this does not necessarily help with dating.” The Hollywood stone would then connect use of the classical-type labyrinth to medieval Catholic pilgrimage as an applied concept.

When constructed in turf, the labyrinths required regular maintenance, and knowledge of some only remains as folklore and legends of their use (e.g. for Easter celebrations and various Catholic Guild festivals, initiation rites for the Teutonic Order, etc.), or as historical drawings recording their structure and form, and significantly, surviving as place names on old maps.

Jerusalem place names would then, in a Christian Catholic context such as along known pilgrim routes, argue in favour of the Catholic Church’s relation to and use of the labyrinth symbol, and also situate it during the time of medieval pilgrimages. The when and where of the pilgrimages are supported by various known and dated Nordic itineraries, e.g. the Adam of Bremen sailing itinerary from Ribe in Denmark, via Plymouth in England to Acre in Palestine from the late 11<sup>th</sup> century (figure 1), and the itinerary of the monk Nikolás Bergson from Iceland that records continental pilgrim routes from the middle of the 12<sup>th</sup> century. Pilgrim badges from various continental and Scandinavian destinations have been found in Scandinavian burial grounds, and some badges moulded into church bells have allowed dating [Andersson 1989]. Scandinavian

pilgrims and their dates of arrival have been identified in monastery hostel guestbooks, e.g., the Benedictine monastery of Reichenau [Harrison 2020, 79]. We know some of the pilgrim routes, with pilgrims going south and back north again, continued to be used after the Scandinavian Reformation of the 1520-40s. It is presumed that the pilgrim route guiding marks were labyrinth constructions called Jerusalem – see my article “Jerusalem Place-names and the Baltic Labyrinths” in *Caerdroia* 49 (2020), p. 42-48.

**Fig. 1:** (A) *Adam of Bremen’s sailing itinerary from Ribe in Denmark to Acre in Palestine from the latter part of the 11<sup>th</sup> century.* (B-E) *Routes to Santiago de Compostela from the itinerary in Liber Santi Jacobi, early 12<sup>th</sup> century*



### Troyborg

A labyrinth construction called Troyborg would then associate with an entirely different cultural heritage. The word Troyborg has a first element of *troy-* or *troj-* in Scandinavian languages, and a second of *borg*, translated as castle, town or stronghold. Studying the reports of the pioneering Swedish antiquarian Johan Hadorph, active between 1666 and 1693, John Kraft notes that in older maps and other written records from the 17<sup>th</sup> and 18<sup>th</sup> centuries, “the labyrinths in the Nordic countries were as a rule not called ‘labyrinths’ before the 19<sup>th</sup> century. The old common names used in Scandinavia were *Trojeborg*, *Trojaborg*, *Trojenborg*, etc., all names that allude to the ancient city of Troy.” [Kraft 2017, 9]. The earliest of the official reports from local priests mentioning a labyrinth, handed to Johan Hadorph in 1672 from the parish of Låssa, refers to the Rösaring labyrinth, situated on high ground above the water fairway leading to the religious centre of Uppsala to the north and to Stockholm and the Baltic Sea to the east.

John Kraft maintains that the Troy- names would allude to the legendary city of Troy, known from Homer’s epic poem the *Iliad* which is believed to have been written down in the 8<sup>th</sup> century BCE. Troy would also appear in various writings during the Roman period, such as Virgil’s widely read epic poem the *Aeneid*, written (but never finished) between 29-19 BCE, and as we shall see, also in paraphrase writings of the Trojan saga during the Middle Ages.

The *Aeneid* is a poetic narrative that considered the Roman origin myth, with the Trojan hero Aeneas presented as the founding father of Rome and progenitor of the Romans. Virgil also refers to the legends of the labyrinth constructed by Daedalus at Knossos on Crete, that appear in the same context as the equestrian games of *lusus troie* (described in *Aeneid* V:545-605): “As once in high Crete, it is said, the Labyrinth held a path woven with blind walls, and a bewildering work of craft with a thousand ways, where the tokens of the trail were broken by the indiscoverable and irtraceable maze: even in such a course do the sons of Troy entangle their steps, weaving in sport their flight and conflict, like dolphins that, swimming through the wet main, cleave the Carpathian or Libyan seas and play amid the waves.” [Virgil, V:588-595]

Of note here should be “the sons of Troy,” young Romans who were trained in equestrian games as a parade and para-military exercises to commemorate their Trojan ‘ancestors’ and heritage, as the games would have been performed at major state events, imperial funerals, temple dedications settlement foundations and to celebrate military triumphs. [Encyclopedia of Ancient History, s.v Lusus Troie]

The legend of Daedalus’ labyrinthine construction hiding the Minotaur is not taken from the Iliad, in which Homer is only indirectly relating to the dance of celebration Ariadne would have performed at Naxos. Theseus slaughtering the Minotaur as an expression of a legendary victory over death and evil, is not mentioned in the Iliad, so therefore we could assume that the Theseus-legend was not well known in the 8<sup>th</sup> century BCE. It would then seem that the labyrinth concept is incongruous with reference to the Iliad only. In the Aeneid, however, Virgil’s story of Daedalus (taken from various sources) and his legendary construction of the labyrinth is made explicit in book VI, starting at line 14 and continuing to tell of “...the mongrel breed of the Minotaur, a hybrid offspring, record of a monstrous love; there that house of toil, a maze inextricable; but Daedalus pitying the princess’ great love, himself unwound the deceptive tangle of the palace, guiding blind feet with the thread.” [Virgil, VI: 26-30]

If these are references to labyrinths in texts, visual references to the Theseus and Minotaur legend could in Roman times also be seen in labyrinth mosaics. But the labyrinth layout would be the creation of artists, traditionally dividing the mosaic labyrinth into four sections, set within walls and gateways, much like a Roman *castrum*, with a square format differing from the classical-type (figure 2). While labyrinths of the square Roman format might seem more likely to be the prototype for the Troyborgs of the North, the question remains as to why the northern labyrinths are of mainly classical-type.



*Fig 2: a typical Roman mosaic labyrinth, Cremona, Italy. Photo: Jeff Saward*

These references to a labyrinth constructed by Daedalus and descriptions of the *lusus troie* in the Aeneid, are – in brief – understood to be the source of the Nordic labyrinth naming of Troyborg and also Julian’s Bower. Iulus/Julian was the son of the main character Aeneas, who leaves Troy at its downfall, taking his son by the hand and his father Anchises on his back, setting out for what eventually would be the founding of Rome. Again, a focus on ancestry leading back to legendary Troy and its heroes.

There are several interpretations of the connection of legendary Troy and labyrinths, but questions arise: why would these Troyborg/Julian’s Bower labyrinth structures of identical classical-type have been placed along known pilgrim routes inland and along coasts and skerries, stretching from Iceland in the west, via the Baltic Sea to the White Sea in in the east? What was their purpose and the motivation for building them? And how was the visual tradition of the classical-type labyrinth transferred and applied to these structures?

In contextual archaeology [Hodder 1986] the meaning of an archaeological artifact, a monument or effigy, such as labyrinths laid out in stone, painted as frescos, scribbled as graffiti or engraved, could only be understood in relation to their cultural context. “Only through the study of the local and specific cultural historical context could we understand what significance a particular artefact or monument had in the past. The reason being the connections that exist between the society and human activity on the one hand and the material culture on the other, are totally dependent on actions of individuals within specific cultural historical contexts. Only through a thorough reconstruction of the specific cultural historic context, could we hope to be able to understand the meaning behind the material culture – and ultimately the thoughts of the people in the past” [Jensen & Karlsson 2001, 56-57, author’s translation]. With the intention to elucidate why and when the labyrinths were used around the Baltic Sea, a thorough reconstruction of a specific cultural historical context of the time of the Nordic crusades, starting in the early 13<sup>th</sup> century, has provided results.

To start with Denmark, the previously mentioned early medieval pilgrim route itineraries credited to Adam of Bremen and Nikolás Bergson, and the Erhard Etzlaubs *Romweg* map from the 1490s, passes through the Danish mainland of Jutland. There are no traces left of turf labyrinths in the case of Denmark, but Troyborg (and similar) place-names on old maps have been reconstructed by John Kraft (figure 3). Fortified constructions called Trelleborg have been known since the Viking Age in Denmark [Harrison 2020, 97], but the Troy place-names correspond in several instances to known pilgrim routes, e.g. Ribe to Flensburg.



**Fig. 3: Map of Troy- place-names in Denmark. Source: Kraft 1986, in Westerdahl 2016, fig.19a, p.37**

● - Labyrinths with known names  
 ■ - Place names sometimes referred to as labyrinths or castle ruins, or with no known remains

An illustrative connection between classical labyrinths and the Catholic Church can be seen in frescos in ten Danish medieval churches. These are in some cases dated and, as my research has demonstrated, also connects to moulded pilgrim badges on the dated bells of some of the same churches, e.g. at Hesselager. The pilgrim badges would then connect the labyrinth symbol to the medieval pilgrimages. The dating of these frescos and pilgrim badges to the latter part of the 15<sup>th</sup> century provides in archaeological terms a *terminus ante quem* that labyrinths would occur in medieval Catholic church contexts, i.e., the concept would have been part of this cultural context prior to that time. Similar circumstances can also be shown in a few important cases in Sweden (Gotland) and the relationship of medieval church frescos and place names in Finland. The name replacement hypothesis would explain why Finland would either keep Jerusalem or call their labyrinths *Jungfrudanser* – the Virgin (Maria?) dances.

The cultural context would by implication include a social aspect of the labyrinth in practice. The labyrinth paintings would manifest a Catholic religious symbolism that the congregation would understand. The Black Death would hit the countries of the North with full force ca. 1349-52 with a loss of probably more than half of their populations [Harrison 2018, 74]. As the dating of the labyrinth paintings and the moulded pilgrim badges in church bells is of a post-pestilence period by more than a hundred years, this would imply the long-time struggle of the church with such heavy losses and the need for revival. As the earlier years of medieval pilgrimages were halted, we may assume that the concept of the classical labyrinth, and in Denmark possibly laid out in turf, was the original and familiar Christian labyrinth symbol.

In earlier labyrinth research [Kern, Saward, Wright, Reed Doob, etc.] of the origin, development, distribution and use of the visual labyrinth symbol in Europe, the author finds convincing arguments for a medieval Christian Catholic use of the labyrinth symbol in Europe. These symbols as imagery; in manuscripts, calendars and *computus*, effigies in churches and as roadside markers, inlaid cathedral pavements, as well as their metaphorical use in written accounts such as Dante's *Commedia*, seem to correlate in time with the pilgrimages starting in the 11<sup>th</sup> century. Initiated with focus on the Holy Land and in the North to St Olav's tomb in Norwegian Trondheim – and continuing through the Middle Ages, with the city of Jerusalem closed, turning instead to Santiago de Compostela in Galicia – the pilgrimages flourished in the 13<sup>th</sup> and 14<sup>th</sup> centuries. With focus on Rome starting the jubilee year 1300, the year Dante makes his pilgrimage in literature in the *Divine Comedy* – the movement was halted with the pestilence years starting around 1350. Pilgrimages would later continue in the North closer to home up to the time of the Reformation, during the first half of the 1500s.

My suggestion is that there has been a shift of names, and hence the use of the labyrinths, from Jerusalem to Troyborg along with the Reformation in the Nordic countries and England in the 1520-40s. The radical Reformation of Denmark, starting in the trade and harbour town of Malmö in the county of Skåne, at the time within Denmark is summarised: “The year 1536 the parliament in Copenhagen formally put into effect the Reformation in Denmark, which would bring about the end of the bishop's and church's political power. Henceforward the king would be the head of the church. The reform made fast progress, strongly influenced by economic factors... As a result of the Reformation's critical studies of the Bible, many of the Church's customs such as pilgrimages, priest celibacy, relics and the wealth of the Church, were questioned.” [www.lansstyrelsen.se/skane, author's translation]

In England, the Reformation is said to start with Henry VIII's quest for a male heir. In 1534 the king declared that he alone should be the final authority in matters relating to the English church. Ancestry of the Crown and its heirs would hence be of vital importance. In Sweden, the Reformation is said to have been put into effect in the *riksdag* of Västerås in 1527 and in 1544 [www.so-rummet.se]. At the latter *riksdag*, the so-called Succession Parliament allowed King Gustav Vasa I to make the succession of the throne hereditary. The king was then not only head of the church, making the Crown able to confiscate the property of the Church to pay his wartime debts, but also made his sons hereditary princes. The suggestion is that a narrative to confirm this new power structure of a hereditary Crown and head of church, claiming lineage back to a legendary heroic origin, would find expression in the Trojan saga, a paraphrase on the *Iliad*, complementing the study of Virgil's *Aeneid* in schools continuously since Roman times up to the 1900s. [Flower Smith 1916]

It has been suggested above that there could have been a forced replacement of labyrinth names from Jerusalem to Troyborg or Troytown in Scandinavia and England due to the Reformation. There was no longer reason for pilgrimages and symbols for Jerusalem but the labyrinths were supposedly there and still probably considered as powerful in their social cultural contexts. Strategically set as they were, to have been seen and venerated by many “to show the way,” a transformed symbolism of the labyrinths could be used as seals of propaganda for the Reformation and the king as new head of the church. The concept of the Trojan saga would then provide a narrative and alibi to also level with the congregations for the new order, encouraged by the Crown. As Sweden, Denmark and England share the historical sequence and prerequisites for the Reformation around the 1520-40s, the *Historia Trojana* may have played a potent part, a perfect legendary fit together with versions of Virgil’s *Aeneid*.

Historical novels and versions of the *Historia Trojana*, a paraphrase of the *Iliad*, and hence without the references to Roman ancestry or to Daedalus, circulated in Europe during the Middle Ages. The most famous version is the verse novel by Benoit de Sainte More from ca. 1165. The legend of Troy seems to have appealed as a legendary origin to the Germanic kings and rulers, as had been Virgil’s *Aeneid* to the Roman emperor Augustus, for its origin myth of Roman descent from the legendary city of Troy. At the time of the Reformation in the first half of the 16th century, the *Historia Trojana* was copied into vernacular languages, including Swedish in 1529 [NE, s.v. Trojasagan]. The *Historia Trojana* and its descendants may then have initiated a popular legendary history around Europe during the Middle Ages. In 1996, Michael Behrend wrote:

“Accounts of the Troy romances can easily be found in libraries, so to be brief: the most influential works were the 12<sup>th</sup> century French *Roman de Troie* by Benoît de Sainte More (or Maure), and a late 13<sup>th</sup> century translation of this into Latin, the *Historia Trojana* by Guido of Colonna. Guido’s version was immensely popular and was the basis for versions of the story in German, Italian, English, Scots, French, Spanish, Low Saxon, Dutch, Danish, Flemish and Bohemian. There was also an Irish version even before Benoît, and an Icelandic *Trojumanna Saga*. A French version of Guido, Raoul le Fèvre’s *Recueil des Histoires de Troyes*, was translated by William Caxton and published by him in 1474 – the first book printed in English.” [Behrend 1996]

And further: “Apart from the popularity of the Troy romances, the Troy legend was important in the European Middle Ages because people firmly believed that descendants of Trojan refugees had founded nations in Europe. The story of Brutus, the supposed great-grandson of Aeneas and founder of the British nation, is told for example in Latin by Nennius (9th century, briefly) and Geoffrey of Monmouth (ca. 1136, at length), and in English in *Layamon’s Brut* (late 12th century). It was still appearing in chapbooks as late as the 18th century.” [Behrend 1996]

### **Conclusion:**

In this article, I have tried to reason for the use, distribution and time of diffusion of the Nordic labyrinths through their commonly applied name of Troyborg (since the 17<sup>th</sup> century in Sweden) in relation to their supposed earlier name of Jerusalem. Tracing the use of classical-type labyrinths back to the early Middle Ages in Catholic Europe, following their tracks along pilgrim routes in Ireland, Denmark and in an earlier article [Fagerström 2020] through today’s Poland and Germany, as well as their 15<sup>th</sup> century occurrence as frescos in medieval churches in Denmark, the labyrinth symbol seems to have had a clear connection to the concept of pilgrimages. The supposed Catholic name of Jerusalem, known from place names on old maps, from folklore and legends, and the classical labyrinths found in manuscripts and drawings as well as in medieval church frescos, would further indicate a time for their use and diffusion.

If the labyrinth symbol up to the time of the Nordic Reformation of the Church had been closely connected to the Catholic Church and its system of pilgrimages, it would as a seal of the papacy and the Catholic faith have been considered socially powerful. As worldly manifestations they could therefore become useful as seals and symbols to confirm the new regal power. It is reasoned that the traditionally laid out stone or turf labyrinths of earlier classical-type, large enough to walk or ride, could be associated with the important claims of Trojan origin and legacy of the Reformation kings, as expressed in the *Historia Trojana* (complemented by Virgil's *Aeneid* and specific references to Daedalus and the *lusus troie*). The suggestion is that the stone and turf labyrinths would by high authority have been given the names of Troyborg in today's countries of Denmark and Sweden, and Julian's Bower in Norway and England. The new names would then be applied to already existing structures and hence explain why the stone labyrinths would keep their classical format with a change of name from Jerusalem to Troyborg.

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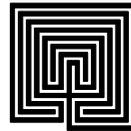
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# Simple Alternating Transit Mazes



Richard Myers Shelton

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**Abstract:** SAT mazes, introduced by Tony Phillips, are a useful class of full-course labyrinths that form a natural algebraic system. Several families of SAT mazes show up in the real world, and they serve as the basis for the Roman-style compound labyrinths.

We are all familiar with full-course labyrinths like the Classical labyrinth that have a main axis but no internal axes. Tony Phillips wrote about an important subclass of these on his website *Through Mazes to Mathematics* [Phillips], and this subclass is so basic to the study of more complex labyrinths that it is worth taking some time to explore his approach.

The class Phillips defines is the collection of *simple alternating transit mazes* (SAT mazes). Their courses are idealized as concentric circles. “Simple” means that the path traces each course completely before moving on to a different course: each segment of the path is a circuit along a single course, connecting one side of the main axis to the other. “Alternating” means that at each change of course (necessarily along the main axis in these mazes) the path changes direction without crossing the axis: successive courses in the path are traced in opposite directions. “Transit” means that the path leads in a simple non-branching way from the exterior through all the courses to the interior and then stops: all the courses are completely traversed on the way to the center and there is no separate return path. So the SAT mazes are just the full-course labyrinths (1-axis labyrinths) that don’t cross the central axis and whose path stops at the center.

The canonical example of a SAT maze is, of course, the 7-course Classical labyrinth.

Phillips talks in terms of *levels* rather than *courses*. Each course is a separate level, but the interior and the exterior are levels as well. The levels are numbered from 0 for the exterior, 1 for the outermost course, 2 for the next course in, up to  $L$  for the interior. The *number* of levels in a labyrinth includes the interior, but not the exterior; for Phillips the 7-course Classical labyrinth is an 8-level labyrinth, and in general a labyrinth of  $N$  courses has  $L = N + 1$  levels (counting the interior but not the exterior).

It is useful to think of a SAT maze as an action: you start with the universal level 0 (the exterior, the empty infinite Euclidean plane), and by drawing the labyrinth you impose upon the empty plane a series of new levels (the courses and the interior): the labyrinth consists of the new levels 1 through  $L$  that are imposed upon the exterior plane. Drawing the Classical 7-course labyrinth, for example, starts from the empty plane and creates 8 new levels: the 7 courses and the interior. The number of new levels created by the SAT maze is its *height*. The Classical labyrinth thus has height 8: it adds 8 new levels to level 0. The height is also the number of concentric walls required to delineate the new levels: the act of drawing 8 new levels is really the act of drawing 8 walls on the empty plane. The height also corresponds to the number of connections between levels along the sides of the main axis.

Labyrinths – especially SAT mazes – are frequently shown in *level charts*, with their levels unrolled into horizontal steps rather than circling around the common center.<sup>1</sup> Each course is shown as a horizontal line, representing the path as it travels along that course (*Figure 1*). The interior and exterior levels are not represented by separate horizontal lines in the level chart; they are just the areas above and below the set of lines representing the courses.

Each SAT maze  $A$  has a *dual*, a SAT maze  $A'$  formed by flipping the level chart over from top to bottom, or by rotating the plane of the chart by 180 degrees. Either operation interchanges the notion of interior and exterior: the innermost course of  $A$  becomes the outermost course of  $A'$ , and vice versa. (The two operations yield results that are mirror images of each other, but we regard them as equivalent because we don't distinguish between a labyrinth and its mirror reflection: mirroring the chart from right to left does not change the relationship between the courses.) Clearly the dual operator applied twice gets you back where you started: the dual of  $A'$  is  $A$  back again, since rotating the level chart by 180 degrees twice restores the original orientation.

Some SAT mazes, like the Classical labyrinth, are *self-dual*: when you flip the level chart over you get the same chart (or its mirror reflection). Such labyrinths have an inherent sense of balance or symmetry.

### Level Sequences

The ground rules for SAT mazes mean that the maze is completely determined by specifying the number of levels and the order in which they are visited. Thus, we can make a prototypical mathematical move by identifying a SAT maze with the sequence of numbers describing that order. This sequence is called, naturally enough, the *level sequence*. The Classical labyrinth corresponds to the level sequence (0, 3, 2, 1, 4, 7, 6, 5, 8), as shown in figure 1. Each adjacent pair of numbers in the sequence implies a connection between those two levels along the main axis. The pairs starting with an even number represent connections along the “entrance side” of the axis, and those starting with an odd number represent a connection on the other side of the axis.

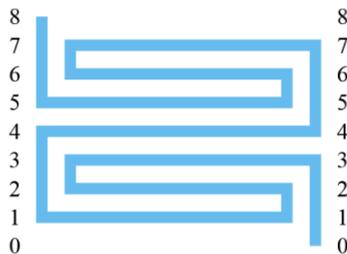


Fig. 1: The Classical labyrinth as (0, 3, 2, 1, 4, 7, 6, 5, 8)

The key point is that not every sequence works: just as an arbitrary squiggle need not be a SAT maze, an arbitrary sequence of numbers need not correspond to one: like the squiggle, the sequence must obey certain rules. Obviously, it must start with 0 and end with  $L$ , as the maze starts at the exterior and ends at the interior; and every number in between (every course) must appear exactly once. This means that the sequence is just a re-ordering of the numbers from 0 to  $L$ , i.e., the sequence is a *permutation* of the numbers from 0 to  $L$ . In addition, as Rule VI of [Shelton 2019] shows, the numbers must alternate in parity, switching between even and odd: an odd-numbered level can connect only to an even-numbered level, and vice-versa. (Otherwise the portion of the path falling between those two levels will get boxed in.)

Finally, the order of the numbers in the sequence must capture the notion that the path doesn't cross itself. This translates into conditions on pairs of adjacent numbers in the sequence. The pairs beginning with even numbers represent connections along the entrance side of the axis, and these must not cross each other: thus if the sequence includes pairs  $a, b$  and  $m, n$  (where  $a$  and  $m$  are even and  $b$  and  $n$  odd), then **either** the turn represented by  $m, n$  is contained inside  $a, b$  (i.e., both  $m$  and  $n$  lie numerically between  $a$  and  $b$ ); **or**  $a$  and  $b$  must lie numerically between  $m$  and  $n$ ; **or** the two turns are completely separate (the numerical ranges  $a$ -to- $b$  and  $m$ -to- $n$  don't overlap). And the same restriction must apply to connections on the other side of the axis as well, to pairs starting with an odd number.

This restriction is easy to verify in Figure 1 for the Classical labyrinth. For example, the pair 0, 3 at the beginning of the level sequence numerically encloses the pair 2, 1; but it is numerically disjoint from the other two pairs that start with even numbers (4, 7 and 6, 5). Likewise, on the other side of the axis, 3, 2 is enclosed by 1, 4; and both are disjoint from 7, 6 and 5, 8.

Any SAT maze automatically generates a level sequence that obeys these rules. Conversely, any level sequence that obeys these rules does correspond to a SAT maze: you can start with a stack of  $L-1$  horizontal lines, and then connect them in the order specified by the sequence – and the rules guarantee that you will end up with a level chart whose path does not cross itself or the main axis. From this level chart you can then draw the corresponding SAT maze. This construction therefore yields a one-to-one correspondence between the rule-obeying level sequences and the set of all SAT mazes. The sequences thus provide a *mathematical model* for SAT mazes.

The representation of a SAT maze as a level sequence emphasizes that the SAT maze is characterized completely by (1) its height, and (2) the order in which the courses are traversed. Other differences are immaterial: it doesn't matter, say, whether the shape of the courses is precisely circular, or square, or whatever. Nor does it matter which side of the axis the entrance is on: a labyrinth and its mirror image are considered two examples of the same underlying type.

Phillips proceeds to relate such sequences to other phenomena (such as the ways a perforated strip of postage stamps can be folded into a stack), and to look at ways of counting the number of such sequences; but that's a direction I don't want to pursue here. What does interest me is the way Phillips builds composite labyrinths by stacking smaller components and connecting them together.

### Composition of SAT Mazes

Phillips introduces the operation of *composition*, represented by an asterisk (\*). Composition joins two SAT mazes into a larger one. If  $A$  and  $B$  are SAT mazes, then  $A * B$  is the SAT maze you get by drawing  $B$  inside  $A$ , or equivalently, by stacking the level chart of  $B$  on top of the level chart of  $A$  (figure 2).

The right way to think of this is that you are drawing a copy of  $B$  inside the *interior* of  $A$ : the interior of  $A$  becomes the exterior for  $B$ , and the new levels of  $B$  are imposed upon the interior of  $A$ . Thus the levels of the composite (the levels imposed on level 0 by drawing  $A * B$ ) are the courses and interior of  $A$ , followed by the courses and interior of  $B$ . The interior of  $A$  overlaps with the exterior of  $B$ , forming a new course separating the courses of  $A$  from the courses of  $B$ .

When you draw  $B$  inside  $A$ , you have to start  $B$  with its entrance on the opposite side from the exit of  $A$ , so that the new course connecting them does form a full course. This means that the copy of  $B$  inside  $A$  may have to be the mirror image of your original  $B$ .

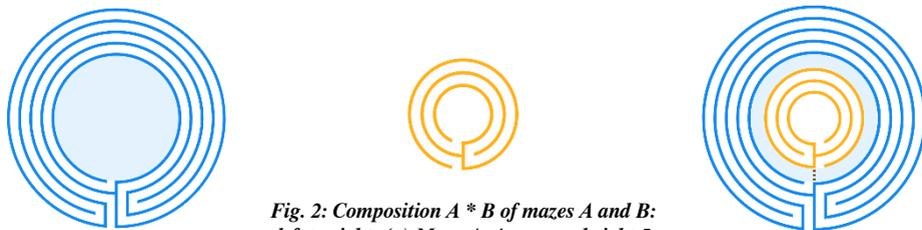


Fig. 2: Composition  $A * B$  of mazes  $A$  and  $B$ :  
left to right: (a) Maze  $A$ : 4 courses, height 5  
(b) Maze  $B$ : 2 courses, height 3

(c)  $B$  drawn (mirrored) inside the interior of  $A$ : 7 courses, height 8

The convention of counting the interior (but not the exterior) as a level of the labyrinth makes the numbers work out right: if  $A$  has  $L$  levels (including the interior) and  $B$  has  $M$  levels (including the interior), then in the composite, the count  $L$  includes the courses of  $A$  and the new course between  $A$  and  $B$ , and  $M$  includes the courses of  $B$  and the interior. Thus the composite conveniently has  $L + M$  levels (which, again, includes the interior).

The level sequence of  $A * B$  is roughly just the level sequence of  $A$  followed by the level sequence of  $B$  – except that you have to add  $L$  (the height of  $A$ ) to all the numbers in the second sequence, because in the composite the levels in the second component start from  $L$  instead of 0. The number  $L$  thus appears at the end of the first sequence and the beginning of the second, and this is where the two levels overlap: to join the sequences, you combine the two  $L$ s into a single  $L$ , which represents the new course between the two components.



**Fig. 3: The Classical maze as the composite of two meanders**

It is easy to recognize whether a SAT maze is a composite: there will be a single course that divides the maze into two pieces: one part of the maze (including its connections along the axis) lies below this course and the rest lies above it. The Classical labyrinth, for example, is the composition of two meanders joined at level 4 (figure 3). In terms of the level sequences we have:

$$(0, 3, 2, 1, 4) * (0, 3, 2, 1, 4) = (0, 3, 2, 1, \mathbf{4}, 7, 6, 5, 8)$$

where we've added 4 to all the numbers in the second sequence and overlapped the terminal 4 in the first with the initial 4 in the second.

Just as with multiplication of ordinary numbers, the composition operator  $*$  can be omitted if the context is clear:  $AB$  is written for  $A * B$ . Likewise  $A * A$  can be written  $A^2$ , and similarly for higher numbers of repeated composition. Unlike multiplication, however, order matters in composition:  $B * A$  is stacked in the opposite order from  $A * B$ , so unless  $A$  and  $B$  are two copies of the same maze, the two orders typically yield different labyrinths.

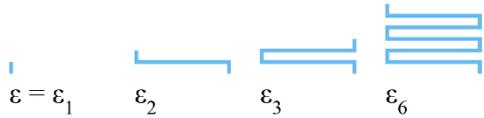
### Families of SAT Mazes

The standard Roman-style labyrinth takes a SAT maze (the *base*) and replicates it (usually four times) around a common center, linking the base mazes with two extra courses that connect the exit of one base to the entrance of the next. In his survey of surviving Roman mosaic labyrinths [Phillips 1992], Phillips introduces and labels the various SAT mazes that appear as the bases. These fall naturally into families, and Phillips assigns a Greek letter name to each family, and distinguishes one member of a family from other family members by adding a subscript to indicate the number of levels it has. In the following, I will highlight the families of Phillips, together with a few more that pop up with some frequency.

**Epsilon and the Serpentes ( $\epsilon_N$ ).** Phillips introduces the letter epsilon ( $\epsilon$ ) for the *trivial labyrinth*, which is about the simplest SAT maze: it has one level (the interior – as usual we don't count the exterior) and no courses (figure 4). As a labyrinth it is simply a circular wall separating the interior from the exterior, with a gap to allow the path to enter. The path itself is a simple straight line from the exterior to the interior. Epsilon is the only labyrinth whose path doesn't turn to the right or to the left as it leaves the exterior, so it is the only labyrinth with a path that is left-right mirror symmetric.

Fig. 4: Serpentine – powers of epsilon

Epsilon is useful in building new labyrinths from old. Composing any SAT maze with  $\epsilon$  simply adds a new course at the top or bottom:  $(A * \epsilon)$  is  $A$  with a new course at the top to connect  $A$  with  $\epsilon$ , and similarly  $(\epsilon * A)$  is  $A$  with a new course at the bottom. In particular  $\epsilon * \epsilon = \epsilon^2$  is the single-course labyrinth: two trivial labyrinths connected by an added course.



We can extend this indefinitely. If you compose the single-course labyrinth with another  $\epsilon$ , you get a two-course labyrinth; and continued composition with  $\epsilon$  leads to labyrinths with more and more levels that snake back and forth in serpentine fashion.  $\epsilon^N$ , the composition of  $N$  copies of  $\epsilon$ , is the  $N$ -level or  $(N-1)$ -course serpentine or back-and-forth labyrinth. If we introduce subscripts to distinguish the various members of the serpentine family, we get a very simple relationship:  $\epsilon_N$ , the  $(N-1)$ -serpentine with  $N$  levels (or  $N-1$  courses), is just the  $N$ -th power of the trivial labyrinth  $\epsilon$  under composition.

$$\epsilon_N = \epsilon^N = \epsilon * \epsilon * \dots * \epsilon \text{ (} N \text{ times)}$$

In particular,  $\epsilon$  itself belongs to this family:  $\epsilon = \epsilon^1 = \epsilon_1$ , even though the trivial labyrinth doesn't look much like a serpentine: it's the serpentine with 1 level and therefore  $1-1 = 0$  courses.

It is easy to smile at the serpentine labyrinths – they seem so simple – but they have a long history. They are the SAT version of spirals: moving inward one course at a time, but not crossing the axis. As we shall see, the 3-course Classical SAT labyrinth is just the 3-serpentine  $\epsilon^3$ . In the real world there are several walkable serpentine with more levels. The labyrinth in Aspang, Austria [Lindenmayr] is the serpentine  $\epsilon^9$  with 8 courses, and the Katzenlabyrinth of Monika Bugs in Saarlouis, Germany [Bugs], with 4 courses, is an elaborately decorated version of  $\epsilon^5$ .

**Meanders ( $\gamma_N$ ).** The gamma family (figure 5) are the simple meanders of increasing size:  $\gamma_N$  has  $N$  levels and  $N-1$  courses, where  $N$  is always even. They are formed by making “maximal jumps”: from the exterior to the highest odd course, then to the lowest even course not yet visited, then to the highest odd course not yet visited, and so on.

The first maze in this family is  $\gamma_2$ , the single-course labyrinth. As we have seen, this is a composite: two copies of  $\epsilon$  separated by the single course, so  $\gamma_2 = \epsilon * \epsilon = \epsilon^2$ . Unsurprisingly therefore, the powers of  $\gamma_2$  are serpentine: specifically, the serpentine with an odd number of courses:  $(\gamma_2)^N = (\epsilon^2)^N = \epsilon^{2N}$ , the  $(2N-1)$ -serpentine. The even serpentine are just the odd serpentine with an added course:  $\epsilon^{2N+1} = \gamma_2^N * \epsilon$ .

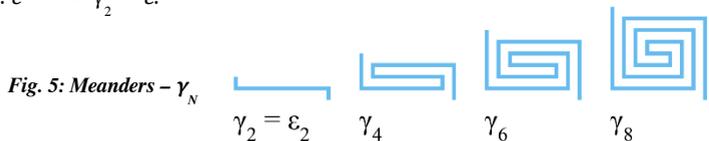


Fig. 5: Meanders –  $\gamma_N$

(The expression  $\gamma_M^N$  should be read  $(\gamma_M)^N$  – the exponent goes with the labyrinth, not with its subscript: “ $N$  copies of  $\gamma_M$ ”, not “a single  $\gamma$  with  $M^N$  levels”. The number of levels in a power is the exponent times the subscript, and the number of courses is one less.)

The larger gammas, however, are not composite: they do not fall into two disjoint pieces separated by a single course, as the jump from the exterior to the highest course encloses all of the other courses.

**Reverse Serpentes ( $\beta_N$ ).** The beta family are the reverse serpentes: the path goes immediately to the innermost course and then backs out in serpentine fashion before heading from the outermost course to the interior (figure 6). Phillips did not name this family, since the only examples occurring in Roman labyrinths are  $\beta_2$  and  $\beta_4$ , which are the same as  $\gamma_2$  and  $\gamma_4$ . But I have encountered other betas often enough to have introduced a name for them, following the pattern set by Phillips. (I chose beta since the letter's shape suggests the initial run to the top of the pattern.) As with the gammas,  $\beta_2$  is the single-course SAT maze, and is therefore composite; but in larger cases the enclosing entrance and exit connections make them non-composite.

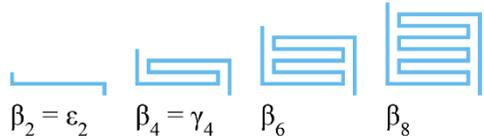


Fig. 6: Reverse serpentes –  $\beta_N$

**Classical vs Otfrid labyrinths.** The gammas are important because they appear in the Classical labyrinths.  $\gamma_4$  appears twice in the 7-course Classical, which (as we've seen above) is the composite  $\gamma_4^2 = \gamma_4 * \gamma_4$ , i.e., two 3-meanders connected by a single course; and it has (as we would expect)  $4 + 4 = 8$  levels, or 7 courses.

There are two natural ways to *extend* the Classical labyrinth (figure 7). You can make the component meanders bigger, as in the 11-course Classical labyrinth, which is  $\gamma_6^2 * \gamma_6$  with 12 levels; or you can stack more copies of  $\gamma_4$  on top, as in Otfrid, which is  $\gamma_4^3 = \gamma_4 * \gamma_4 * \gamma_4$  (also with 12 levels). Thus two natural sequences include the Classical labyrinth: the Classical sequence (2 copies of bigger and bigger meanders) and the Otfrid sequence (more and more copies of the 3-meander  $\gamma_4$ ).

At the small end of these two sequences stand the 3-serpentine  $\gamma_2^2$  and the 3-meander  $\gamma_4$ . Although the 3-meander is often called “the 3-course Classical labyrinth”, the correct version (the one built on analogy with the 7-course and 11-course Classics, and the one corresponding to the seed pattern with a cross and 4 dots) is the 3-serpentine, not the 3-meander.

The Classics are so important historically that I give them their own letter, kappa ( $\kappa$ ), representing the initial k sound in “Classical”:

$\kappa_4 = \gamma_2^2 * \gamma_2 = \gamma_2^3$  : Classical-3 with 4 levels;  
 $\kappa_8 = \gamma_4^2 * \gamma_4 = \gamma_4^3$  : Classical-7 with 8 levels;  
 $\kappa_{12} = \gamma_6^2 * \gamma_6 = \gamma_6^3$  : Classical-11 with 12 levels;  
 and so forth.

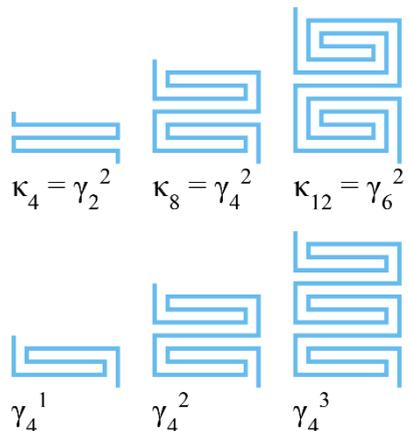


Fig. 7: The Classical sequence (top) and the Otfrid sequence (bottom)

**Mixed Classicals.** The Classical sequence (Classical-3, Classical-7, Classical-11, *etc.*) grows by jumps of 4: each time you increase the size of the component meanders, you add two levels to each meander, and thus 4 to the composite. But what about the intervening numbers, like “Classical-5” or “Classical-9”? These would have 6 and 10 levels, respectively – and while 6 and 10 are even numbers, dividing them by 2 yields odd numbers, whereas the gammas only come with an even number of levels. To assemble the 5-course Classical labyrinth, we can’t use two copies of the non-existent  $\gamma_3$ , so instead we pair together  $\gamma_2$  and  $\gamma_4$ . But there are two ways to do this:  $(\gamma_2 * \gamma_4)$  and  $(\gamma_4 * \gamma_2)$ . So there are two distinct versions of “the” 5-course Classical labyrinth (figure 8); and similarly, other intermediate steps like 9, 13, or 17 courses can only be approximated by versions whose halves are close but not identical in size.

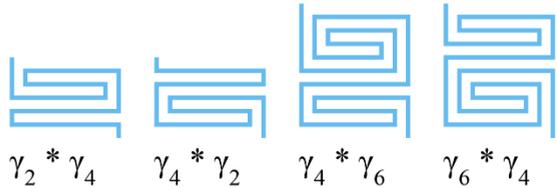
The Classical labyrinths are self-dual, but the mixed Classicals are not, because the two halves are of different size. However, the two mixed Classicals of the same height are duals of each other. This is because, in general, the dual of  $(A * B)$  is the dual of the two components in reverse order:

$$(A * B)' = B' * A'$$

(Intuitively, flipping the level chart of  $A * B$  flips each of  $A$  and  $B$ , but stacks the flipped components in reverse order.) Since each meander  $\gamma_N$  is itself self-dual, we have, for example:

$$(\gamma_4 * \gamma_6)' = \gamma_6' * \gamma_4' = \gamma_6 * \gamma_4$$

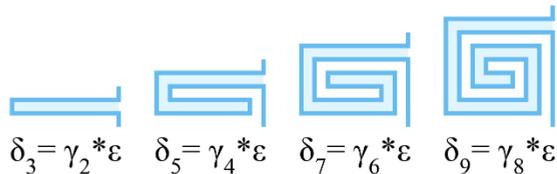
Only one Roman labyrinth uses an “intermediate” or “mixed” Classical as its base: the 13-course maze  $\gamma_6\gamma_8$  appears in Giannutri (Kern 139).



*Fig. 8: Mixed Classicals*

**Baltics ( $\delta_N$ ).** The traditional Baltic labyrinth is a simple meander that typically comes with a spiral into the center and an exit path from the center to the outside. From the viewpoint of SAT mazes, the extra spiral and exit path are “inessential variations”, and if we leave them out, what’s left is the meander (a member of the  $\gamma$  family) with an extra course on the inside. I give this family the Greek letter delta ( $\delta$ ); the extra stroke at the top of the delta serves as a mnemonic for the extra course at the top. These SAT versions of the Baltics have an even number  $2N$  of courses, and are formed simply by adding an additional course at the top of the corresponding gamma: Baltic- $2N = \delta_{2N+1} = \gamma_{2N} * \epsilon$ . Thus Jeff Saward’s “St. Patrick’s Purgatory”, stripped of inessentials, is Baltic-4 =  $\delta_5 = \gamma_4 * \epsilon$ , and the vanished extravaganza at Stolp (Slupsk) in Poland was Baltic-14 =  $\delta_{15} = \gamma_{14} * \epsilon$ . Baltic- $2N$  can be viewed as a 2-course loop folded into  $N$  layers or plies (figure 9).

*Fig. 9: Baltics as folded loops*



**Reverse Classics ( $\alpha_N$ ).** The alpha family (figure 10) are the reverse classics: they jump from the entrance straight to the top and trace two meanders downwards, much like the betas jump to the top and trace serpentine from top to bottom. Phillips calls these “double meanders”, but that phrase more aptly describes the Classical kappas; so, given the paradigm of the betas, I prefer the name “reverse Classics” for the alphas. Unlike the Classical labyrinths, which unite two meanders in a composite, the alphas are not composite (except  $\alpha_2$ ), for the same reason that the betas are not composite: their entrance and exit connections along the main axis enclose both of the meanders and prevent the whole from falling into two disjoint pieces.

Unlike the subscript for the gammas and the betas,  $N$  here is not just any even number: it must have form  $2 +$  some multiple of 4, since each step grows by 4 courses (because each component meander grows by 2). The first two alphas duplicate labyrinths we’ve already seen:  $\alpha_2 = \gamma_2 = \beta_2 = \epsilon_2$  (the single-course labyrinth), and  $\alpha_6 = \beta_6$  (the 5-course reverse serpentine). But thereafter they start to be more interesting.

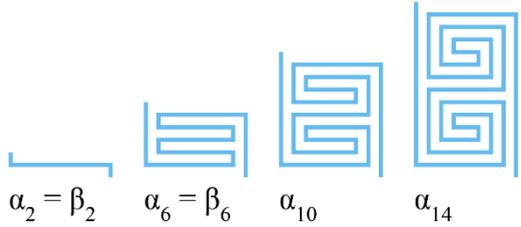


Fig. 10: Reverse Classics –  $\alpha_N$

Phillips defined the alphas primarily to account for the elaborate Roman labyrinth at Souse (Kern 169), whose 4 quarters are copies of  $\alpha_{10}$ . This base has  $2 \times 10 = 20$  levels, or 19 courses, so the whole assembly (with the 2 extra courses connecting the four quarters) has 21 courses (figure 11). This is the only surviving regular Roman labyrinth whose base is not one of the gammas or a composite of gammas.

An interesting relationship connects  $\alpha_6$  with the Chartres family. Just as dropping the internal turns from Greys Court yields the Classical labyrinth [Shelton 2010], dropping the internal turns from Inner Chartres yields  $\alpha_6$  – and Chartres and Saffron Walden (which are essentially 2 and 3 stacked copies of Inner Chartres) similarly become  $\alpha_6^2$  and  $\alpha_6^3$ .

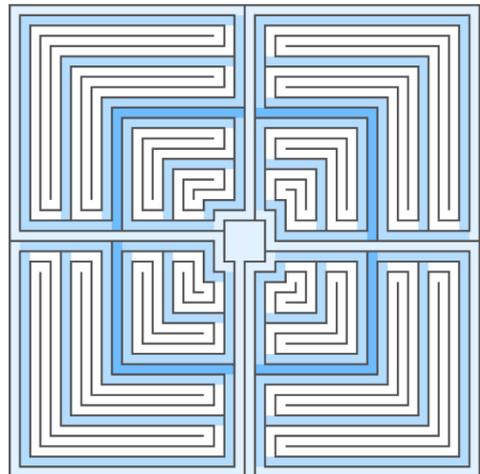
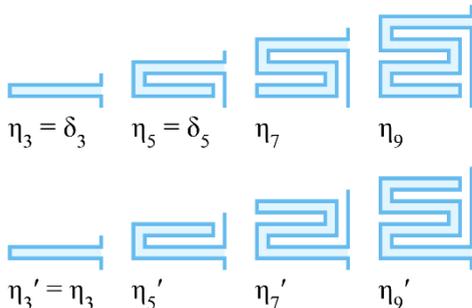


Figure 11: Sousse =  $4 \times \alpha_{10}^2$

Key: White =  $\gamma_4$  meanders within the  $\alpha_{10}$  components;  
 Light shade = the connections between quadrants;  
 Medium shade = connections between meanders within the  $\alpha_{10}$  components;  
 Dark shade = connections uniting two  $\alpha_{10}$  components into the  $\alpha_{10}^2$  base labyrinth.

**Snakes ( $\eta_N$ ).** The eta family (figure 12) is an elaboration on the serpentine, so I use the letter eta ( $\eta$ ) for them, as eta is something of an elaboration of epsilon. There are two varieties of Snakes: the Descending Snakes (the etas:  $\eta_N$ ) and the Ascending Snakes (the duals of the etas:  $\eta'_N$ ). They are formed by interweaving an ascending serpentine with a descending serpentine, and together these form a snake-like figure that is easily visible in the level charts. The etas start with the descending serpentine; their duals start with the ascending serpentine. The two interwoven serpentine share the same number of courses, so the total number of courses is even. The height  $N$  is thus always odd.



*Fig. 12: Snakes –  $\eta_N$  and  $\eta'_N$*

**Et cetera.** Of course, there are many SAT mazes that do not belong to these families. The traditional Jericho labyrinth (figure 13), for example, was modified from the Classical labyrinth to conform to the tradition that Jericho had seven walls and thus only six courses. Its level sequence is (0, 3, 4, 5, 2, 1, 6, 7). It looks like Baltic-6 on one side of the axis; but it tries to preserve something of the structure of the Classical labyrinth on the entrance side, and so maintains the connection from the exterior to course 3, instead of moving it to course 5 as in Baltic-6.



*Fig. 13: Jericho*



*Fig. 14: Tal*

The 9-course labyrinth in the mosque at Tal, Pakistan [Saward 2003, 60], looks at first glance like one of the mixed Classics (figure 14), but on closer inspection its level sequence turns out to be (0, 5, 4, 3, 2, 1, 6, 9, 8, 7, 10). This works out to be the composite  $\alpha_6 * \gamma_4$  (rather than the mixed Classical  $\gamma_6 * \gamma_4$ ). It's the only real-life example I know of that mixes the alphas and the gammas.

But another way to analyze Tal comes from observing that  $\alpha_6 = \beta_6$  and  $\gamma_4 = \beta_4$ . Thus Tal can also be written as  $\beta_6 * \beta_4$ , the composition of two reverse serpentine. This shows that Tal just misses being  $\beta_6 * \beta_6 = \alpha_6 * \alpha_6 = \alpha_6^2$  (Chartres stripped of internal turns).

## The Null Labyrinth

Although the trivial labyrinth  $\varepsilon = (0, 1)$  at first seems fairly strange, there is another labyrinth that is even stranger, namely the SAT maze that corresponds to an even simpler level sequence:

(0)

This is a perfectly good permutation. It's a permutation of the numbers from 0 to  $L$  where  $L$  equals 0, and it satisfies all the rules: it starts with 0 and ends with  $L$ ; each additional number in the sequence changes parity (because there are no additional numbers to violate that rule); and none of the pairs in the sequence breaks the nesting rules (because there are no pairs at all). Each number in the level sequence corresponds to a level, so this sequence has only one level. Since 0 is always the exterior, this one level is the exterior. Since the highest number in the sequence corresponds to the interior, level 0 is also the interior. Since the exterior and the interior are the same, there is nothing – not even a path of zero courses – between them. Since the height is always numerically equal to the level of the interior, the height of this labyrinth is 0.

This is the *null labyrinth*, the labyrinth you get by not drawing anything. Since you're not drawing anything, nothing divides the exterior from the interior – so they remain the same area, namely the entire plane. It's not immediately clear how many courses this labyrinth has. You might guess 0, or perhaps better  $L-1 = -1$ ; but the correct answer is “undefined” – you haven't drawn anything, so there is no path, and therefore the notion of a course for it to follow makes no sense.

So, yes, the null labyrinth is a bit arcane. So why bother with it? For a mathematician, there are two good reasons. The first I've already mentioned: it gives something for the perfectly valid, rule-obeying level sequence (0) to refer to, and mathematically that's an excellent reason: it means that the correspondence between SAT mazes and well-behaved level sequences has no funny exceptions.

But the second reason might be more convincing. Suppose we have some SAT maze, call it  $A$ . What happens if we draw the null maze inside the interior of  $A$  – by not drawing anything? What we get (obviously) is just  $A$ , the maze we started with. Or suppose we take the interior of the null labyrinth – which is the same as its exterior, which is the whole plane – and draw  $A$  inside it. Again, we get just  $A$ . In other words, if we call the null labyrinth  $O$ , this shows that

$$A * O = A \text{ and } O * A = A$$

This means that the null labyrinth is the *identity element* for the composition operator:  $O$  plays the same role for composition of SAT mazes that 0 does for addition of numbers or that 1 does for multiplication. When one of the operands is the identity element, the result is just the other operand back again. This gives the algebraic system formed by the set of SAT mazes with the operation of composition some nice algebraic properties. Mathematicians call such a system a *semigroup with identity* (or a *monoid*), and the algebraic behavior of such systems is a topic in the field of mathematics called Abstract Algebra.

In our algebraic system of SAT mazes, we have seen that it makes sense to talk about composing a maze with itself multiple times, and we can use exponential notation for that. So we have, for example, the Otrid series of multiple meanders:

$$Y_4 (= Y_4^1), Y_4^2, Y_4^3, Y_4^4, \dots$$

This is similar in construction to exponentiation of an ordinary number multiplied by itself repeatedly:

$$x (= x^1), x^2, x^3, x^4, \dots$$

With ordinary numbers, we are used to extending the exponential notion to allow the exponent 0, which signifies the product of “0 copies of  $x$ .” We can do this because multiplication of ordinary numbers has an identity element, namely 1, and the “empty product” by definition has a value equal to this identity element. This makes the addition rule for exponents work out right, so that, for example,

$$1 \cdot x^3 = x^0 \cdot x^3 = x^{(0+3)} = x^3.$$

Similarly, since the null labyrinth is the identity element for the composition operator  $*$ , we can extend the exponential notation in the system of SAT mazes to include exponentiation by 0: for any SAT maze  $A$ , we define  $A^0$  to be the null labyrinth. In particular, since we have already shown that  $\varepsilon_n$  is  $\varepsilon^n$  for positive values of  $n$ , we can extend this to include  $n = 0$  to represent “0 copies of  $\varepsilon$ ”, and get thereby a handy symbol for the null labyrinth:

Define  $\varepsilon_0$  to be the null labyrinth =  $\varepsilon^0$

The subscript works out right, too, since the null labyrinth does have height 0 (and is the only labyrinth of height 0).

### SAT Mazes in Roman Composites

Roman labyrinths are largely covered in Chapter VI of [Kern 2000]. Kern’s collection comes principally from [Daszewski 1977] and adds Side, the Palatine “fountain” at Domus Flavia in Rome, Cirencester (two examples), Saint-Cyr-sur-Mer, Mieza, Salinas de Rosio, and various fragments and centers. Daszewski also includes San Vitale (Ravenna), which Kern does not include in Chapter VI as its inlaid labyrinth dates from the Renaissance, not from Classical times.

Of the 61 pictured Roman items in Kern’s Chapter VI, 44 are fairly standard Roman compounds built on SAT bases. Of the remainder, 10 are not labyrinths or are too fragmentary to be classified by type, 3 are simple Classical labyrinths, 3 (Pula, Sparta, Mieza) are in the Roman style but don’t follow the regular formula, and 1 (Domus Flavia, Kern 115) is almost certainly modern. To these totals we can add:

- Two square simple Classicals, one at Coimbra, Portugal (adjacent to Kern 130 in the House of Fountains) and one on a votive pillar from Smira, Kosovo.
- A simple 5-meander  $\gamma_6$  at Halstock in Dorset.
- A standard Roman compound of four Classicals at Mérida, Spain.
- A standard Roman compound at Huete, Spain. (This is very fragmentary, but the base is a large member of the Otfried sequence, probably  $\gamma_4^7$ .)
- A standard Roman compound in the Baths of Julia Memmia at Bulla Regia in Tunisia. (Also fragmentary, but the base is a large serpentine, probably  $\gamma_2^8$ .)

Of those of Classical date whose type can be determined, that leaves 47 more or less standard Roman-style compound labyrinths with SAT bases.<sup>2</sup>

I say “more or less standard” because the survivors are not all completely regular. Phillips argues [Phillips 1992] – I think convincingly – that the obvious errors are mostly not errors in construction, but inaccurate repairs in ancient times or (more often) careless drawings or reconstructions from fragmentary remains in modern times.

Not all of the composites are four-fold: Makthar (Kern 147) unites two bases in a semi-circle, Gamzigrad (Kern 138) three in a hexagon, and Fribourg (Kern 136) eight serpentine within a circle. But the principle of connecting the bases head-to-tail around the composite still obtains. In all but two (at Makthar and in the House of Theseus at Kato Paphos), the path enters each base from the innermost connecting course and leaves by the outermost connecting course – which then jogs to the innermost course to enter the next base.

As another wrinkle, the base in the fourth quadrant is not always identical to the other three. In the standard construction, the main axis (alone of the four) has *two* long connections along it: the path from the exterior to the entrance of the first base, and the path leading from the exit of the fourth base to the center of the composite (figure 11). A few of the mazes, however, avoid this by rearranging the fourth quadrant so that the path enters *and leaves* that quadrant from the same side (the inside of the composite), so that the second connecting path along the main axis is no longer required (figure 15). The resulting pattern in the fourth quadrant does not correspond to a SAT maze at all; it is in effect a maze with two separate serpentine paths to the center. Phillips calls this the “Pompeian variation” after three examples from Pompeii (Kern 157–160). It is seen not just at Pompeii – it appears also at Cremona (Kern 132) and Piadena (Kern 155).

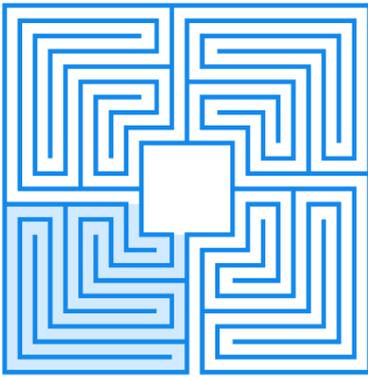


Fig. 15: The Pompeian variation, after Kern 160 (Pompeii), with  $\gamma_4^2$  as the base

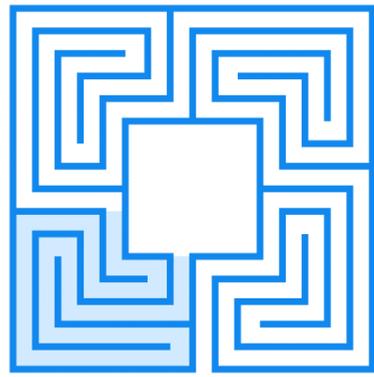
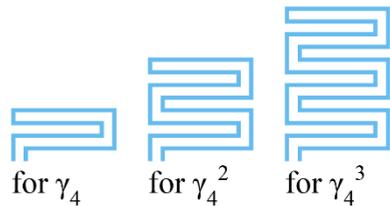


Fig. 16: The Pompeian variation, from a modern T-shirt design, with  $\gamma_4^1$  as the base

The Pompeian variants are all early examples, from roughly the same time period. They are conceivably products of the same artist, as the fudged fourth quadrant always follows the same pattern (figure 17) – an ascending serpentine interwoven with a descending serpentine, closely related to the Snake family (the  $\eta$  family): if the exit from the fudged quadrant were to lead outward instead of into the center of the composite, the quadrant would be an ascending Snake. This pattern is maintained even in a simpler modern design I have seen offered for sale on T-shirts (figure 16).

Fig. 17: The Pompeian scheme in quadrant 4, from (respectively) the modern T-shirt design, Kern 160 (Pompeii), and Kern 157 (Casa del Labirinto, Pompeii)



Yet another variation: while most of the labyrinths lead from the exterior to the interior, two of the mosaics (Kern 138 from Gamzigrad and 156 from Pompeii) are represented by Daszewski and Kern as closed loops. This variation may in fact be illusory. Phillips regards the example from Pompeii as an inaccurate early drawing based on a single surviving quadrant, and the drawing of Gamzigrad featured in Daszewski and Kern does not agree with recent photos of the labyrinth (figure 18), which display an open, non-looping path.<sup>3</sup>



Fig. 18: The labyrinth at Gamzigrad

Let us look now at which SAT mazes appear in the compounds. Phillips was the first to offer a close analysis of the bases. Daszewski had introduced a much simpler scheme, classifying bases simply as *serpentes* (powers of  $\gamma_2$ ), *meanders* (mostly powers of  $\gamma_4$  and  $\gamma_6$ ), or *spirals* (mostly single meanders larger than  $\gamma_6$ )<sup>4</sup> – and he failed to appreciate the Pompeian variation as a clever solution to the double axis problem, labeling such labyrinths merely as hybrids of meanders and serpentes. Kern dismissed Daszewski’s scheme altogether, and evidently did not consider the pattern of the bases to have any significance. As a result, I believe, he missed one of the informing principles of the Roman design.

The main surprise in Phillips’s catalog is the overwhelming preponderance of the gammas and their composites. Of the 47 surviving Roman-style composites, fully a third use the Classical-7 labyrinth  $\gamma_4^2$  as the base. Another third use other powers of  $\gamma_4$  (*i.e.*, other members of the Otrfid sequence). A further sixth use odd serpentes (powers of  $\gamma_2$ ), and in the final remaining sixth we find a smattering of larger gammas or their composites (including the mixed Classical  $\gamma_6 \gamma_8$ ) – and the lone case of  $\alpha_{10}^2$ . The larger Classics are almost entirely absent: for the Romans the natural route to expansion was repetition à la Otrfid.

From this we can state two reasonable conclusions. First, the Classical labyrinth was well known to the Romans. The relative absence of *simple* Classical examples in the mosaics has led some authors to surmise that it was not widely known – but on the contrary, its substantial presence as a base in the *compounds* proclaims that it was widely regarded as the labyrinthine prototype. But second, the preference for the Otrfid sequence over the larger Classics makes me suspect that Rome was not familiar with the extended seed patterns for the Classical sequence – probably unlike Scandinavia, where Classical-11s handily outnumber the Classical-7s (and where Classical-15 and Classical-19 are not unknown).

Finally, it is worth marveling a bit over the remarkable regularity of the Roman composite plan. The principle of joining similar SAT bases head to tail around the center with two connecting courses is reflected in the vast majority of the surviving mosaic labyrinths. Whoever first thought of that really struck a sympathetic nerve in Roman culture.

Richard Myers Shelton, Roseville, MN, USA; September 2020

## Notes

1. Authors have split on both terminology and visual metaphor for level charts: I draw my level charts with the outermost course at the bottom of the stack and work upward, so that the number  $L$  is the *height* of the stack. Phillips draws the outermost level at the top of the stack and proceeds downward to what he calls the *depth* of the labyrinth.
2. The strong case for the modern provenance of the Domus Flavia “fountain” is made in [Lundén 2004]. The square Classical in the House of Fountains at Coimbra is described in [Lundén 1996, 30], and illustrated in [Saward 2003, 52]. The votive pillar from Smira (which also contains a round labyrinthine pattern of interconnected swastikas) is described in [Shukriu 2010]. The simple meander at Halstock, mentioned in [Phillips 1992], is described and illustrated in [Rainey 1987, 87, plate 7]. The polychrome compound mosaic in Mérida, mentioned in [Saward 2003, 57], is in the Casa del Anfiteatro, recently opened to public view, see [Ángeles Morcillo 2020]. The fragmentary compound mosaic in Huete is described in [Torrecilla Aznar 2008]. The labyrinth at Bulla Regia is mentioned in [Molholt 2011], footnotes 7, 16, and 66, with reference to [Hanoune 1993], which has several diagrams. (My thanks to Jeff Saward for several of these references.)

My list does not include the well-known graffiti in Pompeii (Kern 107–108), nor several simple Classical of dubious Roman provenance or date, see [Lundén 1996], nor several labyrinthine mosaics of interconnected swastikas (another popular mosaic pattern). Phillips limits his analysis [Phillips 1992] to *mosaic* labyrinths in Chapter VI of Kern, so he does not include Side or the Palatine fountain or Ravenna; he also omits Mieza and Salinas de Rosio, which were added to Kern after his article appeared. Table 2 in Phillips contains a typo: the base for Daszewski 1 (Annaba) should be  $\gamma_2^4$ , not  $\gamma_4^2$ . In addition, the frequency counts for types  $\gamma_4$ ,  $\gamma_4^2$ , and  $\gamma_4^3$  in his Table 1 should be 2, 15, and 7, respectively. (The total 43 is correct.)

3. The issue of closed loops deserves close attention, as it highlights a broader difficulty in interpreting these often poorly-preserved labyrinths. The diagram from Pompeii records one of the first designs found in the 1700s, and the original mosaic has long since vanished. Phillips argues that even if all four axes in the original could be seen as single paths in what remained of the mosaic, this might well have been another example of the Pompeiian variation, not a closed loop. Although *meanders* are often presented as closed loops, there are no unambiguous examples among *labyrinths*, so there is no strong evidence that Roman labyrinths ever contained closed loops. (In his discussion of Gamzigrad, Phillips describes the carving at Side in Turkey as a closed loop, but high-resolution photos show clearly that this is not the case.)

Kern attributes the drawing of Gamzigrad to R. Sobolewski. Kern gives no date for the drawing, but the mosaic was discovered in 1953–1954. The site in Serbia is one of the best-preserved Roman sites in Europe, though its importance was realized only after Daszewski and Kern were first published: an inscription uncovered ca. 1985 identified it as Felix Romuliana, the palace-fortress of Emperor Galerius (who, like several high Imperial officials of the time, was a native of Illyria in the Balkans). Until his death in 311 CE, Galerius was the senior Augustus following the abdication of Diocletian in 305. The palace was built about that time, yielding a solid date for the labyrinth. The complex was designated a UNESCO World Heritage Site in 2007, and the reconstructed labyrinth mosaic is currently on display at the site.

But Gamzigrad teaches us to be careful about jumping to conclusions. The drawing and the reconstruction disagree about whether the path is a closed loop – and there are many other differences, including something as basic as the spatial relationship between the hexagonal labyrinth and the surrounding rectangular frame. Was the drawing done too hastily? Did it take care to indicate the details and the places where the mosaic was not intact? Or conversely, was the reconstruction too heavy handed, influenced by assumptions motivated by the need to have an attractive finished product for display? Without a clear photograph of the mosaic as discovered, it is impossible to give a definitive answer.

Similar questions arise with several of these labyrinths, where early drawings disagree with later restorations. Some specimens have even been completely rebuilt as the original mosaic deteriorates. In others (e.g., Kern 128 with base  $\gamma_4^3$  at Coimbra) it is possible to see the details of reconstruction change over time, as early photos differ from later ones. So caution is advised!

4. While simple, Daszewski's classification (p. 41–45) is not entirely consistent. In particular, the dividing line between bases for *meanders* and bases for *spirals* is not clearly drawn. Daszewski classifies two powers of  $\gamma_6$  as meanders (Syracuse/Taormina  $\gamma_6^2$  and Sarajevo/Stolac  $\gamma_6^3$ ) and two large single gammas as spirals (Al-Asnam  $\gamma_{10}$  and Dellys  $\gamma_{14}$ ) – but then he includes Giannutri  $\gamma_6^8$  among the spirals, even while admitting that the base is not a single meander but divided into two parts. It differs only marginally from  $\gamma_6^2$  – so why is it placed with the spirals and not the meanders? Further, the exceptional Sousse  $\alpha_{10}^2$  (probably perceived as having a base with four copies of  $\gamma_4$ ) is included among the meanders, though its essential difference from the others is thereby camouflaged.

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## In Memoriam: Wiktor A. Daszewski (1936–2021)

We recently received news that Wiktor Daszewski died on 17 January 2021 in Warsaw at the age of 84. Daszewski was a pillar of the Polish archaeological community, an archaeologist of international renown, especially for his work in Cyprus and Egypt, and a tireless proponent of the preservation of archaeological material at sites and museums around the world.

Wiktor Andrzej Daszewski was born on 1 November 1936 in the village of Horodyslawice, a few miles south-east of Lwów (modern Lviv, Ukraine). He studied in Warsaw, Kraków, and Perugia, and received a Master's degree from Oxford and a Doctorate from Warsaw. He served as the Director of the Centre for Mediterranean Archaeology at the University of Warsaw, and taught at the universities of Warsaw and Trier. His field work centered on the Hellenistic sites of Nea Paphos in Cyprus and Marina el-Alamein in Egypt (just west of Alexandria), rescuing the latter from bulldozers to pursue an excavation that continued for 20 years. Not content with finding new artefacts, Daszewski lent his prestige and effort to preserve the old, working as a coordinator for UNESCO heritage sites and helping to establish and organize several archaeological museums around the Mediterranean.

Labyrinth enthusiasts know Dr. Daszewski principally for his work at Nea Paphos. He was the Director of the Polish archaeological excavations in Kato Pafos and joint author of the multiple volume account of the findings. He was the sole author of the second volume (*Nea Paphos: II. La Mosaïque de Thésée*, Editions Scientifiques de Pologne, Warsaw, 1977), which discusses the richly decorated labyrinth in the House of Theseus at Kato Paphos, but which more significantly places it in the milieu of the labyrinth as a Roman phenomenon. Despite the passage of over forty years, this extended essay on the subject remains the definitive account of Roman labyrinths. It served as the primary reference for Hermann Kern's chapter on Roman labyrinths, and the lion's share of illustrations in Kern's chapter come from Daszewski's larger plates. Daszewski's detailed and generously – indeed, exhaustively – illustrated catalogue of the surviving examples sits in an honored spot on the shelves of many of us – and continues to be taken down and consulted with care.

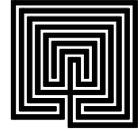
Richard Myers Shelton



*The labyrinth mosaic preserved in the so-called House of Theseus, at Paphos, Cyprus, excavated by Wiktor Daszewski in 1969*

*Photo:  
Jeff Saward, 2015*

# A Mysterious Medieval Maiden



Jill K. H. Geoffrion & Alain Pierre Louët

To find a woman's face and neck in the centre of a medieval manuscript labyrinth is most surprising! Yet, on folio 80v of the thirteenth-century manuscript known as Chantilly 0328 she is there, shown from the side.

*The woman in the centre of the labyrinth, Chantilly 0328, fol.80v. Image courtesy of Musée Condé, Chantilly*

Only two other historical labyrinths with women in the centre have been identified. The first is a Roman floor mosaic from the 3<sup>rd</sup>-4<sup>th</sup> century CE found in the Paphos Archaeological Park on Cyprus. Ariadne has been placed in the upper left watching the battle of Theseus and the Minotaur (Kern 2000, 142 & 143).

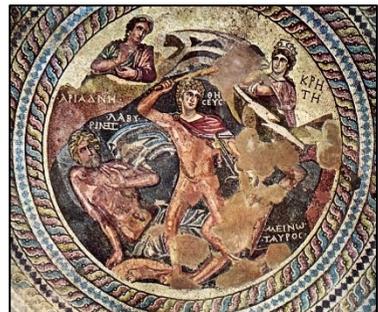
*Central panel of the mosaic from Paphos. Photo courtesy of Cyprus Museum*

The second is found in a fifteenth century fresco in a church in Sibbo, Finland (Kern #601) where a woman stands with half her body in the entrance to the centre with her arms and head in the bottom half of the eleven-circuit labyrinth's centre.

Other visual elements surrounding the women in these two labyrinths help with the interpretation of their presence. Ariadne's role in the labyrinth myth of the battle between Theseus and the Minotaur is well documented. Kern sheds light on the Sibbo woman, noting that below the fresco "a Jungfrudans," a maiden's dance, is shown. The Cretan-type labyrinth has 11 circuits, and a small female figure is depicted at the centre. She is clearly the maiden around whom the dance is centred." (Kern 2000, p. 281)

*The labyrinth fresco from Sibbo, Finland*

The question of the meaning of this medieval depiction of a pretty woman's head and naked neck in the centre of the labyrinth with her rosy cheeks and orange hair set against a blue background seems to hinge on the question, is she the personification of good or evil? To use labyrinth symbology, is she more of a Theseus or Minotaur figure?



During medieval times, women were rarely held in the same regard as men and were often considered to be agents of Satan (Jean Delumeau, *La peur en Occident*. Collection Pluriel. Éditions Fayard, 1978, see chapter 10: Les agents de Satan III. – La femme, p. 398-449). Using makeup was strictly forbidden in the Middle Ages and seen as the work of the Devil because the human face was considered to be created in the image of God, thus altering its appearance was thought to be disrespectful of the Creator. In the centre of this labyrinth, we find a woman's face with painted lips and extra rosy cheeks. Her head is encircled with wavy reddish-orange hair that flows down her neck. The colour of her hair must be understood through the lens of medieval colour symbology. Red was seen as the opposite of white which represented all that was good and pure. Thus, red was linked to all that was bad, including the Devil, demons, falsity, and betrayal. Yellow was also used to express negativity, and when red and yellow were combined to make orange the negative meaning of the colour was amplified. Orange was used to show the scandalous nature of a person and was thus linked with prostitutes whose reddish-orange hair identified them as such, Judas Iscariot, executioners, and all who were considered outsiders. (Michel Pastoureaux, "Tous les gauchers sont roux" in *Le Genre Humain*, 1988/1-2, No. 16-17, p. 343-354.)

The symbol of evil in the centre of the labyrinth has a long tradition, as we discussed in our previous article "The Beast Within" (*Caerdroia* 44, 2015, see page 17 for a list of manuscript labyrinths with only the Minotaur in the centre). From the ninth through thirteenth centuries there are 12 manuscript labyrinths in which the Minotaur, symbol of danger and evil, reigns alone in the centre. That we would find a twist on that theme in the thirteenth century where the Minotaur has been replaced by the depiction of evil in the form of a woman would be unique, and to modern sensibilities disturbing. The understanding and depictions of the centre as a place of danger was later replaced in many manuscripts with images that showed it as a place of victory over evil. As a universal symbol, it is not surprising that the labyrinth's meanings cannot be reduced to a singular interpretation. (See: Geoffrion & Louët, "Medieval Marvels: Fifty-Three Eleven-Circuit Manuscript Labyrinths," *Caerdroia* 49, 2020)

Who or what does this female represent? If we look to context, we find a surprise unknown in other medieval labyrinth pages. The text surrounding this labyrinth, starting on the page with the labyrinth is a recipe for a chicken pie. The link between the woman and this particular recipe is far from clear! The ambiguous identity and significance of this female in the centre of the labyrinth remains mysterious.

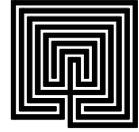
*Folio 80v, Chantilly 0328.*

*Image courtesy of Musée Condé, Chantilly*



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 Alain Louët, Chartres, France; May 2021. Email: [alainpierre.louet@gmail.com](mailto:alainpierre.louet@gmail.com)

# The Minnie's Gap Labyrinths



Kirk Astroth

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Just 1/10<sup>th</sup> of a mile north of the Utah state line with Wyoming near Flaming Gorge Reservoir along US Highway 191 are two well-etched labyrinth images. Francois Gohier, a professional photographer, first alerted me to the existence of these side-by-side images. They are located on a sandstone cliff face, about 20 feet above ground level and above a large solitary boulder which has a number of Indigenous rock images scattered about it, but none that resemble a labyrinth. The labyrinth images are the only ones on the upper sandstone face.

Both these images appear to have been etched into the rock with metal tools; one is square while the other is oval. What is also unique is that they both are dated – “1896” is etched into the centre of the square version, and “96” is etched into the centre of the oval one. It is evident that a ‘seed pattern’ utilizing dots was employed in the creation of the square image, but no such dots are visible on the oval version. Both are being invaded by lichen growth suggesting that they have been there for a time.

*The Minnie's Gap  
labyrinth inscriptions,  
Wyoming, USA.*

*Photo:  
Kirk Astroth, 2018*



Although it is difficult to discern why these images were engraved with the date of 1896, it is interesting that this is the year in which Utah finally became a state. More interestingly, perhaps, is that this area in the late 1800's was a hive of outlaw activity. Butch Cassidy and his gang frequented the area since it is adjacent to Brown's Park where they had several hideouts. Brown's Park is along the Green River and, with its cliffs and mountains, serves as a natural fortress from the long reach of the law. Its lush valleys provided ample grazing pastures for rustled livestock, even today, though, the area is remote and not easy to access.

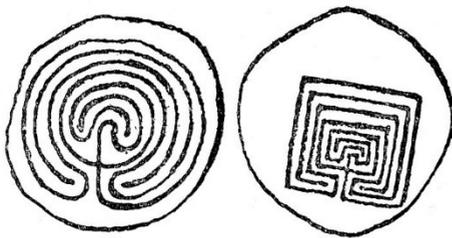
Several miles to the west of Brown's Park is Minnie's Gap, named for Minnie Crouse Rasmussen, the daughter of Charley and Mary Crouse who were early settlers in Brown's Park. Minnie's Gap is located in a narrow notch between sandstone ridges and 7,000-foot peaks. It was once the location of a small store that catered to the outlaws and anyone else traveling through the area. Crouse Creek in the Brown's Park area is also named for this prominent family. Charley Crouse was a friend and associate of the Wild Bunch who is said to have aided the outlaws. At an alcove in the cliffs called Cassidy Point, a cabin was built that was out of sight but commanded a sweeping vista of Brown's Park. A trail from the Crouse ranch led up to the alcove and it was Mrs. Crouse who cooked meals for the outlaws hiding there and her daughter, Minnie, carried the food up the trail to them.<sup>1</sup>

This area was a popular hang-out for a number of gangs at the time. It was here that Tom Horn murdered Isom Dart, one of the few Black outlaws in the area.<sup>2</sup> On August 18, 1896, Butch Cassidy proposed to create a large gang out of the existing smaller gangs and to be called the Train Robber's Syndicate. Later it would become known simply as the Wild Bunch. During this organization meeting, it is reported that over 200 outlaws were in attendance. The Hole-in-the-Wall Gang was led by Flatnose George Curry and included Kid Curry (his son) and the Sundance Kid. Also in attendance were members of the Powder Springs Gang, the Blue Mountain Gang, the Robber's Roost Gang and the Diamond Mountain Boys which was Butch's gang at the time. The Crouse Ranch was transformed into an armed camp.<sup>3</sup> However, a dispute about who should lead the gang resulted in everyone dispersing to go on a rampage to prove who could rob the most banks and trains. They reconvened August 18, 1897 to see who was most successful who would then become the leader of the Wild Bunch.<sup>4</sup>

Minnie Crouse was a girlfriend of Butch Cassidy's and apparently ran a small store that catered to the outlaws who hung out in nearby Browns Park.<sup>5</sup> Minnie lived in the area for a number of years and provided a colourful oral history in 1978 of her times and experiences in the Brown's Park area.<sup>6,7</sup>

Why two perfectly engraved labyrinth images are found here is still a mystery. They were unlikely to be etched into the rock by any of the outlaws who were too busy evading the law and planning bank and train robberies. Perhaps someone did this to mark Utah's entry into the Union. Or perhaps some local was familiar with William Lethaby's book, *Architecture Mysticism and Myth* published in 1892, where two labyrinths, one square, one circular, were illustrated. Perhaps these two images were inscribed much later and simply done to commemorate Utah's admission as a state. Mormonism itself is heavy with Masonic imagery and ritual, and the labyrinth image is a common motif in Masonry, symbolic of progress, travel, and movement.<sup>8</sup>

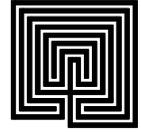
Kirk Astroth, Tucson AZ, USA; April 2021  
Email: kirkaastroth@gmail.com



*Two labyrinths (coins from Knossos), one square, one circular, as illustrated in William Lethaby's Architecture Mysticism and Myth, published 1892*

#### Notes

1. Redford, Robert. *The Outlaw Trail*. New York: Grosset & Dunlap Publishers, 1978, p. 129-130.
2. *Ibid.*
3. *Ibid.*
4. *Ibid.* p. 131.
5. *Ibid.* p. 130.
6. National Park Service. *John Jarvie of Brown's Park*, Chapter Three (2008). Available online at: [https://www.nps.gov/parkhistory/online\\_books/blm/ut/7/chap3.htm](https://www.nps.gov/parkhistory/online_books/blm/ut/7/chap3.htm)
7. Utah Division of State History, The Uintah County (Utah) Oral History Collection, 1974-2002. (2005). Available at: <https://history.utah.gov/finding-aids/data/B01637/B1637.xml>
8. Zeldis, Leon. *Masonic Symbols and Signposts*. Lancaster, VA: Anchor Comms., 2003, p. 82-90.



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

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## A Labyrinth Inscribed Powder Horn

Jeff Saward

Formerly in the collection of Rich Nardi (<http://americanpowderhorns.com/?p=1645>), an inscribed powder horn, a little over 13 inches (33 cm) long and dating from the American Revolutionary War, recently sold at auction for \$5,760. The horn was originally the property of Henry Thorn, and his name and the date 1779 are engraved along one side and a fort, sailing ship and soldiers holding a sword, raising a flag and aiming a flintlock musket at a tree appear around the body of the horn. Of particular interest is the classical-type labyrinth is engraved at the widest end beneath a scalloped border. The fine detail preserved by the engraving process clearly shows that much of the design of the labyrinth was executed with a compass, and a series of small dots running through the upper half provide some clues to how Henry Thorn engraved the design. It is known that he was born in Rhode Island in 1759, enlisted at the age of 17, and served with the troops that wintered with George Washington at Valley Forge in 1777-78, before being discharged in New Jersey in 1780. This fascinating object provides one of the earliest dated occurrences of the labyrinth symbol on the American east coast.



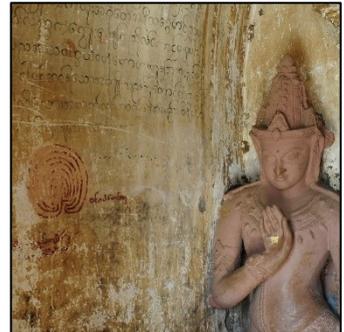
*Henry Thorn's Horn, dated 1779. Photos courtesy of Morphy Auctions*

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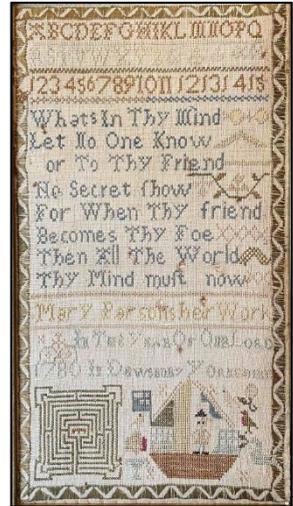
## A Labyrinth in Myanmar

a note from Klaus Aarsleff, Svinninge, Denmark

The Dhamma Yazika pagoda in the old royal town of Bagan in Myanmar (Burma), was constructed as a solid brick building in 1196 CE. There are, however, some small chambers surrounding the building, and on the south side a life size statue is found in one of the chambers. On the wall adjacent a perfect classical labyrinth has been painted, and script in ancient Burmese next to it reads (according to my guide): "The entrance is here, to the South." As there is no entrance, as the pagoda is solid, this must be interpreted symbolically, and it's interesting to note that several more labyrinths have been scratched alongside as later graffiti.



A third sampler decorated with the same labyrinth design (see “Two Labyrinths on English Needlework Samplers,” *Caerdroia* 43, p.4-6), and again produced in Dewsbury, Yorkshire, has recently been brought to our attention. In a private collection in Iowa, USA, this small sampler was created by Mary Parsons “In The Year Of Our Lord 1780 in Dewsbury Yorkshire” and along with the usual alphabet and numbers (one to fifteen) is decorated with a typical morally instructive verse. The lower panel of the sample is filled by a square labyrinth and a depiction of Noah standing on the deck of his ark, complete with dove and olive branch. Both the ark and the labyrinth are identical in form to those on the two previously documented samplers, and interestingly the labyrinth contains the same distinctive quirk – a slight offset of one turn on the right-hand side, not present on any of the engravings in contemporary books. This surely suggests that Mary Parsons was using the same stitching pattern as Mary Blackburn in 1785 and Ann Lewis in 1798, and that maybe she was also a pupil of Mrs Lees?



With three samplers decorated with identical labyrinths now on record, stitched over a period of nearly 20 years, it seems likely that more might yet be recorded, although to the best of our knowledge, none have ever been documented from anywhere other than Dewsbury. Might this suggest that this specific design was a speciality kept in Mrs Lees’ library for her girls, rather than a template in a more widely available work?

**The Modern Labyrinth**

**Jeff Saward**

Undoubtedly, many readers of *Caerdroia* will already have an opinion as to what constitutes a ‘modern labyrinth,’ but 120 years ago a remarkable fairground maze of that very name was installed at Vlissingen (Flushing) in the Netherlands, a popular tourist destination, with day trips by steamer from Sheerness in Kent, England. The *Modern Labyrinth*, probably a wooden panel maze, but maybe formed of mirrors, complete with an ornate art deco façade and a tall central tower surrounded by a spiral slide called the *Toboggan*, was operated by G. de Klerk-Hoevens and set up at the Zeilmarkt (sailing market) around 1900. It was still advertised in a local newspaper (*Vlissingsche Courant*) in July 1905, so may have been in existence for several seasons. Two photographs exist in the Zeeuws Archief photographic archive (collection no. 23501 & 41288) and my thanks go to Marius Voet for spotting these and helping with research and translation.



*The Modern Labyrinth, Vlissingen, ca. 1900.  
Photo courtesy of Fotocollectie Vlissingen, nr 41288*



## Submissions to Caerdroia

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Caerdroia is always pleased to receive material for publication. Readers are urged to submit papers, shorter articles, notes, information, photographs – indeed, anything labyrinthine – for possible publication in future editions of Caerdroia. Articles and notes should preferably be sent as e-mail attachments in Microsoft Word .doc or .docx format (although .rtf and similar formats are acceptable).

Illustrations and photographs are preferred in .jpg or .tif format at 300 dpi resolution please, but please keep illustrations separate from text, and send as separate files, with position in text clearly marked. Photographs: colour or b&w prints and 35mm transparencies are also welcome if digital versions are unavailable. A preferred style guide for authors is available on the Caerdroia Submissions page on our website: [www.labyrinthos.net/submissions.html](http://www.labyrinthos.net/submissions.html)

Because Caerdroia is a specialised journal for enthusiasts, no payment can be made for submissions, but any reproduction fees required will be covered, and all significant contributors will receive a complimentary copy and/or digital PDF. Short notes and press clippings are likewise welcomed, along with plans, postcards, guide books, photographs, etc., from any maze or labyrinth you may visit, for addition to the archives. Deadline for inclusion in Caerdroia 51: December 2021 please, for scheduled publication Spring 2022.



## Subscription to Caerdroia

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As an enthusiast's journal dealing with a specialised subject, Caerdroia relies on reader subscriptions to allow it to continue to provide a forum for maze and labyrinth research and news. Subscription provides the next edition of Caerdroia (and access to the online digital version) and supports the production of the journal, maintenance of the Caerdroia Archives, covering all aspects of mazes & labyrinths worldwide, and our extensive website. A scanned reprint service from out-of-print editions is also available to subscribers. The annual fee is:

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The story of mazes and labyrinths is as long and tortuous as their plans might suggest. For many, mention of the labyrinth may recall the legend of Theseus & the Minotaur. An increasing number will know of the ancient labyrinth symbol which occurs around the world, at different points in time, in places as diverse as Brazil, Arizona, Iceland, across Europe, in Africa, India and Sumatra. This symbol and its family of derivatives have been traced back 4000 years or more, but its origins remain mysterious. Modern puzzle mazes, however complex their form, are but the latest episode in this labyrinthine story.

Labyrinthos is the resource centre for the study of mazes and labyrinths, with an extensive photographic & illustration library and archive, offering professional consultation and services for owners, designers, writers and publishers and consultation for labyrinth design and installation. Contact Jeff Saward or Kimberly Lowelle Saward at the address above, or visit our extensive website [www.labyrinthos.net](http://www.labyrinthos.net) for further details of Labyrinthos and *Caerdroia*.

Our annual journal *Caerdroia*, first published in 1980, is dedicated to maze and labyrinth research and documentation. Produced by labyrinth enthusiasts for fellow enthusiasts, it keeps in regular contact with correspondents throughout the world, exchanging information and ideas, to help create a clearer picture of the origins and distribution of the enigmatic labyrinth symbol and its descendants, from the earliest rock carvings and artefacts through to modern puzzle mazes of ever-increasing complexity and ingenuity.

Current subscribers to *Caerdroia* include maze and labyrinth researchers and enthusiasts, archaeologists and historians, artists and authors, designers and owners, and members of The Labyrinth Society. As a non-profit making journal dealing with a very specialised subject, *Caerdroia* relies on reader contributions, submissions and subscriptions for support. If you are interested in the history, development, diversity or potential of mazes and labyrinths in any of their forms, perhaps you would care to join us on the path....

Jeff Saward & Kimberly Lowelle Saward, Labyrinthos



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